RECEIVED
FEB - 7 1990
IEPA-DLPC

Closure Plan
General Electric Company
Morris Operation
Evaporation Pond

Prepared for:

General Electric Company
Morris Operation
7555 E. Collins Road
Morris, Illinois

Prepared by:

Geraghty & Miller, Inc.
75 East Wacker Drive
Suite 1100
Chicago, Illinois 60601

February 2, 1990

RECEIVED
FEB 14 1990
U. S. EPA, REGION V
SWB — PMS

GE DISK #1\CH00098.CL3\CLOSURE.REV

TABLE OF CONTENTS

Section		Page
1.0	**INTRODUCTION**	1
2.0	**REGULATORY FRAME WORK**	4
	2.1 USEPA Complaint and Compliance Order.	4
	2.2 Consent Agreement and Final Order . .	5
3.0	**FACILITY DESCRIPTION**	8
	3.1 Facility Location	8
	3.2 Hydrogeologic Conditions	9
	3.2.1 Regional Ground-Water Use. . .	9
	3.2.2 On-Site Ground-Water Use . . .	10
4.0	**DESCRIPTION OF WASTE MANAGEMENT UNITS.** . .	12
	4.1 Demineralized Water System.	13
	4.2 Evaporation Pond.	15
	4.3 Drum Storage Area	16
5.0	**INVENTORY OF HAZARDOUS WASTE**	17
6.0	**SOIL CLEANUP LEVELS.**	18
7.0	**SAMPLING PLAN AND ANALYTICAL METHODS** . . .	20
	7.1 Introduction	20
	7.2 Site Geology	20
	7.3 Site Hydrology	21
	7.4 Pond Soil and Sediment Sampling Plan.	22
	7.4.1 Soil/Sediment Sampling Rationale.	22
	7.4.2 Random Sample Locations . . .	23
	7.4.3 Soil/Sediment Sampling Procedure.	23
	7.5 Soil Sampling Adjacent to Demineralizer System Waste Water Discharge Pipe	26
	7.5.1 Soil Sample Locations.	26
	7.5.2 Soil Sampling Procedures . . .	27
	7.6 Ground-Water Monitoring Plan	27
	7.6.1 Monitoring Well Location Rationale	29
	7.6.2 Monitoring Well Installation .	29
	7.6.3 Monitoring Well Development. .	34
	7.6.4 Ground Water Sampling	35
	7.6.4.1 Sampling Procedures .	35
	7.6.4.2 Sample Numbering . .	38

TABLE OF CONTENTS (CONTINUED)

Section		Page
	7.6.4.3 Sample Preservation .	39
	7.6.4.4 Sample Handling . . .	39
8.0	CONTAMINATED SOIL REMOVAL.	41
9.0	SCHEDULE FOR CLOSURE	42
10.0	CLOSURE COST ESTIMATE	44
11.0	FINANCIAL ASSURANCE	45
12.0	CERTIFICATION STATEMENT.	46
13.0	STATEMENT OF FACILITY STATUS AFTER CLOSURE	48
14.0	REFERENCES	49

TABLE OF CONTENTS (CONTINUED)

Section	
APPENDICES	
Appendix A	Construction Drawings
Appendix B	Part A Application and Request for Withdrawal
Appendix C	Demonstration by General Electric Company of Financial Responsibility for Liability Coverage and Closure and/or Post-Closure Care
Appendix D	Quality Assurance Project Plan
Appendix E	Written Demonstration for Waiver from 40 CFR 265 Subpart F Ground-Water Monitoring Requirements

LIST OF FIGURES

Figure No.	
1	Site Location Map . . . . .
2	Demineralized Water Process Diagram
3	Site Area Bedrock Lithology Map . .
4	Sediment Sampling Locations . . . .
5	Well Construction Detail . . . . .

LIST OF TABLES

Table No.	
1	Regional Ground-Water Withdrawals. .
2	Scope of Project Sampling and Analysis. . . . .

1.0 INTRODUCTION

This closure plan has been prepared for the evaporation pond that was formerly operated under interim status by the General Electric Company (GE) at its nuclear fuel storage facility (Morris Operation) located in Morris, Illinois. GE operated the pond until September, 1985 during which the pond received discharges from the Morris Operation's demineralized water system (Van Hoomissen, 1985). The discharges consisted of the acidic (nitric acid) and caustic (sodium hydroxide) rinse waters that were used to regenerate the ion-exchange units. These discharges were arguably regulated under the Resource Conservation and Recovery Act (RCRA) as a characteristic hazardous waste (261.22(a)(1)) because of their corrosiveness. GE submitted a Part A permit application as a TSD to USEPA Region V in November, 1980 and operated the evaporation pond under interim status until September, 1985, when a neutralization tank was installed to receive the regeneration waste streams, prior to their discharge to the evaporation pond.

With the elimination of corrosive wastewater discharges to the evaporation pond after the installation of the neutralization tank, GE believed that it had met the performance standards for "clean-closure" of interim status surface impoundments contained at 265.228(b), since characteristic hazardous wastes were no longer being managed in the evaporation pond. In October, 1985 GE advised USEPA Region V by letter that it did not intend seeking permanent TSD status for the Morris Operation evaporation pond (Van Hoomissen, 1985). On October 28, 1985 GE submitted a closure plan for all the TSDs that had been identified on its Part A application, which consisted of two drum storage areas, and the evaporation pond (Voiland, 1985). Reference is made therein to GE's intention to discontinue the operation of the surface impoundment as an "elementary neutralization unit". GE believed that it had met the performance standards for clean-closure under

Part 265 by discontinuing the direct discharge of the demineralizer regeneration waste streams to the evaporation pond. GE took this position based on its consideration of the characteristics of the waste streams and the evaporation pond. Demineralizer regeneration occurred approximately once every two weeks and generated a wastestream of 10 gpm for approximately four hours. Considering the volume of the pond (i.e., between 5 and 14 million gallons at all times) dilution of the regeneration discharge pH would have been instantaneous. In fact, GE regularly monitored the evaporation pond for pH, and for the 70 measurements reported, which covered a seven-year period, the range of pH measurements was 7 to 9.9 (Ingels, 1988).

Regardless of the appropriateness of GE's assumption, that it had successfully closed the Morris Operation evaporation pond, changes in the RCRA-regulations brought about by the Hazardous and Solid Waste Amendment of 1984 (HSWA) have resulted in significant changes to the rules that govern closure of interim-status surface impoundments.

Prior to the enactment of HSWA, surface impoundments could close under interim status and be exempt from all future Part 265 ground-water monitoring requirements by making the closure demonstrations allowed under 265.228(b). HSWA (Section 3005(i)) requires that any surface impoundment that received hazardous waste after July 26, 1982 or that certified closure after January 26, 1983 must meet the Part 264 Subpart F requirements for new permitted units. Unlike Section 265.90(e), Subpart F of Part 264 does not allow a waiver from ground-water monitoring requirements

for neutralization surface impoundments.[1] Subpart F of Part 264 contains the regulations governing the detection and corrective action of releases from solid waste management units to ground water. The extent of Subpart F requirements at closed permitted surface impoundments is based on the type of closure that was implemented for the unit. Under the new regulations, an interim status surface impoundment can be closed in basically one of two ways (264.228); (1.) closure as a landfill, which requires a 30-year post-closure monitoring period, or (2.) closure by removal and decontamination, i.e., clean-closure.

The new interim status regulations, which were finalized in September, 1987 require interim status units to meet the same closure standards as permitted units (Fed. Reg. 8706, March 19, 1987). An interim status surface impoundment that was clean-closed under the old interim status closure standards (265.228(b)), may not have met the Part 264 closure by "removal or decontamination" standard for permitted units (264.228(a)).

The purpose of the proposed soil/sediment sampling and ground-water monitoring is to demonstrate clean closure of the Morris Operation's evaporation pond. The basis of the demonstration will be the analytical results from the soil/sediment sampling and ground-water monitoring program that GE will conduct.

---

[1] A condition of the waiver allowed under 265.90(e) is that a written demonstration be prepared that establishes that any corrosive wastes that may have entered the surface impoundment would be neutralized to the extent that they no longer exhibit the corrosivity characteristic before they could have migrated out of the impoundment. Appendix B of this Closure Plan contains the written demonstration for the Morris Operation evaporation pond, and is submitted to comply with Item No. 2 of USEPA's Consent Agreement and Final Order (CAFO).

2.0 REGULATORY FRAMEWORK

2.1 USEPA COMPLAINT AND COMPLIANCE ORDER

On September 26, 1988 USEPA Region V filed a Complaint and Compliance Order against the General Electric Company (GE) for RCRA violations related to the operation of an interim-status surface impoundment at GE's Morris Operation located in Morris, Illinois. The State of Illinois has received final authorization from the USEPA to administer a hazardous waste program in place of the Federal RCRA program. The Illinois Environmental Protection Agency (IEPA) has been designated as the State agency responsible for administering the program. Therefore, facilities in Illinois that qualify for interim status under the Federal Code (40 CFR 270.70) are regulated under the Illinois provisions found at 35 Illinois Administrative Code (IAC) Part 720, rather than the Federal regulations found in 40 CFR Part 265. Therefore, throughout this closure plan, the Illinois Administrative Code will be referenced whenever regulatory citations are required for clarification.

The Complaint and Compliance Order was filed on behalf of the IEPA by the USEPA, which has the authority to enforce state regulations in those states authorized to administer a hazardous waste program.

A summary of the regulatory violations cited in the Complaint is presented below:

- The provisions of 35 Illinois Administrative Code 725.212(a) and 725.212(c)(1), which require the preparation and submittal of a written closure plan to address closure of the evaporation pond at the GE Morris Operation.
- The provisions of 35 Illinois Administrative Code 725.242(a) and 725.242(b) which require preparation of a written closure cost estimate.

- The provisions of 35 Illinois Administrative Code 725.243 which require the demonstration of financial assurance for closure of interim status units.

- The provisions of 35 Illinois Administrative Code 725.190 through 725.194 which require compliance with the interim-status ground-water monitoring requirements.

2.2 CONSENT AGREEMENT AND FINAL ORDER

Based on the findings contained in the Complaint and Compliance Order, the General Electric Company and the USEPA have entered into a Consent Agreement and Final Order (CAFO) to address the regulatory violations cited in the Complaint (see Section 2.1). The effective date of the CAFO, as defined in the Stipulations Section therein, was February 15, 1989.

There are four specific orders contained in the CAFO regarding the evaporation pond at the GE Morris Operation, that require a response by the General Electric Company. These specific items are enumerated below:

1. Preparation of a closure plan, and if necessary a post-closure plan for the evaporation pond. The plan(s) must meet the requirements of 35 Illinois Administrative Code (IAC) 725, Subpart G.

This Closure Plan report has been prepared, and is being submitted in response to this order. It is GE's intention to demonstrate clean-closure of the Morris Operation evaporation pond, by implementing the Sampling and Analysis Program that is described in Section 7.0 of this Closure Plan report. The Sampling and Analysis Program has been designed to provide the analytical data necessary to document that the pond sediments and subsoils (i.e., ground water by USEPA regulatory interpretation) are not contaminated with hazardous waste, and that the "removal and

decontamination" closure performance standard at 35 IAC 725.328(a) has been met.

2. Preparation of a written plan for a ground-water monitoring program as required by 35 IAC 725, Subpart F. USEPA has indicated in the CAFO that this requirement can be met by preparation of a written demonstration for a waiver from the ground water monitoring requirements, as allowed under 35 IAC 725.190(e). The referenced paragraph of the Illinois Administrative Code states that the ground-water monitoring requirements for interim status facilities described in Subpart F, may be waived for any surface impoundment that was used to neutralize wastes which were hazardous solely because they exhibited the characteristic of corrosivity.

This waiver provision specifically addresses the conditions that existed at the GE Morris evaporation pond during its operation under RCRA interim status. A condition of the waiver is that the wastes are neutralized to the extent that they no longer meet the corrosivity characteristic before they could migrate out of the impoundment (35 IAC 725.190(e)(2)).

GE believes that the Morris Operation evaporation pond qualifies, and always did qualify, for the waiver as allowed under the Illinois Administrative Code. GE intends on responding to this particular order in the CAFO by preparing the written demonstration as allowed by the previously cited regulations. The written demonstration for a waiver has been incorporated into this Closure Plan report as Appendix E.

3. As part of the closure plan discussed in Item (1.) above, a cost estimate must be developed that addresses the specific closure requirements for surface impoundments contained at 35 IAC 725.328.

An estimate of the closure cost for the Morris Operation evaporation pond is presented in Section 10.0 of this Closure Plan

report. The estimate consists of the costs required to conduct the sampling and analytical program intended to demonstrate clean closure.

4. Submittal to the Illinois Environmental Protection Agency (IEPA) by GE, financial assurance for the cost of closure of the Morris Operation evaporation pond. The financial assurance must be for the total cost contained in the closure cost estimate discussed in item (3.) above.

3.0 FACILITY DESCRIPTION

The USEPA has issued guidance pertaining to the information that should be presented in a closure plan (USEPA, 1987). The closure plan must provide sufficient detail to allow the USEPA and state regulatory agencies to evaluate whether the conditions assumed in the plan adequately reflect the actual conditions at the facility; and also, whether the cost estimates presented are consistent with the proposed activities described in the plan. This section of the Closure Plan report for the GE Morris Operation evaporation pond presents site-specific information related to conditions at the facility. The types of information presented include; a facility description, a general description of hydro-geologic conditions in the vicinity of the evaporation pond, and a description of the evaporation pond and its historical operation.

3.1 FACILITY LOCATION

The GE Morris Operation is located east of Morris, Illinois in the southeast 1/4 of Section 35, Township 34 North, Range 8 East in Grundy County. The cities of Joliet and Chicago are 14 miles and 48 miles northeast of the site, respectively. The site is approximately 6,000 feet southwest of the confluence of the Kankakee and Des Plaines Rivers. These rivers form the Illinois River, which flows in a westward direction. Figure 1, Site Location Map, shows the site location in relation to local features.

The site is located on a topographic high that is about 530 feet above mean sea level (MSL). The topographic relief in the vicinity of the site is on the order of 25 feet. The Kankakee River is about 3,000 feet east of the site and the Illinois River is about 6,500 feet north of the site; both rivers have an average water elevation (near the site) of 505 feet MSL.

3.2 HYDROGEOLOGIC CONDITIONS

A discussion of the general subsurface stratigraphy and hydrology at the facility is presented in Section 7.0 of this Closure Plan report (see Sections 7.2 and 7.3).

3.2.1 Regional Ground-Water Use

The site lies southwest of the largest area of ground-water usage in northeastern Illinois. This withdrawal area centers around Chicago and Joliet and reflects the dense urban population, and to a lesser degree, industrialization. There is also little ground-water development south and west of the site. Thus, the regional ground-water use study for this site consists of an eight-county area, generally north and northeast of the site. Included in this area are: McHenry, Lake, Kane, DuPage, Cook, Kendall, Will and Grundy Counties.

Historic and predicted ground-water withdrawals from Grundy County are shown in Table 1 for various years from 1957 to 2020 (Sutter, et al., 1959; Schicht and Moench, 1971). In 1957, total regional ground-water withdrawals were about 484,000 cubic meters per day (m^3/day) (128 mgd). Of this total, approximately 56.7 percent was withdrawn from the Cambrian-Ordovician aquifer. As shown in Table 4, ground-water withdrawals increased from 1957 to 1970 by 408,000 m^3/day (107.7 mgd) or approximately 84 percent. The estimates of future ground-water demand were determined for years 1980, 2000 and 2020 by Schicht and Moench (1971) and are based upon historical relationships between per capita consumption, populations, manufacturing employment. The demand for ground-water supplies in the eight-county area is expected to triple between 1980 and 2020.

Ground-water use trends in Grundy County generally reflect the ground-water use patterns throughout the eight-county area. Ground-water use is expected to increase sharply in the future.

The withdrawal rates for 1957 and 1970 are from Suter, et al. (1958) and Sasman, et al. (1974), respectively, while the predicted withdrawals are based on the premise that the predicted withdrawals for Grundy County will increase at the same rate as the predicted withdrawals for the eight-county area used by Schicht and Moench (1971).

Of the total volume of ground water used in Grundy County in 1970, approximately 45 percent was used for industrial purposes, 32 percent for public supplies, and 14 percent for domestic supplies (Sasman, et al., 1974). According to Sasman, et al. (1974), the three largest municipal users of ground water in the county were Coal City, Gardner, and Morris.

3.2.2 On-Site Ground-Water Use

The spent fuel storage facility utilizes ground water as make-up for cooling. Water is obtained from a 788-foot deep well at the site (location shown on Figure 2) tapping much of the Cambrian-Ordovician aquifer including the Galena-Platteville dolomites, Glenwood-St. Peter sandstones and the New Richmond Sanstone. The well is about 10 inches in diameter and is equipped with a pump capable of yielding about 545 m^3/day (100 gpm). The pump test indicated that the well could yield about 1365 m^3/day (250 gpm) on a continuous basis.

The average requirement for cooling water make-up is estimated to be about 7.6 m^3/day (2140 gpd)(Eger, 1977). This volume of water can be easily supplied by the existing well at the site.

At the Dresden Nuclear Power Station (about 3000 feet northeast of the site), two deep wells tap the lower Cambrian-Ordovician aquifer and pump about 165 to 220 m^3/day (30 to 40 gpm).

The present on-site and nearby off-site withdrawals of ground water from the Cambrian-Ordovician aquifer will have no detectable effect on the shallow ground-water regime at the site due to the separation of shallow and deep ground-water systems by the Maquoketa Group, specifically the Scales Shale. Ground-water levels in the Cambrian-Ordovician aquifer will likely continue to gradually decline as regional pumpage continues to increase. The water levels in the Fort Atkinson Limestone and the Scales Shale range from about 512 to 530 feet at the site area, and the water levels in the Galena Dolomite range from about 382 to 387 at the site for the period of record. Even though there is some potential for downward migration of ground water, the relatively impermeable shale hydraulically separates the deep and shallow systems and precludes any significant leakage from shallow units to the Galena Dolomite. There should not be any increases in the rate of downward leakage through the Maquoketa shales in response to declining water levels in the Cambrian-Ordovician aquifer is already below the base of the Maquoketa Group shales and the top of the aquifer.

4.0 DESCRIPTION OF WASTE MANAGEMENT UNITS

This section of the closure plan contains a description of the waste management units at the facility. Each hazardous waste management unit at the GE Morris facility will be identified by its process code and unit of measure code from the Part A application. A description of the waste types for each unit (by standard chemical name and EPA Hazardous Waste No.), time period of use, dimensions, topography, soil types (as appropriate) and other relevant matters is presented in this section of the closure plan report. A copy of the original Part A application (EPA Forms 3510-1 and 3510-3) has been included for reference in Appendix B.

The GE Morris Operation is a nuclear fuel storage facility, which is licensed by the Nuclear Regulatory Commission. The facility is used to store spent nuclear fuel rods from commercial reactors. The rods are stored in tanks which must be filled with demineralized water. Demineralized water is produced at the plant from water supplied by an onsite production well, which is then treated by an ion-exchange process. The cation and anion resins contained in the ion-exchange beds require periodic regeneration.

Acid and caustic rinse solutions are used to regenerate the resin beds. The discharged rinsewaters from the resin regeneration step may have been for brief periods, a RCRA-characteristic waste due to their corrosivity (i.e., pH less than or equal to 2 or greater than or equal to 12.5). This waste was managed by GE onsite, in an interim- status evaporation pond until September, 1985, when a neutralization tank (i.e., elementary neutralization tank) was installed to receive the regeneration rinsewaters prior to their discharge to the evaporation pond. GE submitted a Part A permit application as a TSD, for operation of the evaporation pond to USEPA Region V in November, 1980 (see Appendix B). The interim-status evaporation pond is the hazardous waste management

unit that is the subject of this closure plan report.

4.1 DEMINERALIZED WATER SYSTEM

The demineralized water system consists of six major pieces of equipment; a carbon filter, cation exchange units, degasification tower, anion exchange units, polishing unit, and a neutralization tank was added to the system in 1985. A schematic diagram of the process flow is presented in Figure 2.

The purpose of the carbon unit is to remove suspended solids and other impurities from the well water. From there water moves to one of the two cation units. The function of the cation unit is to remove the metallic impurities such as magnesium, calcium, and sodium through ion exchange which takes place in the unit which is 30 inches in diameter and six feet high.

In the degasification tower fresh air is introduced to the water flowing through the tower, thereby removing dissolved carbon dioxide from the water. Water from the tower is then pumped to one of the anion units. The function of the anion unit is to remove negatively charged ions such as chlorides and nitrates through an ion exchange process.

From the anion unit water moves to the water polisher which removes trace amounts of chlorides and nitrates which may be remaining in the demineralized water stream. The unit contains a mixed bed anion-cation resin which is not regenerable and is replaced when exhausted. Once through the polishing unit the demineralized water is ready for use throughout the facility.

The importance of demineralized water necessitates very rigorous automated and manual monitoring and control. Whenever unacceptable levels of hardness are detected, spent

units are taken out of line and regenerated or replaced. It is the past regeneration process discharges which were arguably regulated under the RCRA program. Since 1985 the waste generated during the regeneration of the cation and anion units has been neutralized in a neutralization tank. Prior to September, 1985 regeneration wastes were discharged into the 15-acre evaporation pond in the southern part of the facility. Depending on the climatic conditions the pond would typically contain between 5 and 14 million gallons of water with a pH regularly monitored, and varying between 7.3 and 9.9. Discharges to the pond were sequential; that is, the rinse waters from the cation regeneration were discharged first then immediately thereafter the rinsewaters from the anion regeneration. Wastes flowed through a 4-inch diameter pipe and were discharged directly into the evaporation pond.

The regeneration process starts with a water backwash which takes 10 minutes. The cation regeneration process involves the injection of a combined water acid stream of 10 percent acid. After the acid injection is terminated water is pumped through the bed to displace excess acid. The total process takes about 105 minutes including the water backwash cycle.

The anion regeneration is accomplished by injecting a flow of 4 percent caustic into the anion unit. Water is then pumped through the unit to remove excess caustic. The process takes about 125 minutes.

Following the regeneration of the cation and anion units a rinse down cycle takes place to insure the units have been properly regenerated and are operating properly. Once monitoring shows that the units are functioning properly the controls are adjusted to terminate discharge as waste and the units are ready for operation. The rinse-down phase typically takes 60 minutes and starts with a discharge pH of 10.5. Thus, the total time for regeneration is 290

minutes or approximately 4.5 to 5.0 hours. The pH of the regeneration wastewaters varies from 9.5 to 1.5 to 2.75 during the acid injection, displacement and cation rinse and from 2.75 to 12.5 to 10.5 during the caustic injection, displacement and anion rinse. Final rinse down drops the pH to the 7.5 to 8.5 range from 10.5. The regeneration process associated with the introduction of acid and caustic substances lasts approximately 230 minutes (290 minutes - 60 minutes final rinse). During this 230 minutes, the regeneration process generates approximately 2,390 gallons: 1,500 gallons for the cation unit regeneration phase and 890 gallons for the anion unit regeneration phase. Regeneration frequency is variable but a historical average was once every 11 days.

4.2 EVAPORATION POND

The evaporation pond is the only remaining Hazardous Waste Management Unit at the facility (i.e., T02-30 gallons/day) Please refer to Line Number 9 in Section IV (Description of Hazardous Waste) of the Part A application contained in Appendix B. Wastewaters from the regeneration system described above were discharged to a 4-inch diameter vitrified clay pipe which runs in a southerly direction to the 15-acre on-site evaporation pond. Besides the demineralizer system discharge pipe there is no other equipment, structures, pipes, pumps, sumps or other appurtenances associated with this hazardous waste management unit. Discharges to the pond commenced in 1972 and ceased in September of 1985 when a neutralization tank was added to the regeneration system.

The pond was constructed by rough grading the pond floor and using the materials from floor grading to construct the earth dikes of the pond. The pond was excavated until there was adequate material for an average dike height of 6 feet. The typical elevation of the constructed top of the dike was 516'-0 while the maximum finished bottom elevation of the pond floor was 513'-0.

Prior to leveling the floor of the pond elevations had ranged from 509 to 515 feet. Surface area of the pond was designed to be 666,750 square feet. Depending on climatic conditions the pond contained between 5 million and 14 million gallons of water with a regularly monitored pH varying between 7.0 and 9.9. Please refer to Drawings Nos. 5-0521E (Evaporation Pond Grading Plan) and 5-5518, 5-5519 (Underground Piping Plan) contained in Appendix A for further details regarding pond and conveyance pipe dimensions.

4.3 DRUM STORAGE AREA

GE also operated a Drum Storage Area at the Morris facility (i.e., S01-1100 gallons). Please refer to Line Number 1 in Section III (Process-Codes and Design Capacities) of the Part A application contained in Appendix B. Closure of this area as a Hazardous Waste Management Unit in accordance with the approved closure plan, dated October 4, 1985 was certified by the owner/operator, and an independent registered professional engineer on January 26, 1986. Following the certification of closure, the IEPA inspected the closed unit on February 18, 1986. The inspection concluded that the closure activity was completed in accordance with the approved closure plan. GE received a determination from IEPA on March 25, 1986 (Correspondence from Lawrence Eastep, Manager, Permit Section, Division of Land Pollution Control) that the closure of the drum storage area had met the requirements of the Interim Status Standards, 35 IAC, Part 725.

5.0 INVENTORY OF HAZARDOUS WASTES

The EPA Hazardous Waste Code Number for the demineralizer system discharge received by the evaporation pond was D002 (i.e., hazardous as a result of corrosive characteristics). The effect of the discharge of the demineralizer system wastewater on the pH of the evaporation pond was discussed in Section 4.1. During the time period that the evaporation pond received the demineralizer system discharge the pH in the pond was regularly monitored. In the 70 measurements reported, which covered a seven year period, the pH in the evaporation pond averaged 8.5 (std. dev. = 0.8). During that period the range of pH measurements was 7.0 to 9.9. The available pH data indicate that the pH of the water within the evaporation pond was well within the non-corrosive (pH = 2-12.5) range. No further analysis for hazardous constituents was conducted for regeneration wastewaters since the system was closed and there was no opportunity for the introduction of hazardous constituents other than any which might have been naturally contained, in the original ground water pumped from the 788 foot deep well, which provided the source water treated by the demineralization system. The proposed sampling and analytical program has been designed to establish the presence or absence of unanticipated hazardous constituents.

6.0 SOIL CLEANUP LEVELS

After completion of the proposed sampling and analytical program discussed in Section 7.0, and review of the analytical data obtained therein, a determination will be made regarding whether soil cleanup levels must be established for the former evaporation pond. The owner/operator has the options of removing soil to IEPA approved detection limits/background levels or proposing a site-specific health-based cleanup level.

If a site-specific cleanup level is proposed, it will document that the constituents present in the pond soil and/or sediments will not adversely impact any environmental media (groundwater, surface water or atmosphere), and that direct contact through dermal exposure, inhalation or ingestion will not result in a threat to human health or the environment. If a model is used to justify site-specific cleanup criteria, site conditions must match the assumptions of the model. Toxicity information for hazardous constituents (35 IAC Part 721, Appendix H) would be obtained from EPA's Office of Solid Waste, Characterization and Assessment Branch. Soil cleanup levels, as well as ground-water cleanup levels, depend to a great extent on the existing and potential use of groundwater and/or surface water in the area surrounding the facility. Information and documentation regarding existing and potential use of groundwater and/or surface water in the area surrounding the facility would be provided to justify a proposed site-specific, health-based cleanup level. Specifically, GE would contact the IEPA Division of Public Water Supplies (DPWS), Illinois Department of Public Health, the Illinois State Water Survey, and the Illinois State Geological Survey to gather information to determine the existing and potential type and extent of ground water and/or surface water use in the area.

Local water use restrictions or zoning rules that restrict or regulate the use of ground water and/or surface water would also be identified.

7.0 SAMPLING PLAN AND ANALYTICAL METHODS

7.1 INTRODUCTION

This section of the closure plan outlines the sediment, and soil sampling and ground-water monitoring plans to be implemented to demonstrate clean-closure of a former evaporation pond (pond) operated by General Electric Company at its Morris, Illinois facility. When in use, the 15-acre pond received pH-neutralized waste water from a water demineralization treatment system at the facility. The inactive pond is unlined and its bottom is overgrown with vegetation. The pond is occasionally filled with water from precipitation. The pond is regulated as a surface impoundment under the interim-status Resource Conservation and Recovery Act (RCRA) regulations. Sediment and soil sampling and analysis and ground-water monitoring are required by USEPA as part of the clean-closure demonstration for the pond. Several geotechnical and hydrogeologic investigations have been conducted at the main plant area of the facility by Dames and Moore (Dames and Moore, 1977).

7.2 SITE GEOLOGY

The general subsurface stratigraphy at the facility consists of a thin layer of unconsolidated material overlying Pennsylvanian and Ordovician bedrock. The overburden material ranges in thickness from 2-to-10 feet and generally consists of glacial and weathered bedrock material. The Brainard Shale (Ordovician) is delineated to be the uppermost bedrock unit present beneath the pond (Figure 3). This shale is absent in the main plant area, but is reported to be up to 13 feet thick in the vicinity of the pond. Some thin, scattered occurrences of the Spoon Formation (Pennsylvanian sandstone) overlying the Brainard Shale are reported to occur in the vicinity of the pond. The Fort Atkinson Formation (Ordovician limestone) underlies the Brainard Shale and is reported

to be up to 40 feet thick. Beneath the Fort Atkinson Formation is the Scales Shale (Ordovician) which is reported to be 65 to 70 feet thick.

A fault, which is part of the Sandwich Fault Zone and LaSalle Anticline Belt, underlies the main plant and has been the focus of many site investigations (Dames and Moore, 1977). The fault has been accurately defined in the main plant area, however; it is not as precisely located near the pond. Previous investigations estimated the fault location to be less than 100 feet northeast of the pond (Figure 3).

7.3 SITE HYDROLOGY

RCRA ground-water monitoring requirements state that monitoring wells will be installed in the uppermost aquifer beneath the pond. The water table is expected to occur 10 to 20 feet below ground surface. The unconsolidated surficial material and the Spoon sandstone (if present) are anticipated to be unsaturated and are not regarded as aquifers. Underlying the unconsolidated materials is the Brainard Shale which is expected to be approximately 15 feet thick in the area of the pond. Because of the variability in the thickness of the overburden and Spoon Formation, and the fluctuations in seasonal water level elevations, it is not known whether the Brainard Shale lies entirely within the saturated zone. When compared to other aquifers in the area, the Brainard Shale is a relatively impermeable unit which would yield only limited amounts of ground water. These factors indicate that the Brainard Shale would not function as the uppermost aquifer in the area of the pond. Underlying the shale is the Atkinson Formation (limestone) which previous studies have demonstrated to be relatively permeable. This unit is anticipated to be saturated and is designated the uppermost aquifer in the vicinity of the pond.

Previous investigations have shown that the general ground-water flow direction on the downthrown side of the fault in the Fort Atkinson Formation is to the southwest (Dames & Moore, 1977). The fault functions as a barrier to ground-water flow in the main plant study area with the hydraulic head being greater on the upthrown side than on the downthrown side of the fault. Previous studies have also documented that a downward hydraulic gradient exists between the Spoon/Brainard Shale Formations and the Fort Atkinson Formation.

7.4 POND SOIL/SEDIMENT SAMPLING

7.4.1 Pond Soil/Sediment Sampling Rationale

USEPA requires that surface sediment and soil samples be collected from the floor of the pond to demonstrate clean-closure. These samples will be used to assess the nature and extent of any potential contamination of the sediments in the pond, and provide data to determine the potential risks and environmental impacts that may exist. The locations and number of samples to be collected were selected to provide a statistically representative data base that is appropriately precise and accurate for this closure plan.

The number of sediment samples is based on guidelines and recommendations presented in the IEPA guidance document entitled "Instructions for Preparation of Closure Plans for Interim Status RCRA Hazardous Waste Facilities". The approximate pond boundaries were estimated and the surface area of the pond floor is calculated to be approximately 15 acres. Based on IEPA sampling strategy guidance the pond surface area has been divided into a defined grid system. One discrete sediment and one discrete soil sample will be collected from the former evaporation pond by compositing subsamples from nine randomly selected sampling locations within

the pond. One additional sample each of soils and sediments will be obtained from the surface impoundment influent pipe sampling point.

7.4.2 Pond Random Sample Locations

The procedures used to select the random sampling points consisted of dividing the pond into a 150 ft. grid system (Figure 4). This resulted in a total of thirty-five 150 ft. x 150 ft. grids within the pond area. Each of the grids was then assigned an integer from 1 to 35 as a unique identifier. Nine random numbers were then identified within the total field of 35 grid numbers, using a random number generator algorithm. Each random number so identified, defined the correspondingly numbered grid as a randomly selected sampling location.

A baseline coordinate system will be established in the field for the grid system. The sampling point will be located in the field to the nearest foot using a pocket transit and measuring tape. If conditions permit and accuracy can be maintained, distance measurements will be paced.

The grid origin and sampling collection points will be marked with survey stakes and/or pin flags. These markers will remain after sampling so that in the future they can be easily relocated. The collection point markers will be clearly labeled with sample number and quadrant grid coordinates.

7.4.3 Pond Sediment Sampling Procedure

At each sampling location in the pond, a sediment and soil sample will be collected. Each of the samples obtained from the impoundment will be collected using the most appropriate sampling technique. If the impoundment is filled with 2 to 5 feet of water, as anticipated, the sediment samples will be collected using a 3-

inch diameter thin wall Shelby tube. If it is found that the Shelby tube will not adequately retrieve the sediment samples, an alternative method, such as a sealable tube sample or pitcher-type device, will be used. The samples will be collected from the sediment-water interface to a depth of two feet. The retrieved material will be divided in the field into a sediment and a soil sample. The samples will be contained in glass soil sample jars. The sample jars will be appropriately labeled to indicate the sample number, sample type (soil or sediment), and portion of the sample column contained in the jar. Equal weights of the sediment and soil sample from each of the nine random sampling locations will be composited in the field to obtain one randomly selected sample each of sediment and soil from the pond. If the sediment sample analyses indicate that the upper two feet of impoundment sediment has been affected at any of the sampling locations, an additional two foot soil sample will be collected from two to four feet beneath the sediment surface at the same sample locations.

In the event that the pond does not contain standing water, a sediment sample will be collected from the upper two to six inches of material using a clean stainless steel trowel or scoop. The pond sediment is not anticipated to be greater than six inches. At the same sampling location a soil sample will then be collected using a hand bucket-type auger. The depth of the soil sampling interval will be from the sediment/soil interface to sediment sampling approximately 2 feet. The sampling procedures will be as follows:

- The sample location (sketch map with sample quadrant grid coordinates), sample identification number, date, time, sampling personnel, sampling method and any other noteworthy information will be properly recorded for each sample.

- Before collecting the sediment sample, any surface vegetation or litter will be removed from the area surrounding the sample location using a clean trowel or scoop. To monitor (for health and safety purposes) the air and soil quality, the exposed sediment will be immediately screened for volatile organics with a photoionization detector (HNU). If there is no detection of organic vapors, the sample will then be collected and placed in the appropriate glass sample container. If organic vapors are detected the vapors will be allowed to dissipate before sampling. The photoionization meter reading will be properly recorded on the sample collection form.

- The full sample jar will then be properly labeled and stored on ice in a secure storage area until subsequent compositing and shipment to the laboratory.

Soil Sampling

- The sample location (sketch map with sample quadrant grid coordinates), sample identification number, date, time, sampling personnel, sampling method and any other noteworthy information will be properly recorded for each sample.

- Before collecting the soil sample, the walls of the sediment sampling hole will be expanded to insure that sediment does not contaminate the soil sample. While sampling,the air and soil quality will be monitored for Health and Safety purposes using a photoionization detector (HNU). If there is no detection of organic vapors, the sample will then be collected and placed in the appropriate glass sample container. If organic vapors are detected the vapors will be allowed to dissipate before sampling. The photoionization meter reading will be properly recorded on the sample collection form.

- Soil samples will be collected using a hand bucket-type auger.

- The full sample jar will then be properly labeled and stored on ice in a secure storage area until subsequent compositing and shipment to the laboratory.

To prevent sample cross contamination, all sampling equipment, instruments, etc. will be properly decontaminated between each use.

Equipment decontamination procedures will include using a tap-water/trisodium phosphate (TSP) solution wash, tap-water rinse and final deionized water rinse.

The single composite samples of sediments and soil collected from the nine randomly selected sampling locations within the pond will each be analyzed for EP Toxicity metals and laboratory pH. In addition to EP Toxicity metals and pH, the soil and sediment samples from the surface impoundment influent pipe sampling location will each be analyzed for the 35 Illinois Administrative Code Part 724, Appendix I (Appendix IX) organic constituents. An Appendix I scan of the soil and sediment from this area will be undertaken to adequately determine if there has been any impact from organic constituents on the surface impoundment sediment or subsoils.

7.5 SOIL SAMPLING ADJACENT TO DEMINERALIZER SYSTEM WASTEWATER DISCHARGE PIPE

7.5.1 Soil Sample Locations

Soil samples will be collected from the soil material at two locations along the demineralizer wastewater discharge pipe (vitrified clay pipe) to determine whether any wastewater leakage is evident. According to piping construction drawings (Appendix A), the pipe lies approximately four feet below the land surface and spans a length of approximately 1500 feet. The demineralizer wastewater pipe initially runs adjacent to the sanitary waste lagoon for approximately 900 feet before its final 600 foot length to the evaporation pond.

7.5.2 Soil Sampling Procedures

The waste water discharge pipe is constructed of six-inch diameter vitrified clay pipe. Typically, this pipe is composed of five foot sections. Samples will be collected of soil material adjacent to pipe joints at approximately 200 and 400 feet from the pond. A backhoe will be used at the sample site to remove the soil material which covers the discharge pipe. Once the pipe is located, excavation will continue along the pipe to locate a pipe joint. If the excavation is more than four feet deep, the walls of the excavation will be expanded to limit the potential for collapse. The excavation will be periodically screened with a photoionization detector to determine whether volatile organic vapors are evident. In the event that sustained organic vapors are detected, the excavation will be left to vent until the meter indicates that background levels are again present. The reading(s) on the photoionization detector will be recorded. The remaining excavation will be performed using a spade shovel. Samples will be collected of stained soils or other materials apparently affected by pipe leakage. If no stained soil is evident, the soil material directly beneath the pipe will be sampled. A decontaminated non-metallic sample trowel will be used to collect the soil sample. A measuring tape will be used to determine the sample location relative to the end of the discharge pipe at the pond. Once the sample has been collected, the excavation will be filled with the excavated soil material. A wooden stake, with the sample number inscribed, will be installed at the sample site. The filled soil sample jars will be properly labeled and preserved prior to being shipped to the laboratory. Samples will be shipped to the project laboratory under full chain-of-custody protocol.

The soil samples collected from two locations along the route of the demineralizer system wastewater discharge pipe will each be analyzed for EP Toxicity metals and laboratory pH.

7.6 GROUND-WATER MONITORING PLAN

As part of the clean-closure demonstration for the former evaporation pond, four monitoring wells will be installed. Data obtained from the installation and monitoring of these wells will be used to supplement preliminary information and to generate a site-specific hydrogeologic report. This report will reassess and define the uppermost aquifer at the facility, identify ground-water flow rate and direction of this aquifer, and propose a final ground-water monitoring system that includes a minimum of one upgradient well and three wells hydraulically downgradient of the unit. This may require the installation of one or more additional downgradient wells to ensure that there are a minimum of three wells immediately downgradient of the unit. The hydrogeologic report will be of sufficient detail to support proposals for the well locations and screen intervals. The report will also address the relationship of the Sandwich fault to the hydrogeologic setting of the surface impoundment.

The monitoring well network design is based on the results of previous investigations conducted at the site that defined the various aquifer units, and the general ground-water flow directions. Subsurface materials will be sampled during the installation of the monitoring wells. This information will be used to better define the geology and hydrology in the vicinity of the pond. Ground-water samples will also be collected quarterly, for one year, from the newly installed monitoring wells.

7.6.1 Monitoring Well Location Rationale

The monitoring wells are scheduled to be installed along the perimeter of the pond (Figure 4). The monitoring wells on the north, west and south side of the pond will be on the downthrown side of the fault. The monitoring well on the east side of the pond, where the fault is not accurately defined, is anticipated to be on the downthrow side of the fault. This boring will also determine if any part of the pond was constructed on the upthrown side of the fault. It is anticipated that the eastern monitoring well will be hydraulically upgradient (i.e., in the direction of increasing static head) of the pond and serve as a background monitoring well. Based on previous investigations, this background monitoring well will yield ground-water quality data that has not been influenced by the pond. Monitoring wells on the south and west sides of the pond are apparently hydraulically downgradient (in the direction of decreasing static head). All the monitoring wells will be installed in the Fort Atkinson Formation which has been determined to be the uppermost aquifer in the vicinity of the pond.

If during this investigation, the Spoon Formation is discovered to be the uppermost aquifer (i.e., the formation is horizontally and vertically extensive enough, and saturated) then the monitoring wells will be constructed in this aquifer system.

7.6.2 Monitoring Well Installation

The monitoring wells will be installed following RCRA, USEPA and IEPA monitoring well construction standards. The monitoring wells will be installed in the Fort Atkinson Formation, if as expected, it is determined to be the upper most aquifer in the vicinity of the pond. The entire thickness of the Fort Atkinson is anticipated to be saturated. The monitoring wells will be

constructed of two-inch (ID) stainless screen and casing. All the monitoring wells will be screened and gravel/sand packed. The annular space above the gravel/sand pack will be properly sealed to prevent surface sources of contaminant from entering the aquifer.

The Fort Atkinson aquifer is overlain by approximately 2-to-10 feet of overburden material and approximately 15 feet of Brainard Shale. Ground water in the Fort Atkinson aquifer is anticipated to be between 10 and 20 feet below ground surface. Studies have shown substantial seasonal ground-water elevation fluctuations (greater than 10 feet) in the Fort Atkinson aquifer system when it is not covered by the Brainard Shale. It is expected that the seasonal fluctuations will be subdued in the Fort Atkinson aquifer where the Brainard Shale is present.

The Brainard Shale, Fort Atkinson Limestone, and top of the Scales Shale will be continuously cored at one monitoring well location to evaluate the geology and hydrology at the site. The monitoring well screens will be installed in the most permeable zone, as determined in the field. Previous studies have shown the most permeable zones in the Fort Atkinson appear to be located in the uppermost horizon of competent limestone. This horizon appears to have the greatest concentration of joints and fractures. If this is the most permeable zone encountered in the borehole, the monitoring wells will be screened in this horizon such that the top of the screen is 2-to-3 feet below the top of the Fort Atkinson limestone.

Rock coring will be made through minimum six-inch ID augers or temporary casing that has been driven or seated into the top of bedrock. This will be done to prevent seepage between the overburden material and bedrock during rock coring. Prior to coring, all loose and foreign material will be removed from the

inside of the augers or temporary casing. The bedrock surface is estimated to be between two and ten feet below ground surface. The top of weathered bedrock and top of competent bedrock will be clearly noted on the boring record.

Rock coring procedures will be conducted according to ASTM Designation 2113 "Diamond Core Drilling for Site Investigation." Coring will be done using an N series (NX or NWM) double-tube core barrel with diamond bit and reaming shell or NQ wire line. In soft or friable formations, an NWM double-tube core barrel will be used. The drill rod will be N-series, or equivalent. Rock core runs will be no longer than 10 feet.

Immediately upon recovery of the core barrel from the boring, the rock core will be carefully removed from the barrel and placed in the core box. To monitor (for health and safety purposes) the air, rock core and rock core box will then be scanned for organic vapors with a photoionization detector and properly recorded on the rock core log and field notebook. The rock core will then be logged by the site geologist. The following information will be included on the rock core log.

- Heading information such as project name and number, boring number and location, personnel responsible for logging the core, ground water elevation, date started and date completed.
- Depth/elevation of stratigraphic changes recorded in feet and tenths of feet;
- Detailed rock description including rock type, color, bedding thickness, grain size, composition, hardness, cementation and/or friability, fractures, soundness, weathering and any other noteworthy information;
- Run number;
- Depth/elevation of top and bottom of run;
- Total core recovery;

- Percent core recovery;
- Rock Quality Designation (RQD); and,
- Water level information and method of determination;

All rock core boxes will be constructed of wood, or approved equivalent. The rock core boxes will be stored in such as manner as to preserve their relative position by depth. Intervals of lost core shall be annotated in the core sequence with wooden blocks or dowels. The top and bottom of each core run will be clearly marked on the core box and core with permanent ink markers. The boxes will be properly labeled on the inside and outside lid with the following information.

- Project name and number.
- Boring number.
- Date.
- Run number and cored interval.
- Box number in case of multiple boxes.

After the core box is properly labeled it will be photographed in the field.

After coring has been completed to the desired depth, the hole will be reamed to a minimum of five inches in diameter using air or tap-water percussion or rotary methods. Prior to monitoring well installation, if conditions permit, tap water will be circulated in the open boring to remove any fine grained material that may be in the fractures, joints or bedding partings.

Monitoring wells will be sand-packed because the bedrock may have joints and partings which contained fine grained material. By installing sand-pack material and monitoring well screens, the amount of fine grained material entering into the monitoring well will be minimized. Although the monitoring well yield will be

reduced, this reduction should not significantly affect the ground-water sampling effort.

Monitoring well construction will be supervised by the site geologist. Construction details such as design, depth of the screen, sand-pack material, and grout seal will be determined in the field. The site geologist will keep a record of all material placed in the boring, including depth of the screened intervals, top and bottom of seal and monitoring well outer protective casing. The monitoring well installation will follow the procedures outlined below. The basic configuration of the bedrock monitoring well is shown on Figure 5.

- The boring will be cored and reamed to the desired depth and flushed to clean out as much fine grained material as possible from the borehole prior to constructing the monitoring well.
- The bottom cap will be 316 stainless steel flush screw-type coupled.
- Monitoring well screen material will be 316 stainless steel, two-inch ID, flush screw-type coupled, wire wound 0.010 or 0.020 inch slot size. The screen will be 10 feet long and be installed in the most permeable zone as determined in the field. If the most permeable zone is the upper Fort Atkinson the monitoring well screen will be installed such that the top of the screen is 2-to-3 feet below the top of the Fort Atkinson limestone.
- Monitoring well casing material will be 316 stainless steel, two-inch ID, flush screw-type coupled.
- One or more stainless steel centralizers may be installed to insure the well casing is centered in the boring.
- Two feet of casing will extend above ground surface.
- The top cap will be stainless steel with a vent hole.
- The well screen and casing will be straight, plumb and centered in the boring.

- Well-sorted quartz sand pack will be placed in the boring annulus from the bottom of the boring or grout plug to a minimum of two feet above the top of the screen.

- The remainder of the annular space will be filled with a 10 percent bentonite-cement grout mix through a tremie pipe. A 1-to-2 foot sodium bentonite pellet plug will be placed between the sand pack and grout to insure the grout does not infiltrate into the sand pack.

- A minimum six-inch ID by five-foot long steel, or approved equivalent, protective casing will be set over the top of the monitoring well casing to a height of 2.5 feet above ground surface. The protective casing lid will be hinged and have a hasp for locking.
- The protective casing will have a drain hole drilled at the apron level, and have the monitoring well number permanently stamped or welded on the lid and coated with a weatherproof paint.

- If needed, steel guard posts will be installed near the well to protect the monitoring well against vehicle hazards.

The rock cores will not be subject to analytical or physical testing and be stored in a secure area on site for future reference.

To prevent cross contamination between the monitoring wells, all downhole drilling equipment will be properly decontaminated. This will be done before each monitoring well is started using high pressure steam.

7.6.3 Monitoring Well Development

After the monitoring wells are constructed, they will be developed prior to ground-water sampling to maximize yields and minimize the turbidity of the water during sampling. A variety of development methods are available; however, monitoring well surging using a surge block or bailer is recommended. Monitoring wells will be considered developed when they can continuously yield

sediment free water, or a minimum of ten boring volumes have been removed.

The development equipment will be properly decontaminated using high pressure steam to prevent cross contamination between monitoring wells.

Equipment needed for the monitoring well installation and development include:

- Field notebook and appropriate sample collection forms, pens, marking pens, labels.
- Drilling equipment with auguring, and rock coring and reaming,or approved equivalent, capabilities.
- Personal safety equipment.
- Photoionization detector.
- Water level indicator.
- Rock core boxes.
- High pressure steam generator.
- TSP and scrub brushes.
- Distilled/deionized water.

7.6.4 Ground-Water Sampling

Each of the monitoring wells installed will be sampled quarterly for one year after installation. Ground-water sampling results will be used to evaluate the impact, if any, that the pond has had on the ground-water quality in the area.

The Behrens-Fischer Student's t-test will be used to determine if background ground-water quality has been exceeded in the downgradient monitoring wells during the one year monitoring period. Mean and standard deviations will be calculated from the quarterly monitoring data.

7.6.4.1 Ground-Water Sampling Procedures

Prior to sampling, the monitoring well will be purged to

obtain a fresh, representative sample. Purging will be conducted using a positive displacement pump or bottom check-valve type bailer. A minimum of three-to-five boring volumes will be purged. If the monitoring well is pumped dry, and recovery is less than 50 percent within 15 minutes after complete evacuation, then the amount of ground water removed from the well will be recorded and a ground-water sample collected.

The sampling procedure for the monitoring wells will include the following steps.

1. Record well number, sample number, date, time, sampling personnel and other noteworthy information on the ground water sample collection form.

2. Clean the top of the monitoring well with a clean rag to prevent loose particulate matter from falling into the monitoring well.

3. Remove the monitoring well cap and monitor for organic vapors. If organic vapors are not detected then proceed with the sampling by wiping the inside of the casing with a clean cloth. If organic vapors are detected let the monitoring well stand open and vent itself until the vapors have dissipated.

4. Measure and record the water level in the well using a decontaminated water level indicator or steel tape. The measurement will be made to the nearest 0.01 foot.

5. Calculate the volume of water standing in the monitoring well and boring annulus and purge the monitoring well.

6. Record pH, temperature and specific conductivity while purging the monitoring well. When these parameters have stabilize, record the values and amount of water purged on the field log.

7. Remove the purge pump, if used, from the monitoring well. Care will be taken not to reintroduce purge water back into the monitoring well.

8. Collect the sample by means of a bottom check valve type bailer. To monitor (for health and safety purposes) the air and water quality, the first bailer from the monitor-

ing well will be field screened for volatile organics with a photoionization detector and then discarded. This measurement will be recorded on the field log.

9. Sample water will be gently poured directly from the bailor into the sample bottles. The metals sample will be filtered prior to preservation in the field.

The first round ground-water samples will be analyzed in the laboratory for the Appendix IX inorganic constituents. Measurements of field pH, specific conductance and temperature will be taken while the monitoring well is being purged and when the ground-water sample is collected. The results of the Appendix IX inorganic analyses for the first round will be submitted to the IEPA for review, prior to subsequent rounds of sampling, to identify any additional parameters that may be of concern and that should be added to the routine parameter list.

The following field equipment will be used for ground water sampling:

- Field notebook with appropriate collection forms, pens, marking pens, labels.
- Clean rags, disposable gloves.
- Water level indicator.
- Distilled/deionized water and wash bottles.
- TSP and scrub brushes.
- Purge pump.
- Teflon or stainless steel bailers.
- Bailor cord.
- Tools required to open the monitoring wells.
- Sample jars (provided by the project laboratory).
- Water filtering equipment including 0.45 micron filter paper.
- pH and conductivity meters (with calibration solutions) and thermometer.
- Ice chest and ice.

To prevent sample cross contamination, all sampling equipment, instruments, etc. will be properly decontaminated between each use. Equipment decontamination procedures include using a tap-water/TSP

solution wash, tap-water rinse and final deionized-water rinse. If purge pumps are used the outside of the pump will be decontaminated following the above procedure and internal parts of the pump will be flushed with tap water.

7.6.4.2 Sample Numbering

A standardized sample numbering system will be used to identify each sample for chemical analysis, including replicate samples and field blanks. A listing of sample identification numbers will be maintained in a site logbook by the site geologist. The sample number will also be recorded on the appropriate sample collection form. Each sample number will consist of two components that identify the sample location and a sample identifier.

The first part of each sample number will be an alpha-code corresponding to the sample type, followed by a two-digit sample location number. The alpha codes are as follows:

GMMW--monitoring well (ground water).
GMSS--surface soil sample.
GMSB--soil boring.
GMRB--rinsate blank. Rinsate blanks will have an RB followed by the alpha code for the type of blank (i.e., a ground-water rinsate blank will be GMRBMW).

The second part of the sample number will have a two-digit number that will be the sample identifier. If multiple sampling events or depths are necessary, the event or depth identifier will start with 01 and progress sequentially with additional sampling events or depth. The sequential sample numbers will be recorded on the appropriate collection form and the field notebook. Sample identifier example numbers are shown below.

GMMW01-02	Ground water sample from monitoring well number 1 during sampling event number 2.
GMSS08-01	Surface soil sample from sample location 8, first sample collected.

As each sample is collected in the field, it will be placed in a labeled bottle and stored in an iced cooler. Metals samples (water) will be analyzed for total metals concentration by the project laboratory. The appropriate preservation methods will be followed for each sample type and analysis. Chain-of-Custody documents will be prepared for all samples shipped to the project laboratory.

7.6.4.3 Sample Preservation

Sample preservation requirements for the analytical parameters of concern are summarized on Table 2. All sample bottles will arrive at the site, from the project laboratory, pre-cleaned with teflon-lined lids on.

7.6.4.4 Sample Handling

Samples shipped to the laboratory for analysis will be prepared using the following procedures:

- Tighten sample bottle lids "hand" tight.
- Place two-inches of appropriate packing material in the bottom of waterproof metal or equivalent strength plastic cooler.
- Place sample bottles in the cooler in such a way that they do not touch.
- Put ice in plastic bags, or blue ice, on and around the bottles.

- Fill the remaining space in the cooler with packing material.
- Put paperwork in a plastic bag and tape it to the inside lip of the cooler.
- Close cooler and secure lid by taping cooler completely around with strapping tape at two locations.
- Tape the drain hole closed.
- Place laboratory address on top of cooler.
- Put "This Side Up" and "Fragile" labels on the cooler. Do not cover labels with strapping tape.
- Affix custody seals on front right and back left of cooler and cover seals with wide, clear tape.

While awaiting screening or packaging, samples will be stored on ice in coolers. All samples will be preserved on the same day they are collected. If samples cannot be shipped on the same day they are collected, packaging will be delayed until the following morning so that the samples can be shipped with a full load of ice. These samples will be stored on ice in coolers, and kept in a secure area.

After the samples have been packaged for shipping, custody will be transferred to the overnight courier. The laboratory will be notified of the sample shipment and the expected arrival date. An effort will be made to provide the laboratory with advance notice of the shipment.

All soil and ground-water samples are assumed to be classified as "low hazard" samples. If medium or high hazard samples are encountered, they will be prepared in accordance with the procedures specified in "Sample Handling Protocol for Hazardous Waste REM/FIT Contract", prepared by USEPA Region V, Environmental Services Division, May 3, 1983 (USEPA, 1983).

8.0 CONTAMINATED SOIL REMOVAL

Clean closure of a surface impoundment requires the absence, or removal of any wastes, leachate, liners and soils (including ground water) contaminated with waste or leachate that pose a substantial present or potential threat to human health or the environment.

If it is determined from the results of the proposed sampling and analytical program, that removal of soils from the evaporation pond is necessary, GE will prepare a description, for submittal to IEPA as an addendum to this closure plan of each step required to remove any waste and contaminated soil from the property. This will include a description of solidification/stabilization, storage of wastes or reagents, equipment, removal pattern and depth increments, loading areas or any other steps critical to removal. The plan addendum will clearly define how soil will be removed, stored, loaded and managed once it leaves the property. A Part B permit would be required, if an on-site hazardous waste storage or treatment unit were planned for closure purposes.

9.0 SCHEDULE FOR CLOSURE

At this time it is not clear as to the nature and extent of necessary closure activities. Initial activities will include the installation of ground-water monitoring wells and collection of soil and sediment samples. As part of the initial phase of ground-water investigation four monitoring wells were installed in November, 1989. These wells were installed with oversight by the IEPA. Ground-water sampling will be conducted as soon as approval of the sampling and analytical program contained in this closure plan is received from IEPA. Results of sample analysis will be evaluated, and within 120 days of actual sampling a proposal for closure will be submitted to IEPA.

If the results of the sampling and analytical program indicate that treatment or removal of any wastes or soils (including ground water) from the evaporation pond is necessary, an addendum to this closure plan will be prepared which will describe those activities.

Regulations at 35 IAC 725.213 would require the owner/operator to treat, remove or dispose of any hazardous waste in accordance with the approved closure plan as amended, within 90 days after approval of the closure plan addendum by the IEPA. The owner/operator must complete all closure activities in accordance with the approved closure plan within 180 days after approval of the closure plan.

Closures requiring time periods longer than the above, including extensions after the closure plan approval, must be reviewed and approved by the IEPA.

The closure plan addendum would contain a timetable which shows all critical dates for closure activities, including waste removal, sampling, soil removal, critical points when the

independent engineer or his representative would be present, backfilling, survey plat preparation, independent engineer's certification, and other relevant activities. This timetable would start at the point of approval or some other definable date (i.e., award of contract, etc.), and not rely on calendar dates.

General Electric is aware of the potential need to establish cleanup levels for all impacted media and of the appropriate processes to be followed. At this time there is no data upon which to base a discussion of these levels. Upon receipt of data cleanup levels will be addressed as appropriate. Closure activities will address the 4-inch diameter vitrified clay discharge pipe, the pond, and any impacted media if data indicates a need. All necessary activities and equipment will be addressed in the evaluation of closure activities to be provided subsequent to evaluation of field data.

As necessary the closure plan will be amended based on the evaluation of the facility after completion of the proposed sampling and analytical program.

10.0 CLOSURE COST ESTIMATE

The closure costs for the GE Morris Operation evaporation pond are those costs related to making the demonstration that the closure performance standard at 35 IAC 725.328(a) has been met. A breakdown of these costs is presented below:

Activity	Cost
Preparation of Project Plans	$14,000
Sampling and Analysis	62,000
Closure Plan	12,000
Total	$88,000

11.0 FINANCIAL ASSURANCE

The entire amount of the Closure Cost Estimate shown in Section 10.0 has already been accounted for in the 1989 Financial Operating Plan for the Morris Facility.

The General Electric Company is a New York Corporation, with total assets, including affiliated companies, in excess of $100 billion. Because of the number of Company divisions and regulated facilities involved, the standard practice has been to update on a quarterly basis the Demonstration by the General Electric Company of Financial Responsibility for Liability Coverage and/or Post-Closure Care, which is signed by the Senior Vice President - Finance.

The request to incorporate the Closure Cost Estimate for the Morris Evaporation Pond in this Demonstration for the first quarter of 1989 was made. A copy of the Demonstration, amended to include this relatively minor closure obligation is attached as Appendix C.

12.0 CERTIFICATION STATEMENT

The final closure of the GE Morris evaporation pond will be certified by both GE, as the owner/operator and an independent registered professional engineer. The Illinois Professional Engineering Act (Paragraph 5101, Section 1) requires that any person who practices professional engineering in the State of Illinois or implies that he (she) is a professional engineer must be registered under the Illinois Professional Engineering Act. Therefore, any certification or engineering services which are performed in the execution of this closure plan will be done by an Illinois P.E.

Any plans and specifications, designs, drawings, reports, or other documents rendered as professional engineering services, and revisions of the above will be sealed and signed by a professional engineer in accordance with par. 5119, sec. 13.1 of the Illinois Professional Engineering Act.

The independent engineer will be present during all major closure activities. These might include soil sampling, soil removal, backfilling, decontamination, final cover placement, etc. The frequency of inspections by the independent engineer will be sufficient to determine the adequacy of each critical activity.

In the event that the results of the proposed sampling and analytical program indicate that removal or decontamination activities are required to demonstrate clean closure, a Closure Documentation Report will be submitted to IEPA in accordance with 35 IAC 725.215. The Closure Documentation Report would be submitted with the closure certification to document the closure activities. If required, this report would include the following information:

a. The volume of waste and waste residue removed, including the waste (residue) resulting from decontamination activities;

b. A description of the method of waste handling and transport;

c. Waste manifest numbers or copies of manifests from removal of waste and waste residues;

d. A description of the sampling and analytical methods used;

e. A chronological summary of closure activities and the costs involved;

f. Color photo documentation of closure showing the unit before, during and after closure; and

g. Tests performed, methods and results.

Since the certification of closure constitutes a report, as defined by 35 IAC 702.126, GE's certification of closure will conform to the signatory requirements of 702.126.

13.0 STATEMENT OF FACILITY STATUS AFTER CLOSURE

The clean closure demonstration for the former evaporation pond at the GE Morris Operation represents the final closure at the facility. The evaporation pond is the last hazardous waste management unit at the facility. After completion of this closure, no treatment, storage or disposal will occur at this facility.

14.0 REFERENCES

American Society of Testing and Materials, 1983. Diamond Core Drilling for Site Investigation. D2113-83, Philadelphia, Pennsylvania.

Dames and Moore, 1977. Ground-Water Investigations for Phase IV Fuel Storage Capacity Expansion at the General Electric Morris Operation, Morris, Illinois, August 3, 1977.

General Electric Company, 1985. Morris Operation Closure Plan. E. Voiland and Van Hoomissen, J. September 30, 1985.

Ingels, T.E. 1988. General Electric Company. Letter to W. Francis, U.S. EPA, Region V, January 28, 1988.

Sasman, R.T., C.R. Benson, G.L. Dzurisin, and N.E. Risk, 1974. Ground-Water Pumpage in Northern Illinois, 1960-1970. Illinois State Water Survey Report of Investigation 73.

Schict and Moench, 1971. Projected Ground Water Deficiencies in Northeastern Illinois 1980 to 2020. Illinois State Water Survey Publication 173.

Suter, M., R.E. Bergstrom, H.F. Smith, G.H. Emrich, W.C. Walton, and T.E. Larson, 1959. Preliminary Report on Ground-Water Resources of the Chicago Region, Illinois.

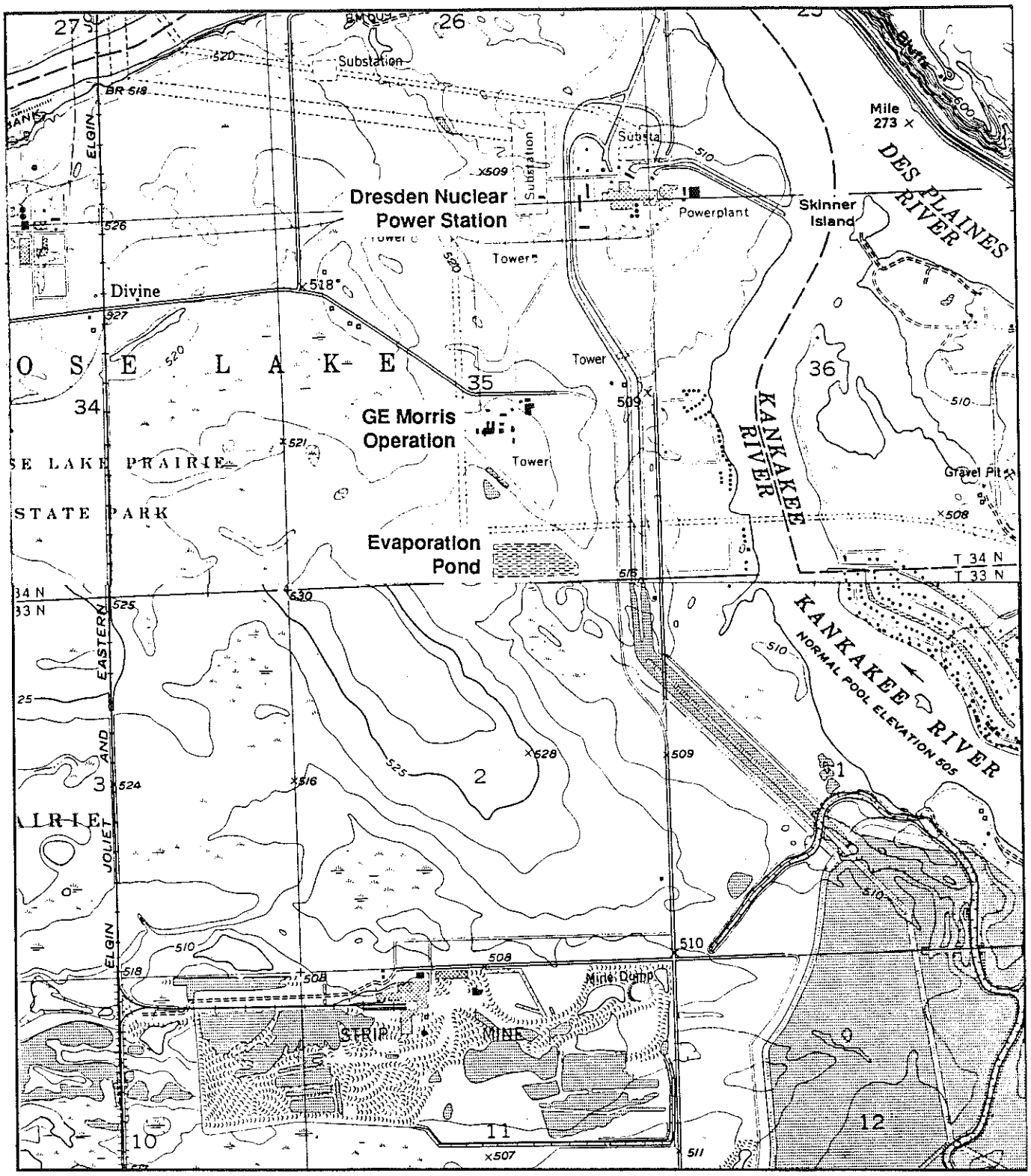
U.S. Environmental Protection Agency, 1983. Sample Handling Protocol for Hazardous Waste REM/FIT Contract. Environmental Services Division, Region V, USEPA, Chicago, Illinois.

U.S. Environmental Protection Agency, 1986. Test Methods for Evaluating Solid Wastes. Publ. No. SW-846, November, 1986.

U.S. Environmental Protection Agency, 1987. RCRA Guidance Manual for Subpart G Closure and Post-Closure Care Standards and Subpart H Cost Estimating Requirements. EPA-530-SW87-010. Washington, D.C.

Van Hoomissen, J.E. 1985. General Electric Company. Letter to K. Klepitsch, U.S. EPA, Region V, October 28, 1985.

FIGURES



SOURCE: USGS 7.5 Minute Topographic Maps, MINOOKA & COAL CITY, ILLINOIS Quadrangles, 1980

N

0 1000 2000 4000

SCALE IN FEET

GERAGHTY & MILLER, INC.
Ground-Water Services

FIGURE 1
SITE LOCATION MAP
GENERAL ELECTRIC COMPANY
MORRIS, ILLINOIS

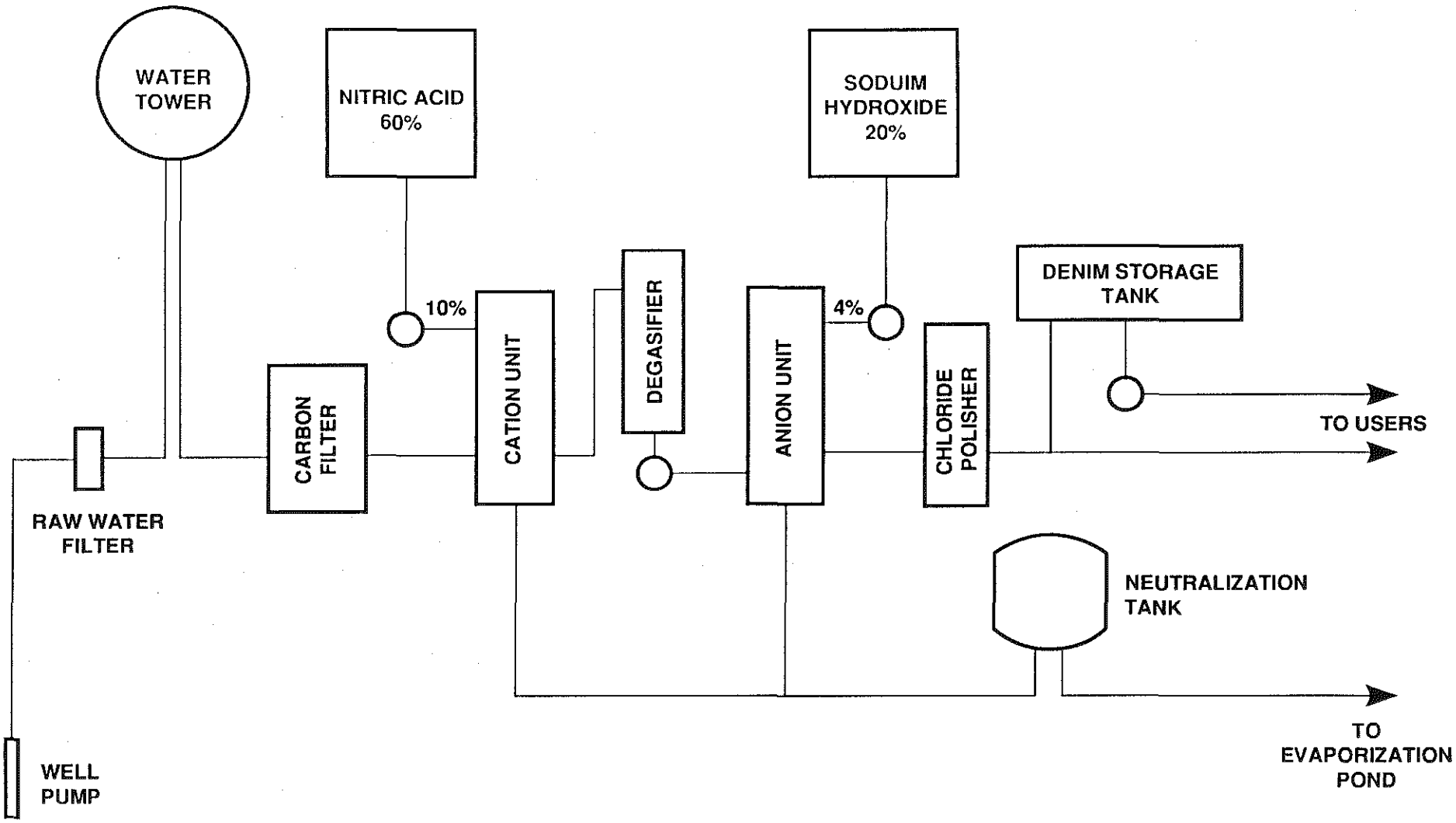
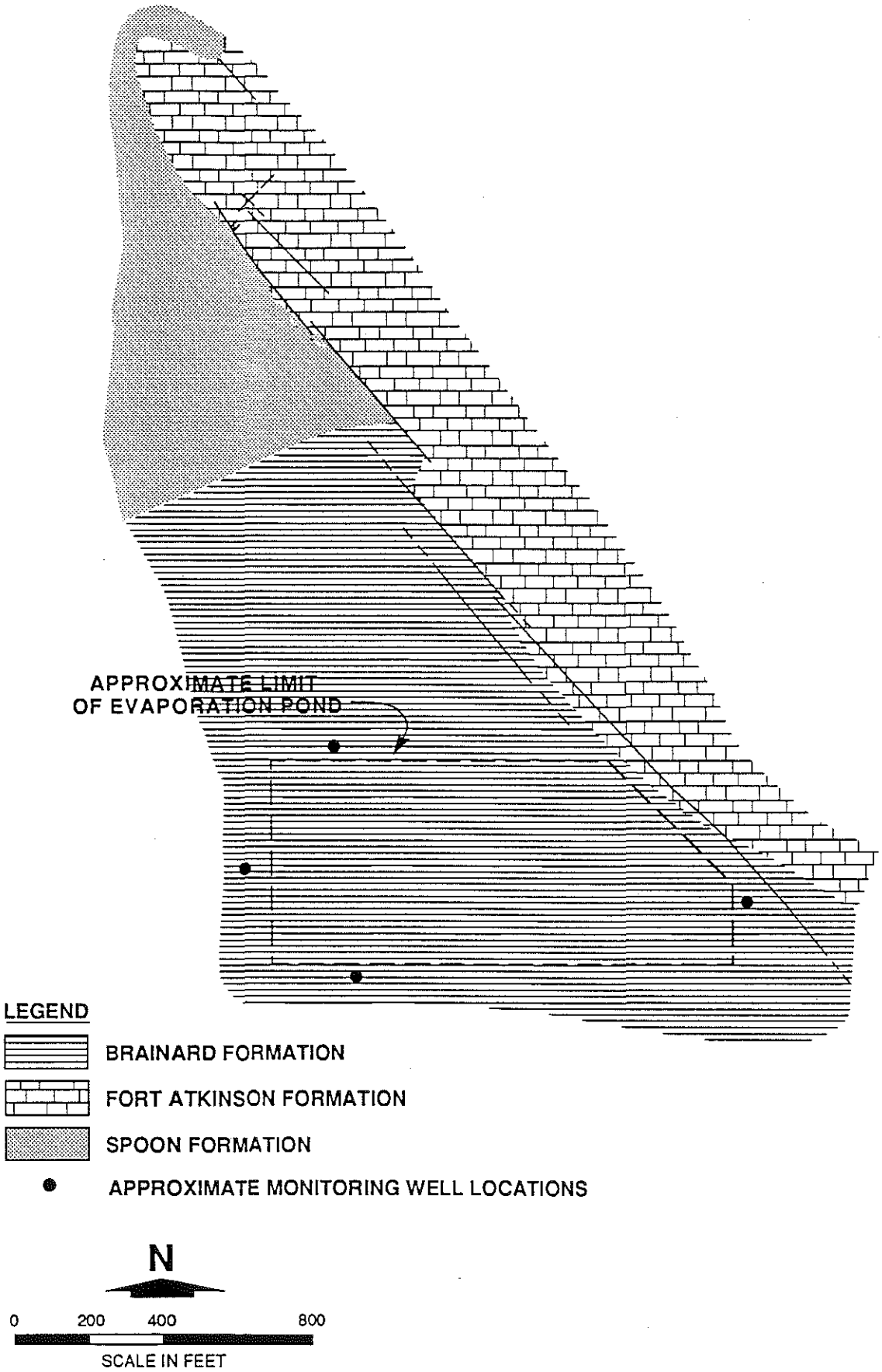


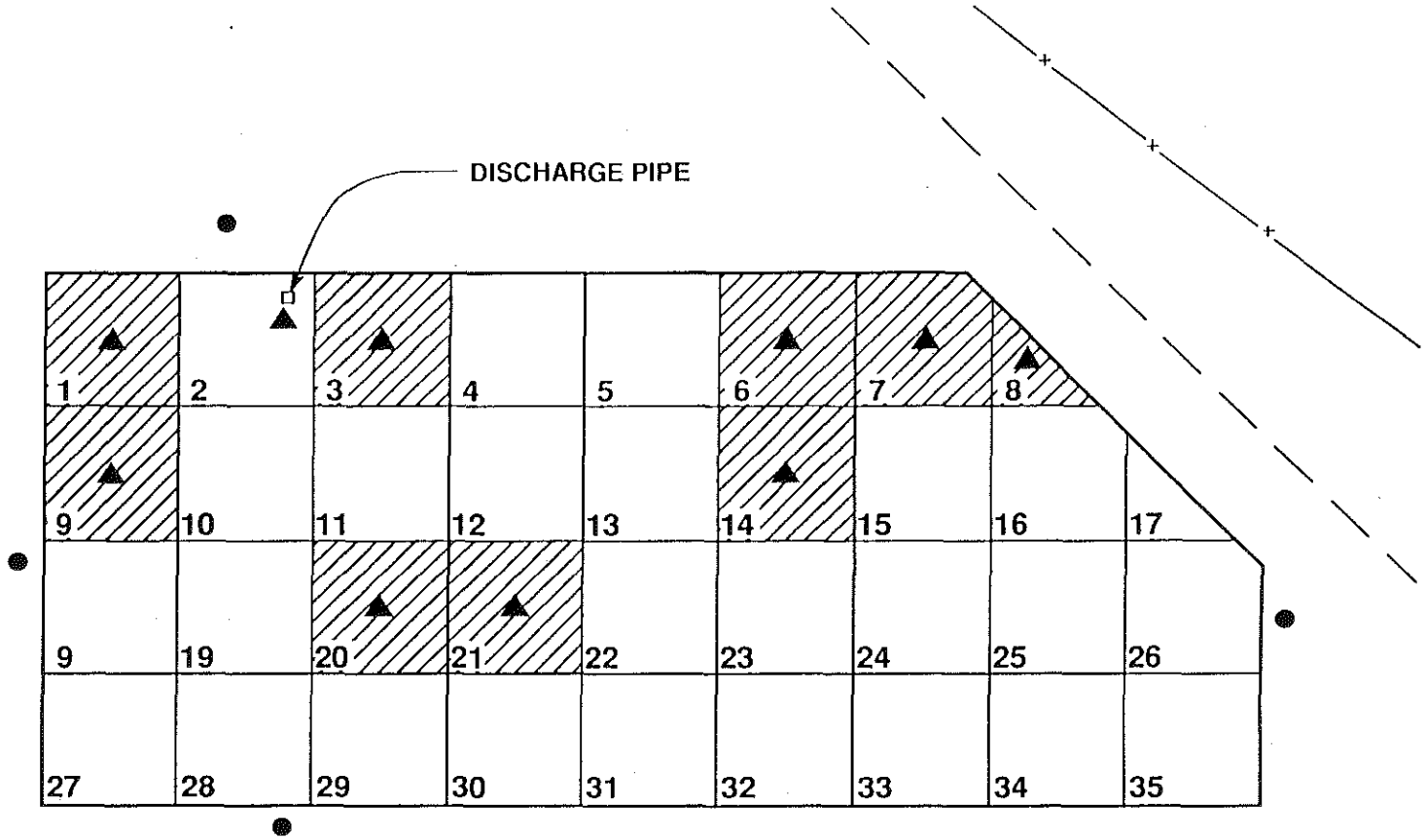
FIGURE 2
PROCESS DIAGRAM
DEMINERALIZED WATER TREATMENT SYSTEM
GENERAL ELECTRIC COMPANY
MORRIS, ILLINOIS

GERAGHTY & MILLER, INC.
Ground-Water Services



GERAGHTY & MILLER, INC.
Environmental Services

FIGURE 3
SITE AREA
BEDROCK LITHOLOGY MAP
GENERAL ELECTRIC COMPANY
MORRIS, ILLINOIS



SOURCE: GRADING PLAN
EVAPORATION POND, FLUOR CORPORATION, 1968

N

0 100 200 400

SCALE IN FEET

GERAGHTY & MILLER, INC.
Environmental Services

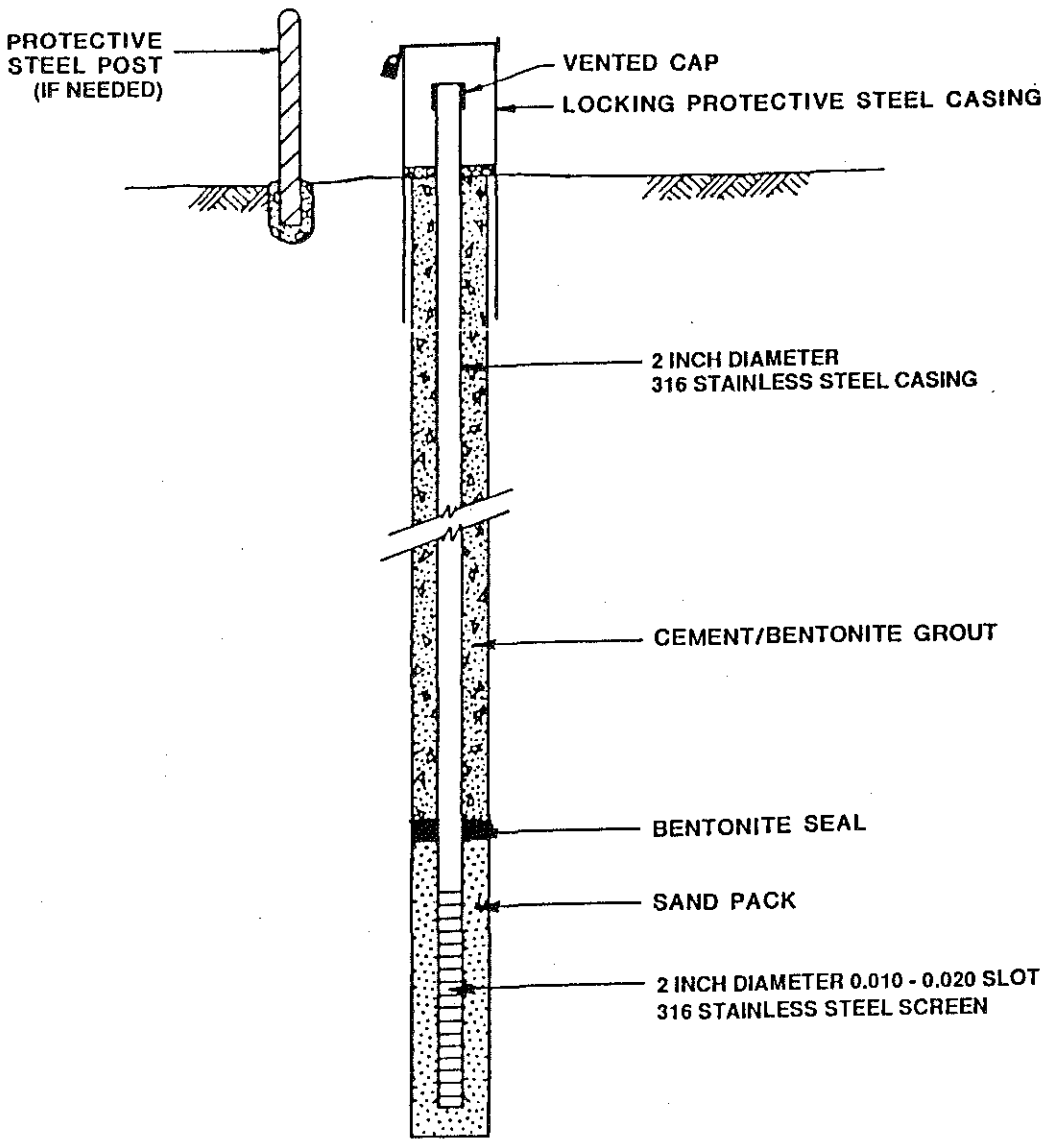
LEGEND

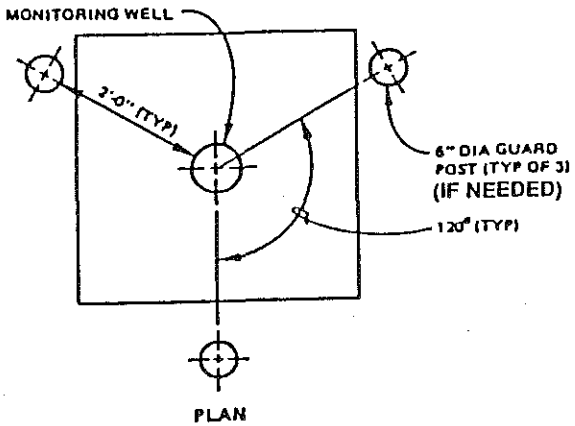
● PROPOSED MONITORING WELL LOCATION

▲ SEDIMENT SAMPLING LOCATION

— — ESTIMATED FAULT LOCATION

FIGURE 4
RANDOM SEDIMENT SAMPLING LOCATIONS
GENERAL ELECTRIC COMPANY
MORRIS, ILLINOIS





GERAGHTY & MILLER, INC.
Environmental Services

FIGURE 5
MONITORING WELL
CONSTRUCTION DETAIL
GENERAL ELECTRIC COMPANY
MORRIS, ILLINOIS

TABLES

Table 1. Historic and Predicted Ground-Water Withdrawals in Grundy County, Illinois.

Year	Withdrawal Rate ($meter^3$/day)	Withdrawal Rate (gallons $x10^6$/day)
1957	6,400	1.7
1970	21,600	5.7
1980	30,300	8.0
2000	56,800	15.0
2020	90,800	24.0

Table 2 - Scope of Project Sampling and Analyses

Sample Matrix	Field Measurements	Laboratory Parameters	Sample Type: Grab	Sample Type: Composite No. of Random Locations Composited	Number of Samples: Soil	Number of Samples: Sediment	Number of Samples: Ground Water
Sediment from Evaporation pond grid system.	HNu or OVA Screening	EP toxicity metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) and pH.		9	1		
Soil from Evaporation Pond grid system.	HNu or OVA Screening	EP toxicity metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) and pH.		9		1	
Sediment near evaporation pond influent pipe.	HNu or OVA Screening	EP toxicity metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver), pH and Appendix IX organic constituents.	Yes		1		
Sediment near evaporation pond influent pipe.	HNu or OVA Screening	EP toxicity metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver), pH and Appendix IX organic constituents.	Yes			1	
Soil at two locations along route of vitrified clay discharge pipe.	HNu or OVA Screening	EP toxicity metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) and pH.	Yes		2		
Ground water from monitoring wells.	pH, specific conductance, temperature, static water level	Appendix IX inorganic parameters, including nitrate and nitrite, and radionuclides (gross alpha, beta and gamma).	Yes				4
Quality assurance/quality control samples				1	1 (Duplicate)	1 (Duplicate)	2 (Field blank and dup)
			Total		5	3	6

APPENDIX A

Appendix A
Construction Drawings

5. THIS AREA WAS INTENDED FOR PLACEMENT OF ANY EXCESS SOIL REMOVED DURING EXCAVATION OF EVAPORATION POND.

6. THIS AREA WAS NEVER USED FOR PLACEMENT OF EXCAVATION SOILS SINCE THIS MATERIAL WAS USED TO CONSTRUCT DIKE AROUND PERIMETER OF EVAPORATION POND. NO EXCESS SOIL WAS GENERATED DURING POND EXCAVATION.

Evap. Pond Disposal Area (SEE NOTES 5 & 6)

Ditch ℄ E.150'-0

El. 518'-0

380'-0

T.O. Dike El. 516'-0

T.O. Dike El. 516'-0

Slope to El. 511'-0

Cut Line See Note #2

Evaporation Pond Area: 666,750 sq.ft

560'-0

590'-0

585'-0

240'-0

210'-0

400'-0

South Section Line of Section 35

Commonwealth Edison Easment

Match Line S.1700'-0

This Dwg. | 5-0521 D

Note:

1. Work this dwg. with dwg. 5-0521 D.
2. Max. Bot. Elev. within diked area to be El. 518'-0.
3. Use removed material for dike construction.
4. If quantity of removed material is insufficient, contractor is to obtain additional material by further cut from bottom of pond.

For Continuation See Dwg. 5-0521 D.

RECEIVED FEB 7 1991 IEPA-DLPC

N 1,714,893.95
E 517,833.33

MK	DATE	REVISIONS	Client appr.	DR. CH.	SQUAD CHECK	APP.
1		Dwg. checked		DWD		DWD
2	10/4/68	Added horizontal strut; designated disposal area; Rev. slope and toe line; Rev. connection of pipe				
3	1/26/90	ADDED NOTES 5 & 6				

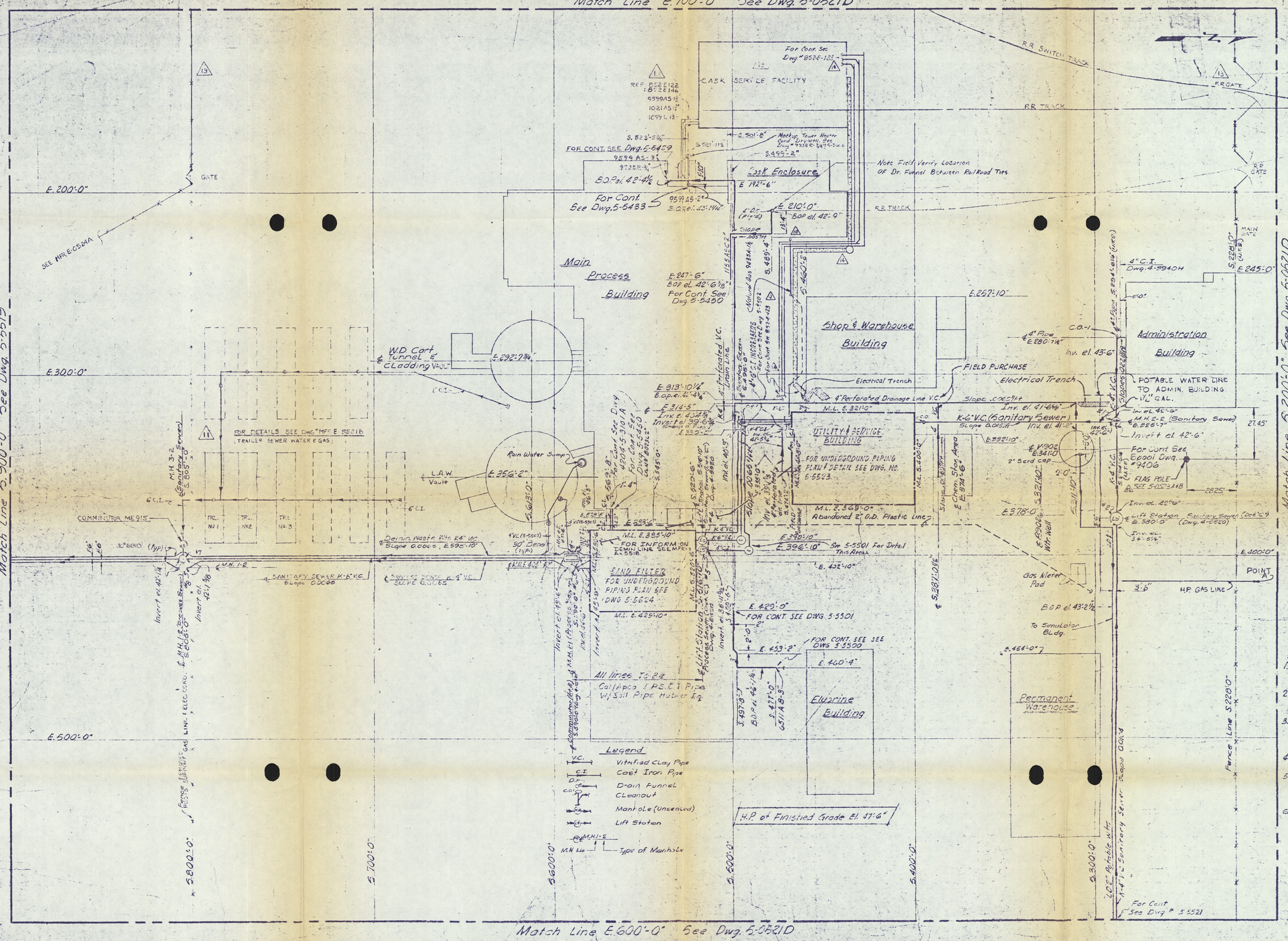
CHICAGO AERIAL SURVEY
FRANKLIN PARK, ILLINOIS

SCALE
100' 0 100 200 300 400
1" = CONTOUR INTERVAL 2'

NUMBER	REFERENCE DRAWINGS
5-0521 A	Rough Grading Plan

THE FLUOR CORPORATION LTD.
ENGINEERS AND CONSTRUCTORS
LOS ANGELES CALIFORNIA

GRADING - EVAPORATION POND
PRO. PLANT PROJECT
GENERAL ELECTRIC CO. — THORNTON, ILLINOIS
DRAWN — DATE — SCALE — DWG. 5-0521 B



MK	DATE	REVISIONS	DR. / CK.	SQUAD CHECK	APP
12	2/7/90	PER FCN 904			
11	4/10/89	PER Van Dyne Co. Drawing			
10	5/22/85	ASBUILT PIPING (Conduit Runs Between Cask & Main Process Bldg.) & Cask Enclosure Well Penetration Added			
9	1-17-85	Cask Area Yard Underground Piping Added			
8	11/8/84	ASBUILT PER FCN 987 Steam Plant			
7	9/14/77	As Built			
6	6-23-69	Added Note to Piping @ Permanent Warehouse			
5	6-23-69	REVISED AS NOTED			
4	3-25-69	REVISD. ELEVS. & BRANCH TIE-IN ON LN 9599AS. REMOVED ROUD. BN. ON LINE AB-2-2 & ADDED NOTE			
3		ADDED DETACHED FLUORESCENT [illegible]			
2		[illegible]			
1		[illegible]			

MK	DATE	REVISIONS	DR. / CK.	SQUAD CHECK	APP
4	1-15-70	General Revision			
3		Revised Location of Cask Area & Added Yard			
2	6-1-77	Rev. "AS BUILT" FCN "424 SEWER SYS. FOR TRAILERS			
1	3-29-75	Cask Enclosure Added - Fcn 557			
0	3-14-73	Natural Gas Service Installed - Fcn 541			

NUMBER	REFERENCE DRAWINGS
5-0511	Plot Plan
5-0521A	Equip. Grading Plan
5-0522	Equip. Excavation Plan (Fire Wall Proj.)
5-0521D	Offsite Grading & Disposal Area

NOTICE:
THIS DRAWING HAS NOT BEEN PUBLISHED AND IS THE SOLE PROPERTY OF THE FLUOR CORPORATION LTD. AND IS LENT TO THE BORROWER FOR HIS CONFIDENTIAL USE ONLY; AND IN CONSIDERATION OF THE LOAN OF THIS DRAWING, THE BORROWER PROMISES AND AGREES TO RETURN IT UPON REQUEST AND AGREES THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF DIRECTLY OR INDIRECTLY, NOR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS SPECIFICALLY FURNISHED.

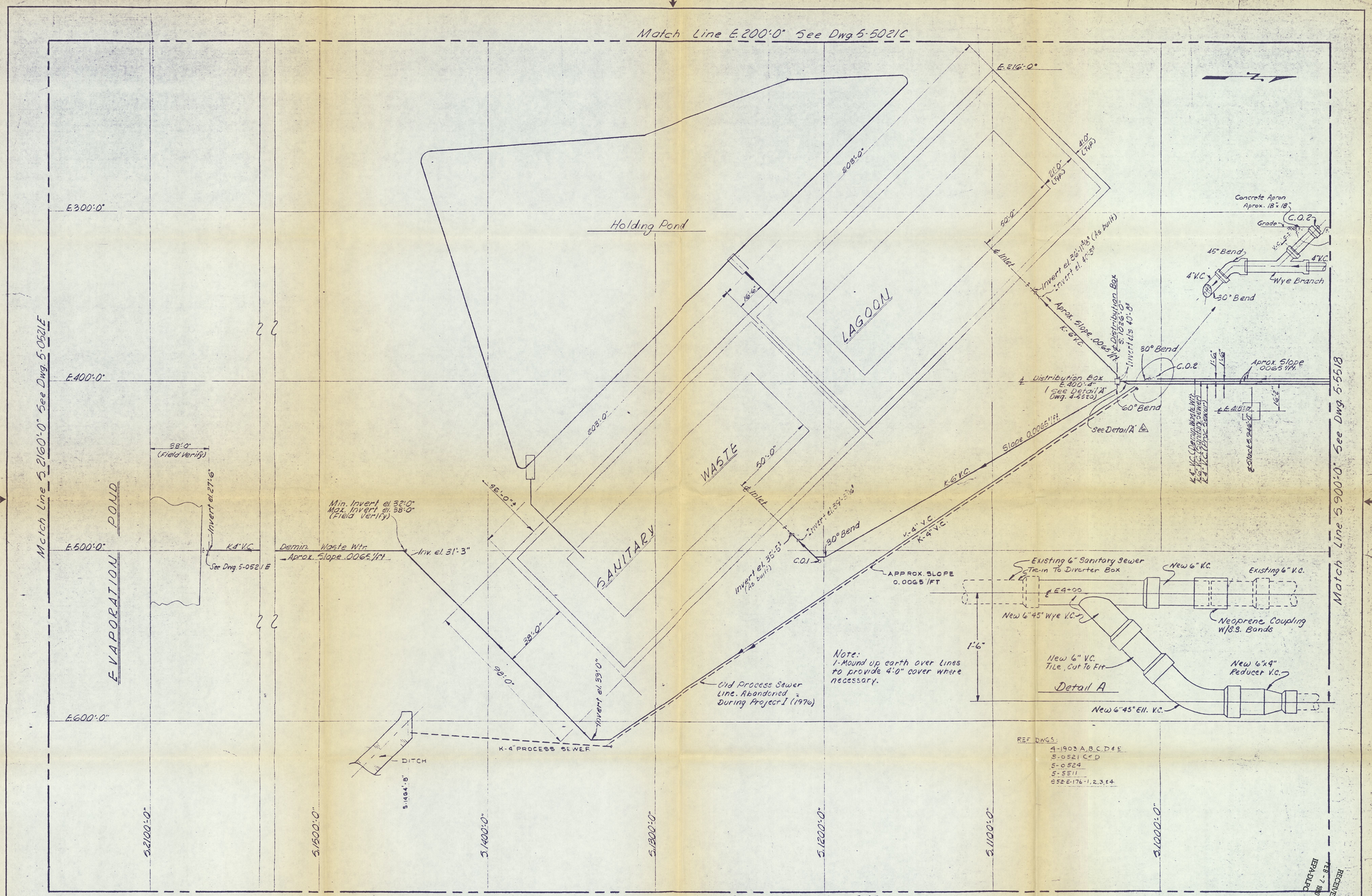
THE FLUOR CORPORATION LTD.
ENGINEERS AND CONSTRUCTORS
LOS ANGELES CALIFORNIA

UNDERGROUND PIPING PLAN OFFSITE

GENERAL ELECTRIC COMPANY MORRIS, ILLINOIS

DES. R.H.H. | DRN. J.A.M. | SCALE 1"=20'-0" | DATE | CONTRACT | DWG. NO. 4304-5-5519 | REV. 14

REG'D PER - 557 5-6098



MK	DATE	REVISIONS	DR. CK.	SQUAD CHECK	APP.
6	5/19/80	Asbuilt Per Stark Excavating	YG		
5	7/27/78	Asbuilt Per Proj I & C.N.M.	YG		
4	3-4-74	REVISED FLUOR	ETC		
3	1-18-69	General Revision	DMM		
2	11/20/68	Deleted Noted #3 on Cleanouts	RS		
1	11-14-68	Drawing Checked	S. Yi		

NUMBER	REFERENCE DRAWINGS
5-0611	Plot Plan
5-0521C	Grading & Sanitary Waste Lagoon
5-0521D	Offsite Grading & Disposal Area
5-0521E	Grading-Evaporation Ponds

NOTICE:
THIS DRAWING HAS NOT BEEN PUBLISHED AND IS THE SOLE PROPERTY OF
THE FLUOR CORPORATION LTD.
AND IS LENT TO THE BORROWER FOR HIS CONFIDENTIAL USE ONLY, AND IN CONSIDERATION OF THE LOAN OF THIS DRAWING, THE BORROWER PROMISES AND AGREES TO RETURN IT UPON REQUEST AND AGREES THAT IT SHALL NOT BE REPRODUCED, COPIED, LENT OR OTHERWISE DISPOSED OF DIRECTLY OR INDIRECTLY, NOR USED FOR ANY PURPOSE OTHER THAN THAT FOR WHICH IT IS SPECIFICALLY FURNISHED.

THE FLUOR CORPORATION LTD.
ENGINEERS AND CONSTRUCTORS
LOS ANGELES CALIFORNIA

UNDERGROUND PIPING PLAN OFFSITE

GENERAL ELECTRIC COMPANY, MORRIS, ILLINOIS

DES. E.Hsih | CH. | 2ND APPROVAL | DATE | CONTRACT | DWG. NO. | REV.
DR. Miyakada | SCALE 1" = 20'-0" | CLIENT | 4204-5-5519 | 6

APPENDIX B

Appendix B

Part A Application and Request for Withdrawal

FORM 1 GENERAL

EPA

ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F I L D 0 6 2 3 3 8 6 9 4 D

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area*(s)* below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

LABEL ITEMS

I. EPA I.D. NUMBER	ILD062338694
III. FACILITY NAME	GENERAL ELECTRIC COMPANY*
V. FACILITY MAILING ADDRESS	RTE #1 COLLINS RD MORRIS, IL 60450
VI. FACILITY LOCATION	RTE #1 COLLINS RD MORRIS, IL 60450

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	NO	FORM ATTACHED
A. Is this facility a **publicly owned treatment works** which results in a **discharge to waters of the U.S.**? (FORM 2A)		X	
B. Does or will this facility *(either existing or proposed)* include a **concentrated animal feeding operation** or **aquatic animal production facility** which results in a **discharge to waters of the U.S.**? (FORM 2B)		X	
C. Is this a facility which currently results in **discharges to waters of the U.S.** other than those described in A or B above? (FORM 2C)		X	
D. Is this a proposed facility *(other than those described in A or B above)* which will result in a **discharge to waters of the U.S.**? (FORM 2D)		X	
E. Does or will this facility treat, store, or dispose of **hazardous wastes**? (FORM 3)	X		
F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)		X	
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)		X	
H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)		X	
I. Is this facility a proposed **stationary source** which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	
J. Is this facility a proposed **stationary source** which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an **attainment area**? (FORM 5)		X	

III. NAME OF FACILITY

1 SKIP GENERAL ELECTRIC-MORRIS OPERATION

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*	B. PHONE *(area code & no.)*
2 EGER, KENNETH, SR. ENGINEER	815 942 5590

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3 7555 E. COLLINS ROAD

B. CITY OR TOWN	C. STATE	D. ZIP CODE
4 MORRIS	IL	60450

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5 7555 E. COLLINS ROAD

B. COUNTY NAME

GRUNDY

C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE *(if known)*
6 MORRIS	IL	60450	

NOV 18 1980

CONTINUE ON REVERSE

NTINUED FROM THE FRONT

I. SIC CODES (4-digit, in order of priority)

A. FIRST		B. SECOND	
4226	(specify) Warehousing special	C 7 4742	(specify) Rental of railroad cars with care of lading

C. THIRD		D. FOURTH	
	(specify)	C 7	(specify)

II. OPERATOR INFORMATION

A. NAME: GENERAL ELECTRIC-MORRIS OPERATION

B. Is the name listed in Item VIII-A also the owner? ☐ YES ☒ NO

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)
F = FEDERAL, S = STATE, P = PRIVATE, M = PUBLIC (other than federal or state), O = OTHER (specify)
P (specify)

D. PHONE (area code & no.): C A 815 942 5590

E. STREET OR P.O. BOX: 555 E. COLLINS ROAD

F. CITY OR TOWN: MORRIS

G. STATE: IL

H. ZIP CODE: 60450

IX. INDIAN LAND

Is the facility located on Indian lands? ☐ YES ☒ NO

EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)	D. PSD (Air Emissions from Proposed Sources)
T N	C 9 T P

B. UIC (Underground Injection of Fluids)	E. OTHER (specify)
T U	C 9 T

C. RCRA (Hazardous Wastes)	E. OTHER (specify)
T R	C 9 T

(specify)

I. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property bounderies. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

II. NATURE OF BUSINESS (provide a brief description)

General Electric-Morris Operation provides for storage of irradiated nuclear fuel and services related to the transportation of such fuel.

III. CERTIFICATION (see instructions)

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
B. Wolfe, Vice President and General Manager Nuclear Fuel & Services Division	Wolfe	11/13/82

COMMENTS FOR OFFICIAL USE ONLY

Continued from page 2.
NOTE: Photocopy this page before completin have more than 26 wastes to list.

Form Approved OMB No. 158-S80004 340

EPA I.D. NUMBER (enter from page 1)	FOR OFFICIAL USE ONLY
W I L D 0 6 2 3 3 8 6 9 4 T/A 1	W DUP T/A 2 DUP

DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	U169	1	P	S01	
2	U188	1	P	S01	
3	U196	1	P	S01	
4	U211	1	P	S01	
5	U220	1	P	S01	
6	U227	1	P	S01	
7	U239	1	P	S01	
8	D001	450	P	S01	
9	D002	700	T	T02	30 gallons per day acid and base neutralized in impoundment
10					
11					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
25					
26					

ontinued from the front.

V. DESCRIPTION OF HAZARDOUS WAST *tinued)*

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE .

EPA I.D. NO. *(enter from page 1)*												T/A	C
I	L	D	0	6	2	3	3	8	6	9	4		6

. FACILITY DRAWING

ll existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail).*

I. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground—level)* that clearly delineate all existing structures; existing storage, reatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail).*

II. FACILITY GEOGRAPHIC LOCATION

LATITUDE *(degrees, minutes, & seconds)*	LONGITUDE *(degrees, minutes, & seconds)*
41 22 053	088 16 032

III. FACILITY OWNER

☐ A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. *(area code & no.)*
GENERAL ELECTRIC, NUCLEAR FUEL & SERVICES DIVISION	408-925-6900

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
175 CURTNER AVENUE	G SAN JOSE	CA	95125

X. OWNER CERTIFICATION

certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached ocuments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the omitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, cluding the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED
B. Wolfe	B. Wolfe	11/13/80

. OPERATOR CERTIFICATION

certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached ocuments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the omitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, cluding the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED
E. E. Voiland	E. E. Voiland	11-5-80

CONTINUE ON PAGE 5

Continued from page 2.
NOTE: Photocopy this page before completing ...ave more than 26 wastes to list.

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1): L D 0 6 2 3 3 8 6 9 4 | T/A 1 | C

FOR OFFICIAL USE ONLY: S W | DUP | T/A 2 | C | DUP

DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1	F001	450	P	S01	
2	F002	450	P	S01	
3	F003	450	P	S01	
4	F005	450	P	S01	
5	P012	1	P	S01	
6	P077	1	P	S01	
7	P092	1	P	S01	
8	P105	1	P	S01	
9	P106	1	P	S01	
10	U002	1	P	S01	
	U007	5	P	S01	
12	U013	1	P	S01	
13	U044	1	P	S01	
14	U056	1	P	S01	
15	U077	1	P	S01	
16	U080	1	P	S01	
17	U108	1	P	S01	
18	U112	1	P	S01	
19	U133	1	P	S01	
20	U134	1	P	S01	
21	U140	1	P	S01	
22	U144	1	P	S01	
23	U151	1	P	S01	
	154	1	P	S01	
25	U159	1	P	S01	
26	U161	1	P	S01	

ontinued from the front.

V. DESCRIPTION OF HAZARDOUS WASTE (continued)

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3.

EPA I.D. NO. *(enter from page 1)*

T/A C
6

VI. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail).*

VII. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground—level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail).*

VIII. FACILITY GEOGRAPHIC LOCATION

LATITUDE *(degrees, minutes, & seconds)*	LONGITUDE *(degrees, minutes, & seconds)*
65 66 / 67 68 / 69 - 71	72 - 74 / 75 76 / 77 - 79

IX. FACILITY OWNER

☐ A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. *(area code & no.)*
16 - 55	56 - 58 / 59 - 61 / 62 - 65

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
19 - 25	C G 15 16 - 30	31 32	33 - 37

X. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED

XI. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED

CONTINUE ON PAGE 5

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-S80004 540

FORM 3 RCRA

EPA

ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

I. EPA I.D. NUMBER

S F I L D 0 6 2 3 3 8 6 9 4

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS
23	24 - 29	

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

[X] 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)* 71

FOR EXISTING FACILITIES, PROVIDE THE DATE *(yr., mo., & day)* OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*

C	YR.	MO.	DAY
8	7 1	0 5	0 1
15	73 74	75 76	77 78

[ ] 2. NEW FACILITY *(Complete item below.)* 71

FOR NEW FACILITIES, PROVIDE THE DATE *(yr., mo., & day)* OPERATION BEGAN OR IS EXPECTED TO BEGIN

YR.	MO.	DAY
73 74	75 76	77 78

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

[ ] 1. FACILITY HAS INTERIM STATUS 72

[ ] 2. FACILITY HAS A RCRA PERMIT 72

III. PROCESSES — CODES AND DESIGN CAPACITIES

A. PROCESS CODE — Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code*(s)* in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the form *(Item III-C)*.

B. PROCESS DESIGN CAPACITY — For each code entered in column A enter the capacity of the process.

1. AMOUNT — Enter the amount.
2. UNIT OF MEASURE — For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER *(barrel, drum, etc.)*	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G	LITERS PER DAY	V	ACRE-FEET	A
LITERS	L	TONS PER HOUR	D	HECTARE-METER	F
CUBIC YARDS	Y	METRIC TONS PER HOUR	W	ACRES	B
CUBIC METERS	C	GALLONS PER HOUR	E	HECTARES	Q
GALLONS PER DAY	U	LITERS PER HOUR	H		

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below)*: A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

S C DUP T/A C 1

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT	B. 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S 0 2	600	G		5				
X-2	T 0 3	20	E		6				
	S 0 1	1100	G		7				
	T 0 2	1000	U		8				
3					9				
4					10				

II. PROCESSES *(continued)*

C. SPACE FOR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESSES *(code "T04")*. FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

V. DESCRIPTION OF HAZARDOUS WASTES

A. **EPA HAZARDOUS WASTE NUMBER** – Enter the four–digit number from 40 CFR, Subpart D for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four–digit number*(s)* from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. **ESTIMATED ANNUAL QUANTITY** – For each **listed waste** entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each **characteristic** or **toxic contaminant** entered in column A estimate the total annual quantity of all the non–listed waste*(s)* that will be handled which possess that characteristic or contaminant.

C. **UNIT OF MEASURE** – For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking account the appropriate density or specific gravity of the waste.

D. **PROCESSES**

1. PROCESS CODES:
   For listed hazardous waste: For each **listed** hazardous waste entered in column A select the code*(s)* from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.
   For non–listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code*(s)* from the list of process codes contained in Item III to indicate **all** the processes that will be used to store, treat, and/or dispose of all the non–listed hazardous wastes that possess that characteristic or toxic contaminant.
   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code*(s)*.

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: **HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER** – Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B,C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

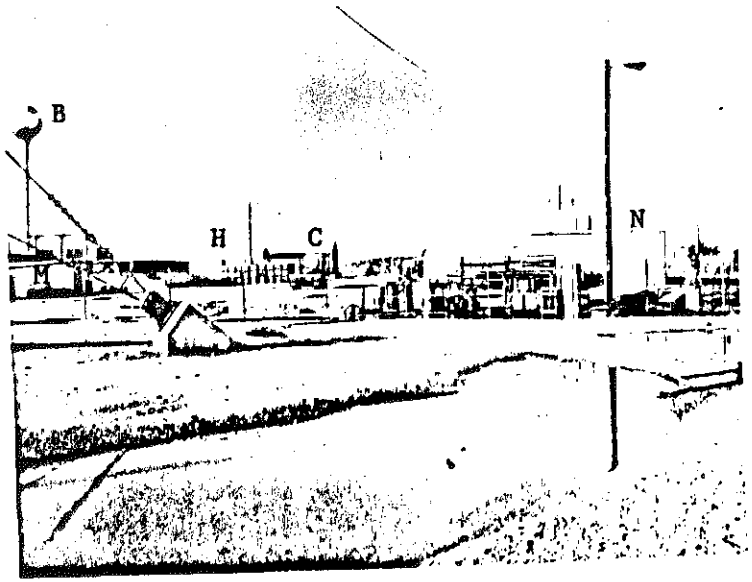
EXAMPLE FOR COMPLETING ITEM IV *(shown in line numbers X-1, X-2, X-3, and X-4 below)* – A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non–listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. EPA HAZARD. WASTE NO. *(enter code)*	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE *(enter code)*	D. PROCESSES 1. PROCESS CODES *(enter)*	D. PROCESSES 2. PROCESS DESCRIPTION *(if a code is not entered in D(1))*
X-1	K054	900	P	T03 D80	
X-2	D002	400	P	T03 D80	
X-3	D001	100	P	T03 D80	
X-4	D002				*included with above*

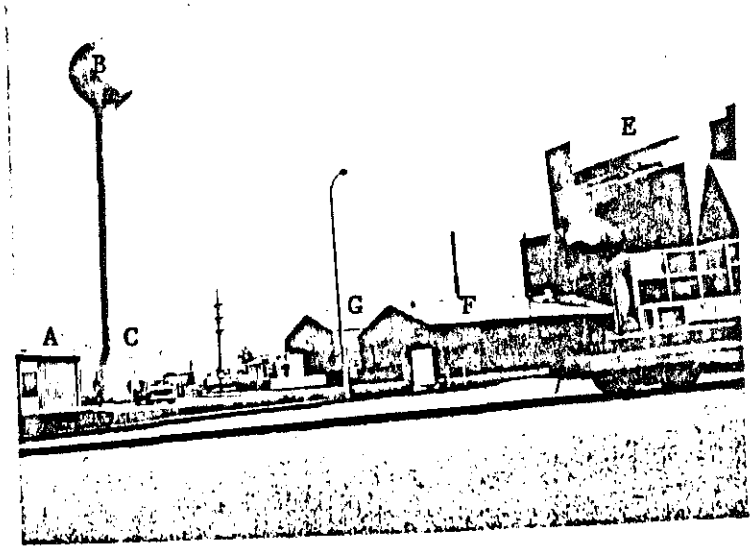
 CONTINUE ON PAGE 3

V. FACILITY DRAWING (see page 4)

Two attached sheets show the facility. The first shows the surface impoundment where acid (HNO_3) and basic (NaOH) wastes are neutralized. The second shows the facility structures. A copy of the photographs provide a key for making a cross reference to the drawings.

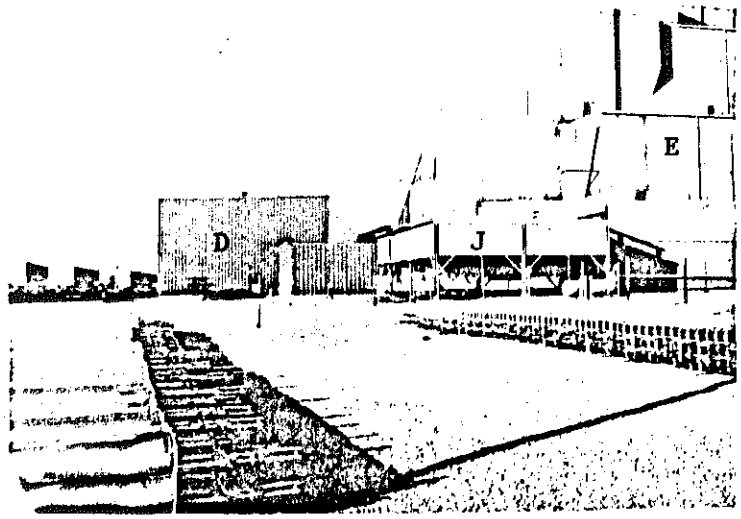


1

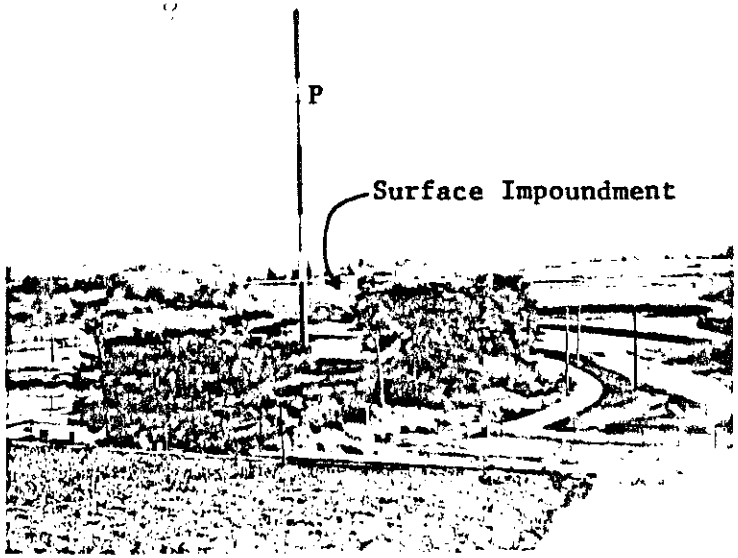


2

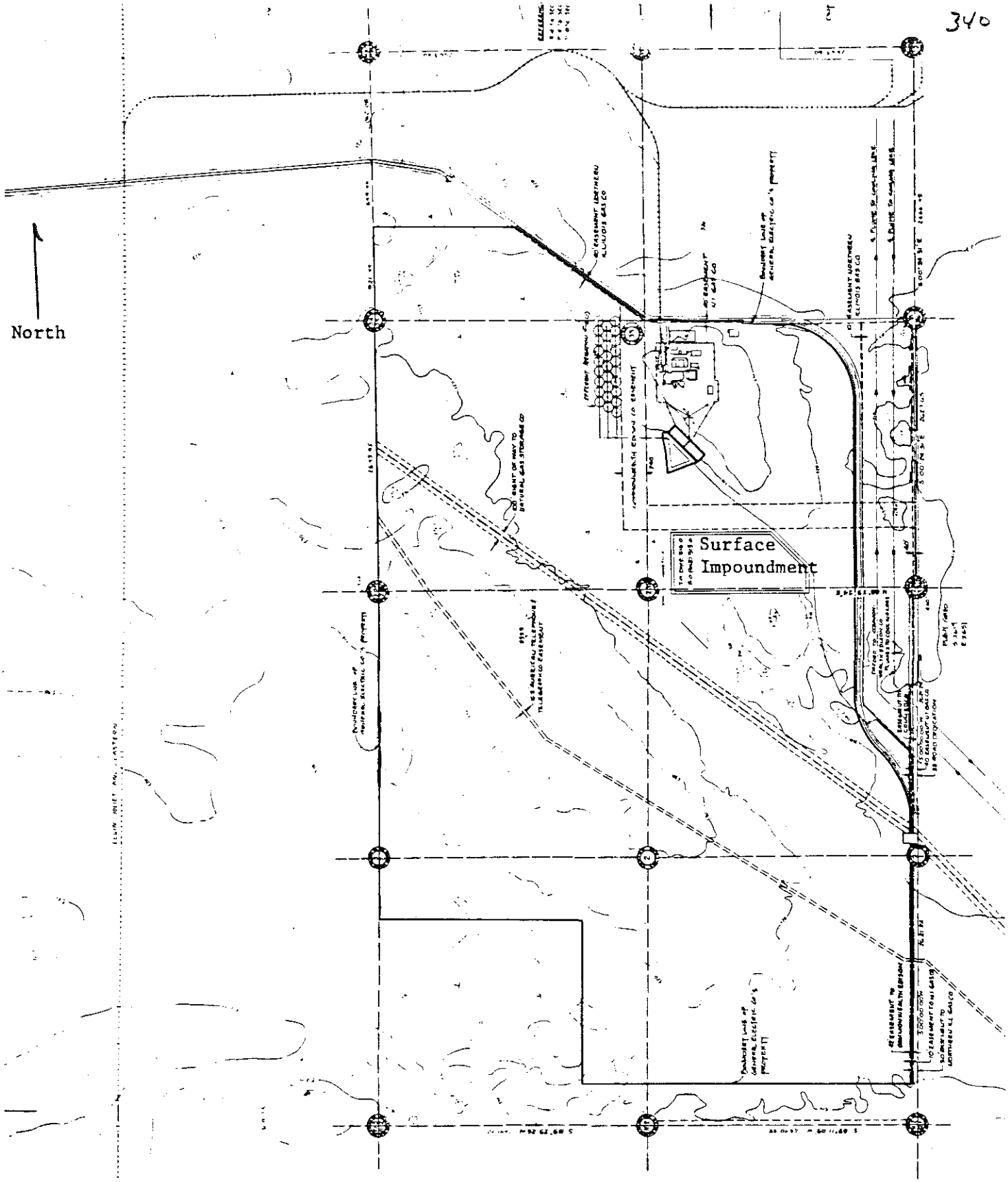
Key to Photographs



3



4

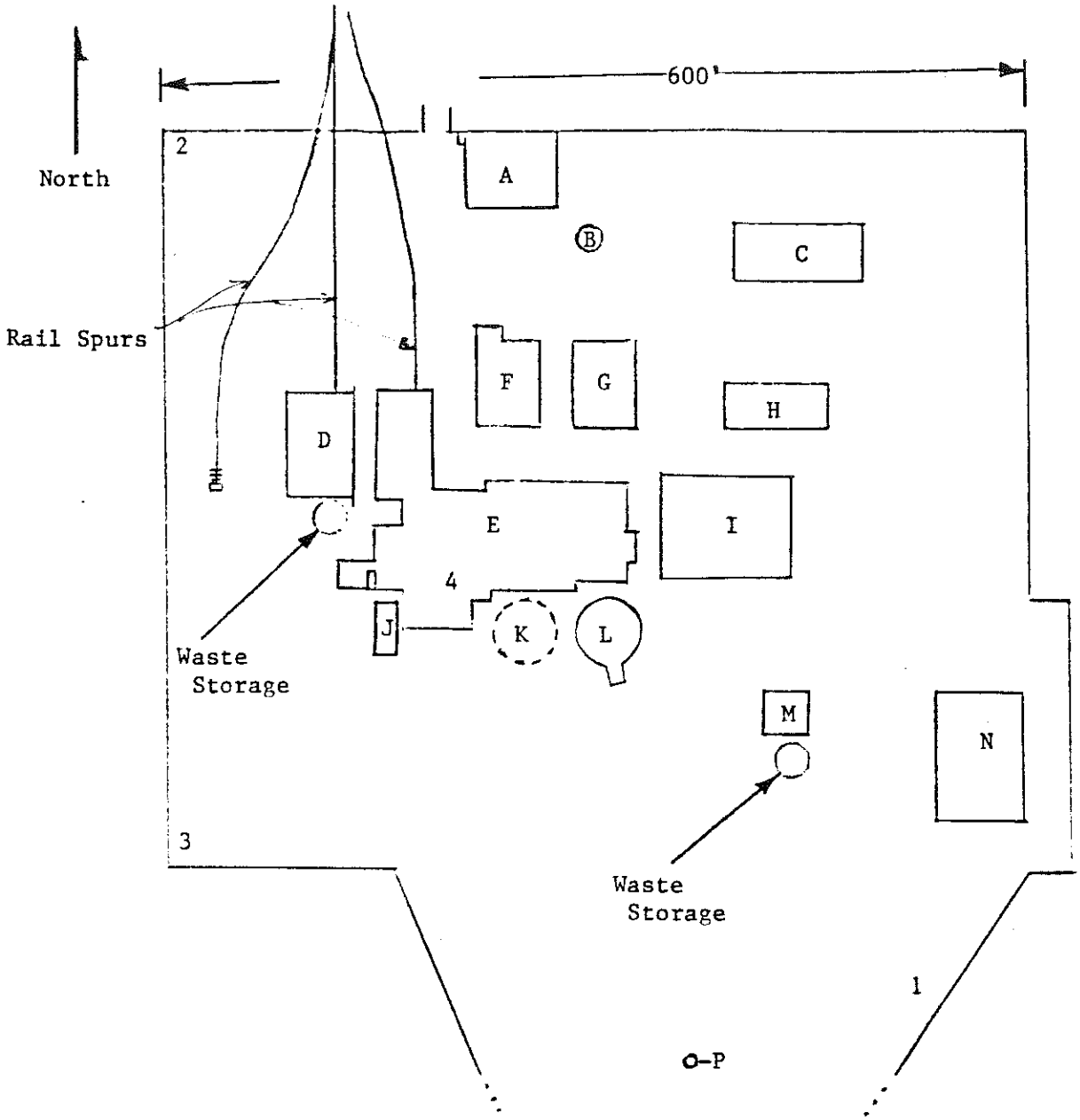


FACILITY DRAWING A

G.E. Morris

Lon 088-16-032
LAT 41-22-053

FACILITY DRAWING B



Key to Structures

A Administration Building
B Water Tower
C Warehouse
D Cask Service Facility
E Main Building
F Warehouse
G Utility Building
H F Building
I Sand Filter
J Basin Coolers
K Radioactive Waste Vault
L Radioactive Waste Vault
M Oil Storage Shed
N Warehouse
P Stack
1,2,3,4 Sites for Photos

GENERAL ELECTRIC COMPANY
WASTE MANAGEMENT SERVICES OPERATION
HIGH LEVEL RADWASTE SERVICES
310 DE GUIGNE DRIVE - M/C S-56
P.O. BOX 508
SUNNYVALE, CALIFORNIA 94086

October 28, 1985

RECEIVED
NOV 12 1985
SWB - AIS
U.S. EPA, REGION V

Mr. Karl J. Klepitsch, Jr.,
Chief, Solid Waste Bureau
USEPA Region V
RCRA Activities
P.O. Box A 3587
Chicago, IL 60690

SUBJECT: REQUEST FOR WITHDRAWAL OF RCRA PERMIT APPLICATION
REFERENCE: ILD 062338694 G, TSD, PA

Dear Mr. Klepitsch:

Enclosed are (1) Certification Regarding Potential Releases from Solid Waste Management Units and (2) Request for Permit Withdrawal. If additional information is required please communicate with Mr. R.G. Damm or Mr. E.E. Voiland, both of Morris Operation. They may be reached on (815) 942-5590.

Thank you for your consideration.

Sincerely,

J.E. Van Hoomissen, Manager
High Level Radwaste Services

cc: Mark A. Haney, ILEPA
Ronald G. Damm, GE-Morris Operation
Irene A. Boczek, General Electric Company,
3135 Easton Turnpike, M/C W1B2, Fairfield, CT 06431

NO ACTION TAKEN
PENDING DECISION ON WITHDRAWAL
BY EPA STAFF
DATE 11-18-85

CERTIFICATION REGARDING POTENTIAL RELEASES FROM
SOLID WASTE MANAGEMENT UNITS

FACILITY NAME: GENERAL ELECTRIC COMPANY - MORRIS OPERATION

EPA I.D. NUMBER: ILD 06238694

LOCATION CITY: 7555 EAST COLLINS ROAD, MORRIS

STATE: ILLINOIS 60450

1. Are there any of the following solid waste management units (existing or closed) at your facility? NOTE - DO NOT INCLUDE HAZARDOUS WASTES UNITS CURRENTLY SHOWN IN YOUR PART B APPLICATION

	YES	NO
° Landfill		X
° Surface Impoundment	X*	
° Land Farm		X
° Waste Pile		X
° Incinerator		X
° Storage Tank (Above Ground)		X
° Storage Tank (Underground)		X
° Container Storage Area	X*	
° Injection Wells		X
° Wastewater Treatment Units		X
° Transfer Stations		X
° Waste Recycling Operations		X
° Waste Treatment, Detoxification		X
° Other _____		X

2. If there are "Yes" answers to any of the items in Number 1 above, please provide a description of the wastes that were stored, treated or disposed of in each unit. In particular, please focus on whether or not the wastes would be considered as hazardous wastes or hazardous constituents under RCRA. Also include any available data on quantities or volume of wastes disposed on and the dates of disposal. Please also provide a description of each unit and include capacity, dimensions, location at facility, provide a site plan if avaliable.

1. Surface impoundment served as "elementary neutralization facility" for demineralizer regeneration acid and alkali. Acid and alkali are now neutralized prior to transfer to surface impoundment.

2. Selenium coated photocopier drum since recycled; 7 pounds of acrylamide and 5 pounds of algacide disposed of to Waste Management, Inc.

NOTE: Hazardous waste are those identified in 40 CFR 261. Hazardous constituents are those listed in Appendix VIII Of 40 CFR Part 261.

*Units are no longer in use and have been "closed." A request for withdrawal of Permit Application has been made.

3. For the units noted in Number 1 above and also those hazardous waste units in your Part B application, please describe for each unit any data available on any prior or current releases of hazardous wastes or constituents to the environment that may have occurred in the part or still be occurring.

   Please provide the following information

   a. Date of release
   b. Type of waste released
   c. Quantity or volume of waste released
   d. Describe nature of release (i.e., spill, overflow, ruptured pipe or tank, etc.)

   NO RELEASES

4. In regard to the prior releases described in Number 3 above, please provide (for each unit) any analytical data that may be available which would describe the nature and extent of environmental contamination that exists as a result of such releases. Please focus on concentrations of hazardous wastes or constituents present in contaminated soil or groundwater.

   NONE

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the submittal is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (42 U.S.C. 6902 et seq. and 40 CFR 270.11(d))

J. E. VAN HOOMISSEN, MGR-HIGH LEVEL RADWASTE SERVICES
Typed Name and Title

J. E. Van Hoomissen
Signature

11/1/85
Date

APPENDIX A

Certification Statement

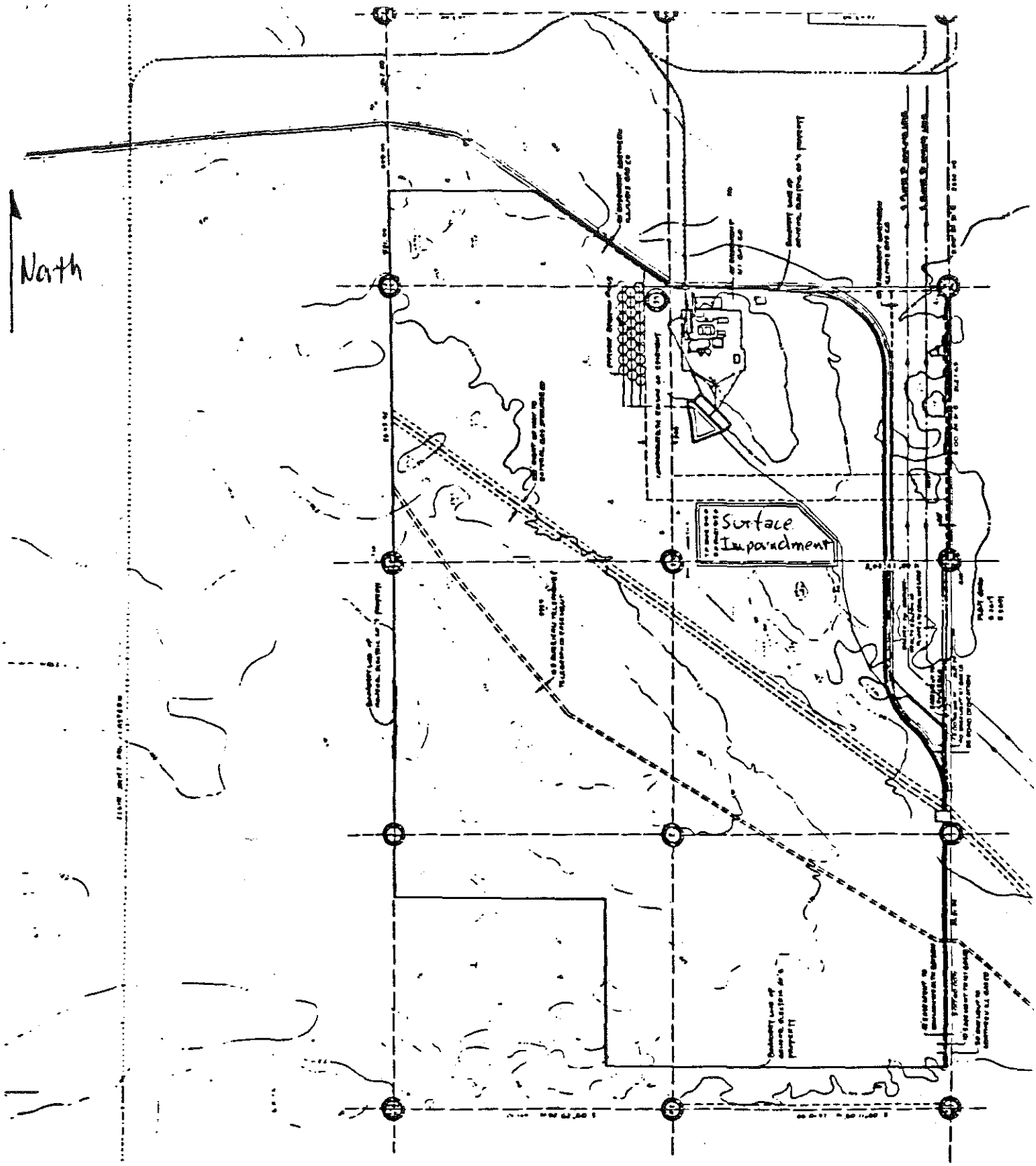
I, J.E. VAN HOOMISSEN, am the owner/operator of GENERAL ELECTRIC CO. MORRIS OPERATION # ILD 062338694 (EPA ID #), located at: 7555 E. COLLINS ROAD, MORRIS, IL 60450. I certify that the SURFACE IMPOUNDMENT (name of unit(s) as identified on the attached surface topography map) at this facility is in compliance with: (1) all applicable ground-water monitoring and financial responsiblity requirements in 40 CFR part 265 Subparts F and H; or (2) all applicable State ground-water monitoring and financial responibility requirements which are part of the State's authorized hazardous waste program under Section 3006 of RCRA.

I, J.E. VAN HOOMISSEN, as owner/operator of GENERAL ELECTRIC CO. MORRIS OPERATION, located at 7555 E. COLLINS RD, MORRIS, IL 60450, knowingly and willfully make this true and accurate certification to the United States Environmental Protection Agency pursuant to Section 3005(e) of the Hazardous and Solid Waste Disposal Act, as amended.

11/1/85
(Date)

J.E. Van Hoomissen
(Signature)

Note: Federal Law subjects anyone who falsely makes or uses this certification to a fine and imprisonment under SWDA, 18 U.S.C. 1001 and 18 U.S.C. 1341.



FACILITY DRAWING A

REQUEST FOR PERMIT APPLICATION WITHDRAWAL

Background

Since 1980, the General Electric Company Morris Operation has been considered by EPA as a generator of hazardous wastes and has operated facilities for treatment and storage of such materials. (Hazardous Waste Permit Application dated November 13, 1980.) These facilities included:

- a surface impoundment which served as an "elementary neutralization unit" for demineralizer regeneration effluents, nitric acid and sodium hydroxide.

- a storage facility consisting of two 55-gallon storage drums for small quantities of solid hazardous wastes.

The surface impoundment qualified for EPA regulation because the effluents discharged to it were categorized as corrosive materials, with acid discharges below pH of 2 and alkali discharges above pH of 12.5 (40CFR261.22). However, the contents of the pond itself, due to the "self-neutralization" of the two influent streams and the volume of the impoundment, has never in the 15 years of operation exhibited the "characteristics of corrosivity", i.e., the pH has fallen well within the range of 2-12.5. In 15 measurements over the past four years the pH has averaged 8.5 (standard deviation, 0.8; range 7.0-9.6).

Current Status

Recently we have provided a neutralization tank as part of the water demineralizer system. Consequently, in the future no influent to the surface impoundment will qualify as hazardous waste. The hazardous waste which had accumulated in storage since inception of NEPA regulations consisted of seven pounds of acrylamide, five pounds of an algacide and a used selenium surfaced drum from a xerographic photocopier. The selenium covered drum was recycled to the photocopier vendor and the residual hazardous waste disposed of to Waste Management, Inc. (See Attachment 1.)

Discussion

Since Morris Operation does not and has never routinely generated hazardous wastes as defined in 40CFR262.11 and has only had such materials on hand as a result of acquisitions preceding NEPA requirements, the facility does not qualify - and probably never did - as a generator of hazardous materials. Furthermore we do not foresee any use of materials which would produce waste qualifying as hazardous.

Since we no longer use our surface impoundment as a neutralization facility and no corrosive or otherwise defined hazardous materials are routed to it, it no longer falls under the jurisdiction of Title 40. (The surface impoundment will remain in operation, but influents will be non-hazardous wastes; i.e., neutralized demineralizer wastes.)

The hazardous waste formerly stored at Morris Operation has been removed and there is no intent to accumulate additional material. We have therefore "closed" the storage site.

At this time, therefore, we have implemented the Closure Plan submitted to the Illinois EPA on September 30, 1985 (Attachment 2). We believe the status of Morris Operation currently fulfills the requirements of 40CFR264.11. All hazardous material has been disposed of per requirement of 40CFR265.114; the storage site has been closed, and the surface impoundment has been abandoned as a neutralization facility for influent corrosive materials.

Our Closure Plan did not address decontamination of the facility because the small amount of material and the nature of the storage - in 55-gallon drums in a shed with concrete floor - resulted in no facility contamination. Also, since the surface impoundment only served as a neutralization facility and never received or stored hazardous wastes, other than the corrosive acid and alkali streams from water demineralization, there was no perceived need for decontamination.

Request for Permit Withdrawal

From consideration of the above described long term experience and facility changes, General Electric Company believes that Morris Operation no longer falls under the classification of hazardous waste generator, treatment, or storage facility and therefore, requests withdrawal of the application for permit under RCRA.

E.E. Voiland

Operator. E.E. Voiland
General Electric Company
7555 E. Collins Road
Morris, IL 60450

J.E. Van Hoomissen

Owner. J.E. Van Hoomissen, for
General Electric Company
175 Curtner Avenue
San Jose, CA 95125

cc: Mark A. Haney, ILEPA
Ronald G. Damm, GE-Morris Operation
Irene A. Boczek, General Electric Company,
3135 Easton Turnpike, M/C W1B2, Fairfield, CT 06431

GENERAL ELECTRIC COMPANY

SHIPPING NOTICE

(STARRED SPACES TO BE FILLED IN BY M/S)

No. 585942

USTOMER'S RDER NO. 284-GH-021X

ATE 10-4-85

(TYPE SYMBOL I. R.)

INVOICE NO.

DATE

S. N. NO.

(TYPE SYMBOL S. N.) M/S ★

PLEASE SHOW ABOVE S. N. NO. ON ALL CORRESPONDENCE AND CREDITS RELATING TO THIS SHIPMENT.

(DO NOT TYPE IN SPACE BELOW)

SELECTED BY	CHECKED BY
PACKED BY	MARKED BY
SHIPPED BY	WEIGHT
BOXING	TRANSP. CHARGES
FREIGHT CLASS	
POSTAL ZONE	CAR NO.
SHIP VIA.	

HARGE

IP TO Franzeses' Dual Copier Service
2411 Bond Street
University Park, IL 60466

RKS—SEE NOTE
DER INSTRUCTIONS

TE SHIPPED★ 8-16-85 FROM★ Morris, IL PPD. OR COLL★ N/A

R INITIALS & NO.★ Vendor F.O.B.
Y SHIPPED
OUTE★

ACCOUNTING DISTR.

INTERNAL INSTRUCTIONS

Mark packages with S.N. No., also with I.R. No. or Customer's Order No. if either appears on this shipping notice.

Show the S.N. No. and Customer's Order No. (if any) on all correspondence.

Invoice Number and Date to be filled in by Accounting.

PACKAGE★ NUMBERS	QUANTITY	DESCRIPTION	SPACE BELOW FOR ACCTG USE ONLY: PRICE	AMOUNT	CLASS
	1 ea	Selenium coated copier reprographic drum, recycle to beneficial reuse			
		CONFIRMING			
		Return of vendor property			

INDICATE WHETHER PREPAID OR COLLECT: Vendor PREPAID

INDIVIDUAL REQUESTING SHIPMENT: L. L. Denio

COPY R OR B/L TO

CHARGE

MATERIAL TO

Y TO

INCOMING TRANS. TO

CATE INFORMATION BY AN "X"

OUTGOING TRANS. TO

ERTY OMER X REJECTED MATERIAL | SALE | FOR TRIAL TO BE RETURNED: YES NO X

BOXING TO

ES OF O

DATE ISSUED 10-7-85 DEPT. LOCATION GE, Morris Operation, 7555 E Collins Rd, Morris, IL 60450

AUTHORIZED SIGNATURE S. P. Sc[illegible] BY

PP-487 (5 SHTS.) 5-65

(1) SHIPPING
SHIPPER'S COPY OF BILLING NOTICE

GENERAL ELECTRIC COMPANY

SHIPPING NOTICE

(STARRED SPACES TO BE FILLED IN BY M/S)

No. 585960

USTOMER'S RDER NO. 10-18-85

(TYPE SYMBOL I. R.)

INVOICE NO.

DATE

S. N. NO. (TYPE SYMBOL S. N.)

M/S ★

PLEASE SHOW ABOVE S. N. NO. ON ALL CORRESPONDENCE AND CREDITS RELATING TO THIS SHIPMENT.

(DO NOT TYPE IN SPACE BELOW)

SELECTED BY	CHECKED BY
PACKED BY	MARKED BY
SHIPPED BY	WEIGHT
BOXING	TRANSP. CHARGES
FREIGHT CLASS	
POSTAL ZONE	CAR NO.
SHIP VIA.	

HARGE O

HIP TO Chemical Waste Management of Illinois
4300 123rd Street
Alsip, IL 60658

ARKS—SEE NOTE NDER INSTRUCTIONS

ATE SHIPPED★ 10-18-85 FROM★ Morris, IL PPD. OR COLL★ PPD

AR INITIALS & NO.★ Vendor F.O.B.

OW SHIPPED ROUTE★ Vendor Truck

ERMS

ACCOUNTING DISTR.

INTERNAL INSTRUCTIONS

Mark packages with S.N. No., also with I.R. No. or Customer's Order No. if either appears on this shipping notice.

Show the S.N. No. and Customer's Order No. (if any) on all correspondence.

Invoice Number and Date to be filled in by Accounting.

PACKAGE★ NUMBERS	QUANTITY	DESCRIPTION	SPACE BELOW FOR ACCTG. USE ONLY PRICE	AMOUNT	CLASS
	2 drums (5gal cap'y)	Acrylamide, Poison B, solid, N.O.S. UN2811 EPA hazardous waste no. U007, 7 lbs			
	1 drum (5gal cap'y)	Algacide, Poison B, solid, N.O.S. UN2811 5lbs			
		Disposal of hazardous waste (Note: above 3 drums combined into 1 55gallon drum and shipped as Hazardous Waste, Solid nos, ORM-E NA9189)			

SHIP VIA Vendor truck

INDICATE WHETHER PREPAID OR COLLECT PREPAID

INDIVIDUAL REQUESTING SHIPMENT N. P. Shaikh

SEND COPY OF E/R OR B/L TO

COPY M/S TO

INDICATE INFORMATION BY AN "X"

PROPERTY CUSTOMER | REJECTED MATERIAL | SALE | FOR TRIAL TO BE RETURNED: YES NO X

CHARGE MATERIAL TO

INCOMING TRANS. TO

OUTGOING TRANS. TO

BOXING TO

COPIES OF TO

DATE ISSUED 10-18-85 DEPT. GE, Morris Operation, LOCATION 7555 E Collins Rd, Morris, IL 60450

AUTHORIZED SIGNATURE S.P. Sc[illegible] BY Dave Dramatte

FF-497 (5 SHTS.) 5-68

(1) SHIPPING
SHIPPER'S COPY OF BILLING NOTICE

HAZARDOUS WASTE MANIFEST

(As Required By The Alabama Department of Environmental Management)

Please print or type. *(Form designed for use on elite (12-pitch) typewriter.)*

Form Approved. OMB No. 2000-0404. Expires 7-31-86

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. — Manifest Document No.

2. Page 1 of 1

Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address

4. Generator's Phone (812)

A. State Manifest Document Number: CWMA 237579

B. State Generator's ID: IL 0630600002

5. Transporter 1 Company Name — 6. US EPA ID Number

C. State Transporter's ID: 0075

D. Transporter's Phone: (312) 396-1060

7. Transporter 2 Company Name — 8. US EPA ID Number

E. State Transporter's ID: 0075

F. Transporter's Phone: (312) 396-1060

9. Designated Facility Name and Site Address — 10. US EPA ID Number

CHEMICAL WASTE MANAGEMENT, INC.
Emelle Facility
Alabama Highway 17 at Mile Marker 163
Emelle, Alabama 35459

A L D 0 0 0 6 2 2 4 6 4

G. State Facility's ID: 9011190001

H. Facility's Phone: 205/652-9721

11. US DOT Description *(Including Proper Shipping Name, Hazard Class, and ID Number)*	12. Containers No.	12. Containers Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. CWM Profile Number					U007
b. CWM Profile Number					
c. CWM Profile Number					
d. CWM Profile Number					

J. Additional Descriptions for Materials Listed Above

K. Handling Codes for Wastes Listed Above

a. c.

b. d.

15. Special Handling Instructions and Additional Information

16. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.

Unless I am a small quantity generator who has been exempted by statute or regulation from the duty to make a waste minimization certification under Section 3002(b) of RCRA, I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

Printed/Typed Name — Signature — Month Day Year

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Month Day Year

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name — Signature — Month Day Year

19. Discrepancy Indication Space

LAB WASTE DEPT.

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name — Signature — Month Day Year

EPA Form 8700-22 (Rev. 4-85) Previous edition is obsolete.

Generator No. 1

To _____

Customer's Order No. _____

te 10-18-85

I.R. No. _____

REQUEST FOR ISSUANCE OF SHIPPING NOTICE

S.N. No. 585960
Do Not Write In This Space

Charge To _____
NAME

ADDRESS

ATTENTION

Ship To Chemical Waste Management of Illinois
NAME
4300 W. 123rd St.
ADDRESS
Alsip, IL 60658
ATTENTION

Terms _____

IF GE CO. PROPERTY, STATE ACCOUNT NUMBER

QUANTITY	PART NO. & DESCRIPTION
2 - drums	Acrylamide, Poison B, solid, n.o.s. UN2811
	EPA hazardous waste no. U007 ~~8~~7 lbs.
1 drum	Algacide, Poison B, solid, n.o.s. UN2811
	Hazardous Waste

Reason for making shipment: Disposal of Hazardous Wastes

Date of Return

Suggested Method Of Shipment	Prepay or Collect	Approx. Value	Shipment Authorized By
vendor truck	X	0.00	S.P. Sc[illegible]

Send Copy of E/R or B/L To

CHARGE Material To

Copy M/S To

Incoming Trans. To

Indicate Information By An "X"

SALE	SAMPLE	CONSIGN.	Will Material be returned? YES
PROPERTY CUSTOMER	REJECTED MATERIAL		NO X

Outgoing Trans. To

Boxing To

Copies of I To _____

COMPONENT 813

APPROVED BY [signature] for T. Ingels 10-18-85

CHECKED BY _____

DATE 10-18-85

REQUESTED BY [signature]

FF-736 (6-69) rev.

Waste Management, Inc.

GENERATOR'S WASTE MATERIAL PROFILE SHEET

LAB TSDR E36749

GENERAL INFORMATION

TOR NAME: General Electric Company
TRANSPORTER: CWM - Alsip
ADDRESS: 7555 East Collins Road
TRANSPORTER PHONE: (312) 396-1060
Morris, Illinois 60450
GENERATOR USEPA I.D.
GENERATOR STATE I.D.
HNICAL CONTACT: Steve Schmid
TITLE:
PHONE: (815) 942-5590
ME OF WASTE: Lab pack drum
CESS GENERATING WASTE: Discarding miscelleneous expired laboratory chemicals

PHYSICAL CHARACTERISTICS OF WASTE

LOR: Various

ODOR: ☐ NONE ☐ MILD ☐ STRONG
DESCRIBE: Various

PHYSICAL STATE @ 70°F: ☐ SOLID ☐ SEMI-SOLID ☐ LIQUID ☐ POWDER — Various

LAYERS: ☐ MULTILAYERED ☐ BI-LAYERED ☐ SINGLE PHASED — Various

FREE LIQUIDS: ☐ YES ☐ NO
VOLUME: Various

☐ < 2 ☐ 7.1-10 ☐ N/A
☐ 2-4 ☐ 10.1-12.5
☐ 4.1-6.9 ☐ > 12.5
☐ 7 ☐ EXACT — Various

SPECIFIC GRAVITY: ☐ < .8 ☐ 1.3-1.4 ☐ .8-1.0 ☐ 1.5-1.7 ☐ 1.1-1.2 ☐ > 1.7 ☐ EXACT — Various

FLASH POINT: ☐ < 70°F ☐ > 200°F ☐ CLOSED CUP ☐ 70°F-100°F ☐ NO FLASH ☐ OPEN CUP ☐ 101°F-139°F ☐ EXACT — Various See attach drum inventory shee ☐ 140°F-200°F

CHEMICAL COMPOSITION (TOTALS MUST ADD TO 100%)

Lab pack drum %
See attached drum inventory sheet %

D METALS ☒ TOTAL (PPM) ☐ EPA EXTRACTION PROCEDURE (mg/L)

ARSENIC (As)
SELENIUM (Se)
BARIUM (Ba) — See attached drum inventory shee
SILVER (Ag)
CADMIUM (Cd)
COPPER (Cu)
CHROMIUM (Cr)
NICKEL (Ni)
MERCURY (Hg)
ZINC (Zn)
LEAD (Pb)
THALLIUM (Tl)
CHROMIUM-HEX (Cr + 6)

E OTHER COMPONENTS - TOTAL (PPM)

CYANIDES: See drum inventory
PCB'S: See drum invent
SULFIDES: See drum inventory
PHENOLICS: See drum invent

SHIPPING INFORMATION

.T. HAZARDOUS MATERIAL? ☒ YES ☐ NO
OPER SHIPPING NAME: See attached manifests
ZARD CLASS: Various I.D. NO. Various R.Q. Variou
THOD OF SHIPMENT: ☐ BULK LIQUID 1-55 ☐ BULK SOLID
☒ DRUM (TYPE/SIZE) ~~[illegible]~~
TICIPATED VOLUME: 55 GALS. CUBIC YARDS
OTHER
PER: ☒ ONE TIME ☐ WEEK ☐ MONTH ☐ QUARTER ☐ YEAR ☐

G HAZARDOUS CHARACTERISTICS

REACTIVITY: ☒ NONE ☐ PYROPHORIC ☐ SHOCK SENSITIVE ☐ EXPLOSIVE ☐ WATER REACTIVE ☐ OTHER

OTHER HAZARDOUS CHARACTERISTICS: ☒ NONE ☐ RADIOACTIVE ☐ ETIOLOGICAL ☐ PESTICIDE MANUFACTURING WASTE ☐ OTHER

USEPA HAZARDOUS WASTE? ☒ YES ☐ NO
USEPA HAZARDOUS CODE(S): See attached drum invent

STATE HAZARDOUS WASTE? ☒ YES ☐ NO
STATE CODE(S): See attached drum inventory shee

SPECIAL HANDLING INFORMATION

☐ ADDITIONAL PAGE(S) ATTACHED

/ CERTIFY THAT ALL INFORMATION SUBMITTED IN THIS AND ALL ATTACHED DOCUMENTS IS COMPLETE AND ACCURATE, AND THAT ALL KNOWN OR ...TED HAZARDS HAVE BEEN DISCLOSED.

THORIZED SIGNATURE: X Stephen Sch[illegible]
TITLE: Specialist, Field Services
DATE: 10-18-85

M WMI-6000-8/83 ©1983 WASTE MANAGEMENT, INC.

ATTACHMENT 2

CLOSURE PLAN

ime of Site: General Electric Company - Morris Operation

e Location:

Street, R.R. # or P.O. Box 7555 E. Collins Road

City Morris State Illinois Zip Code 60450

ame of Owner: General Electric Company

ddress:

Street, R.R. # or P. O. Box 175 Curtner Avenue

City San Jose State California Zip Code 95125

ontact Name: Ronald G. Damm

phone number (815) 942-5590, Ext. 54

A I.D. No. ILD062338694 IEPA Site No. 0630600048 Grundy County

losure shall be: X Complete ☐ Partial (check one)

1. Attach the Part A for this facility and a map diagram or picture showing the facility lay-out and the area s to be closed.
2. State the reason of closure. We intend to request a change in the facility classification from "Generator" to "Small Quantity Generator"; hence, no designated storage facility is necessary. (Morris Operation currently operates a surface impoundment which the US EPA believes qualifies as an "elementary neutralization unit". We are in the process of eliminating it for this purpose and we will notify you later as to the date this facility is discontinued.)
3. Provide an estimate of the maximum inventory of waste in storage during the life of the facility. Include a list of hazardous wastes, their codes, and amount in storage at the time of closure.

Acrylamide	7 lbs
Deady #4 Algacide	5 lbs
Selenium Drum from Photocopier	<1 lb (of Selenium)

The above quantities are the total accrued over the lifetime of the facility.

4. Provide a schedule of closure that briefly describes how and when the facility will be closed.

Before October 31, 1985, the hazardous wastes listed in 3, above, will be properly packaged and tendered to an authorized Waste Disposal Operator.

Describe the steps taken at the time of closure to remove hazardous waste residues from the tank(s), its' discharge control equipment and discharge confinement structures.

There is no hazardous waste stored in tanks at Morris Operation.

Describe the steps taken to remove containers, liners, base and soil containing or contaminated with hazardous waste.

All hazardous chemical waste is currently stored in two 55-gallon steel drums. The structure within which the drums are stored has a concrete floor. There has been no contamination of soil and contamination of the floor, if any, is inconsequential; however, the floor will be cleaned after the drums have been disposed of.

Certification: The undersigned hereby makes an application for a Closure Plan approval and certifies that the information referenced herein is true, correct and current.

T. E. Ingels 9-30-85	John Van Hoomissen
Signature of Operator Acting For E. E. Voiland	Signature of Owner
E. E. Voiland - General Electric Co.	General Electric Co.
Name	Name
7555 E. Collins Road	175 Curtner Avenue
Address	Address
Morris, Illinois 60450	San Jose, California 95125

Agency 1984 is authorized to require this information under Illinois Revised Statutes Chapter 111 1/2, Section 1004. Disclosure of this information is required. Failure to do so result in a civil penalty up to $25,000 for each day of violation, up to $50,000 for each violation and imprisonment up to five years. This form has been approved by the Management Center.

532 1243
PC 164 7 84

APPENDIX C

Appendix C

Demonstration by General Electric Company of Financial Responsibility for Liability Coverage and Closure and/or Post-Closure Care

GE DISK #1\CH00098.CL3\CLOSURE.REV

(F) R5

July 12, 1989

Re: Resubmittal of Financial Assurance Documentation by General Electric Company to Reflect Changes in Facility Closure Costs

Dear Sir or Madam:

The attached information is being resubmitted by the General Electric Company to reflect changes in the closure/post closure cost estimate information subsequent to our March 24, 1989 submission for various GE facilities, some of which are located in your region. For your information, the facilities affected by resubmission are identified on the enclosure entitled, "Explanation of Cost Estimates Adjusted Different from Inflation Factor".

Please note that the resubmission of this information does not materially affect GE's ability to demonstrate financial assurance under the financial test and is being submitted in compliance with the financial responsibility requirements of your state's hazardous waste program.

The resubmission information enclosed includes a certification letter from the Chief Financial Officer with wording for the financial test, including the schedules of affected facilities as specified in the certification letter. Also included is a report from Peat, Marwick, Mitchell & Co. regarding General Electric Company's financial information as shown in the letter from the Chief Financial Officer.

If you have any questions about the information submitted, please contact me at (203) 373-2950.

Very truly yours,

Paul Chin
Environmental Consultant

PC:lcm
Enclosures

EXPLANATION OF COST ESTIMATES 07-11-1989

ADJUSTED DIFFERENT FROM INFLATION FACTOR

EPA ID #	STATUS	EXPLANATION
CAD053914206	I	AMENDED SUBMISSION TO INCLUDE P-CLOSURE COSTS PER DEPT HEALTH SERVICES REQUEST.
COD062753702	G	GENERATOR STATUS PER NOTICE FROM STATE DATED 9/21/88 AND 5/31/89.
CTD000842492	I	REVISED ESTIMATE TO REFLECT INCREASED COSTS PER BIDS FROM CLEAN-UP CONTRACTORS.
ILD062338694	N	INTERIM STATUS APPLICATION BEING WITHDRAWN. COSTS TO CLEAN/CLOSE STORAGE AREA.
ILD079135133	I	BORG-WARNER SITE - NEWLY ACQUIRED.
MSD000742668	P	BORG-WARNER SITE - NEWLY ACQUIRED.
NYD002080034	I	CORRECTED POST-CLOSURE ESTIMATE TO REFLECT 30-YEAR COST PROJECTION.
NYD002084135	I	INCREASED EST. TO REFLECT INCREASE IN VOLUME STORED & INCREASED DISPOSAL COSTS.
NYD002235182	G	FA NOT REQUIRED. 6/89 APPLIED FOR RECLASSIFICATION TO "PROTECTIVE FILER".
NYD066832023	P	REVISED 1988 ESTIMATE TO REFLECT ADJUSTMENT BASED ON 1.0314 INFLATION FACTOR
WVD088911854	M	BORG-WARNER SITE - NEWLY ACQUIRED. REMOVED 1 STORAGE TANK ($1,875).
WVD980552384	P	BORG-WARNER SITE - NEWLY ACQUIRED.

Total Facilities: 12

KPMG Peat Marwick

Certified Public Accountants

Peat Marwick Main & Co.
Stamford Square
3001 Summer Street
Stamford, CT 06905

June 30, 1989

Mr. Dennis D. Dammerman
Senior Vice President - Finance
General Electric Company
3135 Easton Turnpike
Fairfield, Connecticut 06431

Dear Mr. Dammerman:

At your request, we have performed the procedures enumerated below with respect to Part B of your certificate on behalf of General Electric Company, dated June 30, 1989, to the Environmental Protection Agency. These procedures were performed solely to assist you in connection with the filing of the above mentioned certificate, and our report is not to be used for any other purpose. The procedures we performed are summarized as follows:

- The dollar amount of tangible net worth included under item 7, Part B, certificate Page Two - We compared the dollar amount of tangible net worth, which represents total share owners' equity less total intangible assets, with the difference between amounts shown on the "Statement of Financial Position" page 26 of the Company's 1988 Annual Report for total share owners' equity and intangible assets and found them to be in agreement.

- To determine that the "Not Applicable" response to item 8, Part B, certificate Page Two, and the positive response to item 11, Part B, certificate Page Three were correct, we compared the amount of United States assets included in the geographic segment information disclosed in Note 34 on page 69 of the Company's 1988 Annual Report with the product of 90% times total assets as shown on the "Statement of Financial Position" page 26 of the Company's 1988 Annual Report and found that the dollar amount of assets in the United States was greater than the result of the computation described above.

Because the above procedures do not constitute an audit made in accordance with generally accepted auditing standards, we express no opinion on any of the items referred to above. In connection with the procedures referred to above, no matters came to our attention that caused us to believe that the specified amounts or items should be adjusted. Had we performed additional procedures, matters might have come to our attention that would have been reported to you. This report relates only to the amounts and items specified above and does not extend to any financial statements of General Electric Company and consolidated affiliates taken as a whole.

Very truly yours,

PEAT MARWICK MAIN & CO.

E.R. Noonan
Partner

Corporate Environmental Programs
General Electric Company
3135 Easton Turnpike, Fairfield CT 06431

June 30, 1989

Letter from Chief Financial Officer to Demonstrate Both Liability Coverage and Assurance of Closure or Post Closure

Region V
230 South Dearborn
Chicago, IL 60604

I am the chief financial officer of the General Electric Company, 1 River Road, Schenectady, New York 12345. This letter is in support of the use of the financial test to demonstrate financial responsibility for liability coverage and closure and/or post-closure care as specified in Subpart H of 40 CFR Parts 264 and 265.

The firm identified above is the owner or operator of the following facilities for which liability coverage for both sudden and nonsudden accidental occurrences is being demonstrated through the financial test specified in Subpart H of 40 CFR Parts 264 and 265: See Attachment A.

The firm identified above guarantees, through the corporate guarantee specified in Subpart H of 40 CFR Parts 264 and 265, liability coverage for both sudden and nonsudden accidental occurrences at the following facilities owned or operated by the following subsidiaries of the firm: See Attachment A.

1. The firm identified above owns or operates the following facilities for which financial assurance for closure or post-closure care is demonstrated through the financial test specified in Subpart H of 40 CFR Parts 264 and 265. The current closure and/or post-closure cost estimates covered by the test are shown for each facility: See Attachment B.

2. The firm identified above guarantees, through the corporate guarantee specified in Subpart H of 40 CFR Parts 264 and 265, the closure and post-closure care of the following facilities owned or opeated by its subsidiaries. The current cost estimates for the closure or post-closure care so guaranteed are shown for each facility: See Attachment B.

3. In states where EPA is not administering the financial requirements of Subpart H of 40 CFR Parts 264 and 265, this firm is demonstrating financial assurance for the closure or post-closure care of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in Subpart H of 40 CFR Parts 264 and 265. The current closure or post-closure cost estimates covered by such a test are shown for each facility: See Attachment C.

4. The firm identified above owns or operates the following hazardous waste management facilities for which financial assurance for closure or, if a disposal facility, post-closure care, is not demonstrated either to EPA or a State through the financial test or any other financial assurance mechanisms specified in Subpart H of 40 CFR Oarts 264 and 265 or equivalent or substantially equivalent State mechanism. The current closure and/or post-closure cost estimates not covered by such financial assurance are shown for each facility: None

5. This firm is the owner or operator of the following UIC facilities for which financial assurance for plugging and abandonment is required under Part 144. The current closure cost estimates as required by 40 CFR 144.62 are shown for each facility: None

This firm is required to file a Form 10K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

The fiscal year of this firm ends on December 31. The figures for the following items marked with an asterisk are derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year ended December 31, 1988.

Part B. Closure or Post-Closure Care and Liability Coverage.

Alternative II

		(Dollars in thousands)
1.	Sum of current closure and post-closure cost estimates (total of all cost estimates listed above)	$44,874
2.	Amount of annual aggregate liability coverage to be demonstrated	$31,000
3.	Sum of lines 1 and 2	$75,874
4.	Current bond rating of most recent issuance and name of rating service	Aaa - Moody's AAA - Standard & Poor's
5.	Date of issuance of bond	2/10/1988
6.	Date of maturity of bond	1991
7.*	Tangible net worth (if any portion of the closure or post-closure cost estimates is included in "total liabilities" on your financial statements, you may add that portion to this line)	$ 9,914,000
8.*	Total assets in the U.S. (required only if less than 90% of assets are located in the U.S.)	$NOT APPLICABLE

		YES	NO
9.	Is line 7 at least $10 million?	X	
10.	Is line 7 at least 6 times line 3?	X	
11.*	Are at least 90% of the assets located in the U.S.?	X	
12.	Is line 8 at least 6 times line 3?		

I hereby certify that the wording of this letter is identical to the wording specified in 40 CFR 264.151(g).

Dennis D. Dammerman
Senior Vice President - Finance
June 30, 1989

ATTACHMENT A

06-15-1989
PAGE: 1

LIABILITY -- ALL OWNED/OPERATED FACILITIES
(SORTED ALPHABETICALLY BY STATE)

EPA ID #	FACILITY NAME	STREET	CITY	ST	ZIP
ALD981026677	GE PLASTICS-BURKVILLE OPERATION	ONE PLASTICS DRIVE	BURKVILLE	AL	36752
CAD000819680	GE ULTRASOUND PLANT	3920 SECURITY PARK DRIVE	RANCHO CORDOVA	CA	95670
CAD009208075	GE SAN FRANCISCO SERVICE CTR.	5441 E. 14TH STREET	OAKLAND	CA	94601
CAD009542721	GE EMC/ONTARIO	1923 E. AVION STREET	ONTARIO	CA	91761
CAD030584502	GE LOS ANGELES SERVICE CENTER	3601 E. LaPALMA AVENUE	ANAHEIM	CA	92806
CAD053914206	GE VALLERCITOS NUCLEAR CENTER	PO BOX 460	PLEASONTON	CA	94566
CAT000611095	GE ED & C	11115 VAN OWEN STREET	NORTH HOLLYWOOD	CA	91605
CAT000613471	GE NUCLEAR ENERGY	175 CURTNER AVENUE	SAN JOSE	CA	95125
CTD000842492	GE WASTEWATER SETTLING AREA	41 WOODFORD AVENUE	PLAINVILLE	CT	06062
CTD001453711	GE	1285 BOSTON AVENUE	BRIDGEPORT	CT	06601
FLD001690924	GE SIMULATED & CONTROL SYSTEMS DEPT	BOX 2500	DAYTONA BEACH	FL	32015
AD003308145	GE MEDIUM TRANSFORMER OPERATION	1935 REDMOND CIRCLE	ROME	GA	30161
IAD000678037	GE BURLINGTON BASKET COMPANY	1404-1418 WEST PLEASANT ST.	W.BURLINGTON	IA	52655
IAD005272703	GE SWITCHGEAR OPERATIONS	510 AGENCY ROAD	W. BURLINGTON	IA	52655
IAD075836130	GE APPLIANCE CONTROL DEPARTMENT	1803 RADIANTANCY	CARROLL	IA	51401
ILD005272992	GE APPLIANCE CONTROLS	709 W. WALL STREET	MORRISON	IL	61270
ILD005443866	GE MATTON LAMP	1501 S. 19TH STREET	MATTON	IL	61938
ILD005453691	GE GENERAL PURPOSE CONTROLS	1601 GE ROAD	BLOOMINGTON	IL	61704
ILD062338694	GEIPS - MORRIS PLANT	7555 E. COLLINS ROAD	MORRIS	IL	60450
ILD070015714	GE SERVICE SHOP - CHICAGO	6045 SOUTH NOTTINGHAM	CHICAGO	IL	60638
ILD980503023	GE	1540 S. 54TH AVENUE	CICERO	IL	60650
IND000803726	GE BLOOMINGTON PLANT OPERATIONS	301 NORTH CURRY PIKE	BLOOMINGTON	IN	47402
IND004557815	GE SPECIALTY TRANSFORMER OPERATION	1701 COLLEGE STREET	FORT WAYNE	IN	46802
IND006040299	GEM	12TH ST. SE. P.O. BOX 657	LINTON	IN	47441
IND006376362	GE PLASTICS	LEXAN LANE	MT. VERON	IN	47620
KSD041917501	GE-AEMC	STROTHER FIELD	ARKANSAS CITY	KS	67005

LIABILITY -- ALL OWNED/OPERATED FACILITIES
(SORTED ALPHABETICALLY BY STATE)

EPA ID #	FACILITY NAME	STREET	CITY	ST	ZIP
KYD006387021	GE APPLIANCE PARK	APPLIANCE PARK	LOUISVILLE	KY	40225
KYD074047556	GE AIRCRAFT ENGINES	US HIGHWAY 41A ROUTE 2	MADISONVILLE	KY	42431
LAD053782413	GE NEW ORLEANS SERVICE CENTER	1115 DeARMAS STREET	NEW ORLEANS	LA	70114
MDD046279311	GE APPLIANCE PARK-EAST	9001 SNOWDEN RIVER PARKWAY	COLUMBIA	MD	21046
MID050676622	GE DETROIT SERVICE CENTER	18075 KRAUSE STREET	RIVERVIEW	MI	48192
MND980501407	GE MINNEAPOLIS SERVICE CENTER	2025 49TH AVENUE NORTH	MINNEAPOLIS	MN	55430
MOD006312375	GE ST. LOUIS LAMP	6251 ETZEL AVENUE	ST. LOUIS	MO	63133
MOD030709539	GE MOTORS - SPRINGFIELD	P.O. BOX 3798, 2401 E.SUNSHINE	SPRINGFIELD	MO	65808
NCD003237948	GE HICKORY TRANSFORMER PLANT	1223 FAIRGROVE CHURCH ROAD	HICKORY	NC	28601
NCD050409150	GE WILMINGTON	CASTLE HAYNE RD. MC J26	WILMINGTON	NC	28402
NJD003918570	GE NEW YORK SERVICE CENTER	6001 TONNELLE AVENUE	NORTH BERGAN	NJ	07047
NYD000521971	GE AEROSPACE ELECTRONIC SYSTEMS	FRENCH ROAD	UTICA	NY	13503
NYD002080034	GE SILICONE PRODUCTS DIVISION	260 HUDSON RIVER ROAD	WATERFORD	NY	12188
NYD002080075	GE CAPACITOR & POWER PROTECTION	JOHN STREET	HUDSON FALLS	NY	12839
NYD002084135	GE	1 RIVER ROAD, BUILDING 41-111	SCHENECTADY	NY	12345
NYD059385120	GE ELECTRONICS PK, BG 7 CHEM ANNEX	P.O. BOX 4840	SYRACUSE	NY	13221
NYD066832023	GE PLASTICS - SELKIRK OPERATIONS	NORYL AVENUE	SELKIRK	NY	12158
NYD067539940	GE BUFFALO SERVICE CENTER	175 MILENS ROAD	TONAWANDA	NY	14150
NYD071094197	GE CORPORATE RESEARCH & DEVELOPMENT	PO BOX 8, BLDG. K-1, ROOM 1A69	SCHENECTADY	NY	12301
NYD093256063	GE CAPACITOR & POWER PROTECTION	381 UPPER BROADWAY	FORT EDWARD	NY	12828101

LIABILITY -- ALL OWNED/OPERATED FACILITIES
(SORTED ALPHABETICALLY BY STATE)

EPA ID #	FACILITY NAME	STREET	CITY	ST	ZIP
OHD000721456	GE ACSC/C	3023 SYMMES RD.	HAMILTON	OH	45216
OHD000817304	GE ACSC/C	1350 TENNESSEE AVE.	CINCINNATI	OH	45229
OHD000817312	GE AIRCRAFT ENGINES - EVANDALE	1 NEUMANN WAY - MD N123	CINCINNATI	OH	45215
OHD004176046	GE NILES/MAHONING GLASS	403 N. MAIN STREET	NILES	OH	44446
OHD004224960	GE TRUMBULL LAMP	1313 W. MARKET STREET	WARREN	OH	44485
OHD004226171	GE YOUNGSTOWN LAMP	40 HUGHES STREET	YOUNGSTOWN	OH	445027
OHD004227369	GE LIGHTING - TUNGSTEN PRODUCTS	21800 TUNGSTEN ROAD	EUCLID	OH	44117
OHD004302428	GE COSHOCTON PLANT	1350 SOUTH SECOND STREET	COSHOCTON	OH	43812
OHD009101494	GE ACSC/C	333 W. SEYMOUR AVENUE	CINCINNATI	OH	45216
OHD048432975	GE EUCLID SPECIALTY	1133 E. 152ND STREET	CLEVELAND	OH	44110
OHD048433080	GE CHEMICAL PRODUCTS	1099 IVANHOE ROAD	CLEVELAND	OH	44110
OHD059061317	GE RAVENNA LAMP	6800 N. CHESTNUT STREET	RAVENNA	OH	44266
OHD066052804	GE OHIO LAMP	1210 N. PARK AVENUE	WARREN	OH	44483
OHD074713561	GE CINCINNATI SERVICE CENTER	156 CIRCLE FREEWAY DRIVE	CINCINNATI	OH	45246
PAD003026903	GE PROPERTY	NEW HOLLAND AVENUE	LANCASTER	PA	17604
PAD005033055	GE - ERIE PLANT	2901 EAST LAKE ROAD, BLG 2-2	ERIE	PA	16531
PAD059290908	DIESEL ENGINE - GROVE CITY PLANT	INDUSTRIAL DRIVE	GROVE CITY	PA	16127
PAD060682622	GE BRIDGEVILLE GLASS	MAYER STREET	BRIDGEVILLE	PA	15017
CD067002147	GE MOBILE COMMUNICATINS - FLORENCE	3001 WEST RADIO DRIVE	FLORENCE	SC	29501
TXD060718269	GE HOUSTON SERVICE CENTER	8800 WALLISVILLE ROAD	HOUSTON	TX	77029
TXD064114242	GE DALLAS SERVICE CENTER	3202 MANOR WAY	DALLAS	TX	75235
TXD079400545	GE EDRCS HOUSTON	3530 W. 12TH STREET	HOUSTON	TX	77224
VAD003132255	GE MOBILE COMMUNICATIONS	MOUNTAIN VIEW ROUAD	LYNCHBURG	VA	24502
VAD003132255	GE MOBILE COMMUNICATIONS	MOUNTAIN VIEW ROAD	LYNCHBURG	VA	24502
VAD070360219	GE WINCHESTER LAMP	ROUTE 3, PO BOX 310	WINCHESTER	VA	22601
VTD002083434	GE ARMAMENT SYSTEMS DEPARTMENT	LAKESIDE AVENUE	BURLINGTON	VT	05401
WAD009278706	GE GEAE SCHC/SEATTLE	220 SOUTH DAWSON STREET	SEATTLE	WA	98108
WAD046207379	GE SEATTLE SERVICE CENTER	1031 4TH AVENUE NORTH	KENT	WA	98031
.0000808717	GE CT MANUFACTURING	16800 W. RYERSON ROAD	NEW BERLIN	WI	53151

LIABILITY -- ALL OWNED/OPERATED FACILITIES
(SORTED ALPHABETICALLY BY STATE)

EPA ID #	FACILITY NAME	STREET	CITY	ST	ZIP
WID000808725	GE ELECTRICAL PRODUCTION OPERATION	315 W. EDGERTON AVENUE	MILWAUKEE	WI	53207
WID006121347	GE APPLIANCES - MILWAUKEE PLANT	2205 SOUTH 43RD STREET	WEST MILWAUKEE	WI	53219
WID006121354	GE X-RAY MANUFACTURING	3000 N. GRANDVIEW BLVD.	WAUKESHA	WI	53188
WID086686003	GE TUBE MANUFACTURING	4855 WEST ELECTRIC AVENUE	MILWAUKEE	WI	53219
WID980683569	GE E. DALE TROUT	3114 N. GRANDVIEW BLVD.	WAUKESHA	WI	53188

TOTAL FACILITIES: 80

ATTACHMENT A

06-20-1989

LIABILITY -- CORPORATE GUARANTEE FACILITIES
(SORTED ALPHABETICAL BY STATE)

EPA ID #	FACILITY NAME	STREET	CITY	ST	ZIP
ILD079135133	GE PLASTICS - LINMAR	CANAL ROAD	OTTAWA	IL	61350
MSD000742668	GE PLASTICS - BAYMAR	P.O. BOX 2520	BAY ST. LOUIS	MS	39521
PRD000692582	GE CARIBE PRODUCTS, INC. VIEQUES	P.O. BOX 187	VIEQUES	PR	00765
PRD000692590	GE CARIBE PRODUCTS INC., RIO PIEDES	CALLE LA BRISA #5 SABANA LLANA	RIO PIEDRAS	PR	00924
PRD090070459	GE CARIBE	PO BOX 9069	HUMACAO	PR	00661
PRD090282757	GE CARIBE PRODUCTS	P.O. BOX 1430	JUANA DIAZ	PR	00665
PRD090306077	GE RECONSTRUCCION INDUSTRIAL CORP.		PONCE 00731	PR	00731
PRD090383860	CARBIBE GE PRODUCTS INC.	ZENO GANDIA PARK, RTE 120	ARECIBO	PR	00613
PRD090492109	GE-PATILLAS	STATE ROAD #3 KM 122.9	PATILAS	PR	00723
PRD090510793	GE CARIBE	P.O. BOX #377	PALMER	PR	00721
PRD091019224	CARIBE GE PRODUCTS INC.	P.O. BOX 186	SAN GERMAN	PR	00753
TXD061382206	GE RAILCAR REPAIR SERVICES CORP.	P.O. BOX 115/TIFFON ROAD	RANGER	TX	76470
VAD980551782	GE FANUC AUTOMATION NORTH AMERICA	PO BOX 8106	CHARLOTTESVILLE	VA	22906
WVD088911854	GE PLASTICS - WOODMAR	STATE ROUTE 892 (PO BOX 68)	WASHINGTON	WV	26181
WVD980552384	GE PLASTICS - WESTMAR	1000 DUPONT ROAD BUILDING 816	MORGANTOWN	WV	26505

TOTAL FACILITIES: 15

LIABILITY -- ALL OWNED/OPERATED FACILITIES
(SORTED ALPHABETICALLY BY STATE)

EPA ID #	FACILITY NAME	STREET	CITY	ST	ZIP
KYD006387021	GE APPLIANCE PARK	APPLIANCE PARK	LOUISVILLE	KY	40225
KYD074047556	GE AIRCRAFT ENGINES	US HIGHWAY 41A ROUTE 2	MADISONVILLE	KY	42431
LAD053782413	GE NEW ORLEANS SERVICE CENTER	1115 DeARMAS STREET	NEW ORLEANS	LA	70114
MDD046279311	GE APPLIANCE PARK-EAST	9001 SNOWDEN RIVER PARKWAY	COLUMBIA	MD	21046
MID050676622	GE DETROIT SERVICE CENTER	18075 KRAUSE STREET	RIVERVIEW	MI	48192
MND980501407	GE MINNEAPOLIS SERVICE CENTER	2025 49TH AVENUE NORTH	MINNEAPOLIS	MN	55430
MOD006312375	GE ST. LOUIS LAMP	6251 ETZEL AVENUE	ST. LOUIS	MO	63133
MOD030709539	GE MOTORS - SPRINGFIELD	P.O. BOX 3798, 2401 E.SUNSHINE	SPRINGFIELD	MO	65808
NCD003237948	GE HICKORY TRANSFORMER PLANT	1223 FAIRGROVE CHURCH ROAD	HICKORY	NC	28601
NCD050409150	GE WILMINGTON	CASTLE HAYNE RD. MC J26	WILMINGTON	NC	28402
NJD003918570	GE NEW YORK SERVICE CENTER	6001 TONNELLE AVENUE	NORTH BERGAN	NJ	07047
NYD000521971	GE AEROSPACE ELECTRONIC SYSTEMS	FRENCH ROAD	UTICA	NY	13503
NYD002080034	GE SILICONE PRODUCTS DIVISION	260 HUDSON RIVER ROAD	WATERFORD	NY	12188
NYD002080075	GE CAPACITOR & POWER PROTECTION	JOHN STREET	HUDSON FALLS	NY	12839
NYD002084135	GE	1 RIVER ROAD, BUILDING 41-111	SCHENECTADY	NY	12345
NYD059385120	GE ELECTRONICS PK, BG 7 CHEM ANNEX	P.O. BOX 4840	SYRACUSE	NY	13221
NYD066832023	GE PLASTICS - SELKIRK OPERATIONS	NORYL AVENUE	SELKIRK	NY	12158
NYD067539940	GE BUFFALO SERVICE CENTER	175 MILENS ROAD	TONAWANDA	NY	14150
NYD071094197	GE CORPORATE RESEARCH & DEVELOPMENT	PO BOX 8, BLDG. K-1, ROOM 1A69	SCHENECTADY	NY	12301
NYD093256063	GE CAPACITOR & POWER PROTECTION	381 UPPER BROADWAY	FORT EDWARD	NY	12828101

ATTACHMENT B

06-15-1989

CLOSURE/POST CLOSURE -- OWNED/OPERATED FACILITIES WHERE EPA ADMINISTERS
(SORTED ALPHABETICALLY BY STATE)

EPA ID #	FACILITY NAME	ADDRESS			CLOSURE	POST CLO
CAD000819680	GE ULTRASOUND PLANT	3920 SECURITY PARK DRIVE	RANCHO CORDOVA	CA 95670	2104200	0
CAD009208075	GE SAN FRANCISCO SERVICE CTR.	5441 E. 14TH STREET	OAKLAND	CA 94601	30000	0
CAD009542721	GE EMC/ONTARIO	1923 E. AVION STREET	ONTARIO	CA 91761	33800	0
CAD030584502	GE LOS ANGELES SERVICE CENTER	3601 E. L&PALMA AVENUE	ANAHEIM	CA 92806	26000	0
CAD053914206	GE VALLERCITOS NUCLEAR CENTER	PO BOX 460	PLEASONTON	CA 94566	174781	6000
CAT000611095	GE ED & C	11115 VAN OWEN STREET	NORTH HOLLYWOOD	CA 91605	21659	0
CAT000613471	GE NUCLEAR ENERGY	175 CURTNER AVENUE	SAN JOSE	CA 95125	785000	0
				STATE TOTAL:	3175440	6000
CTD000842492	GE WASTEWATER SETTLING AREA	41 WOODFORD AVENUE	PLAINVILLE	CT 06062	2839000	1408387
CTD001453711	GE	1285 BOSTON AVENUE	BRIDGEPORT	CT 06601	710000	590000
				STATE TOTAL:	3549000	1998387
IAD000678037	GE BURLINGTON BASKET COMPANY	1404-1418 WEST PLEASANT ST.	W.BURLINGTON	IA 52655	0	1450000
IAD005272703	GE SWITCHGEAR OPERATIONS	510 AGENCY ROAD	W. BURLINGTON	IA 52655	412560	20628
IAD075836130	GE APPLIANCE CONTROL DEPARTMEN	1803 RADIANTANCY	CARROLL	IA 51401	10314	0
				STATE TOTAL:	422874	1470628
OHD000721456	GE ACSC/C	3023 SYMMES RD.	HAMILTON	OH 45216	19506	0
OHD000817304	GE ACSC/C	1350 TENNESSEE AVE.	CINCINNATI	OH 45229	29781	0
OHD000817312	GE AIRCRAFT ENGINES - EVANDALE	1 NEUMANN WAY - MD N123	CINCINNATI	OH 45215	360459	0
OHD004176046	GE NILES/MAHONING GLASS	403 N. MAIN STREET	NILES	OH 44446	43034	0
OHD004224960	GE TRUMBULL LAMP	1313 W. MARKET STREET	WARREN	OH 44485	17439	0
OHD004226171	GE YOUNGSTOWN LAMP	40 HUGHES STREET	YOUNGSTOWN	OH 445027	5157	0
OHD004227369	GE LIGHTING - TUNGSTEN PRODUCT	21800 TUNGSTEN ROAD	EUCLID	OH 44117	172317	0
OHD004302428	GE COSHOCTON PLANT	1350 SOUTH SECOND STREET	COSHOCTON	OH 43812	112638	0
OHD009101494	GE ACSC/C	333 W. SEYMOUR AVENUE	CINCINNATI	OH 45216	12373	0
OHD048432975	GE EUCLID SPECIALTY	1133 E. 152ND STREET	CLEVELAND	OH 44110	386964	0
OHD048433080	GE CHEMICAL PRODUCTS	1099 IVANHOE ROAD	CLEVELAND	OH 44110	1103321	0
OHD059061317	GE RAVENNA LAMP	6800 N. CHESTNUT STREET	RAVENNA	OH 44266	28879	0
OHD066052804	GE OHIO LAMP	1210 N. PARK AVENUE	WARREN	OH 44483	90650	0
OHD074713561	GE CINCINNATI SERVICE CENTER	156 CIRCLE FREEWAY DRIVE	CINCINNATI	OH 45246	6188	0
				STATE TOTAL:	2388706	0
					========	========
TOTAL FACILITIES: 26				GRAND TOTAL:	9536020	3475015

ATTACHMENT B

06-15-1989

CLOSURE/POST CLOSURE -- CORPORATE GUARANTEED FACILITIES WHERE EPA ADMINISTERS
(SORTED ALPHABETICALLY BY STATE)

EPA ID #	FACILITY NAME	ADDRESS			CLOSURE	POST CLO
PRD000692582	GE CARIBE PRODUCTS, INC. VIEQU	P.O. BOX 187	VIEQUES	PR 00765	63000	250000
PRD000692590	GE CARIBE PRODUCTS INC., RIO P	CALLE LA BRISA #5 SABANA LLANA	RIO PIEDRAS	PR 00924	68072	0
PRD090070459	GE CARIBE	PO BOX 9069	HUMACAO	PR 00661	45000	0
PRD090282757	GE CARIBE PRODUCTS	P.O. BOX 1430	JUANA DIAZ	PR 00665	47150	0
PRD090306077	GE RECONSTRUCCION INDUSTRIAL C		PONCE 00731	PR 00731	3370	0
PRD090383860	CARBIBE GE PRODUCTS INC.	ZENO GANDIA PARK, RTE 120	ARECIBO	PR 00613	115000	0
PRD090492109	GE-PATILLAS	STATE ROAD #3 KM 122.9	PATILAS	PR 00723	1852390	0
PRD090510793	GE CARIBE	P.O. BOX #377	PALMER	PR 00721	825120	0
PRD091019224	CARIBE GE PRODUCTS INC.	P.O. BOX 186	SAN GERMAN	PR 00753	40150	0
				STATE TOTAL:	3059252	250000
					========	========
TOTAL FACILITIES: 9				GRAND TOTAL:	3059252	250000

ATTACHMENT C

06-15-1989
PAGE: 1

CLOSURE/POST CLOSURE -- OWNED/OPERATED FACILITIES WHERE STATE ADMINISTERS
(SORTED ALPHABETICALLY BY STATE)

EPA ID #	FACILITY NAME	ADDRESS			CLOSURE	POST CLO
ALD981026677	GE PLASTICS-BURKVILLE OPERATIO	ONE PLASTICS DRIVE	BURKVILLE	AL 36752	44423	0
				STATE TOTAL:	44423	0
FLD001690924	GE SIMULATED & CONTROL SYSTEMS	BOX 2500	DAYTONA BEACH	FL 32015	20000	0
				STATE TOTAL:	20000	0
GAD003308145	GE MEDIUM TRANSFORMER OPERATIO	1935 REDMOND CIRCLE	ROME	GA 30161	224300	0
				STATE TOTAL:	224300	0
ILD005272992	GE APPLIANCE CONTROLS	709 W. WALL STREET	MORRISON	IL 61270	200000	0
ILD005443866	GE MATTON LAMP	1501 S. 19TH STREET	MATTON	IL 61938	22244	0
ILD005453691	GE GENERAL PURPOSE CONTROLS	1601 GE ROAD	BLOOMINGTON	IL 61704	80750	0
ILD062338694	GEIPS - MORRIS PLANT	7555 E. COLLINS ROAD	MORRIS	IL 60450	88000	0
ILD070015714	GE SERVICE SHOP - CHICAGO	6045 SOUTH NOTTINGHAM	CHICAGO	IL 60638	10314	0
ILD980503023	GE	1540 S. 54TH AVENUE	CICERO	IL 60650	37130	18565
				STATE TOTAL:	438438	18565
IND000803726	GE BLOOMINGTON PLANT OPERATION	301 NORTH CURRY PIKE	BLOOMINGTON	IN 47402	80901	0
IND004557815	GE SPECIALTY TRANSFORMER OPERA	1701 COLLEGE STREET	FORT WAYNE	IN 46802	45000	0
706040299	GEM	12TH ST. SE. P.O. BOX 657	LINTON	IN 47441	22521	0
J06376362	GE PLASTICS	LEXAN LANE	MT. VERON	IN 47620	37337	0
				STATE TOTAL:	185759	0
KSD041917501	GE-AEMC	STROTHER FIELD	ARKANSAS CITY	KS 67005	27230	0
				STATE TOTAL:	27230	0
KYD006387021	GE APPLIANCE PARK	APPLIANCE PARK	LOUISVILLE	KY 40225	162000	0
KYD074047556	GE AIRCRAFT ENGINES	US HIGHWAY 41A ROUTE 2	MADISONVILLE	KY 42431	186000	0
				STATE TOTAL:	348000	0
LAD053782413	GE NEW ORLEANS SERVICE CENTER	1115 DeARMAS STREET	NEW ORLEANS	LA 70114	18565	0
				STATE TOTAL:	18565	0
MDD046279311	GE APPLIANCE PARK-EAST	9001 SNOWDEN RIVER PARKWAY	COLUMBIA	MD 21046	0	2232269
				STATE TOTAL:	0	2232269
MND980501407	GE MINNEAPOLIS SERVICE CENTER	2025 49TH AVENUE NORTH	MINNEAPOLIS	MN 55430	12377	0
				STATE TOTAL:	12377	0
J06312375	GE ST. LOUIS LAMP	6251 ETZEL AVENUE	ST. LOUIS	MO 63133	36099	0
MOD030709539	GE MOTORS - SPRINGFIELD	P.O. BOX 3798, 2401 E.SUNSHINE	SPRINGFIELD	MO 65808	23464	0
				STATE TOTAL:	59563	0

ATTACHMENT C

CLOSURE/POST CLOSURE -- CORPORATE GUARANTEED FACILITIES WHERE STATE ADMINISTERS
(SORTED ALPHABETICALLY BY STATE)

EPA ID #	FACILITY NAME	ADDRESS			CLOSURE	POST CLO
ILD079135133	GE PLASTICS - LINMAR	CANAL ROAD	OTTAWA	IL 61350	49115	0
				STATE TOTAL:	49115	0
MSD000742668	GE PLASTICS - BAYMAR	P.O. BOX 2520	BAY ST. LOUIS	MS 39521	144495	0
				STATE TOTAL:	144495	0
TXD061382206	GE RAILCAR REPAIR SERVICES COR	P.O. BOX 115/TIFFON ROAD	RANGER	TX 76470	800000	500000
				STATE TOTAL:	800000	500000
VAD980551782	GE FANUC AUTOMATION NORTH AMER	PO BOX 8106	CHARLOTTESVILLE	VA 22906	154000	0
				STATE TOTAL:	154000	0
WVD088911854	GE PLASTICS - WOODMAR	STATE ROUTE 892 (PO BOX 68)	WASHINGTON	WV 26181	32994	0
WVD980552384	GE PLASTICS - WESTMAR	1000 DUPONT ROAD BUILDING 816	MORGANTOWN	WV 26505	149220	0
				STATE TOTAL:	182214	0
TOTAL FACILITIES: 6				GRAND TOTAL:	1329824	500000

CLOSURE/POST CLOSURE -- OWNED/OPERATED FACILITIES WHERE STATE ADMINISTERS
(SORTED ALPHABETICALLY BY STATE)

EPA ID #	FACILITY NAME	ADDRESS			CLOSURE	POST CLO
NCD003237948	GE HICKORY TRANSFORMER PLANT	1223 FAIRGROVE CHURCH ROAD	HICKORY	NC 28601	10000	4620000
NCD050409150	GE WILMINGTON	CASTLE HAYNE RD. MC J26	WILMINGTON	NC 28402	88679	0
				STATE TOTAL:	98679	4620000
NYD000521971	GE AEROSPACE ELECTRONIC SYSTEM	FRENCH ROAD	UTICA	NY 13503	20000	0
NYD002080034	GE SILICONE PRODUCTS DIVISION	260 HUDSON RIVER ROAD	WATERFORD	NY 12188	12040500	1558320
NYD002080075	GE CAPACITOR & POWER PROTECTIO	JOHN STREET	HUDSON FALLS	NY 12839	221448	0
NYD002084135	GE	1 RIVER ROAD, BUILDING 41-111	SCHENECTADY	NY 12345	797839	0
NYD059385120	GE ELECTRONICS PK, BG 7 CHEM A	P.O. BOX 4840	SYRACUSE	NY 13221	44074	0
NYD066832023	GE PLASTICS - SELKIRK OPERATIO	NORYL AVENUE	SELKIRK	NY 12158	564609	140776
NYD067539940	GE BUFFALO SERVICE CENTER	175 MILENS ROAD	TONAWANDA	NY 14150	304488	0
NYD071094197	GE CORPORATE RESEARCH & DEVELO	PO BOX 8, BLDG. K-1, ROOM 1A69	SCHENECTADY	NY 12301	405775	0
NYD093256063	GE CAPACITOR & POWER PROTECTIO	381 UPPER BROADWAY	FORT EDWARD	NY 12828101	506316	0
				STATE TOTAL:	14905049	1699096
SCD067002147	GE MOBILE COMMUNICATINS - FLOR	3001 WEST RADIO DRIVE	FLORENCE	SC 29501	139913	980691
				STATE TOTAL:	139913	980691
TXD060718269	GE HOUSTON SERVICE CENTER	8800 WALLISVILLE ROAD	HOUSTON	TX 77029	346909	0
064114242	GE DALLAS SERVICE CENTER	3202 MANOR WAY	DALLAS	TX 75235	10314	0
079400545	GE EDRCS HOUSTON	3530 W. 12TH STREET	HOUSTON	TX 77224	50000	0
				STATE TOTAL:	407223	0
VAD003132255	GE MOBILE COMMUNICATIONS	MOUNTAIN VIEW ROUAD	LYNCHBURG	VA 24502	75500	0
VAD003132255	GE MOBILE COMMUNICATIONS	MOUNTAIN VIEW ROAD	LYNCHBURG	VA 24502	44996	0
VAD070360219	GE WINCHESTER LAMP	ROUTE 3, PO BOX 310	WINCHESTER	VA 22601	33000	0
				STATE TOTAL:	153496	0
VTD002083434	GE ARMAMENT SYSTEMS DEPARTMENT	LAKESIDE AVENUE	BURLINGTON	VT 05401	48366	0
				STATE TOTAL:	48366	0
WAD009278706	GE GEAE SCMC/SEATTLE	220 SOUTH DAWSON STREET	SEATTLE	WA 98108	34803	0
WAD046207379	GE SEATTLE SERVICE CENTER	1031 4TH AVENUE NORTH	KENT	WA 98031	7220	0
				STATE TOTAL:	42023	0
					========	========
TOTAL FACILITIES: 42				GRAND TOTAL:	17173404	9550621

APPENDIX D

Appendix D

Quality Assurance Project Plan
General Electric Evaporation Pond Closure
Morris, Illinois

GE DISK #1\CH00098.CL3\CLOSURE.REV

QUALITY ASSURANCE PROJECT PLAN

GENERAL ELECTRIC EVAPORATION POND CLOSURE
MORRIS, ILLINOIS

Quality Assurance Project Plan
Evaporation Pond Closure
Morris, Illinois

Prepared for:
General Electric

Prepared By:
Geraghty & Miller, Inc.

	Approval:	Date:
Geraghty & Miller, Inc. Project Manager	_____	_____
Geraghty & Miller, Inc. Quality Assurance Control Officer	_____	_____
General Electric Project Coordinator	_____	_____
Environmental Protection Agency Quality Assurance Officer	_____	_____

TABLE OF CONTENTS

SECTION		PAGE
1.0	INTRODUCTION	1
2.0	PROJECT DESCRIPTION	2
	2.1 Background	2
	2.2 Project Objectives	3
	2.3 Data Uses and Data Needs	3
	2.4 Data Quality Objectives	4
3.0	PROJECT ORGANIZATION	7
	3.1 General Organization	7
	3.2 Field Organization	8
	3.3 Laboratory Organization	10
4.0	QUALITY ASSURANCE OBJECTIVES	11
	4.1 Precision	11
	4.2 Accuracy	12
	4.3 Completeness	12
	4.4 Representativeness	12
	4.5 Comparability	13
5.0	SAMPLING PROCEDURES	14
	5.1 Pond Sediment and Soil Sampling	14
	5.2 Ground-Water Monitoring	18
	5.3 Sample Numbering	27
	5.4 Sample Preservation	28
6.0	SAMPLE CUSTODY	29
	6.1 Field Custody	29
	6.2 Transfer of Custody and Shipment	30
	6.3 Sample Shipment Procedures	30
	6.4 Field Documentation Responsibilities	32
	6.5 Laboratory Custody	33
7.0	EQUIPMENT CALIBRATION	34
8.0	ANALYTICAL SERVICES	35
	8.1 Project Laboratory Analytical Services	35
	8.1.1 Analytical and Calibration Procedures	35

TABLE OF CONTENTS

SECTION		PAGE
	8.1.2 Data Reduction, Validation and Reporting.	36
	8.1.3 Performance and System Audits. .	36
	8.1.4 Preventative Maintenance	37
	8.1.5 Data Assessment Procedures . . .	37
	8.1.6 Corrective Action Procedures . .	37
	8.2 Field Analytical Services	38
	8.2.1 Analytical and Calibration Procedures	38
	8.2.2 Internal Quality Control	38
	8.2.3 Data Reduction/Validation. . . .	39
	8.2.4 Performance/System Audit	39
	8.2.5 Data Assessment.	39
	8.2.6 Accuracy/Precision Definitions .	39
	8.2.7 Corrective Actions	39
9.0	QUALITY ASSURANCE REPORTS.	40

1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) was prepared by Geraghty & Miller, Inc. for the General Electric Morris, Illinois Facility Evaporation Pond Closure Plan. The QAPP presents the policies, organization, objectives, functional activities and QA/QC activities that will be utilized to ensure that all data collected and reported during this closure investigation are representative of existing conditions. This QAPP is designed to achieve the specific data quality goals of this closure plan.

2.0 PROJECT DESCRIPTION

This investigation is designed to gather the information necessary for the clean closure of the inactive pond and determine if a potential hazard to human health or the environment exists. The Closure Plan is designed to gather the necessary data to develop and evaluate the site conditions concerning the potential for contamination of ground water near the pond.

2.1 BACKGROUND

General Electric has operated an evaporation pond at their Morris, Illinois Facility since the early 1970's. The pond is considered to be a surface impoundment by the Resource Conservation and Recovery Act (RCRA) regulations. Prior to 1985, the 15.5-acre pond received regeneration discharges from the water demineralization treatment system at the facility. Since 1985, the demineralizer regeneration discharges have been pumped to an elementary neutralization tank prior to discharge to the evaporation pond. The pond is unlined. The pond bottom is overgrown with vegetation and occasionally covered with precipitation water. Pond sediment soil and ground-water sampling and analysis are required by USEPA as part of the pond closure plan. Several geotechnical and hydrogeologic investigations have been conducted at the main plant area north of the pond by Dames and Moore. Data presented in these investigations were used to help define the geologic and hydrogeologic conditions near the pond.

2.2 PROJECT OBJECTIVES

The overall objective of the pond closure investigation is to determine the nature and extent of the threat posed by the release, or threat of release, of hazardous substances from the pond. The following project objectives have been identified for the pond closure investigation:

- Determine the nature and extent of wastes and contamination in the pond sediment, soil and ground water;
- Identify and evaluate, if possible, potential routes of contaminant release and migration;
- If ground water at the site has been adversely affected by the pond, determine the potential for off-site migration and the possible affects on nearby water supplies; and
- Determine the characteristics of the hydrogeologic units beneath the pond to evaluate potential contaminant migration, and physical and chemical parameters that may affect potential ground-water monitoring after closure.

Tasks designed to collect the data necessary to meet these objectives have been identified and the attached Closure Plan contains descriptions of these tasks. In summary, the field data gathering activities include:

- Collection of one composited random sediment and one composited soil sample from the pond at 9 locations;
- Collection of one discrete sediment and one discrete soil sample from discharge pipe outlet;
- Subsurface soil and bedrock sampling and installation of four monitoring wells;
- Collection of ground-water quality samples from the newly installed monitoring wells.

Sediment and Soil Sampling Rationale

USEPA requires that random surface sediment and soil samples be collected from the floor of the pond. These samples will be used to evaluate the nature and extent of the pond sediment and underlying soil and provide data to assess the potential risks and environmental impacts that may exist.

Monitoring Well Location Rationale

To comply with part of the RCRA closure requirements for the pond, four monitoring wells will be installed. Ground-water samples will also be collected quarterly, for two years, from the newly installed monitoring wells.

Following collection of the necessary data and determination that no additional phases of investigations are required, a clean closure application will be submitted.

2.3 DATA USES AND DATA NEEDS

Consistent with the project objectives, sampling and analysis activities during the study have been developed for the purpose of characterizing the site (determining if contamination has occurred). This analysis will provide input to demonstrate the pond has not impacted the environment and can be removed from RCRA regulation. If remedial actions are needed this investigation will provide preliminary information for screening and evaluating possible remedial alternatives. This investigation incorporates hydrogeologic, hydrologic and geochemical data that satisfy the closure requirements. Data collected and analyzed during this investigation will:

- Assess the nature and extent of pond sediment soil and ground-water contamination, if present;
- Estimate the potential impact and risks to human health and the environment from the presence or release of contaminants from the pond; and
- If contamination is detected, determine if remedial measures are required to reduce the risk or threat posed by the presence, or potential release, of contamination on-site.

Geraghty & Miller will execute sampling and analysis activities. The intended use of the data collected during the pond closure investigation will be to:

- Create a data base that will define the hydrogeology, hydrology and geochemistry in the vicinity of the pond;
- Determine if contaminants at the site have been released to subsurface soils and bedrock, or ground water and migrated away from the pond;
- Evaluate the potential for endangerment to the public health, welfare, or environment;
- Determine whether any subsequent phases of field investigation are needed.

2.4 DATA QUALITY OBJECTIVES

The Data Quality Objectives (DQOs) to address the data needs and data uses for the pond closure are:

- To quantitatively identify any environmental media contamination from pond waste constituents.
- To analytically confirm and document levels of constituents present in pond sediment, soil and underlying ground water.

- To support selection of remedial alternatives, if needed.

To meet these three DQOs, proposals in the Closure Plan include the use of analytical techniques in accordance with the analytical levels defined in "Data Quality Objectives for Remedial Response Action" (EPA 540/G-87/003A). Analytical methods to satisfy these DQOs will require use of the procedures in accordance with USEPA SW-846 "Test Methods for Evaluating Solid Waste Physical/Chemical Methods, Volume 1, Laboratory Manual Physical/Chemical Methods."

3.0 PROJECT ORGANIZATION

Geraghty & Miller, Inc. will be responsible for the overall management of the project, including field supervision of all drilling and sampling activities.

3.1 GENERAL ORGANIZATION

Geraghty & Miller will perform the field investigations and prepare the Closure Plan report. Primary responsibility for project management is with the Project Manager. Responsibility for all QA/QC review is with the Quality Assurance Officer. The review of all environmental and hydrogeologic data will be conducted by the Quality Assurance Officer, the Project Manager and the Project Hydrogeologist. Where quality assurance problems or deficiencies requiring special action are identified, the Project Officer, Project Manager and Project QA/QC Officer will identify the appropriate corrective action.

The following responsibilities have been assigned for the project:

- Project Manager
  (USEPA Region V)
- Project Manager
  (Geraghty & Miller, Inc.)
- Project Administrator
  (Geraghty & Miller, Inc.)
- Quality Assurance Officer
  (Geraghty & Miller, Inc.)
- Off-site Laboratory Operations
  Project Laboratory
  (Attachment 1)

3.2 FIELD ORGANIZATION

The Geraghty & Miller, Inc. field investigation team will be organized according to the sampling activity to be undertaken. The actual sampling team make-up will depend on the type and extent of sampling and will consist of a combination of the following:

- Project Manager;
  (Geraghty & Miller, Inc.)
- Project Hydrogeologist;
  (Geraghty & Miller, Inc.)
- Quality Assurance/Quality Control Officer;
  (Geraghty & Miller, Inc.)
- Site Geologist;
  (Geraghty & Miller, Inc.)
- Site Health and Safety Officer;
  (Geraghty & Miller, Inc.)
- Sampling Coordinator; (if needed)
- Preparation Area Technician; (if needed)

The Project Manager will be responsible for the coordination of all personnel on site and for providing technical assistance when required. The Project Manager, or other qualified designated person, will be present whenever sampling occurs and will also keep a general site log. This log will describing activities conducted on site, identifying personnel entering the site, and noting general observations regarding site activities.

The Project Hydrogeologist will be responsible for assuring that all team members adhere to the protocols defined in the Sampling

and Analysis Plan. The Site Geologist will conduct the sediment and ground- water sampling and be responsible for providing technical supervision of the drilling subcontractor during the installation and development of the monitoring wells. The Site Geologist will be responsible for the geologic logging performed during the subsurface soil/rock sampling and installation of the monitoring wells.

The Quality Assurance/Quality Control Officer will be responsible for the adherence of all QA/QC guidelines as defined in the QA/QC plan. Strict adherence to these procedures is critical to the collection of acceptable/representative data.

The Site Health and Safety Officer will be responsible for assuring that all team members adhere to the site health and safety requirements. Additional responsibilities of the Site Health and Safety Officer are as follows:

- Updating equipment or procedures based upon new information gathered during the site inspection.
- Modifying the levels of protection based upon site observations.
- Determining and posting locations and routes to medical facilities, including poison control centers, and arranging for emergency transportation to medical facilities.
- Notifying local public emergency officers, including police and fire departments, of the nature of the team's operations and posting their telephone numbers.
- Examining work-party members for symptoms of exposure or stress.

- Providing emergency medical care and first aid as necessary on-site. He also has the responsibility to stop any field operation that threatens the health or safety of the team or the surrounding populace.

The Sampling Coordinator (if needed) will be responsible for the coordination of all sampling efforts and will assure the availability and maintenance of the necessary shipping/packing materials and sampling equipment. The responsibilities include: 1) supervise the completion of all sampling documentation; 2) ensure the proper handling and shipping of the samples; 3) be responsible for the accurate completion of the field sampling log; and 4) provide close coordination with the Project Manager and Project Hydrogeologist.

The Preparation Area Technician (if needed) will assume custody of all ground-water and surface-water samples from the sampling team. These responsibilities also include: 1) the completion of all chain-of-custody forms; 2) maintaining communication with on-site personnel; 3) logging all communications; and 4) site entries and departures during sampling.

3.3. LABORATORY ORGANIZATION

The laboratory organization is separated along lines of responsibility; laboratory operations, QA functions and project management. The operations organization of the Project Laboratory will be submitted after selection of the laboratory vendor.

4.0 QUALITY ASSURANCE OBJECTIVES

The general quality assurance objective is to ensure that environmental monitoring data of known and acceptable quality is provided. Environmental data collection efforts will adhere to the QA/QC procedures developed by Geraghty & Miller, Inc. for the collection and preservation of environmental samples. Laboratory analysis efforts by the Project Laboratory will adhere to the QA/QC procedures developed for the USEPA guidelines. The QA objectives for the chemical analyses of this project are to achieve the QC criteria stated USEPA SW-846 "Test Methods for Evaluating Solid Waste Physical/Chemical Methods". QA objectives for field measurements, such as pH and specific conductance, includes proper operation of the field equipment based on the operator's manual instructions.

4.1 PRECISION

The QA/QC aim in testing the precision is to demonstrate the reproducibility of the data. The precision of analytical project measurements will be evaluated and reported along with the method reference number in a manner consistent with previously published data on precision. Moreover, precision measurements will be done with high purity materials, knowledgeable laboratory personnel, internal quality controls and following consistent scientific practice. Precision objectives will be consistent with those of the USEPA.

4.2 ACCURACY

Accuracy is the relationship of the reported data to the "true" value, and will be: (a) reported with the data; (b) attained by independent audits using standards which are different from those used during routine operations; and (c) consistent with any previously published accuracy data from the applicable literature, and Federal and State regulations and guidelines. Accuracy objectives will be consistent with those of the USEPA.

4.3 COMPLETENESS

Completeness is a measure of the amount of valid data obtained from a measurement program, compared to the amount that would be expected to be obtained under correct normal conditions. The data base will be routinely assessed on the basis of expected versus actual data and will be developed to a point where it is capable of supporting statistical analyses for interpretational purposes.

4.4 REPRESENTATIVENESS

All data should be representative of the actual conditions at the sampling location. Considerations in evaluating the representativeness of the data include, but are not limited to the location being sampled, the methods used to obtain environmental samples at the site, and the appropriateness of the analytical method to the type of sample obtained.

4.5 COMPARABILITY

All data will be reported in units consistent with both Federal and State regulations, methods, and guidelines. Comparability between data bases will also be achieved by citing standardized sampling and analysis methods and data formats. Any deviation from the standard operating procedures will be noted and data will be qualified for comparative purposes.

5.0 SAMPLING PROCEDURES

All sampling for this field investigation will be performed in accordance with the procedures and equipment as described in the pond Closure Plan. These procedures adhere to the QA/QC methods developed by Geraghty & Miller, Inc.

5.1 POND SEDIMENT SAMPLING

Pond Sediment and Soil Random Sample Locations

The sediment and soil sampling locations were randomly selected using a 150 foot square grid. The sampling points will be located in the field to the nearest foot using a pocket transit and measuring tape. If conditions permit and accuracy can be maintained, distance measurements will be paced.

The grid origin and sampling collection points will be marked with survey stakes and/or pin flags. These markers will remain after sampling so that in the future they can be easily relocated. The collection point markers will be clearly labeled with sample number and quadrant grid coordinates.

Sediment Sampling Procedure

At each sampling location in the pond, a sediment and soil sample will be collected. A sediment sample will be collected from the upper two to six inches of sediment using a clean stainless steel trowel or scoop. The pond sediment is not anticipated to be greater than six inches. At the same sampling location a soil sample will then be collected. The depth of the soil sampling

interval will be from the soil/sediment interface to approximately 2 feet. The sampling procedures will be as follows:

Sediment Sampling

- On the sample collection form, the sample location (sketch map with sample quadrant grid coordinates), sample identification number, date, time, sampling personnel, sampling method and any other noteworthy information will be properly recorded.

- Before collecting the sediment sample the upper surface vegetation litter will be removed from the area surrounding the sample location using a clean trowel or scoop. To monitor (for health and safety purposes) the air and soil quality, the exposed sediment will be immediately screened for volatile organics with a photoionization detector (HNu). If there is no detection of organic vapors, the sample will then be collected and placed in the appropriate glass sample container. If organic vapors are detected the vapors will be allowed to dissipate before sampling. The photoionization meter reading will be properly recorded on the sample collection form.

- The full sample jar will then be properly labeled and stored on ice in a secure storage area until subsequent packaging and shipment to the laboratory.

Soil Sampling

- On the sample collection form, the sample location (sketch map with sample quadrant grid coordinates), sample identification number, date, time, sampling personnel, sampling method and any other noteworthy information will be properly recorded.

- Before collecting the soil sample, the walls of the sediment sampling hole will be expanded to insure that sediment does not contaminate the soil sample. While sampling, the air and soil quality will be monitored for Health and Safety purposes using a photoionization detector (HNU). If there is no detection of organic

vapors, the sample will then be collected and placed in the appropriate glass sample container. If organic vapors are detected the vapors will be allowed to dissipate before sampling. The photoionization meter reading will be properly recorded on the sample collection form.

- Soil samples will be collected using a hand bucket-type auger.
- The full sample jar will than be properly labeled and stored on ice in a secure storage area until subsequent packaging and shipment to the laboratory.

To guarantee equal compositing of the soil and sediment samples, all compositing will be done at the laboratory. Discrete sediment and soil samples will be sent to the laboratory from each grid location. At the laboratory, equal weights of each sediment sample will be composited and analyzed. The same procedure will be followed for the soil samples. The discrete sediment and soil sample collected at the discharge pipe will not be composited.

One non-random sediment sand soil sample will be collected at the discharge pipe. The samples will be collected using standard 3-inch diameter, 30 inch length, thin wall, steel, tube samplers (Shelly Tube). Samples will be collected in two foot intervals, from the surface to a depth of 4 feet. The tube samplers will be capped and sealed in the field in accordance with ASTM 1587. Because there samples are not being collected for geotechnical analysis, and the difficulty of positioning sampling equipment directly over the discharge pipe the procedure used to collect these samples may be modified. The sample will be collected as close to the outlet of the discharge pipe as physically possible. If sediment and soil conditions make it impossible to use the Shelly Tubes, an alternative method such as a pitcher-type device or Dennison sampler will be used.

The pond sediment is not anticipated to be greater than 6 inches at this location so the initial sample tube will contain sediment and soil material. Because of the procedure used to seal the tube sample in the field, it will not be possible to separate the sediment from the soil. The sample will therefore have to be separated in the laboratory when it is extruded. If required, a Geraghty & Miller representative will be present when the samples are extruded to determine the interface between the sediment and soil.

To prevent sample cross contamination, all sampling equipment, instruments, etc. will be properly decontaminated between each use. Equipment decontamination procedures will include using a tap-water/trisodium phosphate (TSP) solution wash, tap-water rinse and final deionized water rinse.

Pond surface sediment and soil samples will be analyzed for EP Toxicity metals and laboratory pH. The discharge pipe sediment and soil sample will be analyzed for Appendix IX inorganic parameters.

Equipment for the surface sediment sampling program will include:

- Field notebook with appropriate collection forms, pens, marking pens, labels, custody tape, strapping tape.
- Eight-ounce glass sample jars (provided by the project laboratory).
- Stainless steel trowel or scoop.
- Stainless steel hand bucket-type auger.
- Organic vapor analyzer.
- Personal safety equipment.

- Distilled/deionized and tap water.
- TSP and scrub brushes.
- Cooler with ice.

5.2 GROUND-WATER MONITORING

The monitoring wells are scheduled to be installed along the perimeter of the pond and follow RCRA, USEPA and IEPA monitoring well construction standards. The monitoring wells will be constructed and screened in the Fort Atkinson Formation which has been determined to be the upper most aquifer in the vicinity of the pond. The monitoring wells will be constructed of two-inch (ID) stainless steel screen and casing. All the monitoring wells will be screened and gravel/sand packed. The annular space above the gravel/sand pack will be properly sealed to prevent surface sources of contaminant from entering the aquifer. The Fort Atkinson aquifer is overlain by approximately 2-to-10 feet of overburden material and approximately 15 feet of Brainard Shale.

At the east and west monitoring well locations, the Brainard Shale, Fort Atkinson Limestone, and upper few feet of Scales Scale will be continuously cored at each monitoring well location to evaluate the geology and hydrology beneath the pond. The rock cores will be advanced a few additional feet past the Fort Atkinson-Scales Shale unconformity to accurately define this contact. The monitoring wells screened will be installed in the horizon (Fort Atkinson Limestone) that is determined in the field to be the most permeable.

Monitoring Well Installation

Rock coring will be conducted through minimum six-inch ID augers or temporary casing that has been driven or seated into the top of bedrock. This will be done to prevent seepage between the overburden material and bedrock during rock coring. Prior to coring, all loose and foreign material will be removed from the inside of the augers or temporary casing. The bedrock surface is estimated to be between two and ten feet below ground surface. The top of weathered bedrock and top of competent bedrock will be clearly noted on the boring record.

Rock coring procedures will be conducted according to ASTM Designation 2113 "Diamond Core Drilling for Site Investigation." Coring will be done using an N series (NX or NWM) double-tube core barrel with diamond bit and reaming shell or NQ wire line. In soft or friable formations, an NWM double-tube core barrel will be used. The drill rod will be N-series, or equivalent. Rock core runs will be no longer than 10 feet.

Immediately upon recovery of the core barrel from the boring, the rock core will be carefully removed from the barrel and placed in the core box. To monitor (for health and safety purposes) the air, rock core and the rock core box will then be scanned for organic vapors with a photoionization detector and properly recorded on the rock core log and field notebook. The rock core will than be logged by the site geologist. The following information will be included on the rock core log.

- Heading information such as project name and number,

boring number and location, personnel responsible for logging the core, ground water elevation, date started and date completed.

- Depth/elevation of stratigraphic changes recorded in feet and tenths of feet.
- Detailed rock description including rock type, color, bedding thickness, grain size, composition, hardness, cementation and/or friability, fractures, soundness, weathering and any other noteworthy information.
- Run number.
- Depth/elevation of top and bottom of run.
- Total core recovery.
- Percent core recovery.
- Rock Quality Designation (RQD).
- Water level information and method of determination.

All rock core boxes will be constructed of wood, or approved equivalent. The rock core boxes will be stored in such as manner as to preserve their relative position by depth. Intervals of lost core shall be annotated in the core sequence with wooden blocks or dowels. The top and bottom of each core run will be clearly marked on the core box and core with permanent ink markers. The boxes will be properly labeled on the inside and outside lid with the following information.

- Project name and number.
- Boring number.
- Date.
- Run number and cored interval.
- Box number in case of multiple boxes.

After the core box is properly labeled it will be photographed in the field.

After coring has been completed to the desired depth, the hole will be reamed to a minimum of five inches in diameter using air or tap-water percussion or rotary methods. Prior to monitoring well installation, if conditions permit, tap water will be circulated in the open boring to remove any fine grained material that may be in the fractures, joints or bedding partings.

Before the monitoring well is constructed in the cored boring, the borehole will be properly sealed with grout from the contact between the Fort Atkinson Limestone and Scales Shale Formations to 2-to-3 feet below the bottom of the monitoring well screen. This will be done to guarantee that there is no leakage from deeper in the Fort Atkinson Formation that could possibly influence the ground water samples to be collected. Monitoring wells will be sand-packed because the bedrock may have joints and partings which contained fine grained material. By installing sand-pack material and monitoring well screens, the amount of fine grained material entering into the monitoring well will be minimized. Although the monitoring well yield will be reduced, this reduction should not significantly affect the ground-water sampling effort.

Monitoring well construction will be supervised by the site hydrogeologist. Construction details such as design, depth of the screen, sand-pack material, and grout seal will be determined in the field. The site hydrogeologist will keep a record of all material placed in the boring, including depth of the screened intervals, top and bottom of seal and monitoring well outer

protective casing. The monitoring well installation will follow the procedures outlined below.

- The boring will be cored and reamed to the desired depth and flushed to clean out as much fine grained material as possible from the borehole prior to constructing the monitoring well.
- In the cores boreholes a 10 percent bentonite-cement grout mix will be placed in the borehole using a tremie pipe from the Fort Atkinson Limestone and Scales Shale Formation contact to 2-to-3 feet below where the monitoring well screen will be set.
- The bottom cap will be 316 stainless steel flush screw-type coupled.
- Monitoring well screen material will be 316 stainless steel, two-inch ID, flush screw-type coupled, wire wound 0.010 or 0.020 inch slot size. The screen will be 10 feet long and be installed in the most permeable zone, as determined in the field. If the most permeable zone is the upper Fort Adkinson the monitoring well screen will be installed such that the top of the screen is 2-to-3 feet below the top of the Fort Atkinson limestone.
- Monitoring well casing material will be 316 stainless steel, two-inch ID, flush screw-type coupled.
- One or more stainless steel centralizers may be installed to insure the well casing is centered in the boring.
- Two feet of casing will extend above ground surface.
- The top cap will be stainless steel with a vent hole
- The well screen and casing will be straight, plumb and centered in the boring.
- Well sorted quartz sand pack will be placed in the boring annulus from the bottom of the boring or grout plug to a minimum of two feet above the top of the screen.
- The remainder of the annular spaced will be filled with a 10 percent bentonite-cement grout mix through a tremie pipe. A 1-to-2 foot sodium bentonite pellet plug may be

placed between the sand pack and grout to insure the grout does not infiltrate into the sand pack.

- A minimum six-inch ID by five foot long steel, or approved equivalent, protective casing will be set over the top of the monitoring well casing to a height of 2.5 feet above ground surface. The protective casing lid will be hinged and have a hasp for locking.
- A concrete apron will be poured around the protective casing and be in contact with the grout.
- The protective casing will have a drain hole drilled at the apron level, and have the monitoring well number permanently stamped or welded on the lid and coated with a weatherproof paint.
- If needed, steel guard posts will be installed around the periphery of the concrete apron to protect the monitoring well against vehicle hazards.

The rock cores will not be subject to analytical or physical testing and be stored in a secure area onsite for future reference.

To prevent cross contamination between the monitoring wells, all downhole drilling equipment will be properly decontaminated. This will be done before each monitoring well is started using high pressure steam.

Monitoring Well Development

After the monitoring wells are constructed, they will be developed prior to ground-water sampling to maximize yields and minimize the turbidity of the water during sampling. A variety of development methods are available; however, monitoring well surging using a surge block or bailor is recommended. Air development method can be used because volatile organic are not scheduled to be analyzed for. Monitoring wells will be considered developed when they can

continuously yield sediment free water or a minimum of ten boring volumes have been removed. During development pH, specific conductance and temperature will be periodically measured. When these parameters stabilize or yield consistent values, they will be properly recorded along with the volume of water removed.

The development equipment will be properly decontaminated using high pressure steam to prevent cross contamination between monitoring well. If pumps are used, the outside of the pump will be decontaminated following the above procedures and internal parts of the pump will be flushed with tap water.

Equipment needed for the monitoring well installation and development include:

- Field notebook and appropriate sample collection forms, pens, marking pens, labels.
- Drilling equipment with auguring, and rock coring and reaming,or approved equivalent, capabilities.
- Personal safety equipment.
- Volatile organic photoionization detector meter.
- Water level indicator.
- Rock core boxes.
- High pressure steam generator.
- TSP and scrub brushes.
- Distilled/deionized and tap water.

Each of the monitoring well installed will be sampled quarterly for one year after installation. Ground-water sampling results will be used to evaluate the impact, if any, that the pond has had

on the ground-water quality in the area.

Ground-Water Sampling Procedures

Prior to sampling, the monitoring well will be purged to obtain a fresh, representative sample. Purging will be conducted using a positive displacement pump or bottom check-valve type bailor. A minimum of three-to-five boring volumes will be purged. If the monitoring well is pumped dry, and recovery is less than 50 percent within 15 minutes after complete evacuation, then the amount of ground water removed from the well will be recorded and a ground water sample collected.

The sampling procedure for the monitoring wells will include the following steps.

- Record well number, sample number, date, time, sampling personnel and other noteworthy information on the ground water sample collection form.
- Clean the top of the monitoring well with a clean rag to prevent loose particulate matter from falling into the monitoring well.
- Remove the monitoring well cap and monitor for organic vapors. If organic vapors are not detected then proceed with the sampling by wiping the inside of the casing with a clean cloth. If organic vapors are detected let the monitoring well stand open and vent itself until the vapors have dissipated.
- Measure and record the water level in the well using a decontaminated water level indicator or steel tape. The measurement will be made to the nearest 0.01 foot.
- Calculate the volume of water standing in the monitoring well and boring annulus and purge the monitoring well.
- Record pH, temperature and specific conductivity while purging the monitoring well. When these parameters have

stabilized, record the values and amount of water purged on the field log.

- Remove the purge pump, if used, from the monitoring well. Care will be taken not to reintroduce purge water back into the monitoring well.

- Collect the sample by means of a bottom check valve type bailor. To monitor (for health and safety purposes) the air and water quality, the first bailer from the monitoring well will be field screened for volatile organics with a photoionization detector and then discarded. This measurement will be recorded on the field log.

- Sample water will be gently poured directly from the bailor into the sample bottles. The metals sample will be filtered prior to preservation in the field.

The first ground-water samples will be analyzed in the laboratory for Appendix IX inorganic parameters. Measurements of field pH, specific conductance and temperature will be taken while the monitoring well is being purged and when the ground-water sample is collected.

The following field equipment will be used for ground-water sampling:

- Field notebook with appropriate collection forms, pens, marking pens, labels.

- Clean rags, disposable gloves.

- Water level indicator.

- Distilled/deionized water and wash bottles.

- TSP and scrub brushes.

- Purge pump.

- Teflon or stainless steel bailors.

- Bailor cord.
- Tools required to open the monitoring wells.
- Sample jars (provided by the project laboratory).
- Water filtering equipment including 0.45 micron filter paper.
- pH and conductivity meters (with calibration solutions) and thermometer.
- Ice chest and ice.

To prevent sample cross contamination, all sampling equipment, instruments, etc. will be properly decontaminated between each use. Equipment decontamination procedures include using a tap-water/TSP solution wash, tap-water rinse and final deionized-water rinse. If purge pumps are used the outside of the pump will be decontaminated following the above procedure and internal parts of the pump will be flushed with tap water.

5.3 SAMPLE NUMBERING

A standardized sample numbering system will be used to identify each sample for chemical analysis, including replicate samples and field blanks. A listing of sample identification numbers will be maintained in a site logbook by the site geologist. The sample number will also be recorded on the appropriate sample collection form. Each sample number will consist of two components that identify the sample location and a sample identifier.

The first part of each sample number will be an alpha-code corresponding to the sample type, followed by a two-digit sample location number. The alpha codes are as follows:

GMMW--monitoring well (ground water).

GMSS--surface soil sample.

GMSB--soil boring.

GMRB--rinsate blank. Rinsate blanks will have an RB followed by the alpha code for the type of blank (i.e., a ground-water rinsate blank will be GMRBMW).

The second part of the sample number will have a two-digit number that will be the sample identifier. If multiple sampling events or depths are necessary, the event or depth identifier will start with 01 and progress sequentially with additional sampling events or depth. The sequential sample numbers will be recorded on the appropriate collection form and the field notebook. Sample identifier example numbers are shown below.

GMMW01-02	Ground-water sample from monitoring well number 1 during sampling event number 2.
GMSS08-01	Surface soil sample from sample location 8, first sample collected.

5.4 SAMPLE PRESERVATION

Sample preservation requirements for the analytical parameters of concern are summarized in Table 1 of the Sampling and Analysis Plan. All sample bottles will arrive at the site, from the project laboratory, precleaned with teflon-lined lids on.

6.0 SAMPLE CUSTODY

Sample custody procedures are designed to comply with USEPA and National Enforcement Investigation Council (NEIC) requirements for sample control. An example of the chain-of-custody form which will be used during this investigation is presented in the attachments.

Samples collected during the site investigation will be the responsibility of identified persons from the time they are collected until they or their derived data are incorporated into the final report. Stringent chain-of-custody procedures will be followed to maintain and document sample possession.

6.1 FIELD CUSTODY

The Project Hydrogeologist or Preparation Area Technician (if needed) is personally responsible for the care and custody of the samples collected until they are personally delivered to the analyzing laboratory, or entrusted to a carrier. Chain-of-custody forms will be properly completed prior to sample shipment. They will include the following information: sample number, time collected, data collected, source of sample (including type of sample), preservative and name of sampler. These forms will be filled out in a legible manner using water-proof ink and will be signed by the sampler. Similar information will be provided on the sample tag which is securely attached to the sample bottle.

Log books and other sample collection records will also be properly filled out, signed and dated on each page. Sample collection logs, log books and other records will not accompany the samples but remain with the other site field records.

6.2 TRANSFER OF CUSTODY AND SHIPMENT

The following procedure will be used when transferring custody of samples.

- Samples will always be accompanied by a chain-of-custody record. When transferring samples, the individuals relinquishing and receiving them will sign, date and note the time on the record. This record documents sample custody transfer from the sampler, often through another person, to the laboratory.
- Samples will be packaged properly for shipment and dispatched to the appropriate laboratory for analysis with a separate custody record accompanying each shipment. Shipping containers will be sealed for shipment to the laboratory. The method of shipment, courier name and other pertinent information will be entered in the remarks section of the custody record.
- All shipments will be accompanied by the chain-of-custody record identifying its contents. The original record will accompany the shipment and a copy will be retained by the field sampler.
- Proper documentation will be maintained for shipments by common carrier.

6.3 SAMPLE SHIPMENT PROCEDURES

The following procedures will be followed when shipping samples for laboratory analysis:

- Samples requiring refrigeration will be promptly chilled with ice or "Blue Ice" to a temperature of 4°C and packaged in an insulated cooler for transport to the analyzing laboratory.
- Only shipping containers which meet all applicable State and Federal standards for safe shipment will be used.

- The shipping containers will be sealed with tape and chain-of-custody seals in such a manner that will allow the receiver to quickly identify any tampering which may have taken place during transport to the laboratory.
- The field chain-of-custody document will be placed inside the shipping container in a sealed plastic envelope after the courier has signed the document.
- Shipment will be by overnight courier if required.

Samples shipped to the laboratory for analysis will be prepared using the following procedures:

- Tighten sample bottle lids "hand" tight.
- Place two-inches of appropriate packing material in the bottom of waterproof metal or equivalent strength plastic cooler.
- Place sample bottles in the cooler in such a way that they do not touch.
- Put ice in plastic bags, or blue ice, on and around the bottles.
- Fill the remaining space in the cooler with packing material.
- Put paperwork in a plastic bag and tape it to the inside lip of the cooler.
- Close cooler and secure lid by taping cooler completely around with strapping tape at two locations.
- Tape the drain hole closed.
- Place laboratory address on top of cooler.
- Put "This Side Up" and "Fragile" labels on the cooler. Do not cover labels with strapping tape.
- Affix custody seals on front right and back left of cooler and cover seals with wide, clear tape.

While awaiting screening or packaging, samples will be stored on ice in coolers. All samples will be preserved on the same day they are collected. If samples cannot be shipped on the same day they are collected, packaging will be delayed until the following morning so that the samples can be shipped with a full load of ice. These samples will be stored on ice in coolers, and kept in a secure area.

After the samples have been packaged for shipping, custody will be transferred to the overnight courier. The laboratory will be notified of the sample shipment and the expected arrival date. An effort will be made to provide the laboratory with advance notice of the shipment.

All soil and ground-water samples are assumed to be classified as "low hazard" samples. If medium or high hazard samples are encountered, they will be prepared in accordance with the procedures specified in "Sample Handling Protocol for Hazardous Waste REM/FIT Contract", prepared by USEPA Region V, Environmental Services Division, May 3, 1983.

6.4 FIELD DOCUMENTATION RESPONSIBILITIES

It will be the responsibility of the Site Geologist to secure all documents produced in the field (i.e. hydrogeologists' daily logs, lithologic and sampling logs, communications, etc.) at the end of each day and insure they are properly completed. The possession of all records will be documented in the project field notebook. Only the Site Geologist and Project Manager may remove field data from the site for reduction and evaluation before completion of the field activities. After the completion of the field work, the

records will be transported to the managing project office and placed in the project files.

6.5 LABORATORY CUSTODY

The chain of custody in the laboratory consists of two primary areas, receipt of samples and maintenance of internal custody of samples as they are transferred throughout the facility. Detailed descriptions of the procedures implemented by the laboratory to maintain the chain-of-custody of samples submitted to the Project Laboratory for analyses will be submitted after selection of the laboratory vendor.

7.0 EQUIPMENT CALIBRATION

Field equipment, such as the pH, specific conductance, HNU, OVA and Photovac TIP meters, used during this investigation, will be calibrated and operated in accordance with the manufacturer's instructions and manuals. Operating and calibration procedures for these instruments are attached. Copies of all such instructions and manuals will be available at the site. Documentation of calibrations will be maintained in the project file.

Calibration procedures for laboratory equipment used in the analyses of the soil and ground-water samples will be those contained in the Project Laboratory's Generic Quality Assurance Plan.

8.0 ANALYTICAL SERVICES

Sediment and ground-water samples collected during this field investigation will be analyzed by the Project Laboratory in accordance with the USEPA SW-846 analytical procedures. Several field measurements will also be performed. QAPP elements for the Project Laboratory are listed below and will be documented after selection of the Project Laboratory.

QAPP Element	Project Laboratory
Calibration Procedures	Will be provided
Analytical Procedures	after selection
Internal QC	of Project
Data Reduction/Validation	Laboratory.
Performance/System Audit	
Data Assessment	
Accuracy/Precision	
Definitions	
Corrective Action	

8.1 PROJECT LABORATORY ANALYTICAL SERVICES

8.1.1 Analytical and Calibration Procedures

All samples collected will be analyzed for RCRA EP Toxicity metals and pH. Table 1 in the Sampling and Analysis Plan summarizes the number of samples, replicates, and blanks to be collected during this pond closure investigation, the analyses to be conducted on the various samples collected, and the analytical level as defined in "Data Quality Objectives for Remedial Response Activities" (EPA 540/G-871003A). All testing of sediment and ground water will conform to the protocols of the USEPA as specified in USEPA SW-846.

8.1.2 Data Reduction, Validation and Reporting

All raw data collected from project sampling tasks, including quality control samples, will be summarized, validated and reported by the testing laboratory. The Quality Assurance Manager of Geraghty & Miller, Inc. will review all geochemical data received from the analytical laboratory prior to its release in a document to verify that it reasonably reflects known or expected conditions.

Quality control of data will involve the collection of field replicates and the preparation of rinsate blanks. Volatile ogranics are not being sampled or analyzed for, so trip blanks will not be used. Internal quality control procedures for sediment and ground water will follow the protocols of the USEPA for inorganic chemical analyses.

8.1.3 Performance and System Audits

Performance and systems audits are considered an essential part of a quality control program. A performance audit independently collects measurement data using performance evaluation samples. A systems audit consists of a review of the total data production process which includes on-site inspections of field and laboratory operational systems and physical facilities for sampling, calibration and measurement protocols.

A systems audit of the field procedures may be conducted by the Quality Assurance/Quality Control Officer and additional staff, if found to be necessary. An unscheduled field audit may also be performed during the course of the investigation and sampling program. The Project Manager and Project QA/QC Officer will ensure

that the field project is performed in accordance with approved procedures. The audit will review sampling methodology and sample chain-of-custody, as well as review all data reporting methods and data files.

Field blanks will be prepared using site sampling equipment and will be analyzed to determine whether the procedures may be biasing the data.

8.1.4 Preventative Maintenance

The maintenance of laboratory equipment will be performed by the appropriate laboratory according to specified equipment calibration, operation and maintenance procedures.

8.1.5 Data Assessment Procedures

Analytical data will be assessed by the analytical lab in accordance with standard operating procedures and will include the analysis of reference samples and performance audits.

The Quality Assurance Manager of Geraghty and Miller, Inc. will review all water and sediment chemical data. The chemical data will be reviewed to determine if they are consistent with known or anticipated hydrogeologic conditions and accepted hydrogeologic principles. The physical data will be reviewed in a similar manner by the QA/QC officer.

8.1.6 Corrective Action Procedures

If the quality control audit results in the detection of unacceptable conditions or data, the Project Manager and Project

QA/QC Officer are responsible for developing and initiating corrective action procedures. Corrective action may include:

- Reanalyzing the samples if the holding time criteria permit.
- Resampling and analyzing.
- Evaluating and amending sampling and analytical procedures.
- Accepting data while acknowledging a level of uncertainty.

8.2 FIELD ANALYTICAL SERVICES

8.2.1 Analytical and Calibration Procedures

Ground water samples will be analyzed for pH, specific conductance, and temperature. Specific operating and calibration procedures for the pH and conductivity meters to be used in the field are consistent with the operating manuals.

8.2.2 Internal Quality Control

Field analyses are performed on-site and do not involve samples that are collected and retained. The primary QA/QC objective is to obtain reproducible measurements to a degree of accuracy consistent with limits imposed by analytical methodologies used and with the intended use of the data. Quality control procedures will be limited to checking the reproducibility of measurements by taking multiple readings and by calibration of instruments (where appropriate).

8.2.3 Data Reduction/Validation

All field recording sheets, instrument outputs, and work-sheets for calculating results will be retained. Summarized raw data will be appropriately identified in reports and included in a separate appendix of the final closure report.

8.2.4 Performance/System Audit

All instruments used in making field measurements will be regularly calibrated (where appropriate).

8.2.5 Data Assessment

The Sample Team Leader will assess data to assure QA/QC objectives are met.

8.2.6 Accuracy/Precision Definitions

No quantitative levels are specified.

8.2.7 Corrective Actions

If variability among multiple readings at a single site is judged excessive, instruments will be recalibrated (if appropriate) and the measurement repeated. If variability remains unacceptably high and instruments fail to properly calibrate, the Project Manager and Quality Assurance Offices will be notified.

9.0 QUALITY ASSURANCE REPORTS

No separate Quality Assurance report for this project is anticipated. The final Closure Plan application will contain separate QA sections that summarize data quality information collected during the investigation.

ge\QAPP.

ATTACHMENT 1

Project Laboratory Generic Quality Assurance Plan

ATTACHMENT 2

Operation, Maintenance, and Calibration
Procedures for Field Analytical Equipment

APPENDIX E

Appendix E

Written Demonstration for 265.90(e) Waiver from Subpart F Ground-Water Monitoring Requirements

GE DISK #1\CH00098.CL3\CLOSURE.REV

1.0 INTRODUCTION

The following materials are provided to describe the operation of the Demineralized Water System at the General Electric Company Morris Operation near Morris, Illinois. The site is located east of Morris, Illinois, in the southeast 1/4 of Section 35, Township 34 North, Range 8 East in Grundy County. The cities of Joliet and Chicago are 14 miles and 48 miles northeast of the site, respectively. The site is approximately 6,000 feet southwest of the confluence of the Kankakee and Des Plaines Rivers. These rivers form the Illinois River, which flows in a westward direction. Figure 1, Site Vicinity Map shows the site location in relation to local features.

The site is located on a topographic high that is about 530 feet above mean sea level (MSL). The topographic relief in the vicinity of the site is on the order of 25 feet. The Kankakee River is about 3,000 feet east of the site and the Illinois River is about 6,500 feet north of the site; both rivers have an average water elevation (near the site) of 505 feet MSL.

The climate of the region is continental with warm summers and cold winters. The average annual precipitation of the site area is 33 inches (Walton, 1965). June is generally the wettest month and February the driest (Suter, et al., 1959). The average annual runoff in the area as measured on the Kankakee River near Wilmington (see Figure 1) is 10 inches (U.S. Geological Survey, 1972).

The purpose of General Electric's Morris facility is to safely store spent nuclear fuel rods. These rods are stored in tanks which must be filled with demineralized water. Demineralized water is produced on site using an onsite deep well as a water source and an ion exchange (demineralization) process for removal of impurities. Waste water resulting from the regeneration of the demineralization system was discharged on site to 15 acre

evaporation pond until September of 1985, at which time a neutralization tank was added resulting in the waste stream being neutralized prior to discharge to the pond.

2.0 DISCUSSION OF THE DEMINERALIZED WATER SYSTEMS

The Morris operation is an NRC-licensed fuel storage facility. As a part of the fuel storage operation a demineralized water system is maintained to insure a supply of high purity water for use in the fuel storage basin, in the utility steam system, and as laboratory water for analytical work. Water for the plant is pumped from an onsite well 788 feet deep. The demineralized water system consists of six major pieces of equipment; a carbon filter, cation exchange units, degasification tower, anion exchange units, polishing unit, and starting in 1985 a neutralization tank. (See Figure 2 and 3)

The purpose of the carbon unit is to remove suspended solids and other impurities from the well water. From there water moves to one of the two cation units. The cation unit consists of a regenerable cation resin bed. The function of the cation unit which is 30 inches in diameter and six feet high is to remove metallic impurities such as magnesium, calcium, and sodium through ion exchange.

Next the water passes through the degasification tower where fresh air is introduced to the water flowing through the tower to remove dissolved carbon dioxide from the water.

Water from the degasification tower is then pumped to one of the anion units, whose function is to remove negatively charged ions such as chlorides and nitrates through an ion exchange process.

From the anion unit, water moves to the water polisher, which removes any trace amounts of chlorides and nitrates which may be

remaining in the demineralized water stream. The unit contains a mixed bed anion-cation resin which is not regenerable and is replaced when exhausted. Once through the polishing unit, the demineralized water is ready for use throughout the facility.

The importance of high purity demineralized water necessitates very rigorous automated and manual monitoring and control of the demineralizer system. Whenever unacceptable levels of hardness are detected, spent ion exchange units are taken out of line and regenerated or replaced. It is the past regeneration process discharges which are assertedly regulated under the RCRA program. Since 1985 the waste generated during the regeneration of the cation and anion units has been neutralized in a neutralization tank prior to discharge to the evaporation pond. Prior to September 1985 regeneration wastes were discharged into the 15-acre evaporation pond on the southern part of the facility. Depending on the climatic conditions, the pond typically contained between 5 and 14 million gallons of water with, pH regularly monitored and varying between 7.0 and 9.9 (see Table 1). Discharges to the pond were sequential; that is, the wastes from the cation regeneration were discharged first then immediately thereafter wastes from the anion regeneration. Wastes flowed through a four inch pipe and were discharged directly into the pond.

The regeneration process starts with a water backwash which takes 10 minutes. The cation regeneration process involves the injection of a combined water acid stream of 10 percent acid. After the acid injection is terminated water is pumped through the bed to displace excess acid. The total process takes about 105 minutes including the water backwash cycle.

The anion regeneration is accomplished by injecting the flow of 4 percent caustic into the anion unit. Water is then pumped through the unit to remove excess caustic. This is followed by an anion rinse. The process takes about 125 minutes.

Following the regeneration of the cation and anion units a rinse down cycle takes place to insure the units have been properly regenerated and are operating properly. Once monitoring shows that the units are functioning properly the controls are adjusted to terminate discharge as waste and the units are ready for operation. The rinse down phase typically takes 60 minutes and starts with a discharge pH of 10.5. Thus, the total time for regeneration is 290 minutes or approximately 4-1/2 to 5 hours. The pH of the regeneration waste waters varies from 9.5 to 1.5-2.75 during the acid injection, displacement and cation rinse, and from 2.75 to 12.5-10.5 during the caustic injection, displacement and anion rinse. Final rinse down drops the pH to the 7.5 to 8.5 range from 10.5 and is thus not included in pH variation calculations. The regeneration process associated with the introduction of acid and caustic substances lasts approximately 230 minutes (290 minutes less the 60 minutes final rinse). During this 230 minutes, the regeneration process generates approximately 2,390 gallons: 1,500 gallons for the cation unit regeneration phase and 890 gallons for the anion unit regeneration phase (see Figure 4). Regeneration frequency is variable but a historical average is once every 11 days.

The GE Morris evaporation pond is assertedly subject to closure under RCRA as a result of the characteristic of corrosivity (U.S. EPA hazardous waste number (D002). While discharges to the evaporation pond may have exceeded the range of 2 to 12.5 for short periods of time, the pH of the pond has invariably measured well within that range. The discharges to the pond were at the very low rates discussed above and lasted for a period of only 3-1/2 to 4 hours on an average of once in 11 days. Considering the volume of the pond (5 to 14 million gallons), the pH of the waste streams from the regeneration process would have remained in the corrosive range for no more than a few seconds (if at all) upon discharge to the pond (see Table 2). In as much as the source of the water which was demineralized was an onsite aquifer, and since the acids and caustics used were commercial grade, and since the

demineralized water system is a closed system, no other hazardous wastes were discharged to the pond as a result of the regeneration process.

The following documents provide background on the process and site characteristics:

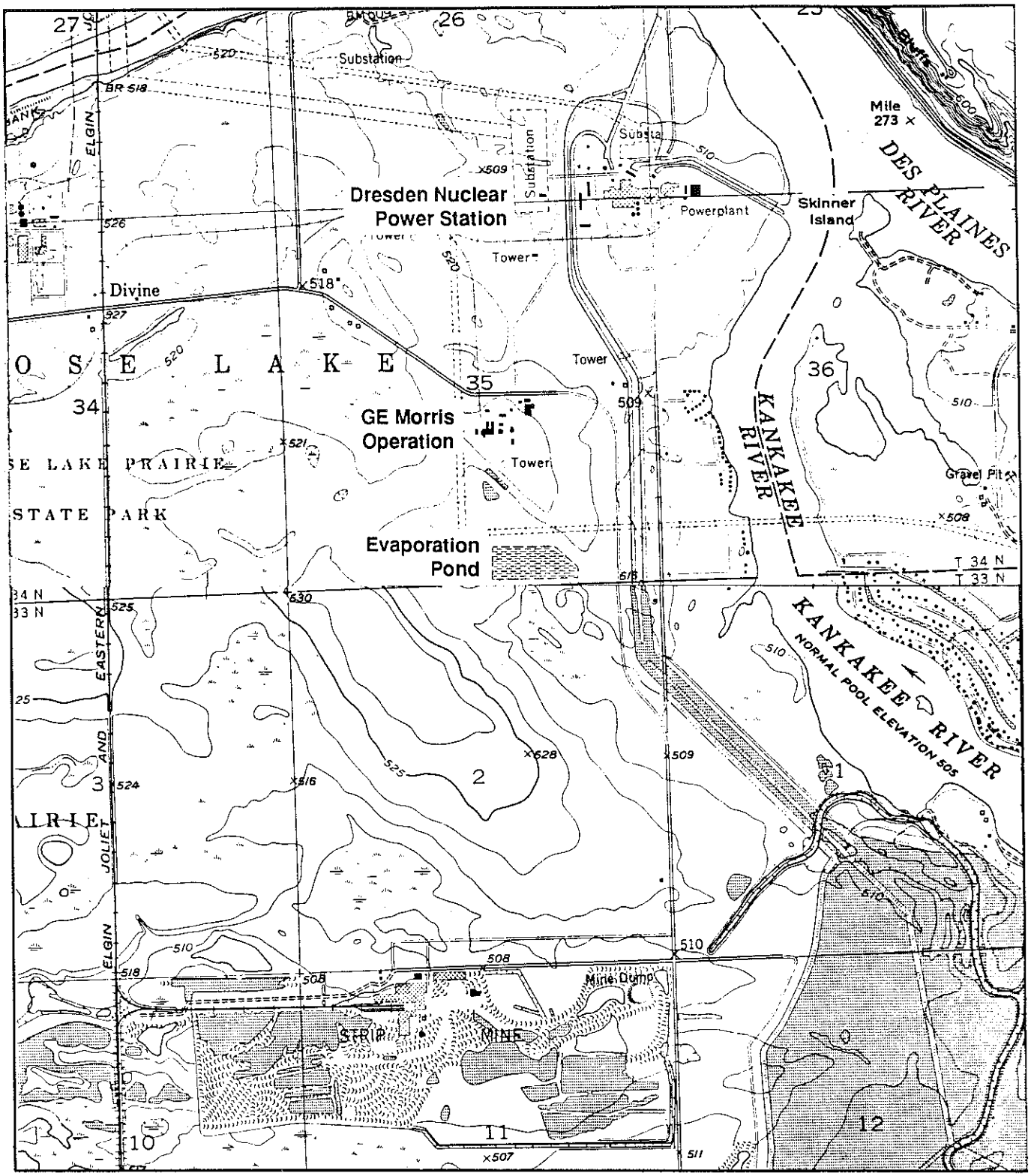
Site Vicinity Map	Figure 1
Schematic of the Demineralizer System	Figure 2
Generalized Stratigraphy	Figure 3
pH Variation of Waste Stream During Demin. Units Regeneration	Figure 4
Demineralizer Evaporation Pond (historical pH data)	Table 1
pH Calculations - Worst Case Scenarios	Table 2
Demineralizer History	Table 3

3.0 CONCLUSIONS

General Electric believes that no hazardous wastes remain in the evaporation pond or indeed ever existed in the pond for more than a few seconds at a time. The current regeneration process is the same as has been historically employed, with the exception of the addition of the neutralization tank. This process has always been carefully monitored because of the importance of the demineralized water system to plant operations. In addition the economics of not wasting acid and caustics ($0.115/lb and $0/13/lb respectively) called for termination of the regeneration cycle as soon as it was effectively completed (see Table 3).

Current discharges to the pond do not qualify as hazardous waste. Given the volume of the pond (14 million gallons at 3 foot depth, 5 million gallons at 1 foot depth) and the rare of discharge (less than 10 GPM), the pH variation of the pond even immediately proximate to the historical discharge would be negligible. Corrosive characteristics would have been immediately eliminated

upon mixing in the pond. Therefore it is not surprising that pH in the pond has never been measured approaching the corrosive limits. Based on a review of plant records and the pH calculations presented,the demonstration has been made that the demineralizer waste stream had been neutralized to the extent that it no longer met the corrosivity characteristic before it could have migrated from the evaporation pond. Therefore the conditions of the waiver from Subpart F ground-water monitoring requirements contained in 35 IAC 725.190(e)(2) had been met.



SOURCE: USGS 7.5 Minute Topographic Maps, MINOOKA & COAL CITY, ILLINOIS Quadrangles, 1980

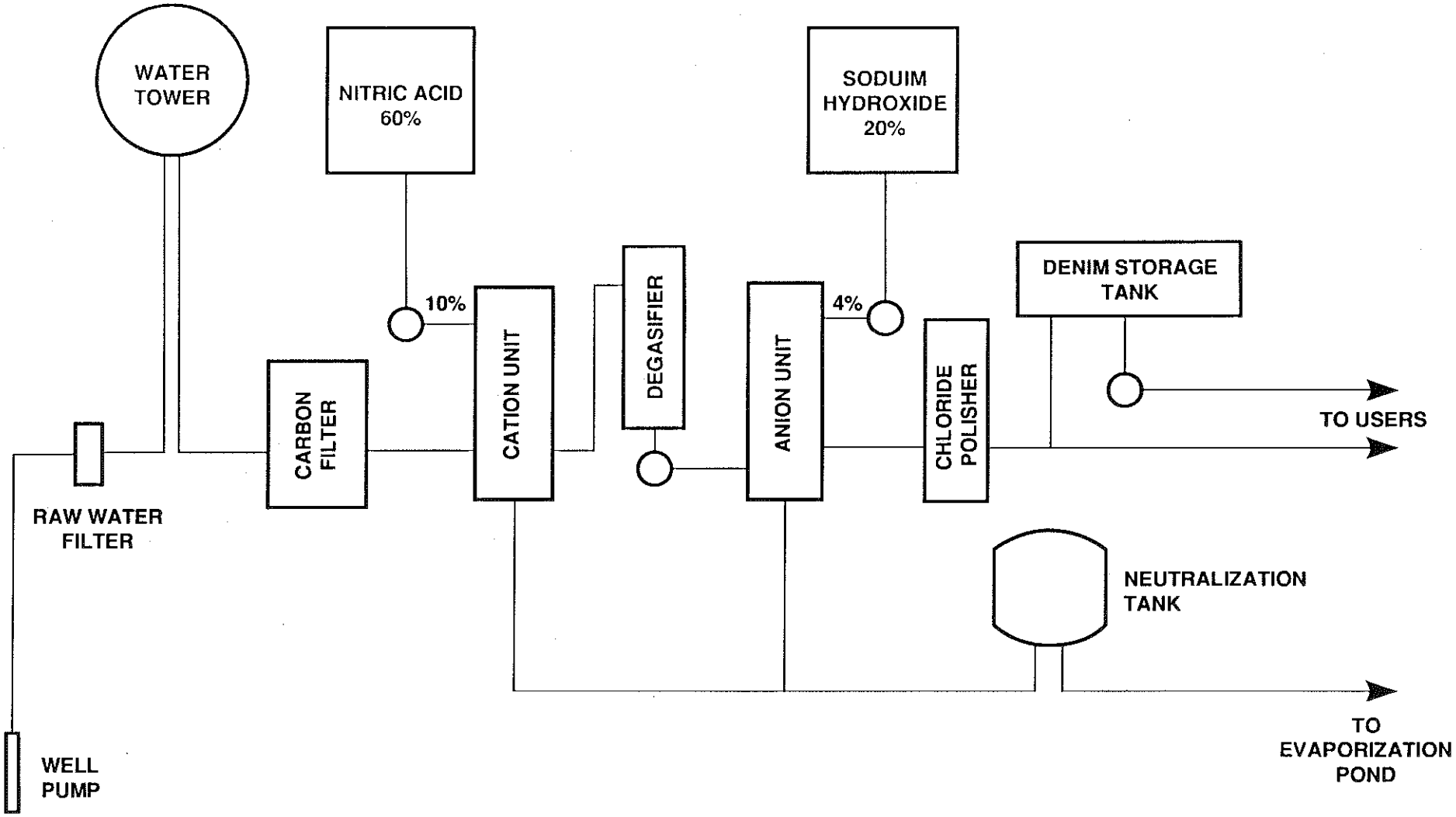
N

0 1000 2000 4000

SCALE IN FEET

GERAGHTY & MILLER, INC.
Ground-Water Services

SITE LOCATION MAP
GENERAL ELECTRIC COMPANY
MORRIS, ILLINOIS



GERAGHTY & MILLER, INC.
Ground-Water Services

PROCESS DIAGRAM
DEMINERALIZED WATER TREATMENT SYSTEM
GENERAL ELECTRIC COMPANY
MORRIS, ILLINOIS

GENERALIZED STRATIGRAPHY AND WATER-YIELDING PROPERTIES OF THE ROCKS IN NORTHERN ILLINOIS

System	Series	Group or Formation	Geomorphic Units	Log	Approximate range in thickness (feet)	Description	Water-yielding properties
Quaternary	Pleistocene		Glacial Drift Aquifers		0-500	Unconsolidated clay, silt, sand, gravel, and boulders deposited as till, outwash, pond water deposits, and loess	Probabilities for ground-water development range from poor to excellent. Outwash sand and gravel yield more than 1000 gpm to wells at places. Large supplies generally obtained from permeable outwash in major valleys. Glacial aquifers used for many small water supplies because they are shallow.
Pennsylvanian		Carbondale; Tradewater			0-500	Shale; sandstone, fine-grained; limestone; coal; clay	Jointed sand yield small supplies locally.
Mississippian	Kinderhook				0-350	Shale, green and brown, dolomitic; dolomite, silty	Limited areal extent; generally not used as aquifers.
Devonian					0-100	Shale, calcareous; limestone beds, thin	
Silurian	Niagaran	Port Byron; Racine; Waukesha; Joliet	Shallow dolomite aquifers		0-500	Dolomite; silty at base, locally cherty	Not consistent; some wells yield more than 1000 gpm. Crevices and solution channels more abundant near surface.
	Alexandrian	Kankakee; Edgewood					
Ordovician	Cincinnatian	Maquoketa			0-250	Shale, gray or brown; locally dolomite and/or limestone, argillaceous	Shales, generally not water yielding, act as confining beds between shallow and deep aquifers. Crevices in dolomite yield small amounts of water.
	Mohawkian	Galena; Decorah; Platteville	Galena-Platteville Dolomite		0-350	Dolomite and/or limestone, cherty, sandy at base, shale partings	Where formation lies below shales, development and yields of crevices are small; where not capped by shales, dolomites are fairly permeable.
		Glenwood	Glenwood-St. Peter Sandstone	Deep sandstone aquifers	0-450	Sandstone, fine- and coarse-grained; little dolomite; shale at top Sandstone, fine- to medium-grained; locally cherty red shale at base	Small to moderate quantities of water. Coefficient of transmissibility probably averages about 15 per cent of that of Cambrian-Ordovician Aquifer.
	Chazyan	St. Peter					
	Prairie du Chien	Shakopee; New Richmond; Oneota	Cambrian-Ordovician Aquifer		0-400	Dolomite, sandy, cherty; sandstone. Sandstone interbedded with dolomite, white to pink, coarse-grained, cherty, sandy	Crevices in dolomite and sandstone generally yield small to moderate quantities of water. Trunkenlands locally well crevices and cavity responsible for exceptionally high yields of several deep wells. Coefficient of transmissibility probably averages about 35 per cent of that of Cambrian-Ordovician Aquifer.
Cambrian	St. Croixian	Trempealeau			0-225	Dolomite, white, fine-grained, granular quartz, sandy at base	
		Franconia			45-175	Dolomite, sandstone, and shale glauconitic, green to red, micaceous	
		Ironton	Ironton-Galesville Sandstone		105-270	Sandstone, fine- to medium-grained, well sorted, upper part dolomitic	Most productive unit of Cambrian-Ordovician Aquifer. Coefficient of transmissibility probably averages about 50 per cent of that of Cambrian-Ordovician Aquifer.
		Galesville					
		Eau Claire	Eau Claire		235-450	Shale and siltstone, dolomitic, glauconitic; sandstone, dolomitic, glauconitic	Shales generally not water yielding. Act as confining bed between Ironton-Galesville and Mt. Simon
		Mt. Simon		Mt. Simon Aquifer	1000-2000+	Sandstone, coarse-grained, white, red in lower half; lenses of shale and siltstone, red, micaceous	Moderate amounts of water; permeability intermediate between that of Glenwood-St. Peter and Ironton-Galesville.
Precambrian crystalline rocks							

Modified from Suter, et al., 1959 and Walton and Csallany, 1962.

Demineralized Water System
Regeneration Record

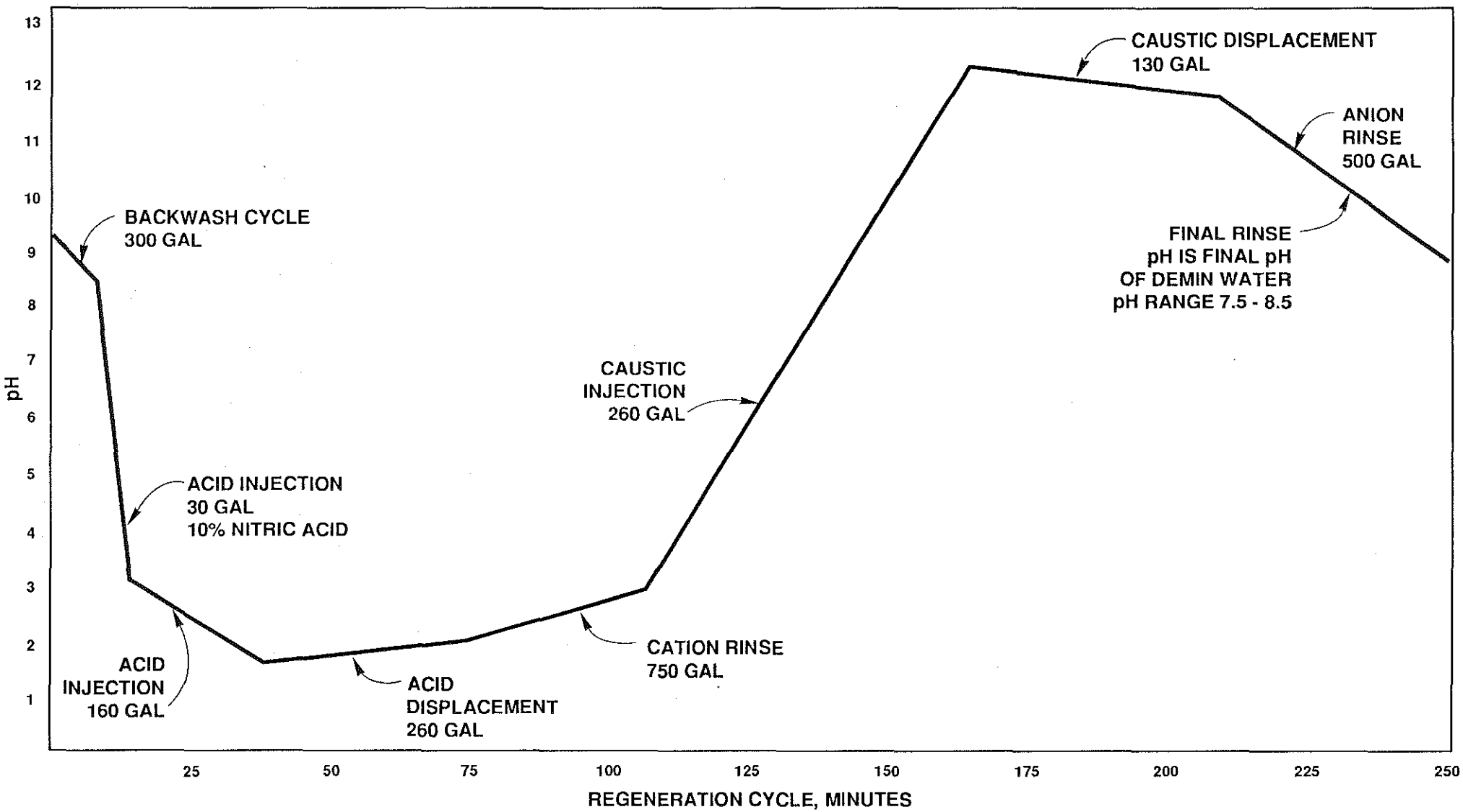
Year	Number of Regenerations	NaOH Consumed (LBS)	HNO_3 Consumed (LBS)
1980	131*	19,700	29,475
1981	119*	7,700	26,775
1982	67*	7,300	15,000
1983	56*	5,900	12,600
1984	60	9,475	13,500
1985	51	9,850	11,500

*Estimated, based upon drop-out from nitric acid storage tank (average of 225 pounds HNO_3 per regeneration).

Historical pH Measurements
in GE Morris Evaporation Pond

Date	pH
10-29-81	8.6
12-22-81	8.2
1-29-82	9.1
2-24-82	7.0
3-31-82	7.8
4-27-82	8.1
5-27-82	9.9
6-29-82	9.5
7-21-82	8.9
8-31-82	9.3
9-29-82	9.7
10-28-82	9.0
11-30-82	8.4
12-21-82	7.8
1-28-83	8.6
2-28-83	8.0
3-31-83	8.2
4-29-83	8.5
5-31-83	8.4
6-30-83	8.9
7-25-83	8.9
9-1-83	8.9
9-30-83	9.5
11-1-83	8.1
11-30-83	7.9
12-83	--
2-1-84	8.9
2-29-84	8.2
3-26-84	7.8
4-26-84	7.7
5-29-84	8.4
6-20-84	8.2
7-31-84	8.8
8-30-84	8.4
10-4-84	9.5
10-10-84	9.0
11-15-84	7.4
12-22-84	8.0
1-84	--
2-25-85	7.3
3-16-85	8.1
4-13-85	7.9
5-18-85	8.0
6-18-85	8.2
7-28-85	9.9
8-22-85	9.2

Date	pH
9-20-85	8.6
10-25-85	8.6
11-23-85	8.1
12-85	--
1-18-86	8.8
2-86	--
3-21-86	8.0
4-14-86	8.3
5-16-86	8.3
6-16-86	8.8
7-15-86	9.7
8-18-86	9.4
9-26-86	7.9
10-21-86	8.1
11-17-86	8.0
12-12-86	8.2
1-87	--
2-20-87	7.9
3-19-87	8.4
4-20-87	8.1
5-21-87	8.7
6-9-87	9.4
7-17-87	9.8
8-12-87	9.4
9-18-87	9.4
10-16-87	8.4
11-25-87	8.1
12-11-87	7.8



GERAGHTY & MILLER, INC.
Ground-Water Services

pH VARIATIONS OF WASTE STREAM DURING DEMIN UNITS REGENERATION

GENERAL ELECTRIC
MORRIS, ILLINOIS

pH CALCULATION UNDER WORST CASE CONDITIONS

BASIC ASSUMPTIONS

Pond

minimum volume = 5 x10(6) gallons
minimum pH = 7.0
maximum pH = 9.9

Regeneration Discharge

parameter	volume	cycle total	pH extreme
Anion Cycle			
Backwash (no injection)	300		
Acid injection	30+160=190	1500	1.5
Acid displacement	260		
Cation rinse	750		
Cation Cycle			
Caustic injection	260		
Caustic displacement	130	125	12.5
Anion rinse	500		

Mixing

Occurs as though the whole discharge takes place at once.

pH CALCULATIONS

Anion Regeneration Cycle

Mix 1500 gallons of pH 1.5 with 5 million gallons of pH 7.0. Assumes all of the regeneration discharge is at the lowest pH and discharge is to the pond at the low level and lowest recorded pH.

pH = -log [H+] represent molarity

pH pond = 7.0 = -log [H+]
[H+] = 10E-7

pH discharge = 1.5 = -log [H+]
[H+] = 3.16 x 10E-2

$$[H+]\ \text{mixture} = \frac{V\ \text{pond} \times [H+]\ \text{pond} + V\ \text{anion cycle} \times [H+]\ \text{anion cycle}}{V\ \text{pond} + V\ \text{anion cycle}}$$

$$= \frac{(5E6\ \text{gal})\ (10E{-}7\ \text{moles/1}) + (1.5\ E3\ \text{g})\ (3.16\ E{-}2\ \text{moles/1})}{5\ E6\ \text{gal} + 1.5\ E3\ \text{gal}}$$

[H+] mixture = 9.6 E-6

pH mixture = -log [9.6 E-6] = 5.02

Cation Regeneration Cycle

Mix 890 gallons of pH 12.5 with 5 million gallons of 9.9. Assumes all of the regeneration discharge is at the highest pH and discharge is to the pond at the low level and highest recorded pH.

pH = -log [H+] where [H+] represents molarity

pH pond = 9.9 = -log [H+]
[H+] = 1.259 E-10

pH discharge = 12.5 = -log [H+]
[H+] = 3.162 E-13

$$[H+]\ \text{mixutre} = \frac{V\ \text{pond} \times [H+]\ \text{pond} + V\ \text{cation cycle} \times [H+]\ \text{cation cycle}}{V\ \text{pond} + V\ \text{cation cycle}}$$

$$= \frac{(5\ E6)\ (1/259\ E-10) + (8.9\ E2)\ (3.162\ E-13)}{5\ E6 + 8.9\ E2}$$

[H+] mixture = 1.259 E-10

pH = 9.9

0630600008 - Grundy County
General Electric
ILD062338694
C-489-M-1
RCRA-Closure

Morris Operation
General Electric Company
7555 East Collins Road
Morris, IL 60450-9740
(815) 942-5590
Contact: Gene Ingels

-A closure plan re-submittal from Geraghty and Miller, Inc. on behalf of General Electric was received by the Agency on February 7, 1990. This closure plan submittal addresses the RCRA closure activities for the hazardous waste surface impoundment at the facility. The plan calls for clean and final closure of the facility.

-A prior closure submittal for the surface impoundments was denied per January 6, 1990 letter from LWE. A copy of this denial letter is shown as **attachment 1.**

-A modification to the closure submittal addressing the proposed groundwater monitoring plan was received by Agency on March 29, 1990. This will be implemented into the closure submittal.

Part A Application

-The General Electric Morris Operation has a Part A application on file with the Agency, dated November 13, 1980 (shown as **attachment 2** to these review notes). This Part A identifies two hazardous waste management units at the facility; 1) a 1100 gallon container storage area, and 2) a 1000 gallons per day surface impoundment. It is noted in the Part A application on page 3B of EPA form 3510-3, that 30 gallons per day of acid and base are neutralized in the surface impoundment.

The surface impoundment is noted to receive 700 tons of characteristically corrosive wastes (D002) per year. It is noted on page 5 of the EPA form 3510-3 that the surface impoundment neutralized HNO_3 and NaOH wastes.

-A request for withdrawal of the RCRA permit application from General Electric Morris Operation, dated October 28, 1985, was submitted to the USEPA, along with a "Certification Regarding Potential Releases from Solid Waste Management Units".

The request for permit withdrawal stated the surface impoundment qualified for EPA regulation because the effluents discharged to it were categorized as corrosive material, with acid discharges below pH of 2 and alkali discharges above pH of 12.5). GE argues that since the surface impoundment is no longer in use as a neutralization facility, and no corrosive or otherwise defined hazardous materials are routed to it, it no longer falls under the jurisdiction of RCRA. It is noted the surface impoundment will remain in operation, but influent will be non-hazardous wastes - neutralized demineralizer wastes from the neutralization tank.

-A memorandum from the Hazardous Waste Branch of the USEPA was forwarded to LWE. It stated the October 28, 1985 request to withdrawal the RCRA Part A permit was not justified since it is not possible for a surface impoundment of be an "elementary neutralization unit." It further states that the General Electric surface impoundment is subject to RCRA regulation, specifically 35 IAC Part 725 requirements.

Applicable Regulations

-Based on the Agency view that the surface impoundment is RCRA regulated, the closure of the surface impoundment must be in accordance with 35 IAC requirements, specifically 35 IAC Part 725.211-215, and 725.328 (as described in the March 19, 1987 Federal Register Amendments, ppg. 8704-8709)

Enforcement

-Based on the contention that the surface impoundment was not RCRA regulated, General Electric accumulated several violations during RCRA inspections with regards to this issue.

-A USEPA Complaint and Compliance Order was filed against General Electric on September 26, 1988 for RCRA violations related to the operation of an interim status surface impoundment at the General Electric Morris Operation. The Complaint and Compliance Order was filed on behalf of the IEPA by the USEPA. A copy of the Complaint and Compliance Order is shown as **attachment 3** to these review notes.

A summary of the violations cited in the Order are:

a) The provisions of 725.212(a) and 725.212(c)(1), requiring the preparation and submittal of a closure plan for the hazardous waste surface impoundment.

b) The provisions of 725.242(a) and (b), requiring the preparation of a written closure cost estimate for the hazardous waste surface impoundment.

c) The provisions of 725.243, requiring demonstration of financial assurance for closure of the surface impoundment.

d) The provisions of 725.190 through 725.194, requiring compliance with groundwater monitoring requirements.

A Compliance Order was entered, requiring General Electric to:

A. Cease and not resume any treatment , storage of disposal of any corrosive hazardous waste in its surface impoundment.

B. Within forty-five days of the order becoming final:

1. Submit to the IEPA and USEPA a complete closure plan and, if necessary, a post-closure plan for the surface impoundment which meets the requirements of 35 IAC 725 Subpart G.

2. Submit to the IEPA and USEPA for approval a written plan to the implementation of a groundwater monitoring program capable of determining the impact on the quality of the groundwater in the uppermost aquifer underlying the facility, as required under 35 IAC 725 Subpart F, or, alternatively, submit for approval by IEPA, with copy to USEPA, a written demonstration for a waiver of the groundwater monitoring requirements, as specified under 35 IAC 725.190(d) for the surface impoundment.

3. Submit to the IEPA and USEPA a closure cost estimate in accordance with 35 IAC 724.242(a), based on the closure plan required by the Order.

4. Submit the IEPA evidence of financial responsibility, as required by 35 IAC 725 Subpart H.

C. Implement the groundwater monitoring plan, as approved by the IEPA and USEPA, unless a successful demonstration is provided pursuant to 35 IAC 725.190(e).

D. Notify the USEPA in writing, upon achieving compliance with the Order, or any part thereof. This notification shall be submitted no later than 30 days after the Order becomes final, to the USEPA, Region V, Waste Management Division.

-A Consent and Final Agreement Order was entered into by the General Electric Company and USEPA, dated February 15, 1989 (shown as **attachment 4** to these review notes). The terms of the CAFO stated the General Electric Morris Operation was required to:

A. Cease and not resume, any treatment, storage or disposal of any corrosive hazardous waste in its surface impoundment.

B. Within forty-five days of the Order becoming final, General Electric shall:

1. Submit to the IEPA and USEPA a complete closure plan and, if necessary, a post-closure plan for the surface impoundment meeting the requirements of 35 IAC 725 Subpart G.

2. Submit the IEPA and USEPA, for approval, a written groundwater monitoring program capable of determining the facility's impact on the quality of the groundwater in the uppermost aquifer underlying the facility, as required by 35 IAC 725 Subpart F; or alternatively, submit the IEPA for approval, with a copy to the USEPA, a written demonstration for a waiver of the groundwater monitoring requirements, as specified under 35 IAC 725.190(e).

3. Submit to the IEPA and USEPA, a closure cost estimate in accordance with 35 IAC 724.242(A), based on the closure plan required by this Order.

4. Submit to the IEPA evidence of financial responsibility, as required by 35 IAC 725 Subpart H.

C. Implement the groundwater monitoring plan, as approved by the IEPA and USEPA, unless a successful demonstration is provided pursuant to 35 IAC 725.190(e).

D. Notify the USEPA in writing upon achieving compliance with this Order and any part thereof.

E. Within forty-five days after receipt by the respondent of the Order (GE), the respondent shall submit payment of $15,250 in the form of certified or cashiers check payable to the Treasurer of the United States.

F. A copy of the CAFO, as signed by the Regional Administrator, shall be delivered to the respondent by certified mail.

Facility Background

-Page 12 of the closure submittal states the General Electric Morris Operation is a nuclear fuel storage facility, licensed by the Nuclear Regulatory Commission. The facility is used to store spent nuclear fuel rods from commercial reactors. The rods are stored in tanks which must be filled with demineralized water.

Demineralized water is produced at the plant from water supplied by an on-site production well, which is then treated by an ion exchange process. The cation and anion resins contained in the ion exchange beds require periodic regeneration. The bed regeneration processes generate the wastewaters, which are considered hazardous due to their pH (classified as EPA Hazardous Waste Number D002; characteristically corrosive).

From a period from 1972 extending to 1985, these wastes were discharged into a surface impoundment located on the General Electric Morris Operation property. Discharge of the wastes directly to the surface impoundment ceased in 1985 upon the installation of a neutralization tank.

-Phone conversation with Laura Tavares, IEPA/FOS; She indicated that the wastewaters from the neutralization tank are currently discharged to the surface impoundment.

-Page 16 of the closure submittal states that General Electric also operated a Drum Storage Area at the Morris facility (S01 - 1100 gallons). Closure of this area, in accordance with the approved closure plan dated October 4, 1985, was certified by the owner/operator, and an independent registered professional engineer on January 26, 1986. General Electric received a determination from the IEPA on March 25, 1986, that the storage area had met the requirement of the interim status closure standards, 35 IAC Part 725.

Review

-The review of the closure submittal by Geraghty and Miller on behalf of General Electric will be in accordance with IEPA instructions on closure plan preparation for interim status facilities shown as **attachment 5,** 35 IAC Part 725 requirements, and the January 8, 1990 closure plan denial letter shown as **attachment 6** to these review notes.

General Comments

-Upon review of this closure plan, it appears that the concerns addressed in the January 26, 1990 phone conversation with representatives of IEPA, Geraghty and Miller and General Electric were adequately addressed.

Description of Facility

-Page 12 of the closure submittal states that General Electric Morris Operation is a nuclear fuel storage facility, which is licensed by the Nuclear Regulatory Commission. The facility is used to store spent nuclear fuel rods from commercial reactors.

Reviewer Comments

-No comments.

Description of Waste Management Units

-Process Characterization

-The nuclear fuel rods from commercial reactors are stored in tanks which must be filled with demineralized water. Demineralized water is produced at the plant from water supplied by an on-site production well, which is then treated by an ion-exchange process. The cation and anion resins contained in the ion-exchange beds require periodic regeneration.

Acid and caustic rinse solutions are used to regenerated the resin beds. These wastes were managed by General Electric on-site, in an interim status evaporation pond until September, 1985, when a neutralization tank was installed to receive the regeneration rinsewaters prior to their discharge

to the evaporation pond.
The regeneration process starts with a water backwash which takes 10 minutes. The cation regeneration process involves the injection of a combined water acid stream of 10 percent acid. After the acid injection is terminated, water is pumped through the bed to displace excess acid. The total process takes about 105 minutes, including the backwash cycle. The anion regeneration is accomplished by injecting a flow of 4 percent caustic into the anion unit. Water is pumped through the unit to remove excess caustic. The process takes about 125 minutes.

Following the regeneration of the cation and anion units, a rinse down cycle takes place to insure the units have been properly regenerated and are operating properly. Once monitoring shows that the units are function properly, the controls are adjusted to terminate discharge as waste and the units are ready for operation. The rinse down phase typically takes 60 minutes and starts with a discharge pH of 10.5. Thus, the total time for regeneration is 290 minutes, or approximately 4.5 to 5.0 hours.

The pH of the regeneration wastewaters varies from 9.5 to 1.5 to 2.75 during the acid injection, displacement and cation rinse, and 2.75 to 12.5 to 10.5 during the caustic injection, displacement and anion rinse. Final rinse down drops the pH to the 7.5 to 8.5 range from 10.5. The regeneration process associated with the introduction of acid and caustic substances lasts approximately 230 minutes. During this 230 minutes, the regeneration process generates approximately 2390 gallons; 1500 for the cation unit phase and 890 gallons for the anion unit phase. Regeneration frequency is variable, but a historical average was once every 11 days.

Wastewaters from the regeneration system were discharged into a 4-inch diameter vitrified clay pipe which runs in a southerly direction to the 15-acre on-site evaporation pond. Besides the demineralized system discharge pipe there is no other equipment structures, pipes, pumps, sumps or other appurtenances associated with this hazardous waste management unit.

The pond was constructed by rough grading the pond floor and using the materials from floor grading to construct the earth dikes of the pond. The pond was excavated until there was adequate material for an average dike height of 6 feet. The typical elevation of the constructed top of the dike was 516' - 0", while the maximum finished bottom elevation of the pond

floor was 513' - 0". Surface area of the pond was designed to be 66,750 square feet. Depending on climatic conditions, the pond contained between 5 million and 14 million gallons of water.

Reviewer Comments

-Is this surface impoundment still accepting the wastes from the neutralization tank? (Yes. See page 7 of notes.)

Map of Facility

-Page 8 of the closure submittal states the General Electric Morris Operation is located east of Morris, Illinois in the southeast 1/4 of Section 35, Township 34 North, and Range 8 East in Grundy County. The cites of Joliet and Chicago are 14 miles and 48 miles northeast of the site, respectively. The site is approximately 6,000 feet southwest of the confluence of the Kankakee and Des Plaines Rivers.
A USGS topographic map copy, shown as Figure 1 of the submittal, identifies the location of the facility with respect to the surrounding area.

Reviewer Comments

-No comments.

Detailed Drawing of the Hazardous Waste Management Unit

-Page 16 of the closure submittal refers to Drawings No. 5-0521E (Evaporation Pond Grading Plan), 5-5518 and 5-5519 (Underground Piping Plan) contained in Appendix A of the closure submittal.

Reviewer Comments

-In drawing 5-5518 (Underground Piping Plan), approximately located at match line South 1000, a "y-branch" in the piping occurs. The upper portion of the "y" appears to protrude through the 4 feet of earth cover and into a constructed concrete apron. The piping appears capped. This particular construct is note to be "C.O.2" on the drawing.

What was the function of this particular feature?

Inventory of Hazardous Waste

-Page 16 of the closure submittal states that , depending upon climatic conditions, the pond contained between 5 and 14 million gallons of water.

Reviewer Comments

-This does not adequately describe the amount of hazardous material kept in the surface impoundment, since the surface impoundment was susceptible to collection of waters from rains and drainage. However, since it is impossible to estimate the actual amount of hazardous wastes stored in the surface impoundment at any one time, the hazardous waste inventory will be considered to be the maximum volume of wastewaters stored, or approximately 14 million gallons.

Schedule for Closure

- Page 42 of the closure submittal states that it is not clear as to the nature and extent of necessary closure activities at this time. Initial activities will include the installation of groundwater monitoring wells and collection of soil and sediment samples. Results of sample analysis will be evaluated, and within 120 days of actual sampling, a proposal for closure will be submitted to IEPA.

  If the results of the sampling and analytical program indicate that treatment or removal of any wastes or soils (including groundwater) from the evaporation pond is necessary, an addendum to this closure plan will be prepared which will describe those activities.

Reviewer Comments

-In accordance with the discussion held with General Electric and Geraghty and Miller representatives on January 26, 1990, this proposal is deemed acceptable to the Agency. Upon completion of sampling and review of the analytical results, the adequacy of the completed closure activities will be evaluated, and any further remediation will be addressed at that time.

Air Emissions and Personnel Safety and Fire Prevention Plan

-This issue is not directly addressed in the closure submittal.

Reviewer Comments

-Under the provisions of 29 CFR 1910, cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. This will be noted in the subsequent correspondence.

Decontamination of Tanks, Structures, and Soils

-Page 42 of the closure plan states that, at this time, it is not clear as to the nature and extent of necessary closure activities. Initial activities will include the installation of groundwater monitoring wells and collection of soil and sediment samples. Results of sample analysis will be evaluated, and within 120 days of actual sampling, a proposal for closure will be submitted to the IEPA.

Reviewer Comments

-As noted above, the extent of the cleanup operations will be based upon the analytical results from the proposed soil sampling. The March 19, 1987 Federal Register Amendments (p. 8706, col. 2, par. 1) states that to provide the necessary level of assurance (that no harmful constituents remain in the soils that could harm human health or the environment, at the present or in the future), the Agency will require owners or operators to remove all wastes and contaminated liners and to demonstrate that nay hazardous constituents left in the subsoils will not cause unacceptable risks to human health or the environment. The Agency will review site specified demonstrations submitted by facility owners/operators that document that enough removal and decontamination has occurred so that no further action is necessary.

In accordance with these requirements, the submission of the analytical results for the surface impoundment will determine, on a site-specific basis, the need for further remediation of the soils.

Soil Cleanup Levels

-Page 18 of the closure submittal states that after the completion of the proposed sampling and analytical program discussed in Section 7.0, and review of the analytical data obtained therein, a determination will be made regarding whether soil cleanup levels must be established for the former evaporation pond.

Reviewer Comments

-Soil cleanup objectives will be set, if necessary, upon Agency review of the soil and groundwater sample analytical results.

Sampling Plan and Analytical Methods

-Page 22 of the closure submittal outlines the pond soil and sediment sampling proposed procedures:

The number of sediment samples is based on the recommendations presented in the IEPA guidance document for preparation of closure plan for interim status RCRA facilities. The surface area of the pond floor is calculated to be approximately 15 acres. The pond surface area was then divided into a grid system. One discrete sediment and one discrete soil sample will be collected from the former evaporation pond by compositing sub-samples from nine randomly selected sampling locations within the pond. One additional sample each of the soils and sediments will be obtained from the surface impoundment influent pipe sampling point.

The random sampling points were selected by dividing the pond into a 150 ft x 150 ft sampling grid system as shown in Figure 4 of the closure submittal. Each of the grids was then assigned an integer form 1 to 35. Nine random number were then generated through a random number generating algorithm, corresponding to sampling location.

At each sampling location in the pond, a sediment and soil sample will be collected. If the impoundment is filled with 2 to 5 feet of water, the sediment samples will be collected using a 3-inch diameter thin wall Shelby tube. The samples will be collected from the sediment/water interface to a depth of two feet. The retrieved material will be divided in

the field into a sediment and soil sample. Equal weights of the sediment and soil sample form each of the nine random sampling locations will be composited in the field to obtain one randomly selected sample each of sediment and soil from the pond.

If the sediment sample analyses indicate that the upper two feet of impoundment sediment has been affected at any of the sampling locations, an additional two foot sample will be collected from the two to four feet beneath the sediment surface at the same sample locations.

In the event that the pond does not contain standing water, a sediment sample will be collected form the upper two to six inches of material using a clean stainless steel trowel or scoop. At the same sampling location a soil sample will then be collected using a hand bucket-type auger. The depth of the soil sampling interval will be from the sediment/soil interface; approximately 2 feet.

The sediment sample collection procedures will be as follows:

The sample location (sketch of map with sample quadrant grid coordinates), sample identification number, date time, sampling personnel, sampling method and any noteworthy information will be properly recorded for each sample.

Before collecting the sediment sample, any surface vegetation or litter will be removed from the area surrounding the sample location using a clean trowel or scoop. To monitor the air and soil quality, the exposed sediment will be immediately screened for volatile organics with a photoionization detector (HNu). If there is no detection of organic vapors, the sample will then be collected and placed into the appropriate glass sample container. If organic vapors are detected, the vapors will be allowed to dissipate before sampling. The photoionization meter reading will be properly recorded on the sample collection form.

The full sample jar will then be properly labeled and stored on ice in a secure storage area until subsequent compositing and shipment to the laboratory.

Soil sampling:

The sample location (sketch of map with sample quadrant

grid coordinates), sample identification number, date time, sampling personnel, sampling method and any noteworthy information will be properly recorded for each sample.

Before collecting the soil sample, the walls of the sediment sampling hole will be expanded to insure that sediment does not contaminate the soil sample. While sampling, the air and soil quality will be monitored using a photoionization detector (HNu). If there is no detection of organic vapors, the sample will then be collected and placed in the appropriate glass sample container. If organic vapors are detected, the vapors will be allowed to dissipate before sampling. The photoionization meter reading will be properly recorded on the sample collection form.

Soil samples will be collected using a hand bucket type auger.

The full sample jar will then be properly labeled and stored on ice in a secure storage area until subsequent compositing and shipment to the laboratory.

To prevent sample cross contamination, all sampling equipment, instruments, etc., will be properly decontaminated between each use.

The single composite samples of sediments and soil collected from the nine randomly selected sampling locations within the pond will be analyzed for EP Toxicity metals and laboratory pH. In addition to EP Toxicity metals and pH, the soil and sediment samples form the surface impoundment influent pipe sampling location will each be analyzed for the 35 IAC Part 724 Appendix I organic constituents. An Appendix I scan of the soil and sediment from this area will be undertaken to adequately determine if there has been any impact from organic constituents on the surface impoundment sediment or subsoils.

Reviewer Comments

-From the information provided in the closure submittal, nine sediment samples and nine soil samples will be collected from the surface impoundment at the locations indicated in Figure 4 of the closure submittal. At each of these locations, the sediment and soil sample will be composited into one sample for analysis. These composited samples will be analyzed for

EP Toxicity metals and pH.

At the location of the discharge pipe, one sediment and soil sample will be collected. These samples will not be composited. Analysis of these samples will consist of Appendix I (35 IAC Part 724) organic constituents.

The coordinates of the sampling locations are in accordance with the agreed sampling locations.

The proposed sampling procedures for the discharge pipe soil and sediment samples do not appear adequate for sampling for volatile organic compounds. In the event of no standing water in the surface impoundment, the sediment sample will be collected using a clean stainless steel trowel or scoop, and the soil sample will be collected using a hand bucket type auger. Due to the nature of the sampling procedures, the integrity of the soil and sediment samples could be compromised by allowing an inordinate amount of volatile organics to be released. Therefore, the sampling at the discharge pipe must be in accordance with SW-846 (Third Edition) and Attachment 7 to the IEPA closure plan preparation document.

The use of the photoionization detector for health and safety purposes poses a problem with the soil and sediment samples to be collected at the discharge pipe location. Since the samples in this location are to be analyzed for volatile organic compounds, the venting of the soils before collection may compromise the integrity of these samples. Therefore, the procedure for venting the soils in the case of volatile organic vapor detection will not be allowed in the discharge pipe sample location. Soil samples in this location must be collected with a core sampler (i.e., a Shelby tube or similar device which would not allow an inordinate amount of volatilization from the soils being sampled).

Since the use of the photoionization detector provides useful information on the makeup of the soils and sediments in the surface impoundment, documentation of the use of the photoionization detector, including calibration, procedure, and readings must be supplied with the soil and sediment sampling analytical results for Agency review.

Equipment decontamination procedures must be in accordance with Attachment 7 to the IEPA closure plan preparation document.

The laboratory analytical procedures were not referenced with respect to SW-846 (Third Edition). Since the samples at the discharge effluent will be analyzed for the Appendix I constituent list, the laboratory procedures must provide a practical quantization limit (PQL) at least as low as the lowest shown for that parameter in the latest edition of 35 IAC Part 724 Appendix I. The samples must be analyzed in accordance with SW-846 (Third Edition) procedures for EP Toxicity and pH. Sample preservation must be in accordance with the procedures outlined in SW-846 (Third Edition) for the analytical method used.

-Page 26 outlines the soil sampling adjacent to the vitrified clay discharge pipe:

> According to construction drawings shown in Appendix A of the closure submittal, the pipe lies approximately four feet below the land surface and spans a length of approximately 1500 feet. The demineralizer wastewater pipe initially runs adjacent to the sanitary waste lagoon for approximately 900 feet before its final 600 foot length to the evaporation pond.
>
> The discharge pipe is constructed of six-inch diameter vitrified clay. Typically, the pipe is composed of five foot sections.
>
> Samples will be collected of the soil material adjacent to the pipe joints at approximately 200 and 400 feet from the pond. A backhoe will be used at the sample site to remove the soil material which covers the discharge pipe.
>
> Once the pipe is located, excavation will continue along the pipe to locate a pipe joint. If the excavation is more than four feet deep, the walls of the excavation will be expanded to limit the potential for collapse.
>
> The excavation will be periodically screened with a photoionization detector to determine whether volatile organic constituents are present. In the event that sustained organic vapors are detected, the excavation will be left to vent until the meter indicates that background levels are again present. The readings will be recorded.
>
> Any remaining excavation will be performed by using a

shovel. Samples will be collected of stained soils or other materials apparently affected by pipe leakage. If no stained soil is evident, the soil material directly beneath the pipe will be sampled.

A decontaminated non-metallic trowel will be used to collect the soil sample. A measuring tape will be used to determine the sample location with respect to the end of the discharge pipe at the surface impoundment. Once the sample has been collected, the excavation will be filled with the excavated soil material. The filled soil sample jars will be properly labeled and preserved prior to shipping to the analytical laboratory.

The soil samples collected will be analyzed for EP Toxicity metals and laboratory pH.

Reviewer Comments

-Sampling locations for the discharge pipe should also be conducted various locations along the length of the pipe. The use of only two locations as representative for over 1500 feet of pipe is not considered adequate by this reviewer. At least four more sampling locations should be added to the sampling proposal, including at least one point in the area of the sanitary lagoon, where there are three diversions of flow within the pipe (i.e., three angles).

Since the use of the photoionization detector provides useful information on the makeup of the soils and sediments along the clay pipe, documentation of the use of the photoionization detector, including calibration, procedure, and readings must be supplied with the soil and sediment sampling analytical results for Agency review.

The laboratory analytical procedures were not referenced with respect to SW-846 (Third Edition). The samples must be analyzed in accordance with SW-846 (Third Edition) procedures for EP Toxicity and pH. Sample preservation must be in accordance with the procedures outlined in SW-846 (Third Edition) for the analytical method used.

In case material characteristic of backfill is encountered directly beneath the pipe, the sample will be taken at the evident point of soil/backfill interface to ensure a sample representative of soils in the immediate area.

The proposal to mark and then backfill the area with the excavated soils is not considered an acceptable practice. In the case that the sample results show hazardous levels, the replacement of the soils would be in violation of RCRA. Therefore, the excavated soils must be kept in an environmentally safe method until analytical results are completed. If the samples show a hazardous level, these excavated soils must be tested to determine if they are hazardous. If so, they must be disposed of as a hazardous waste. If not, these soils must be disposed of as a special waste.

Description of Equipment Cleaning

-Page 25 of the closure submittal states that all sampling equipment, instruments, etc. will be properly decontaminated between each use. Equipment decontamination procedures will include using a tapwater/trisodium phosphate solution wash, tapwater rinse and final deionized water rinse.

Reviewer Comments

-The decontamination procedures outlined above apparently only cover decontamination of the sediment/soil sampling equipment. The decontamination procedures must also be undertaken for the equipment used to excavate and sample the soils underlying the vitrified clay pipe, and any other equipment used to sample the soils of concern.

Groundwater Monitoring/Hydrogeologic Report

-According to Geordie Smith, IEPA/Compliance, the information provided is acceptable. Review notes will be entered into Division File upon completion.

Contaminated Soil Removal

-Page 41 of the closure plan states that if it is determined from the results of the proposed sampling and analytical program that removal of soils from the surface impoundment is necessary, General Electric will prepare an addendum to this closure plan outlining each step required to remove any waste and contaminated soil from the property.

Reviewer Comments

-This approach is consistent with the IEPA and General Electric agreed upon method of closure for the surface impoundment. Upon Agency receipt and review of the sampling program analytical results, the determination of further remedial action will be made.

Financial Assurance

-Page 45 of the closure submittal states that the entire amount of the closure cost estimate shown on page 44 of the closure submittal has already been accounted for in the 1989 Financial Operating Plan for the Morris Facility.

Reviewer Comments

-The financial assurance for this facility will be checked with Andy Vollmer, IEPA/Compliance. However, it appears that since the General Electric company is making a financial test, the financial assurance will be provided.

Signatory Requirements

-Page 47 of the closure plan submittal states that General Electric's certification of closure will conform to the signatory requirements of 702.126.

Reviewer Comments

-No comments.

Statement of Facility Status After Closure

-Page 48 of the closure submittal states that after completion of this closure, no treatment, storage or disposal will occur at this facility.

Reviewer Comments

-No comments.

APPENDIX 5

March 2, 1989

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND POLLUTION CONTROL

Instructions for the Preparation of Closure Plans for Interim Status RCRA Hazardous Waste Facilities

TABLE OF CONTENTS

Section	Description	Page
1.	Purpose and Definitions	1
2.	Description of Facility	1
3.	Description of Waste Management Units	1
4.	Map of Facility	2
5.	Detailed Drawing of Hazardous Waste Management Unit(s)	2
6.	Storage Area Pavement Description	2
7.	Inventory of Hazardous Waste	2
8.	Schedule for Closure	2
9.	Air Emissions	3
10.	Personnel Safety and Fire Prevention	3
11.	Decontamination of Tanks, Structures and Soils	3
12.	Soil Cleanup Levels	4
13.	Sampling Plan and Analytical Methods	5
14.	Contaminated Soil Removal	9
15.	Disposal of Hazardous Wastes and Cleanup Residues	10
16.	Disposal Unit Closures	10
17.	Description of Equipment Cleaning	11
18.	Signatory Requirements	11
19.	Certifications and Reports	12
20.	Status of Facility After Closure	13
21.	Part A Modifications and Withdrawals	14
22.	Post-Closure Care	14
23.	Location Documentation for Disposal Units	14
24.	Submittal of Closure Plan and Certifications	15
25.	Agency Review of Closure Plan	15
26.	Closure Regulations	16
27.	Closure Plan Modifications and Time Extensions During the Closure Period	16
28.	Agency Review of Closure Certifications	17
29.	Certification Regarding Potential Releases from Solid Waste Management Units	17

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND POLLUTION CONTROL

Instructions for the Preparation of Closure Plans
for Interim Status RCRA Hazardous Waste Facilities

1. PURPOSE AND DEFINITIONS - This document sets forth the Illinois Environmental Protection Agency's instructions for the preparation of interim status closure plans.

   Closure of a hazardous waste (RCRA) facility refers to the action taken to secure the hazardous waste management units of a factory or plant in a manner which will protect human health and the environment in accordance with the closure requirements of 35 Illinois Administrative Code Parts 724 and/or 725.

   A Hazardous Waste Management Unit is a contiguous area of land on or in which hazardous waste is placed, or the largest area in which there is a significant likelihood of mixing hazardous waste constituents in the same area (51 FR 16424, May 2, 1986).

   Partial Closure means the closure of a discrete portion of a hazardous waste facility, such as a surface impoundment, landfill trench, container storage unit or tank while other units or cells remain operating.

   Final Closure is defined as closure of the last hazardous waste management unit at the facility.

   "Clean" Closure refers to RCRA closure which includes the removal of all wastes, waste residues, leachate, liners and soils (including groundwater) contaminated with waste or leachate that pose a substantial present or potential threat to human health or the environment. Clean closure of surface impoundments, land treatment units and waste piles must meet the requirements of 35 IAC Part 724. Refer to Section 12: Soil Cleanup Levels.

2. DESCRIPTION OF FACILITY (35 IAC 725.212(b)(1)) - The plan should describe the type of industry, Standard Industrial Code (SIC), products manufactured, raw materials used, location, and size.

3. DESCRIPTION OF WASTE MANAGEMENT UNITS - Identify each hazardous waste management unit at the facility and provide the EPA process code and unit of measure code from the Part A (e.g., S01-1000 gal.). Include waste types for each unit (by standard chemical name and EPA Hazardous Waste No.), time period of use, dimensions, topography, soil types (as appropriate), and any other relevant matters. Identify these units by reference to line numbers on the Part A application. A closure plan must describe how all hazardous waste management units will be closed. If some of the units will not be closed until some time in the future, identify

The plan should contain a timetable which shows all critical dates for closure, including waste removal, sampling, soil removal, critical points when the independent engineer or his representative will be present, backfilling, survey plat preparation, independent engineer's certification, and other relevant activities. This timetable should generally start at the point of approval or some other definable date (e.g., award of contract), and not rely on calendar dates.

The Illinois EPA may require that the owner/operator contact the IEPA Field Operations Section regional office in advance of certain critical activites, such as soil sampling or removal, so that an inspector may be present to observe these activities.

9. AIR EMISSIONS (35 IAC 725.211) - The plan should specify how the owner/operator will minimize or eliminate air emissions related to closure, including nuisance problems such as dust or odors. Examples include solvent emissions during transfers or decontamination operations, or fugitive emission (dust) problems related to soil excavation or solidification.

10. PERSONNEL SAFETY AND FIRE PREVENTION (35 IAC 725.211) - In addition to obvious measures needed to protect the health of nearby residents, the owner/operator must clearly show that measures will be taken to protect all personnal (including contractors and visitors) involved in the closure or possibly exposed to hazardous waste by the closure activity, including personnel decontamination.

    Under the provisions of 29 CFR 1910 (51 FR 15,654, December 19, 1986), cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.

11. DECONTAMINATION OF TANKS, STRUCTURES AND SOILS (35 IAC 725.212 and 725.214) - The owner/operator should describe all efforts to remove or decontaminate hazardous waste and its residues and constituents from tanks, paved areas, containment systems, equipment, structures, soils, pipes, pumps, sumps and any other appurtenances to the hazardous waste management unit.

    The owner/operator may be requested to use any reasonable means to clean or decontaminate container storage units, including steam cleaning, pressure washing, scraping or other means. Tanks containing hazardous

must match the assumptions of the model. The model and any supplemental calculations must be fully documented and intermediate calculations must be provided.

The potential point of exposure to hazardous waste constituents must be assumed to be directly at or within the unit boundary for all routes of exposure (surface water contact, groundwater ingestion, inhalation and direct contact). No attenuation of the hazardous waste constituents leaching from the waste residues can be presumed to occur before the constituents reach exposure points. **The use of fate and transport modeling to determine exposure levels outside the area of contamination cannot be accepted.** This approach is more stringent than that developed for the review of delisting petitions because delisted solid waste remains subject to the regulatory control promulgated under Subtitle D of RCRA. Levels of constitutents in leachate may be estimated based on known characteristics of the waste constituents (e.g., solubility and partitioning coefficients) or determined by soil leaching tests (52 FR 8707, 3/19/87).

Soil and groundwater cleanup levels, will depend on the geology and the existing and potential use of groundwater and/or surface water in the area surrounding the facility. Information and documentation regarding existing and potential use of groundwater and/or surface water in the area surrounding the facility should be provided to justify a proposed site-specific, health-based cleanup level. More specifically, the owner/operator should contact the IEPA Division of Public Water Supplies (DPWS) at 217/785-8653, Illinois Department of Public Health (Springfield) at 217/782-5830, the Illinois State Water Survey (Champaign) at 217/333-8497, and the Illinois State Geological Survey at 217/333-4747 to gather information to determine the geological characteristics and the existing and potential type and extent of groundwater and/or surface water use in the area. Local water use restrictions or zoning rules that restrict or regulate the use of groundwater and/or surface water (e.g. Illinois Groundwater Protection Act) should also be identified. Toxicity information for hazardous constituents (35 IAC Part 721, Appendix H) can be obtained from EPA's Office of Soild Waste, Characterization and Assessment Branch, 202/382-4761.

In the event of extensive soil contamination, groundwater monitoring also may be required through the closure plan, Post-Closure Permit or through corrective action orders or corrective action provisions of a Part B permit, if applicable. If the unit is already subject to groundwater monitoring requirements, the location, frequency or parameters for groundwater sampling may also be modified or extended beyond closure, even if the facility closes "clean." "Clean" closure will not be allowed if groundwater contamination is present above EPA-approved limits.

13. <u>SAMPLING PLAN AND ANALYTICAL METHODS</u> (35 IAC 725.211) - Closure of hazardous waste management units must include sampling of soil to demonstrate clean closure or to determine the nature and extent of soil

The equations above establish grid point intervals, proportioned to the size of waste management unit, where:

GL = greatest length of the area to be gridded (feet)

A = area to be gridded (feet^2), and

GI = grid interval (feet).

Equation 1 results in a heavy sample weighting for small sites, so it should be used for sites larger than 3 acres. Equation 2 should be used for units smaller than 3 acres.

<u>Example #1</u>

A surface impoundment which measures 300 ft. by 500 ft. is to be sampled for verification of clean closure.

A = 400 ft. X 700 ft. = 280,000 sq. ft.

280,000 sq. ft./43,560 sq. ft. = 6.42 acres

6.42 acres > 3 acres

Therefore, use Equation 1

$GI = (A\pi/GL)^{0.5}$ (Equation 1)

$= (280{,}000 \times \pi/700)^{0.5}$

GI = 35.5 ft.

A grid should be established with 35 foot intervals for the entire surface impoundment, including the area just outside of the berms (to detect possible contamination from spills and overtopping).

<u>Example #2</u>

A container storage area with a gravel base measures 60 ft. by 100 ft.

A = 60 ft. X 100 ft. = 6,000 sq. ft.

6,000 sq. ft./43,560 sq. ft. = 0.138 acre

0.138 acre < 3 acres

Therefore, use Equation 2

e. Quality Assurance. Sampling methods and equipment, as well as laboratory analytical methods, should follow guidance in U.S. EPA's SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (see 40 CFR 260.11). Field sampling methods, including soil sampling, not included in SW-846 must be approved by IEPA before they are used in the closure. This includes methods such as drilling, borings, etc. When available, standard procedures, as defined by U.S. EPA, IEPA or ASTM, should be followed. All soil samples which are to be taken must be handled in accordance with 40 CFR, Part 261, Appendix III or the soil volatile sampling procedures (Attachment 7 of this document). The analytical methods which will be used must be specified and must be EPA-approved. The laboratory which will be doing the analytical work should be a participant in IEPA's contract Lab Program or should provide a Quality Assurance Project Plan to be included in the closure plan.

Soil samples for volatile organics analysis require specialized sampling and handling procedures. **Under no circumstances should soil samples for volatile organic analysis be mixed, composited or otherwise aerated.**

A "clean" level for soil is the end result of closure. The sampling plan should be structured so that it clearly determines when "clean" is achieved.

"Environmental Sampling for Hazardous Wastes" (Schweitzer, G.E. and J.A. Santolucito (eds.). 1984. ACS Symposium Series No. 267, American Chemical Society, Washington, D.C.), provides an overview of field sampling programs.

14. CONTAMINATED SOIL REMOVAL - Any facility which is attempting to close "clean" must fully describe each step in removing waste and contaminated soil from the property. This includes a description of solidification/stabilization, storage or treatment of waste or reagents, equipment, removal pattern and depth increments, loading areas or any other steps critical to removal. The plan should clearly define how soil will be removed, stored, treated (if applicable), loaded and how it will be managed once it leaves the property. **Refer to Section 15 of this [redacted]**

Unlike CERCLA cleanups, there is no permit exemption available for on-site hazardous waste storage and treatment units which are created during RCRA closure. Interim status facilities may request the addition of such units to their Part A if proper justification is provided (35 IAC Section 703.155), but facilities with a RCRA Part B would have to obtain a permit modification prior to adding the unit. Facilities which have neither interim status nor a Part B permit may have to obtain a Part B permit before a storage or treatment unit can be constructed for closure purposes.

Note that there are several additional regulatory requirements for closed disposal units in 35 IAC 724 and 725.410. These requirements concern groundwater monitoring, post-closure plans, post-closure care, notice to local land authority, and notice in deed to property. Refer to 725.217 for groundwater monitoring requirements and Sections 22 and 23 of this document for post-closure care and notices.

17. DESCRIPTION OF EQUIPMENT CLEANING - Any equipment, including heavy earth-movers or smaller tools, should be scraped and washed to remove waste residues. The residues should be managed as hazardous waste, and this cleaning and management should be described in the closure plan.

18. SIGNATORY REQUIREMENTS - The closure plan application and closure certification are subject to the signatory requirements of 702.126 in the same way that a Part B application would be. The application must be signed as follows:

    a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means;

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

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

    b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

    c. For a municipality, State, federal or other public agency: by either a principal executive officer or ranking elected official. For purposes of this Section, a principal executive officer of a federal agency includes:

        1. The chief executive officer of the agency, or

        2. A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA).

    A duly authorized representative may also sign the application, but a written authorization must be signed by the appropriate officer as defined above, and must be on file with the IEPA.

The independent engineer or the facility owner/operator may be required through the closure plan to notify the IEPA reviewer/inspector in advance of any critical activities.

In accordance with 35 IAC 725.215, amended March 24, 1987 (PCB R86-28), a Closure Documentation Report must be submitted with the closure certification to document the closure activities. This report shall include:

a. The volume of waste and waste residue removed, including the waste (residue) resulting from decontamination activities;

b. A description of the method of waste handling and transport;

c. Waste manifest numbers or copies of manifests from removal of waste and waste residues;

d. A description of the sampling and analytical methods used;

e. A chronological summary of closure activities and the costs involved;

f. Color photo documentation of closure showing the unit before, during and after closure; and

g. Tests performed, methods and results.

A revised cost estimate and financial assurance instruments should be submitted with the closure certification documents for partial closures. If this will be a final closure, the certification documents should [illegible] financial assurance instruments.

20. STATUS OF FACILITY AFTER CLOSURE - The closure plan should clearly state the status of the hazardous waste facility after closure is completed. For example, it should state if a storage facility is to be operated as a generator (less-than-90-day storage), and it should describe whether closure is partial or final. If the closure is partial, it should name both the units covered by the closure plan as well as those remaining in operation. It should indicate whether the facility will continue to be a generator and transporter (if applicable).

Tanks which will be used for short-term accumulation of waste will still be subject to closure when removed from service (722.134(a)) and will be subject to many of the inspection and secondary containment requirements of the new tank regulations.

Indicate which of the following categories describes the intended use of the facility:

a. No treatment, storage or disposal will occur at this facility.

24. SUBMITTAL OF CLOSURE PLAN AND CERTIFICATIONS - The owner/operator of the facility should submit 4 copies of the closure plan and any revisions and 3 copies of closure certifications (one with original signatures) to:

Illinois Environmental Protection Agency
Division of Land Pollution Control -- #24
Permit Section
Post Office Box 19276
2200 Churchill Road
Springfield, Illinois 62794-9276

Closure certifications should not be submitted with a closure plan. They should be submitted after the closure plan has been approved and implemented. Facilities which close and certify closure without an approved closure plan run the risk of having to reimplement the closure and may commit unknowing violations of RCRA regulations.

25. AGENCY REVIEW OF CLOSURE PLAN (35 IAC 725.212(d)) - When the Permit Section receives the closure plan, it is logged in and assigned to a reviewer. The Agency is allowed 90 days from the date of receipt to review the plan. A Public Notice will be filed in a local newspaper and the public will be given the opportunity to submit written comments and request modifications of the plan and a public hearing may be conducted at the Agency's discretion. When the review is complete, the Agency shall approve, disapprove or modify the closure plan. Agency approval of the submitted closure plan will apply only to the units which will be closed immediately, but the owner/operator is required to describe how all units at the facility will be closed. The Agency will comment briefly on the closure plan for the non-closing units. A separate closure plan should be submitted for the remaining units at least 180 days prior to commencement of their closure.

The IEPA will review the proposed cleanup levels based on the type and toxicity of the contaminant, degree of contamination present, exposed populations and wildlife, groundwater use, etc.

If the Agency disapproves the closure plan, a detailed written statement of reasons for the disapproval will be included in the Agency's letter to the owner/operator. The owner/operator must then modify the closure plan and resubmit a complete plan to the Agency within 30 days after receiving the disapproval letter. Failure to submit a revised closure plan within 30 days may result in enforcement action being filed against the facility. Upon receipt of the revised closure plan, the Agency will approve or modify the plan within 60 days. If the facility submits the revised closure plan after the 30-day time period has expired, the revised closure plan may be logged in as a new closure plan, subject to a 90-day review and also to the possibility that it will be denied.

b. the owner/operator has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed but inactive facility.

Section 725.213, as modified on March 24, 1987 (PCB R86-28) states that an extension of the 180-day closure period must be requested at least 30 days prior to the expiration of the 180-day period or 90 days prior to the certification due date. Justification for the time extension must be provided.

28. AGENCY REVIEW OF CLOSURE CERTIFICATIONS (725.243)

Following certification of closure, the Agency will conduct an inspection of the closed facility and review the certification documents to ensure that the certification meets regulatory requirements and verify that the closure was conducted in accordance with the approved closure plan. This review will take up to 60 days for facilities which have established financial assurance and as long as 120 days for other facilities. Should the Agency determine that the closure certification does not meet these requirements, the Agency will notify the facility that it must correct the deficiency and recertify closure. These deficiencies may also be referred for enforcement.

29. CERTIFICATION REGARDING POTENTIAL RELEASES FROM SOLID WASTE MANAGEMENT UNITS

On November 8, 1984, the Hazardous and Solid Waste Amendments of 1984 (the Amendments) were enacted to amend RCRA. Under Section 206 and Section 233 of the Amendments (see Attachment 1), all facilities "seeking a permit" (taken to mean interim status facilities) must provide for corrective action for all releases of hazardous waste or constituents from any solid waste management unit, regardless of the time at which waste was placed in the Unit. Please note that both hazardous and non-hazardous wastes can meet the definition of solid waste under 35 IAC Section 721.102.

Consequently, the IEPA must determine whether such releases have ever occurred at the facility site. If they have, the IEPA must ensure that any necessary corrective actions either have been taken, or will be taken, pursuant to a decision on your closure plan. An important part of this Agency's determination includes your willingness (or unwillingness) to complete the enclosed certification form (Attachment 2). Please read it carefully, complete it, and either sign and return it, or return it to us unsigned with a cover letter of explanation with the closure plan. Public notice of your request for closure approval, and this request, will appear in a newspaper of general circulation in the area of the facility.

If you have previously submitted this certification, you should send a copy with the closure plan.

Attachment 1

Extract from the Hazardous and Solid Waste Amendments of 1984

CONTINUING RELEASES AT PERMITTED FACILITIES

Section 3004 of the Solid Waste Disposal Act (RCRA) was amended by adding the following new subsection:

"(u) CONTINUING RELEASES AT PERMITTED FACILITIES. -- Standards promulgated under this section shall require, and a permit issued after the date of enactment of the Hazardous and Solid Waste Amendments of 1984 by the Administrator or a State shall require, corrective action for all releases of hazardous waste or constituents from any solid waste management unit at a treatment, storage, or disposal facility seeking a permit under this subtitle, regardless of the time at which waste was placed in such unit. Permits issued under section 3005 shall contain schedules of compliance for such corrective action (where such corrective action cannot be completed prior to issuance of the permit) and assurances of financial responsibility for completing such corrective action."

INTERIM STATUS CORRECTIVE ACTION ORDERS

Section 3008 of the Solid Waste Disposal Act was amended by adding the following new subsection:

"(h) INTERIM STATUS CORRECTIVE ACTION ORDERS. -- (1) Whenever on the basis of any information the Administrator determines that there is or has been a release of hazardous waste into the environment from a facility authorized to operate under section 3005(e) of this subtitle, the Administrator may issue an order requiring corrective action or such other response measure as he deems necessary to protect human health or the environment or the Administrator may commence a civil action in the United States district court in the district in which the facility is located for appropriate relief, including a temporary or permanent injunction.

"(2) Any order issued under this subsection may include a suspension or revocation of authorization to operate under section 3005(e) of this subtitle, shall state with reasonable specificity the nature of the required corrective action or other response measure, and shall specify a time for compliance. If any person named in an order fails to comply with the order, the Administrator may assess, and such person shall be liable to the United States for, a civil penalty in an amount not to exceed $25,000 for each day of noncompliance with the order.".

"(b) Subsection (b) of section 3008 of the Solid Waste Disposal Act is amended by inserting "issued under this section" immediately after "Any order".

Attachment 2

CERTIFICATION REGARDING POTENTIAL RELEASES FROM
SOLID WASTE MANAGEMENT UNITS
(CLOSURE PLAN REVIEW)

FACILITY NAME: _____

EPA I.D. NUMBER: _____

LOCATION CITY: _____

STATE: _____

1. Are there any of the following solid waste management units (existing or closed) at your facility? NOTE - DO NOT INCLUDE HAZARDOUS WASTES UNITS CURRENTLY SHOWN IN YOUR PART A APPLICATION and in your closure plan.

	YES	NO
• Landfill	____	____
• Surface Impoundment	____	____
• Land Farm	____	____
• Waste Pile	____	____
• Incinerator	____	____
• Storage Tank (Above Ground)	____	____
• Storage Tank (Underground)	____	____
• Container Storage Area	____	____
• Injection Wells	____	____
• Wastewater Treatment Units	____	____
• Transfer Stations	____	____
• Waste Recycling Operations	____	____
• Waste Treatment, Detoxification	____	____
• Other _____		

2. If there are "Yes" answers to any of the items in Number 1 above, please provide a description of the wastes that were stored, treated or disposed of in each unit. In particular, please focus on whether or not the wastes would be considered as hazardous wastes or hazardous constituents under RCRA. Also include any available data on quantities or volume of wastes disposed on the dates of disposal. Please also provide a description of each unit and include capacity, dimensions, location at facility, provide a site plan if available.

_____

_____

_____

_____

_____

NOTE: Hazardous waste are those identified in 40 CFR 261. Hazardous constituents are those listed in Appendix VIII of 40 CFR Part 261.

3. For the units noted in Number 1 above and also those hazardous waste units in your Part A application and in your closure plan, please describe for each unit any data available on any prior or current releases of hazardous wastes or constituents to the environment that may have occurred in the part or still be occurring.

   Please provide the following information

   a. Date of release
   b. Type of waste released
   c. Quantity or volume of waste released
   d. Describe nature of release (i.e., spill, overflow, ruptured pipe or tank, etc.)

   _____

   _____

   _____

   _____

4. In regard to the prior releases described in Number 3 above, please provide (for each unit) any analytical data that may be available which would describe the nature and extent of environmental contamination that exists as a result of such releases. Please focus on concentrations of hazardous wastes or constituents present in contaminated soil or groundwater.

   _____

   _____

   _____

   _____

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the submittal is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (42 U.S.C 6902 et seq. and 40 CFR 270.11(d))

_____
Typed Name and Title

_____ _____
Signature Date

Attachment 3
For IEPA Use Only
Revised 3/2/89

CLOSURE PLAN REVIEW NOTES AND CHECKLIST
SECTION A: REVIEW NOTES
(attach notes or references as necessary)

Facility Name: GENERAL ELECTRIC Log No.: C-489-M-1

Location (County, Municipality, Township, Range, Section): GRUNDY COUNTY, MORRIS, T34N, R8E, S35

State ID: 0630600008 U.S. EPA ID: ILD062338694

1st Submittal: 10/10/87 Reviewer: EM Mailed: 1/8/90

2nd Submittal: 2/7/90 Reviewer: EM Mailed: _____

Regulated Units at the Facility and Their Capacities

Unit	Approved Part A	HWDMS	Closure Plan	Units Closing	Units Remaining Open
TC2	1000 gal/day	NOT ON HWDMS	30 gal/day	X	NONE
S01	—	CLOSED	—		

_____ Partial Closure or X Final (full) Closure

X Proposed "Clean" Closure or _____ "Dirty" Closure

Status of Facility after Closure: NO TSD OCCURRING AT FACILITY

Are any new treatment processes proposed to minimize or render nonhazardous, hazardous waste? NO Explain: NONE PROPOSED IN CLOSURE SUBMITTAL

WITHDRAWAL

Will a change in the Part A be necessary if the closure is approved? YES

Is the facility requesting additional time to start or complete closure than allowed? NO Explain: NO EXTENSION PROPOSED

Size or area of each unit closing: TO2 — 15 ACRE

Identify wastes managed in each unit (include hazardous waste codes):

TO2 — CATION REGENERATION + AN(OR) REGENERATION WASTEWATERS (D002)

Volume of wastes disposed of, or located in, units at the facility:

CLOSURE PLAN STATES BETWEEN 5 - 14 MILLION GALLONS OF AQUEOUS MATERIAL IN SURFACE IMPOUNDMENT DURING OPERATION.

Sampling grid spacing 150 ft Satisfactory? YES

* Total number of samples from unit = 9 SEDIMENT + 9 SOIL TO BE COMPOSITED

Were background samples taken from proper soil horizon? NONE PROPOSED

Total number of background samples (minimum of 10 per strata) = NONE PROPOSED

Submitted to COT on N/A (date)

Recommendations from COT dated N/A

Reviewed by CROPA on N/A (date)

* 1 SOIL + SEDIMENT SAMPLE FROM DISCHARGE PIPE TO BE ANALYZED, ALSO. PROPOSAL OF 3-2 TWO PIPE SAMPLES TO BE TAKEN 200 + 400 FEET FROM PIPE DISCHARGE

CROPA memo dated N/A

Identify soil and/or groundwater clean-up levels. (Give basis, i.e., closure plan, COT/CROPA recommendation, PQL, etc.)

CLEANUP OBJECTIVES TO BE DETERMINED UPON REVIEW OF SAMPLE ANALYTICAL RESULTS

Is the portion of the sample to be tested appropriate? PER CLOSURE PLAN, YES

Approximate volume of waste to be removed: UNKNOWN (yds. or gallons)

Approximate volume of underlying and surrounding soil and liner to be removed: UNKNOWN

How is site to be capped or otherwise restored? NO PROPOSAL - TO BE DETERMINED UPON REVIEW OF SAMPLING RESULTS

Are there any non-RCRA Solid Waste Management Units? ? Explain:

* NONE IDENTIFIED IN AGENCY FILES, NOR IN CLOSURE SUBMITTAL

Have there been any releases from the SWMUs?

Explain: UNKNOWN. SEE ABOVE *

How is the groundwater to be addressed for the closing unit? PROPOSED ~~AS~~ DETECTION MONITORING FOR SI.

Is groundwater monitored? ? UNKNOWN

Is groundwater contaminated? UNKNOWN

What is the facility's Subpart F compliance status? N/A

If the facility is in assessment, will the assessment be completed prior to final closure? N/A

Is additional groundwater monitoring warranted in closure plan? NO

Explain: NO EXPANSION OF DETECTION MONITORING WARRANTED IN CLOSURE PLAN.

Is groundwater monitoring warranted after closure? N/A Explain: UNKNOWN IF GROUNDWATER IS CONTAMINATED

Is the facility being referred to USEPA for corrective action? N/A

If so, indicate the type of enforcement: 3013 Order _____

3008(h) Order _____

3005(c) Action _____

Final Action: Approve X, Disapprove _____, Modify _____

Schedule for closure: Date of Plan Approval: _____

Start closure: _____

Complete closure: _____

Certification due to IEPA: _____

SECTION B: CLOSURE PLAN CHECKLIST

LEGEND

PR: Provided

AD: Adequate

NA: Not Applicable

Note: Respond to questions with Y for yes and N for no

1. Description of hazardous waste operation and proposed closure (725.212(a) and (b))

PR	AD	NA		
Y			a.	description provided of hazardous waste operations
Y			b.	description provided for all hazardous waste units at the facility
Y			c.	identification of units closing
		X	d.	identification of units remaining open
Y			e.	maximum inventory of wastes at any time during life of facility (should correspond to Part A volumes)
		X	f.	description of steps to be taken for decontamination of facility equipment (725.212(b)(4))
Y			g.	expected year of closure for all units at the facility (725.212(b)(1))
Y			h.	schedule of closure for all units (725.212(b)(6) and (b)(7))
Y			i.	plan submitted 180 days prior to initiation of closure (725.212(d)(1))
Y			j.	all hazardous wastes and hazardous constituents properly identified
Y			k.	groundwater/surface water use in the area identified

2. Public Involvement (725.212(d)(4))

**			a.	newspaper notice posted
			b.	public hearing requested?
			c.	public hearing granted?
			d.	notice of public hearing 30 days prior to hearing

3. Closure time limits (725.213)

*			a.	90-day limit for treatment, removal or disposal of hazardous wastes
*			b.	180-day limit for completion of closure activities
		X	c.	extension of time limits
		X	d.	justification provided for extension of time limits?

DEPENDENT UPON SOIL/SEDIMENT SAMPLING RESULTS

** NO NOTICE FOR SUBJECT CLOSURE NOTED BY THIS REVIEWER

4. Disposal or decontamination of equipment (725.214)

PR	AD	NA		
		X	a.	proper disposal of facility equipment and structures, or
X			b.	decontamination - removal of all hazardous wastes and residues
Y			c.	decontamination of equipment used for cleanup
Y			d.	decontamination method
N			e.	RCRA wastes and residues to be handled and disposed as hazardous waste

5. Certification of closure (725.215, 725.216 and 725.219)

Y			a.	provision for certification by owner or operator within 60 days following closure
Y			b.	provision for certification by independent registered Professional Engineer that facility was closed in accordance with the approved closure plan
Y			c.	provision for Closure Documentation Report to document closure activities
		X	d.	survey plat and notification in deed to Agency and appropriate local government office
		X	e.	certification to Agency that notification in deed has been made (725.219(b)(2))

6. Post-Closure Care Plan required? (725.217)

		X	Disposal units closing after 1/26/83 are required to obtain a Post-Closure Permit. Advise facility that a PCC Plan will be called in at a later date.

7. Closure of <u>container storage area</u> (S01).

			a.	soil sampling plan
		N		grid spacing
				adjacent areas to be sampled for spills and/or windblown particulates
			b.	soil analysis plan
				includes all hazardous constituents
				detection limits
				sampling increments and total depth of sampling
				sample handling and analysis (40 CFR 261, App. III; SW-846; Attachment 7 of this document)
			c.	removal of contaminated soil
			d.	cleanup standard
			e.	post-closure care in lieu of clean closure
			f.	decontamination of facility
			g.	decontamination of equipment
			h.	disposal of cleaning waste and residue

* DEPENDENT UPON SAMPLE RESULTS

PR	AD	NA		
		N	i.	scale drawing of storage area
			j.	surface description (asphalt, concrete, aggregate, soil)
			k.	structural integrity and containment devices (cracks, joints, deterioration, curbs, roof)

8. Closure of <u>tank storage or treatment units</u> (S02, T01 -- 725.297)

PR	AD	NA		
		N	a.	scale drawing of storage area, including secondary containment structures, sumps and drainage pathways
			b.	description of materials used to construct tanks, ancillary equipment and secondary containment structures
			c.	present condition of tanks, ancillary equipment and secondary containment structures (i.e., structural integrity and surface condition)
			d.	removal of all hazardous wastes and residues from:
		N		tanks
				pipes and discharge control equipment
				discharge confin-ment structures
			e.	decontamination of equipment
			f.	soil testing beneath and around tank, including secondary containment areas, to verify that no spills or leaks have occurred
				includes all hazardous constituents
				detection limits
				sampling increments and total depth of sampling
				sample handling and analysis (40 CFR 261, App. III; SW-846; Attachment 7 of this document)
			g.	cleanup standard
			h.	removal of contaminated soil
			i.	removal of tank (required by State Fire Marshall for underground tanks which contained flammable materials)

9. Closure and post-closure for <u>surface impoundments</u> (S04, D83, T02 - 725.328)

PR	AD	NA		
* N			a.	removal of standing liquids
N			b.	removal of wastes and waste residues
N			c.	removal of liner
N			d.	removal of underlying and surrounding contaminated soil
N			e.	cleanup standard
N			f.	management of removed material as hazardous waste unless determined to be nonhazardous under 721.103(c)
N			g.	post-closure care in lieu of material removal (725.328(c)) (40 CFR 265.228(a)(2), March 19, 1987)
N			h.	dewatering, stabilization or other treatment of remaining wastes to provide cover support and/or render waste nonhazardous (40 CFR 265.228(a)(2), March 19, 1987)
N			i.	request for modification of Part A to include T02 if stabilization or treatment is proposed

* DEPENDENT UPON SAMPLE ANALYTICAL RESULTS

PR	AD	NA		
X			j.	modification of post-closure requirements due to mitigating factors (725.217(d))
			k.	soil sampling plan
Y				grid spacing
N				adjacent areas to be sampled for spills and/or windblown particulates
			l.	soil analysis plan
Y				includes all hazardous constituents
N				detection limits
Y				sample handling and analysis (40 CFR 261, App. III; SW-846; Attachment 7 of this document)
Y			m.	groundwater monitoring provided to verify clean closure (724 or 725, Subpart F)

10. Closure and post-closure of <u>waste piles</u> (S03 725.358)

		N	a.	removal or decontamination of all waste residues
			b.	removal or decontamination of contaminated:
				liners
				subsoils
				structures and equipment (contaminated with leachate or waste)
			c.	management of removed materials as hazardous waste unless determined to be nonhazardous according to 721.103(c) & (d)
			d.	post-closure care provided in accordance with 725.410 if all contaminated subsoils can't be removed or decontaminated
			e.	soil sampling plan
				grid spacing
				adjacent areas to be sampled for spills, tracking and/or windblown particulates
			f.	soil analysis plan
				includes all hazardous constituents
				detection limits
				sampling increments and total depth of sampling
				sample handling and analysis (40 CFR 261, App. III; SW-846; Appendix 7 of this document)

11. Closure and post-closure care objectives for <u>land treatment</u> (D81 725.380(a))

		N	a.	control mitigation of hazardous wastes and hazardous waste constituents into the groundwater
			b.	control release of contaminated run-off into surface water
			c.	control release of airborne particulate contaminants
			d.	compliance with food chain crop requirements (725.376)

DEPENDENT UPON SAMPLE ANALYTICAL RESULTS

12. Considerations to be addressed in land treatment closure and post-closure plans (725.380(b))

PR	AD	NA		
		N	a.	type and amount of hazardous wastes and Appendix H hazardous constituents which are contained in the waste
			b.	mobility of hazardous wastes and constituents
			c.	site location, topography and surrounding land use and the related potential effects of pollutant migration
			d.	climate (net precipitation)
			e.	soil profile and soil properties
			f.	geologic profile
			g.	surface and subsurface hydrology
			h.	unsaturated zone monitoring information (725.378)
			i.	type, concentration and depth of hazardous waste migration
			j.	removal of contaminated soils
			k.	cleanup standards
			l.	function of final cover
			m.	engineering characteristics of final cover
			n.	groundwater monitoring

13. Requirements during land treatment closure period (725.380(d))

		N	a.	unsaturated zone monitoring
			b.	maintain run-on control system (725.372(b))
			c.	maintain run-off control system (725.372(c))
			d.	control wind dispersal of particulates

14. Certification by qualified soil scientist in lieu of a registered Professional Engineer for closure of land treatment units (725.380(e))

		N

15. Closure of <u>incinerators</u> (T03)

		N	a.	removal of all hazardous wastes and hazardous waste residues, including ash, scrubber waters and scrubber sludges
			b.	management of residues as hazardous wastes unless determined to be nonhazardous according to 721.103(c) & (d)

16. Closure of <u>thermal treatment units</u> (725.481)

		N	a.	removal of hazardous waste and hazardous waste residues, including ash
			b.	management of residues as hazardous waste unless determined to be nonhazardous according to 725.103(c) & (d)

17. Closure of <u>chemical, physical and biological treatment units</u> (725.504)

		N	a.	removal of all hazardous wastes and hazardous waste residues from treatment process or equipment, discharge control equipment and discharge confinement structures

PR	AD	NA		
		N	b.	management of residues as a hazardous waste unless determined to be nonhazardous according to 721.103(c) & (d)

ALL DISPOSAL UNITS

18. Objective of closure and post-closure plans (725.410(b))

PR	AD	NA		
		N	a.	control of pollutant migration from facility via groundwater, surface water and air
			b.	control of ponding and surface water infiltration
			c.	erosion, run-on and run-off control

19. Considerations for achievement of closure objectives (725.410(c))

PR	AD	NA		
		N	a.	type and amount of hazardous wastes and Appendix H hazardous constituents which are contained in the waste
			b.	mobility and the expected rate of migration of pollutants
			c.	site location, topography and surrounding land use and the related potential effects of pollutant migration (proximity to groundwater, surface water and drinking water)
			d.	climate, including total amount, net amount, frequency and pH of rainfall
			e.	engineering characteristics of cover, including material, final surface contours, thickness, porosity, slope and length of run of slope
			f.	geological and soil profiles
			g.	surface and subsurface hydrology
			h.	soil balance analysis if on-site soils are to be used for cover and vegetative layer

20. Cover design (725.410(a))

PR	AD	NA		
		N	a.	grain size analysis and grain size requirements
			b.	soil classification -- USDA textural and Unified Soil Classification
			c.	compaction requirements -- should be 90-95% of ASTM D698 (Standard Proctor) density, compacted at a moisture content 3-5% above optimum moisture content
			d.	type of vegetation proposed
			e.	hydraulic conductivity
			f.	slope stability analysis
			g.	synthetic membrane specifications
			h.	depth of frost penetration and its effect on the cover system
			i.	erosion control
			j.	gas collection system
			k.	water balance analysis to estimate infiltration
			l.	settlement/subsidence effects considered

21. Construction procedures for cover (725.410(a))

PR	AD	NA		
		N	a.	equipment requirements -- sheepsfoot roller, disk and water truck or other provisions for moisture control
			b.	lift thickness -- should be 8 inches (loose thickness) or less
			c.	construction QA/QC -- number of compaction tests, hydraulic conductivity tests, grain size tests, etc.
			d.	hydraulic conductivity testing conducted in accordance with IEPA guidance

22. Notice to local land authority (725.216 and 725.219)

		N	a.	survey plat submitted to the Agency and to County Recorder with closure certification
			b.	note on plat which states owner's and operator's obligation to restrict disturbance of the site per 725.217(c)
			c.	record provided of type, location and quantity of hazardous waste disposed of within each cell or area of the facility, including wastes disposed prior to January 12, 1981 (725.219(a))

23. Notice in deed to property (725.219)

		N	a.	recorded on deed or other instrument which will be examined during a title search that the land has been used to manage hazardous waste
			b.	copy of this instrument and a certification from the owner/operator that it has been properly recorded

24. Maintenance requirements -- activities and frequencies (725.217(a); 725.218(c); 725.410(d))

		N	a.	integrity of final cover or containment structures
			b.	leachate collection, removal and treatment systems
			c.	groundwater monitoring system
			d.	gas collection and control system (if provided)
			e.	benchmarks
			f.	name, address and phone number for post-closure care contact person (725.218(c)(3))

25. Security

		N	a.	restricted access, if necessary
			b.	security provided, if necessary (725.217(b))

26. Groundwater monitoring (725.217(a)(1); 725.218(a)(1); 725.191 to 725.193)

PR	AD	NA		
		N	a.	description of groundwater monitoring system, activities and frequencies for post-closure period (725.191; 725.218(a)(1))
			b.	sampling and analysis plan (725.192)
			c.	outline of groundwater quality assessment program (725.193)

ALL FACILITIES

27. Closure performance standard (725.211)

*			a.	minimizes further maintenance
*			b.	protects human health and environment
Y			c.	addresses all hazardous constituents (Part 721, Appendix H)

28. Training requirements for cleanup activities

N			a.	provisions made to ensure that site workers will receive training in accordance with 29 CFR, Part 1910

29. Part A Status

Y			a.	Part A and HWDMS reviewed
Y			b.	discrepancies between units and design capacities in Part A, HWDMS and closure plan resolved
Y			c.	for complete closure -- all units closed or withdrawn
Y			d.	revised Part A or withdrawal request to be submitted with closure certification

30. SWMU status

NO SCREENING DONE

			a.	initial screening completed
			b.	initial screening previously submitted _____
			c.	environmentally significant information found during file search
			d.	Certification of Continuing Releases received from facility
			e.	units identified by facility consistent with those found during file search
			f.	releases indicated on certification
			g.	releases to be cleaned up under closure
			h.	releases to be referred to US EPA for action
			i.	SWMU's not previously identified discovered during closure?

* DEPENDENT UPON SAMPLE ANALYTICAL RESULTS

RECORD OF TELEPHONE CONVERSATIONS

Date	Person Contacted	Topic of Conversation

ADDITIONAL COMMENTS

Draft Cleanup Criteria for Metals

Metals	Cleanup Objective (1)	(2)
Arsenic	1.0	0.05
Barium	5.0	1.0
Cadmium	0.05	0.01
Chromium (Hex)	0.05	
Chromium (Tri)	1.0	
Chromium (Total)		0.05
Copper	0.02	1.0
Iron	1.0	1.0
Lead	0.1	0.05
Manganese	1.0	0.15
Mercury	0.0005	0.002
Nickel	1.0	0.15
Selenium	1.0	0.01
Silver	0.01*	0.05
Zinc	1.0	5.0

All values are soil concentrations in mg/l EP Toxicity procedure extract.

(1) Where local groundwater is not utilized as a drinking water supply.

(2) Where local groundwater is utilized or likely to be utilized as a drinking water supply.

* indicates that the silver cleanup objective is based on the laboratory detection limit (health-based standard is 0.005 mg/l).

NOTE: These are draft criteria which are subject to change.

Attachment 5

This statement is to be completed and attached to each of the 4 copies of the closure plan. At least one of the copies must contain original signatures.

Closure Plan
Certification Statement

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

USEPA ID Number	Facility Name
Signature of Owner/Operator	Name and Title
Date	

This statement is to be completed by both the responsible officer and by the registered professional engineer upon completion of closure. Submit three copies of this certification, including at least one copy with original signatures.

Closure Certification Statement

The hazardous waste management unit(s) at the facility described in this document has (have) been closed in accordance with the specifications in the approved closure plan. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If this is the closure of a unit which is subject to post-closure care requirements, the Owner/Operator hereby certifies that he has recorded the notation specified in 35 Ill. Adm. Code, Section 725.219(b)(1) as amended March 24, 1987.

USEPA ID Number	Facility Name
Signature of Owner/Operator	Name and Title
Signature of Registered P.E.	Name of Registered P.E. and Illinois Registration Number
Date	(P.E. Seal)

Attachment 7

SOIL VOLATILE SAMPLING PROCEDURES

A. PREPARATION AND DECONTAMINATION OF STAINLESS STEEL SOIL SAMPLERS

*1. Wash tubing or sampler with hot water and a nonfoaming detergent, such as trisodium phosphate.

2. Rinse with hot water.

*3. Rinse with a pesticide grade solvent, such as hexane.

4. Rinse with very hot water to drive off solvent.

5. Rinse with deionized water.

6. Store the sampler in aluminum foil until ready for use.

*Consult the laboratory for specific recommendations.

B. SOIL SAMPLING FOR VOLATILE ORGANICS

1. Using a properly decontaminated and stored stainless steel sampler (refer to preparation and decontamination instructions), take a core sample of soil.

2. Add additional clay to the ends of the sample, if necessary, to eliminate headspace.

3. Cover both ends of the sampler with aluminum foil. Cover the aluminum foil with a plastic cap, such as a thread protector.

4. Put the sample on ice immediately.

5. Transport the samples to the laboratory as soon as possible. Most labs require delivery within 24 hours of sampling.

NOTE: Soil samples which will be tested for volatile organics cannot be composited because of the volatilization which would result from any compositing method.

BC:rd/sp0799F/1-40

RECEIVED
FEB 22 1988
U.S. EPA, REGION V
WASTE MANAGEMENT DIVISION
OFFICE OF THE DIRECTOR

May 1987

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND POLLUTION CONTROL

Instructions for the Preparation of Closure Plans for Interim Status RCRA Hazardous Waste Facilities

TABLE OF CONTENTS

Section	Description	Page
1.	Purpose and Definitions	1
2.	Description of Facility	1
3.	Description of Waste Management Units to be Closed	1
4.	Map of Facility	2
5.	Detailed Drawing of Unit(s) to be Closed	2
6.	Storage Area Pavement Description	2
7.	List of Hazardous Waste	2
8.	Schedule for Closure	2
9.	Air Emissions	3
10.	Personnel Safety and Fire Prevention	3
11.	Decontamination of Tanks, Structures and Soils	3
12.	Soil Cleanup Levels	4
13.	Sampling Plan and Analytical Methods	4
14.	Description of Contaminated Soil Removal	7
15.	Disposal Unit Closures	8
16.	Description of Equipment Cleaning	8
17.	Signatory Requirements	8
18.	Certifications	9
19.	Status of Facility After Closure	10
20.	Part A Modifications and Withdrawals	11
21.	Post-Closure Care	12
22.	Location Documentation for Disposal Units	12
23.	Submittal of Closure Plan and Certifications	12
24.	Agency Review of Closure Plan	12
25.	Closure Regulations	13
26.	Closure Plan Modifications and Time Extensions During the Closure Period	13
27.	Certification Regarding Potential Releases from Solid Waste Management Units	14

ATTACHMENTS

1. Extract from the Hazardous and Solid Waste Amendments of 1984

2. Certification Regarding Potential Releases from Solid Waste Management Units

3. Closure Plan Review Notes (information copy -- IEPA Use Only)
4. Closure Plan Completeness Checklist (information copy -- IEPA Use Only)
5. Closure Plan Certification Form
6. Closure Certification Form
7. Soil Volatile Sampling Procedures
8. Part A Application

May 1987

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND POLLUTION CONTROL

Instructions for the Preparation of Closure Plans for Interim Status RCRA Hazardous Waste Facilities

1. PURPOSE AND DEFINITIONS - This document sets forth the Illinois Environmental Protection Agency's instructions for the preparation of interim status closure plans.

   Closure of a hazardous waste (RCRA) facility refers to the action taken to secure the hazardous waste management units of a factory or plant in a manner which will protect human health and the environment in accordance with the closure requirements of 35 Illinois Administrative Code Parts 724 and/or 725.

   A Hazardous Waste Management Unit is a contiguous area of land on or in which hazardous waste is placed, or the largest area in which there is a significant likelihood of mixing hazardous waste constituents in the same area (51 FR No. 85, p. 16424 - May 2, 1986).

   Partial Closure means the closure of a discrete portion of a hazardous waste facility, such as a surface impoundment, landfill trench, container storage unit or tank while other units or cells remain operating.

   Final Closure is defined as closure of the last hazardous waste management unit at the facility.

   Clean Closure refers to RCRA closure which includes the removal of all wastes, leachate, liners and soils (including groundwater) contaminated with water or leachate that pose a substantial present or potential threat to human health or the environment. Refer to Section 12: Soil Cleanup Levels.

2. DESCRIPTION OF FACILITY - The plan should describe the type of industry, Standard Industrial Code (SIC), products, location, size and other general, summarized information. This does not have to be an extensive description.

3. DESCRIPTION OF WASTE MANAGEMENT UNITS TO BE CLOSED - Describe each storage area, tank, waste pile, surface impoundment, landfarm, landfill cell or incinerator which is to be closed and provide the process code and unit of measure code from the Part A (i.e., S01-1000 gal.). Include waste types for each unit (by standard chemical name and EPA Hazardous Waste No.), time period of use, dimensions, topography, soil types (as appropriate), and any other relevant matters. Identify these units by reference to line numbers on the Part A application. Plans for complete closure must address all units on the Part A application. A copy of the following documents should be included in the closure plan:

   - the original Part A application (EPA Forms 3510-1 and 3510-3);
   - any revised Part A's with proof of their approval by USEPA or IEPA.

4. MAP OF FACILITY - The location of the facility on a topographic or county map should be provided, plus a more detailed map or diagram of the facility, with each hazardous waste management unit clearly located and identified. Map scale should be specified.

5. DETAILED DRAWING OF UNIT(S) TO BE CLOSED - Submit a plan view of the unit(s), showing dimensions, appurtenant structures and relationship to other points or structures on the facility property, at a minimum. The scale of the drawing should be specified.

6. STORAGE AREA PAVEMENT DESCRIPTION - Provide a description of the type of pavement surface at the storage area(s), structural integrity and containment structures (curbs). If containment structures are not present, describe the drainage features of the unit and its surroundings, and identify where spilled waste would flow. Additional sampling and analysis must be proposed to determine if releases have occurred to soil, groundwater or surface water.

7. LIST OF HAZARDOUS WASTE - The facility must provide a complete, detailed list of hazardous wastes (chemical name and EPA hazardous waste number) treated, stored or disposed of at each unit. Trade names or common names should not be used when generic chemical names are available. Provide the maximum inventory of wastes treated, stored or disposed of at each unit.

8. SCHEDULE FOR CLOSURE - 35 IAC 725.213 requires the owner/operator to treat, remove or dispose of all hazardous waste in accordance with the approved closure plan within 90 days after receiving the final volume of hazardous wastes or 90 days after approval of the closure plan by the IEPA. A longer period may be requested (refer to 725.213).

   Also, 35 IAC 725.213 states that the owner/operator must complete all closure activities in accordance with the approved closure plan and within 180 days after receiving the final volume of wastes or 180 days after approval of the closure plan, if that is later.

   Closure time periods longer than those listed above may be granted if justification is provided which meets the requirements of 725.213. For extensions of the closure period following approval of the closure plan, refer to paragraph 26 (Closure Plan Modifications). Closure certification is due 60 days after closure is complete.

   The plan should contain a timetable which shows all critical dates for closure, including waste removal, sampling, soil removal, critical points when the independent engineer or his representative will be present, backfilling, survey plat, independent engineer's certification, and other relevant activities. This timetable should generally start at the point of approval or some other definable date (i.e., award of contract, etc.), and not rely on calendar dates.

The Illinois EPA may require that the owner/operator contact the IEPA Field Operations Section regional office in advance of certain critical activites, such as soil sampling or removal, so that an inspector may be present to observe these activities.

9. AIR EMISSIONS (35 IAC 725.211) - When applicable, the plan should specify how the owner/operator will minimize or eliminate air emissions related to closure, including nuisance problems such as dust or odors. Examples include solvent emissions during transfers or decontamination operations, or dust problems related to soil excavation or solidification.

10. PERSONNEL SAFETY AND FIRE PREVENTION (35 IAC 725.211) - In addition to obvious measures needed to protect the health of nearby residents, the owner/operator must clearly show that measures will be taken to protect all personnal (including contractors and visitors) involved in the closure or possibly exposed to hazardous waste by the closure activity, including personnel decontamination.

11. DECONTAMINATION OF TANKS, STRUCTURES AND SOILS (35 IAC 725.212 and 725.214) - The owner/operator should describe all efforts to remove or decontaminate hazardous waste and its residues and constituents from tanks, paved areas, containment systems, equipment, structures, soils, pipes, pumps, sumps and any other appurtenances to the hazardous waste management unit. The owner/operator may be requested to use any reasonable means to clean or decontaminate, including solvent washing, pressure washing, scraping or other means.

    Tanks containing hazardous waste must be subjected to all reasonable means of decontamination before they should be considered "clean". This includes pressure rinses, solvent washes, manual sludge removal and other means. The independent engineer should certify the methods used and that a minimum amount of residue remains.

    Tanks which will be used for temporary storage (not to exceed ninety days) following closure should be drained and inspected. The owner or operator and an independent registered professional engineer should certify that the tank and its appurtenances are not leaking, are in good working condition and that the wastes which will be stored in the tank are compatible with those which were stored previously. All hazardous waste residues and contaminated containment system components, equipment, structures and soils must be removed or decontaminated to satisfy the closure performance standard (725.212(b)(4), as amended February 5, 1987).

    A description of how waste material (rinse water, etc.) from decontamination will be managed and an estimate of the volume of waste material should also be provided. Please note that residue from listed hazardous waste must be managed as a hazardous waste unless it is delisted under the provisions of 35 IAC 720.120 and 720.122 or is covered by the exemption of 721.103(a)(2)(D).

Disposal of hazardous waste and nonhazardous special waste within the State of Illinois requires a Waste Stream Permit issued by the Illinois EPA. Disposal of hazardous waste is also subject to Section 39(h) of the Environmental Protection Act, which prohibits land disposal without a demonstration from the generator that the waste can't be reasonably recycled for reuse, nor incinerated or chemically, physically or biologically treated to render the waste nonhazardous.

The application for the Waste Stream Permit is to be filed by the landfill or treatment facility operator. The application for a 39(h) authorization is to be filed by the generator of the waste. For more information on Section 39(h), contact the Permit Section at 217/782-6762.

12. SOIL CLEANUP LEVELS (35 IAC 725.211 and 40 CFR 265.228, March 19, 1987) - Clean closure of a storage unit requires removal of all wastes, leachate, liners and soils (including groundwater) contaminated with waste or leachate that pose a substantial present or potential threat to human health or the environment. The owner/operator has the options of removing soil to detection limits/background levels of the contaminant (refer to Section 13: Sampling and Analytical Methods) or to propose a site-specific, health-based cleanup level.

    A site-specific cleanup level proposal must document that the contaminants left in the soil will not adversely impact any environmental media (groundwater, surface water or atmosphere), and that direct contact through dermal exposure, inhalation or ingestion will not result in a threat to human health or the environment. USEPA is currently developing a guidance document for clean closure. Until this document becomes available, owner/operators should refer to 52 FR 8706 (March 19, 1987) for demonstration references. Toxicity information for hazardous constituents (35 IAC Part 721, Appendix H) can be obtained from EPA's Office of Soild Waste, Characterization and Assessment Branch, 202/382-4761.

13. SAMPLING PLAN AND ANALYTICAL METHODS (35 IAC 725.211) - Closures of units where there is any evidence or possibility of leaks or spills or potential for hazardous constituent (Appendix VIII) migration must include sampling of soil to determine the nature and extent of contamination of soil. Soil sampling should also be provided for container or tank storage areas which are founded on soil or gravel or on paved pads which are not watertight or do not have curbs or other forms of secondary containment. All samples which are to be taken must be handled in accordance with 40 CFR, Part 261, Appendix III or the soil volatile sampling procedures (Attachment 7 of this document).

    In the event of extensive soil contamination, groundwater monitoring also may be required through the closure plan, Post-Closure Permit or through corrective action orders or corrective action provisions of a Part B

permit, if applicable. If the unit is already subject to groundwater monitoring requirements, the location, frequency or parameters for groundwater sampling may also be modified or extended beyond closure, even if the facility closes "clean." Clean closure will not be allowed if groundwater contamination is present above EPA-approved limits.

An adequate soil sampling and analysis plan should include the following:

a. parameters to be analyzed

b. locations of samples (horizontal location and depth)

c. background samples (location and depth)

d. sampling methods and equipment

e. analytical methods

f. evidence of a quality assurance/quality control plan for laboratory analyses

g. a clear statement of the proposed "clean" level for soil

Parameters for soil analysis may include any element or compound that is a hazardous waste, hazardous waste constituent or hazardous constituent (as specified in 35 IAC Part 721). Parameters may be proposed by the Owner/Operator or the Agency. Parameters should not only be based on knowledge of the wastes managed at the unit, but may also include other potential elements or compounds used at the facility which generated the waste. This is similar to considerations applied by U.S. EPA for waste delistings. For example soil underlying an F006 (i.e. electroplating wastewater treatment sludge), surface impoundment might also be analyzed for 1,1,1-trichloroethane, a solvent likely to be used at a plating facility. Additional parameters for analysis may be required by the Agency.

Locations of soil samples must be selected to adequately determine the horizontal and vertical extent of all contaminants specified previously. To determine the horizontal extent of contamination, a grid system should be used. A grid system uses a regular pattern, either rectangular or triangular to determine regular or random sampling points. A circular pattern of sampling around a central point may also be used. Variations of regular sampling could include linear sampling along a drainageway, boundary or perimeter of a container storage area. A directed system would focus samples on an area of suspected contamination such as the downslope or downwind side of a waste storage unit. Grid sampling and directed sampling may both be used in the same closure plan.

For grid sampling, the following equations may be used to determine grid intervals and the number of samples in a given area:

(1) $GI = (A\pi/GL)^{0.5}$ or (2) $GI = (A/\pi)^{0.5}/2$

The equations above establish grid point intervals, proportioned to the size of waste management unit, where:

GL = greatest length of the area to be gridded (feet)

A = area to be gridded (feet^2), and

GI = grid interval (feet).

Equation 1 results in a heavy sample weighting for small sites, so it should be used for sites larger than 3 acres. Equation 2 should be used for units smaller than 3 acres.

The calculation of the size of grid interval may be modified by the IEPA if site-specific conditions warrant a smaller or larger interval. Grid intervals of 25-100 feet are common.

Whenever random sampling within a grid is chosen, the minimum number of samples must be acceptable to the IEPA.

The interval for sampling soil at various depths may be dependent on several factors, including: (1) soil type and hydraulic conductivity; (2) suspected magnitude of surface contamination; (3) physical state of the waste and its mobility; (4) height of liquid head at the ground surface; (5) length of time that waste was present at the site; and (6) relative toxicity of the waste.

Soil sampling increments should be 6 inches for the upper two feet of soil and 12 inches below a depth of two feet. Sampling must continue to at least the depth at which the cleanup level is met.

Soil samples for underground tank closures should be taken beneath the tank invert, and as close to the tank as possible.

Background samples may be needed when the hazardous waste constituent of interest naturally occurs in soil, such as heavy metals. A few toxic organics, such as phenol or formaldehyde, may be naturally produced, but their concentrations in soil would typically be very low and near or below detection limits. Background samples are used to statistically compare the natural condition to the potentially contaminated area. Background samples should be taken in areas minimally affected by the hazardous waste units and by the plant itself. They may be taken away from the owner/operator's property, but should be as close as possible to the

facility. Background samples should be taken from soil depths and soil horizon materials similar to those of the potentially contaminated area. The location and depth of background samples must be indicated. Generally, a minimum of four background samples are required.

Sampling methods and equipment, as well as laboratory analytical methods, should follow guidance in U.S. EPA's SW-846, "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (see 40 CFR 260.11). Field sampling methods, including soil sampling, not included in SW-846 must be approved by IEPA before they are used in the closure. This includes methods such as drilling, borings, etc. When available, standard procedures, as defined by U.S. EPA, IEPA or ASTM, should be followed.

Soil samples for volatile organics analysis require specialized sampling and handling procedures. Samples should be taken with a sampler which uses removable liners made of stainless steel or some other material acceptable to the laboratory. As an alternative, the soil sample can be taken by driving a stainless steel tube into the ground. Preparation, decontamination and sampling should be done in accordance with Attachment 7. Under no circumstances should soil samples for volatile organic analysis be mixed, composited or otherwise aerated.

A "clean" level for soil is the end result of closure. The sampling plan should be structured so that it clearly determines when "clean" is achieved. IEPA may consider alternate concentration limits, but not without thorough technical justification for leaving greater than background concentrations in the soil. Ground water must be protected from any future contamination.

One recent publication, "Environmental Sampling for Hazardous Wastes" (Schweitzer, G.E. and J.A. Santolucito (eds.). 1984. ACS Symposium Series No. 267, American Chemical Society, Washington, D.C.), provides an overview of field sampling programs.

Underground tanks containing ignitable waste should be removed in accordance with State Fire Marshall regulations and underlying soil should be sampled for hazardous waste constituents that were in the tank. Tanks containing nonignitable hazardous waste may be abandoned in place if the tank is properly decontaminated, filled and capped, and soil testing verifies that there was no soil contamination.

14. DESCRIPTION OF CONTAMINATED SOIL REMOVAL - Any facility which is attempting to close "clean" must fully describe each step in removing waste and contaminated soil from the property. This includes a description of solidification/stabilization, stockpiling of waste or reagents, equipment, removal pattern and depth increments, loading areas or any other steps critical to removal. The plan should clearly define how soil will be removed, stored, loaded and managed once it leaves the property.

Facilities where solidification or stabilization of waste is proposed should fully describe the procedure and any testing involved to verify its effectiveness. Stabilization or solidification of waste will require a modification of your Part A to include treatment (T02 in the case of a surface impoundment). A request for this modification should be included in the closure plan. This modification will be removed from your Part A when certification of closure is accepted by the Agency. If treatment processes are used during the closure process, the plan must address how the treatment unit will be closed.

In addition, efforts to minimize air emissions, including volatiles and dust, should be described when applicable.

15. DISPOSAL UNIT CLOSURES - Any unit where waste is to be left in place, including landfills, waste piles and surface impoundments to be closed as landfills, obviously has several additional important considerations beyond that required for a "clean" closure. These include liners, caps, final cover, vegetation, groundwater monitoring and post-closure care and permit requirements.

    Full descriptions and detailed engineering drawings will be required for each unit undergoing closure. Details of liners, cover, wells, final contours or any other relevant structure must be provided.

    Note that there are several additional regulatory requirements for closed disposal units in 35 IAC 724 and 725.410. These requirements concern groundwater monitoring, post-closure plans, post-closure care, notice to local land authority, and notice in deed to property. Refer to 725.217 for groundwater monitoring requirements and Sections 21 and 22 of this document for post-closure care and notices.

16. DESCRIPTION OF EQUIPMENT CLEANING - Any equipment, including heavy earth-movers or smaller tools, should be scraped and washed to remove waste residues. The residues should be managed as hazardous waste, and this cleaning and management should be described in the closure plan.

17. SIGNATORY REQUIREMENTS - The closure plan application and closure certification are subject to the signatory requirements of 702.126 in the same way that a Part B application would be. The application must be signed as follows:

    a. For a corporation: by a responsible corporate officer. For the purpose of this section, a responsible corporate officer means;

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

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

b. For a partnership or sole proprietorship: by a general partner or the proprietor, respectively; or

c. For a municipality, State, federal or other public agency: by either a principal executive officer or ranking elected official. For purposes of this Section, a principal executive officer of a federal agency includes:

1. The chief executive officer of the agency, or

2. A senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA).

A duly authorized representative may also sign the application, but a written authorization must be signed by the appropriate officer as defined above, and must be on file with the IEPA.

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

The attached closure plan certification statement (Attachment 5) is to be used. At least one of the three copies of the certification statement must have original signatures.

18. CERTIFICATIONS (35 IAC 702.126 and 725.215) - All partial or full closures of hazardous waste management units must be certified by both the owner/operator and an independent registered professional engineer. The closure plan must include a statement acknowleding this requirement. Certification is due 60 days after completion of closure and no more than 240 days from the date of closure plan approval (unless otherwise approved).

The independent engineer should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the independent engineer must be sufficient to determine the adequacy of each critical activity. The responsibilities of the certifying P.E. during closure are discussed in the preamble of the May 2, 1986 Federal Register amending the closure and post-closure requirements of 40 CFR Parts 264 and 265.

Since the certification of closure constitutes a report, as defined by Section 702.126, the facility's certification of closure (725.215) must conform to the signatory requirements of 702.126. This means that the certification must be done by the officer described above in Paragraph 16 (Signatory Requirements) and that the certification statement of Paragraph 16 must be used. The certification provided by the registered professional engineer must contain this same certification statement. The certification form attached to the Closure Plan Approval letter or Attachment 6 of this document is to be used.

The independent engineer or the facility owner/operator may be required through the closure plan to notify the IEPA reviewer/inspector in advance of any critical activities.

In accordance with 35 IAC 725.215, amended February 5, 1987 (PCB R86-28), a Closure Documentation Report must be submitted with the closure certification to document the closure activities. This report shall include:

a. The volume of waste and waste residue removed.

b. A description of the method of waste handling and transport.

c. Waste manifest numbers or copies of manifests from removal of waste and waste residues.

d. A description of the sampling and analytical methods used.

e. A chronological summary of closure activities and the costs involved.

f. Photo documentation of closure.

g. Tests performed, methods and results.

A revised cost estimate and financial assurance instruments should be submitted with the closure certification documents for partial closures. If this will be a final closure, the certification documents should include a request for release of the financial assurance instruments.

19. STATUS OF FACILITY AFTER CLOSURE - The closure plan should clearly state the status of the hazardous waste facility after closure is completed. For example, it should state if a storage facility is to be operated as a generator (less-than-90-day storage), and it should describe whether closure is partial or complete. If the closure is partial, it should name both the units covered by the closure plan as well as those remaining in operation. It should indicate whether the facility will continue to be a generator and transporter (if applicable).

    Tanks which will be used for short-term accumulation of waste will still be subject to closure when removed from service (722.134(a)) and will be subject to many of the inspection and secondary containment requirements of the new tank regulations (51 FR, July 14, 1986).

    Indicate which of the following categories describes the intended use of the facility:

    a. No treatment, storage or disposal will occur at this facility.

    b. Disposal will continue at this facility.

    c. This facility will continue to treat hazardous wastes.

    d. Less than 1,000 kg/month will be generated, and storage will be for less than 90 days.

    e. The facility will generate and store more than 1,000 kg/month for less than 90 days.

    f. The facility will generate and store more than 1,000 kg/month for more than 90 days.

    g. The facility will generate and store more than 100 kg/month, but less than 1,000 kg/month for less than 180 days (270 days if applicable).

    h. The facility will be exempt from treatment storage and disposal (TSD) regulation under RCRA.

    i. The facility will be a transporter of hazardous waste.

20. PART A MODIFICATION AND WITHDRAWALS (703.181) - Although a facility's responsibility for a closed unit can't be terminated completely with closure, the owner/operator must revise their Part A application when they certify closure. In the case of a final closure (all remaining units closed and no units will require post-closure care), the owner/operator should submit a letter requesting withdrawal of the Part A application to the Agency with their closure certification.

In the case of a partial closure (some units will remain open), submit a revised Part A application (Attachment B) which includes only the remaining units, and if necessary, a corrected copy of the existing Part A application.

21. POST-CLOSURE CARE (35 IAC 725.218) - The closure plan for any disposal unit (hazardous waste left in the unit) must include an interim status post-closure plan in accordance with Part 725, Subpart G. Units which close after January 26, 1983 are obligated to submit an application for a Post-Closure Permit upon request from the EPA (40 CFR 270.1(b) and (c)).

22. LOCATION DOCUMENTATION FOR DISPOSAL UNITS - 35 IAC Sections 725.216, 725.219 and 725.220 as amended February 5, 1987, describe the survey plat and notice in deed requirements for facilities which are closing disposal units. Note that a copy of the survey plat and a copy of the document with the notation required by 725.219(b), showing the location and dimensions of disposal areas, must be provided to the Director with the closure certification.

23. SUBMITTAL OF CLOSURE PLAN AND CERTIFICATIONS - The owner/operator of the facility should submit 4 copies of the closure plan, certifications and any revisions (one with original signatures) to:

    Illinois Environmental Protection Agency
    Division of Land Pollution Control -- #24
    Permit Section
    Post Office Box 19276
    2200 Churchill Road
    Springfield, Illinois 62794-9276

24. AGENCY REVIEW OF CLOSURE PLAN (35 IAC 725.212(d)) - When the Permit Section receives the closure plan, it is logged in and assigned to a reviewer. The Agency is allowed 90 days from the date of receipt to review the plan. A Public Notice will be filed in a local newspaper and the public will be given the opportunity to submit written comments and request modifications of the plan and a public hearing may be conducted at the Agency's discretion. When the review is complete, the Agency shall approve, disapprove or modify the closure plan.

    The IEPA will review the proposed cleanup levels based on the type and toxicity of the contaminant, degree of contamination present, exposed populations and wildlife, groundwater use, etc.

    If the Agency disapproves the closure plan, a detailed written statement of reasons for the disapproval will be included in the Agency's letter to the owner/operator. The owner/operator must then modify the closure plan and resubmit to the Agency within 30 days after receiving the disapproval letter. Failure to submit a revised closure plan within 30 days may

result in enforcement action being filed against the facility. Upon receipt of the revised closure plan, the Agency will approve or modify the plan within 60 days. If the facility submits the revised closure plan after the 30-day time period has expired, the revised closure plan may be logged in as a new closure plan, subject to a 90-day review.

When the closure plan is modified or approved, the Agency will send a letter to the facility stating that their closure plan is approved subject to specified conditions. The approved closure plan which is to be implemented by the owner/operator will consist of the submitted closure plan and the modifications made by the Agency.

25. CLOSURE REGULATIONS - Closure of hazardous waste facilities under interim status is regulated under 35 IAC, Subtitle G, Part 725 and possibly Part 724. Closure of facilities which have a Part B permit is regulated by 35 IAC Part 724. If you do not have a recent copy of these regulations, you are encouraged to request a copy from the permit section at 217/782-6762.

    The closure regulations of 35 Ill. Adm. Code, Parts 724 and 725 were amended on February 5, 1987 (PCB R86-28) to meet the standards established in the May 2, 1986 Federal Register.

    The tank regulations promulgated in the July 14, 1986 Federal Register contain new closure and post-closure requirements for tanks and will be incorporated into Subtitle G by Illinois Pollution Control Board docket R86-46.

    The March 19, 1987 Federal Register includes new closure standards which are expected to become part of the Subtitle G regulations in 1988.

26. CLOSURE PLAN MODIFICATIONS AND TIME EXTENSIONS DURING THE CLOSURE PERIOD (35 IAC 725.212(d) and 725.213) - A request may be made following closure plan approval to modify provisions of the plan. These requests for modification of the closure plan will be treated in the same manner as new or revised closure plans and will have a 90-day review period. Owner/operators should take note that when a modification request is received, the entire closure plan is subject to review and that modifications made by the permit reviewer may extend beyond the scope of the modification requested.

    Under 725.213, the Director may grant an extension of the 180-day closure period if the owner/operator can demonstrate, among other things, that:

    a. closure activities will, of necessity, take them longer than 180 days to complete, and

    b. the owner/operator has taken and will continue to take all steps to prevent threats to human health and the environment from the unclosed but inactive facility.

Section 725.213, as modified on February 5, 1987 (PCB R86-28) states that an extension of the 180-day closure period must be requested at least 30 days prior to the expiration of the 180-day period or 90 days prior to the certification due date. Justification for the time extension must be provided.

27. CERTIFICATION REGARDING POTENTIAL RELEASES FROM SOLID WASTE MANAGEMENT UNITS

On November 8, 1984, the Hazardous and Solid Waste Amendments of 1984 (the Amendments) were enacted to amend RCRA. Under Section 206 and Section 233 of the Amendments (see Attachment 1), all facilities "seeking a permit" (taken to mean interim status facilities) must provide for corrective action for all releases of hazardous waste or constituents from any solid waste management unit, regardless of the time at which waste was placed in the Unit. Please note that both hazardous and non-hazardous wastes can meet the definition of solid waste under 35 IAC Section 721.102.

Consequently, the IEPA must determine whether such releases have ever occurred at the facility site. If they have, the IEPA must ensure that any necessary corrective actions either have been taken, or will be taken, pursuant to a decision on your closure plan. An important part of our determination includes your willingness (or unwillingness) to complete the enclosed certification form (Attachment 2). Please read it carefully, complete it, and either sign and return it, or return it to us unsigned with a cover letter of explanation with the closure plan. Public notice of your request for closure approval, and this request, will appear in a newspaper of general circulation in the area of the facility.

If you have previously submitted this certification, you should send a copy with the closure plan.

Attachment 1: Extract from the Hazardous and Solid Waste Amendments of 1984

Attachment 2: Certification Regarding Potential Releases from Solid Waste Management Units

Attachment 3: Closure Plan Review Notes (information copy -- IEPA Use Only)

Attachment 4: Closure Plan Completeness Checklist (information copy -- IEPA Use Only)

Attachment 5: Closure Plan Certification Statement

Attachment 6: Certification Statement for Certification of Closure

Attachment 7: Soil Volatile Sampling Procedures

Attachment 8: Part A Application

Attachment 1
Extract from the Hazardous and Solid Waste Amendments of 1984

CONTINUING RELEASES AT PERMITTED FACILITIES

Section 3004 of the Solid Waste Disposal Act (RCRA) was amended by adding the following new subsection:

"(u) CONTINUING RELEASES AT PERMITTED FACILITIES. -- Standards promulgated under this section shall require, and a permit issued after the date of enactment of the Hazardous and Solid Waste Amendments of 1984 by the Administrator or a State shall require, corrective action for all releases of hazardous waste or constituents from any solid waste management unit at a treatment, storage, or disposal facility seeking a permit under this subtitle, regardless of the time at which waste was placed in such unit. Permits issued under section 3005 shall contain schedules of compliance for such corrective action (where such corrective action cannot be completed prior to issuance of the permit) and assurances of financial responsibility for completing such corrective action."

INTERIM STATUS CORRECTIVE ACTION ORDERS

Section 3008 of the Solid Waste Disposal Act was amended by adding the following new subsection:

"(h) INTERIM STATUS CORRECTIVE ACTION ORDERS. -- (1) Whenever on the basis of any information the Administrator determines that there is or has been a release of hazardous waste into the environment from a facility authorized to operate under section 3005(e) of this subtitle, the Administrator may issue an order requiring corrective action or such other response measure as he deems necessary to protect human health or the environment or the Administrator may commence a civil action in the United States district court in the district in which the facility is located for appropriate relief, including a temporary or permanent injunction.

"(2) Any order issued under this subsection may include a suspension or revocation of authorization to operate under section 3005(e) of this subtitle, shall state with reasonable specificity the nature of the required corrective action or other response measure, and shall specify a time for compliance. If any person named in an order fails to comply with the order, the Administrator may assess, and such person shall be liable to the United States for, a civil penalty in an amount not to exceed $25,000 for each day of noncompliance with the order.".

"(b) Subsection (b) of section 3008 of the Solid Waste Disposal Act is amended by inserting "issued under this section" immediately after "Any order".

Attachment 2

CERTIFICATION REGARDING POTENTIAL RELEASES FROM SOLID WASTE MANAGEMENT UNITS (CLOSURE PLAN REVIEW)

FACILITY NAME: _____

EPA I.D. NUMBER: _____

LOCATION CITY: _____

STATE: _____

1. Are there any of the following solid waste management units (existing or closed) at your facility? NOTE - DO NOT INCLUDE HAZARDOUS WASTES UNITS CURRENTLY SHOWN IN YOUR PART A APPLICATION and in your closure plan.

	YES	NO
• Landfill	____	____
• Surface Impoundment	____	____
• Land Farm	____	____
• Waste Pile	____	____
• Incinerator	____	____
• Storage Tank (Above Ground)	____	____
• Storage Tank (Underground)	____	____
• Container Storage Area	____	____
• Injection Wells	____	____
• Wastewater Treatment Units	____	____
• Transfer Stations	____	____
• Waste Recycling Operations	____	____
• Waste Treatment, Detoxification	____	____
• Other _____	____	____

2. If there are "Yes" answers to any of the items in Number 1 above, please provide a description of the wastes that were stored, treated or disposed of in each unit. In particular, please focus on whether or not the wastes would be considered as hazardous wastes or hazardous constituents under RCRA. Also include any available data on quantities or volume of wastes disposed on and the dates of disposal. Please also provide a description of each unit and include capacity, dimensions, location at facility, provide a site plan if avaliable.

_____

_____

_____

_____

_____

NOTE: Hazardous waste are those identified in 40 CFR 261. Hazardous constituents are those listed in Appendix VIII Of 40 CFR Part 261.

3. For the units noted in Number 1 above and also those hazardous waste units in your Part A application and in your closure plan. please describe for each unit any data available on any prior or current releases of hazardous wastes or constituents to the environment that may have occurred in the part or still be occurring.

   Please provide the following information

   a. Date of release
   b. Type of waste released .
   c. Quantity or volume of waste released
   d. Describe nature of release (i.e., spill, overflow, ruptured pipe or tank, etc.)

_____

_____

_____

_____

4. In regard to the prior releases described in Number 3 above, please provide (for each unit) any analytical data that may be available which would describe the nature and extent of environmental contamination that exists as a result of such releases, Please focus on concentrations of hazardous wastes or constituents present in contaminated soil or groundwater.

_____

_____

_____

_____

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the submittal is, to the best of my knowledge and belief, true, accurate, and complete. 1 am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. (42 U.S.C. 6902 et seq. and 40 CFR 270.11(d))

_____
Typed Name and Title

_____ _____
Signature Date

Attachment 3
For IEPA Use Only

CLOSURE PLAN REVIEW NOTES
RCRA UNITS
(attach notes or references as necessary)

Facility Name: _____ ILD #: _____

Location: _____ IEPA Log No.: _____

1st Reviewer: _____ Date: _____

2nd Reviewer: _____ Date: _____

Regulated Units and Their Capacities

Unit	Last Approved Part A	HWDMS	Closure Plan	Units Closing	Units Remaining Open

Are any new treatment processes proposed to minimize or render nonhazardous, hazardous waste? _____ Explain: _____

_____

_____

Will a change in the Part A be necessary if the closure is approved? _____

Is the facility requesting additional time to start or complete closure than allowed? _____ Explain: _____

_____

_____

Size or area of each unit closing: _____

Is this a clean closure? _____

Identify wastes managed in each unit (include hazardous waste codes):

_____

_____

_____

_____

Are all RCRA hazardous wastes and constituents properly identified? _____

Volume of wastes disposed of, or located in, units to be closed: _____

_____

_____

_____

_____

Is sampling grid provided? _____ What is the grid spacing? _____

Total number of samples from unit = _____

Were background samples taken from proper soil horizon? _____

Total number of background samples = _____

Is sampling grid or interval satisfactory? _____

Will sampling continue to a depth where the clean-up level is met? _____

Is depth of all samples given? _____ Satisfactory? _____

Is the portion of the sample to be tested appropriate? _____

Will area surrounding unit be tested for spills, windblown particulate matter, etc.? _____ Explain: _____

_____

_____

Are proper sampling, sample preservation and analytical testing procedures given? _____ Explain: _____

_____

_____

Will an analysis for all pollutants and hazardous constituents, for which the wastes were listed, be run? _____

Will any waste be removed from site? _____

To where? _____

Will all RCRA hazardous wastes removed from site be handled as RCRA hazardous wastes? _____

Is all equipment to be disposed of or decontaminated? _____

Identify soil clean-up levels. (Give basis, i.e., closure plan, COT recommendation, etc.)

_____

_____

_____

Approximate volume of waste to be removed: _____
(yds. or gallons)

Approximate volume of underlying and surrounding soil and liner to be removed:

_____

How is site to be capped or otherwise restored? _____

_____

_____

_____

Are there any non-RCRA Solid Waste Management Units? _____ Explain: _____

_____

_____

In response to the above question, have there been any releases from the units?

Explain: _____

_____

How is the groundwater to be addressed for the closing unit? _____

_____

Is groundwater monitored? _____

Is groundwater contaminated? _____

What is the facility's Subpart F compliance status? _____

If the facility is in assessment, will the assessment be completed prior to final closure? _____

Is additional groundwater monitoring warranted in closure plan? _____

Explain: _____

_____

Is groundwater monitoring warranted after closure? _____ Explain: _____

_____

_____

_____

Is the facility being referred to USEPA for corrective action? _____

If so, indicate the type of enforcement: 3013 Order _____

3008(h) Order _____

3005(c) Action _____

Final Action: Approve _____, Disapprove _____, Modify _____

Schedule for closure: Date of Plan Approval: _____

Start closure: _____

Complete closure: _____

Certification due to IEPA: _____

LWE:tk:5/1/47

Attachment 4

CLOSURE PLAN COMPLETENESS CHECKLIST

MARKUP Revised 5/1/87

FOR IEPA USE ONLY

Site: _____ Log No. _____
Location: _____
State ID: _____ Fed. ID: _____
1st Submittal: _____ Reviewer: _____ Mailed: _____
2nd Submittal: _____ Reviewer: _____ Mailed: _____

LEGEND

PR: Provided
AD: Adequate
NA: Not Applicable

Note: Respond to questions with Y for yes and N for no

1. Description of hazardous waste operation and proposed closure (725.212(a))

PR	AD	NA	
__	__	__	a. description provided of hazardous waste operations
__	__	__	b. identification of units closing
__	__	__	c. identification of units remaining open
__	__	__	d. is this a full closure?
__	__	__	e. maximum inventory of wastes at any time during life of facility (should correspond to Part A volumes)
__	__	__	f. description of steps to be taken for decontamination of facility equipment
__	__	__	g. expected year of closure
__	__	__	h. schedule of closure
__	__	__	i. plan submitted 180 days prior to initiation of closure?

2. Public involvement (725.212(d))

__	__	__	a. newspaper notice posted
__	__	__	b. public hearing requested?
__	__	__	c. public hearing granted?
__	__	__	d. notice of public hearing 30 days prior to hearing

3. Closure time limits (725.213)

PR AD NA

__ __ __ a. 90-day limit for treatment, removal or disposal of hazardous wastes
__ __ __ b. 180-day limit for completion of closure activities
__ __ __ c. extension of time limits
__ __ __ d. justification provided for extension of time limits?

4. Disposal or decontamination of equipment (725.214)
__ __ __ a. proper disposal of facility equipment and structures, or
__ __ __ b. decontamination - removal of all hazardous wastes and residues
__ __ __ c. decontamination method

5. Certification of closure (725.215, 725.216 and 725.219)
__ __ __ a. provision for certification by owner or operator within 60 days following closure
__ __ __ b. provision for certification by independent registered Professional Engineer that facility was closed in accordance with the approved closure plan
__ __ __ c. provision for Closure Documentation Report to document closure activities
__ __ __ d. survey plat and notification in deed to Agency and appropriate local government office
__ __ __ e. certification to Agency that notification in deed has been made IAW 725.219

__ __ __ 6. Post-Closure Care Plan required? (725.217)
Disposal units closing after 1/26/83 are required to obtain a Post-Closure Permit.
Advise facility that a PCC Plan will be called in at a later date.

CONTAINER STORAGE (S01)

7. Closure of container storage area.
__ __ __ a. soil sampling plan -- grid spacing
b. soil analysis plan
__ __ __ contaminants tested for

PR AD NA

__ __ __ detection limits
__ __ __ sample handling and analysis (40 CFR 261, App. III)
__ __ __ c. removal of contaminated soil
__ __ __ d. cleanup standard
__ __ __ e. post-closure care in lieu of clean closure
__ __ __ f. decontamination of facility
__ __ __ g. decontamination of equipment
__ __ __ h. disposal of cleaning waste and residue
__ __ __ i. scale drawing of storage area
__ __ __ j. surface description (asphalt, concrete, aggregate, soil)
__ __ __ k. structural integrity and containment devices (cracks, curbs, roof)

TANK STORAGE (S02, T01)

8. Closure of tank storage (725.297)

__ __ __ a. scale drawing of storage area, including secondary containment structures, sumps and drainage pathways
__ __ __ b. description of materials used to construct tanks, appurtenances and secondary containment structures
__ __ __ c. present condition of tanks, appurtenances and secondary containment structures, i.e. structural integrity and surface condition
d. removal of all hazardous wastes and residues from:
__ __ __ tanks
__ __ __ pipes and discharge control equipment
__ __ __ discharge confinement structures
__ __ __ e. decontamination of equipment
f. soil testing beneath and around tank, including secondary containment areas, to verify that no leaks have occurred
__ __ __ contaminants tested for
__ __ __ detection limits
__ __ __ sample handling and analysis (40 CFR 261, App. III)
__ __ __ g. cleanup standard
__ __ __ h. removal of contaminated soil
__ __ __ i. removal of tank (required by State Fire Marshall for underground tanks which contained flammable materials)

SURFACE IMPOUNDMENTS (S04, D83, T02)

9. Closure and post-closure for surface impoundments (725.328)

PR	AD	NA	
__	__	__	a. removal of standing liquids
__	__	__	b. removal of wastes and waste residues
__	__	__	c. removal of liner
__	__	__	d. removal of underlying and surrounding contaminated soil
__	__	__	e. cleanup standard
__	__	__	f. management of removed material as hazardous waste unless determined to be nonhazardous under 721.103(c)
__	__	__	g. post-closure care in lieu of material removal (725.328(c)) (40 CFR 265.228(a)(2), March 19, 1987)
__	__	__	h. dewatering, stabilization or other treatment of remaining wastes to provide cover support and/or render waste nonhazardous (40 CFR 265.228 (a)(2), March 19, 1987)
__	__	__	i. request for modification of Part A to include T02 if stabilization or treatment is proposed
__	__	__	j. modification of post-closure requirements due to mitigating factors (725.217(d))
__	__	__	k. soil sampling plan - grid spacing
			l. soil analysis plan
__	__	__	contaminants tested for
__	__	__	detection limits
__	__	__	sample handling and analysis (40 CFR 261, App. III)

WASTE PILES (S03)

10. Closure and post-closure of waste piles (725.358)

__	__	__	a. removal or decontamination of all waste residues
			b. removal or decontamination of contaminated:
__	__	__	structures and liners
__	__	__	subsoils
__	__	__	structures and equipment (contaminated with leachate or waste

PR AD NA

__ __ __ c. management of removed materials as hazardous waste unless determined to be nonhazardous according to 721.103(c) & (d)

__ __ __ d. post-closure care provided in accordance with 725.410 if all contaminated suboils can't be removed or decontaminated

__ __ __ e. soil sampling plan -- grid interval

f. soil analysis plan

__ __ __ contaminants tested for

__ __ __ detection limits

__ __ __ sample handling and analysis (40 CFR 261, App. III)

LAND TREATMENT (D81)

11. Closure and post-closure care objectives for land treatment (725.380(a))

__ __ __ a. control migration of hazardous wastes and hazardous waste constituents into the groundwater

__ __ __ b. control release of contaminated run-off into surface water

__ __ __ c. control release of airborne particulate contaminants

__ __ __ d. compliance with food chain crop requirements (725.376)

12. Considerations to be addressed in land treatment closure and post-closure plans (725.380(b))

__ __ __ a. type and amount of hazardous wastes and Appendix H hazardous constituents which are contained in the waste

__ __ __ b. mobility of hazardous wastes and constituents

__ __ __ c. site location, topography and surrounding land use and the related potential effects of pollutant migration

__ __ __ d. climate (net precipitation)

__ __ __ e. soil profile and soil properties

__ __ __ f. geologic profile

__ __ __ g. surface and subsurface hydrology

__ __ __ h. unsaturated zone monitoring information (725.378)

PR AD NA

__ __ __ i. type, concentration and depth of hazardous waste migration
__ __ __ j. removal of contaminated soils
__ __ __ k. cleanup standards
__ __ __ l. function of final cover
__ __ __ m. engineering characteristics of final cover
__ __ __ n. groundwater monitoring

13. Requirements during land treatment closure period (725.380(d))
__ __ __ a. unsaturated zone monitoring
__ __ __ b. maintain run-on control system (725.372(b))
__ __ __ c. maintain run-off control system (725.372(c))
__ __ __ d. control wind dispersal of particulates
__ __ __ 14. Certification by qualified soil scientist in lieu of a registered Professional Engineer for closure of land treatment units (725.380(e))

INCINERATORS (T03)

15. Closure of incinerators
__ __ __ a. removal of all hazardous wastes and hazardous waste residues, including ash, scrubber waters and scrubber sludges
__ __ __ b. management of residues as hazardous wastes unless determined to be nonhazardous according to 721.103(c) & (d)

THERMAL TREATMENT UNITS

16. Closure of thermal treatment units (725.481)
__ __ __ a. removal of hazardous waste and hazardous waste residues, including ash
__ __ __ b. management of residues as hazardous waste unless determined to be nonhazardous according to 725.103(c) & (d)

OTHER TREATMENT UNITS

17. Closure of chemical, physical and biological treatment units (725.504)

PR AD NA

__ __ __ a. removal of all hazardous wastes and hazardous waste residues from treatment process or equipment, discharge control equipment and discharge confinement structures

__ __ __ b. management of residues as a hazardous waste unless determined to be nonhazardous according to 721.103(c) & (d)

ALL DISPOSAL FACILITIES

18. Objective of closure and post-closure plans (725.410(b))

__ __ __ a. control of pollutant migration from facility via groundwater, surface water and air

__ __ __ b. control of ponding and surface water infiltration

__ __ __ c. erosion, run-on and run-off control

19. Considerations for achievement of closure objectives (725.410(c))

__ __ __ a. type and amount of hazardous wastes and Appendix H hazardous constituents which are contained in the waste

__ __ __ b. mobility and the expected rate of migration of pollutants

__ __ __ c. site location, topography and surrounding land use and the related potential effects of pollutant migration (proximity to groundwater, surface water and drinking water)

__ __ __ d. climate, including total amount, net amount, frequency and pH of rainfall

__ __ __ e. engineering characteristics of cover, including material, final surface contours, thickness, porosity, slope and length of run of slope

__ __ __ f. geological and soil profiles

__ __ __ g. surface and subsurface hydrology

__ __ __ h. soil balance analysis if on-site soils are to be used for cover and vegetative layer

20. Cover design (725.410(a))

PR AD NA

__ __ __ a. grain size analysis and grain size requirements
__ __ __ b. soil classification -- USDA textural
__ __ __ c. compaction requirements -- should be 90-95% of ASTM D698 (Standard Proctor) density, compacted at a moisture content 3-5% above optimum moisture content
__ __ __ d. type of vegetation proposed
__ __ __ e. hydraulic conductivity
__ __ __ f. slope stability analysis
__ __ __ g. synthetic membrane specifications
__ __ __ h. depth of frost penetration and its effect on the cover system
__ __ __ i. erosion control
__ __ __ j. gas collection system
__ __ __ k. water balance analysis to estimate infiltration
__ __ __ l. settlement/subsidence effects considered

21. Construction procedures for cover (725.410(a))
__ __ __ a. equipment requirements -- sheepsfoot roller, disk and water truck or other provisions for moisture control
__ __ __ b. lift thickness -- should be 8 inches (loose thickness) or less
__ __ __ c. construction QA/QC -- number of compaction tests, hydraulic conductivity tests, grain size tests, etc.

22. Notice to local land authority (725.219)
__ __ __ a. survey plat submitted to Director and to County Recorder with closure certification
__ __ __ b. note on plat which states owner's and operator's obligation to restrict disturbance of the site per 725.217(c)
__ __ __ c. record provided of type, location and quantity of hazardous waste disposed of within each cell or area of the facility

23. Notice in deed to property (725.219)
__ __ __ a. recorded on deed or other instrument which will be examined during a title search that the land has been used to manage hazardous waste
__ __ __ b. copy of this instrument and a certification from the owner/operator that it has been properly recorded

24. Maintenance requirements -- activities and frequencies (725.217(a); 725.218(a)(2); 725.410(d)

PR AD NA

__ __ __ a. integrity of final cover or containment structures
__ __ __ b. leachate collection, removal and treatment systems
__ __ __ c. groundwater monitoring system
__ __ __ d. gas collection and control system (if provided)
__ __ __ e. benchmarks
__ __ __ f. name, address and phone number for post-closure care contact person

25. Security
__ __ __ a. restricted access, if necessary
__ __ __ b. security provided, if necessary (725.217(b))

26. Groundwater monitoring (725.217(a)(1); 725.218(a)(1); 725.191 to 725.193)
__ __ __ a. description of groundwater monitoring system, activities and frequencies for post-closure period (725.191; 725.218(a)(1)
__ __ __ b. sampling and analysis plan (725.192)
__ __ __ c. outline of groundwater quality assessment program (725.193)

ALL FACILITIES

27. Closure performance standard (725.211)
__ __ __ a. minimizes further maintenance
__ __ __ b. protects human health and environment
__ __ __ c. addresses all hazardous constituents (Part 721, Appendix H)

28. Part A status
__ __ __ a. Part A and HWDMS reviewed
__ __ __ b. discrepancies between units and design capacities in Part A, HWDMS and closure plan resolved
__ __ __ c. for complete closure -- all units closed or withdrawn

PR AD NA

__ __ __ d. revised Part A or withdrawal request to be submitted with closure certification

29. SWMU status

__ __ __ a. initial screening completed
__ __ __ b. initial screening previously submitted _____
__ __ __ c. environmentally significant information found during file search
__ __ __ d. Certification of Continuing Releases received from facility
__ __ __ e. units identified by facility consistent with those found during file search
__ __ __ f. releases indicated on certification
__ __ __ g. releases to be cleaned up under closure
__ __ __ h. releases to be referred to US EPA for action
__ __ __ i. SWMU's not previously identified discovered during closure?

30. Cleanup Objectives Team/CROPA involvement

__ __ __ a. submitted to COT on _____ (date)
__ __ __ b. recommendations from COT received on _____ (date)
__ __ __ c. reviewed by CROPA on _____ (date)
__ __ __ d. cleanup levels incorporated into approval letter

RECORD OF TELEPHONE CONVERSATIONS

Date	Person Contacted	Topic of Conversation

ADDITIONAL COMMENTS

Attachment 5

This statement is to be completed and attached to each of the 4 copies of the closure plan. At least one of the copies must contain original signatures.

Closure Plan
Certification Statement

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

USEPA ID Number	Facility Name
Signature of Owner/Operator	Name and Title
Date	

Attachment 6

This statement is to be completed by both the responsible officer and by the registered professional engineer upon completion of closure. Submit four copies of this certification, including at least one copy with original signatures.

Closure Certification Statement

The hazardous waste management unit(s) at the facility described in this document has (have) been closed in accordance with the specifications in the approved closure plan. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If this is the closure of a unit which is subject to post-closure care requirements, the Owner/Operator hereby certifies that he has recorded the notation specified in 35 Ill. Adm. Code, Section 725.219(b)(1) as amended February 5, 1987.

USEPA ID Number	Facility Name
Signature of Owner/Operator	Name and Title
Signature of Registered P.E.	Name of Registered P.E. and Registration Number
Date	

Attachment 7

SOIL VOLATILE SAMPLING PROCEDURES

A. PREPARATION AND DECONTAMINATION OF STAINLESS STEEL SOIL SAMPLERS

*1. Wash tubing or sampler with hot water and a nonfoaming detergent, such as trisodium phosphate.

2. Rinse with hot water.

*3. Rinse with a pesticide grade solvent, such as hexane.

4. Rinse with very hot water to drive off solvent.

5. Rinse with deionized water.

6. Store the sampler in aluminum foil until ready for use.

*Consult the laboratory for specific recommendations.

B. SOIL SAMPLING FOR VOLATILE ORGANICS

1. Using a properly decontaminated and stored stainless steel sampler (refer to preparation and decontamination instructions), take a core sample of soil.

2. Add additional clay to the ends of the sample, if necessary, to eliminate headspace.

3. Cover both ends of the sampler with aluminum foil. Cover the aluminum foil with a plastic cap, such as a thread protector.

4. Put the sample on ice immediately.

5. Transport the samples to the laboratory as soon as possible. Most labs require delivery within 24 hours of sampling.

NOTE: Soil samples which will be tested for volatile organics cannot be composited because of the volatilization which would result from any compositing method.

BC:rd/sp0799F/1-20

Attachment 8

United States
Environmental Protection
Agency

Office of Water and
Hazardous Waste
Washington, DC 20460

EPA Forms 3510-1 and 3510-3
June 1980

Solid Waste

EPA

Application for a Hazardous Waste Permit

Consolidated Permits Program

This package contains Part A of the application for an EPA hazardous waste permit.

RECEIVED
APR 15 1987
EPA DEPC

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D C 20460

JUNE 13, 1980

THE ADMINISTRATOR

Enclosed are the application forms and instructions for a Federal permit to treat, store, or dispose of hazardous waste.

The Resource Conservation and Recovery Act (RCRA) requires anyone who owns or operates a facility where hazardous waste is treated, stored, or disposed to have a permit. RCRA establishes a procedure for obtaining interim status which allows existing facilities to continue operating until a final hazardous waste permit is issued. In order to obtain interim status, existing facilities must complete a two step process. The first step is the submittal of a Notification of Hazardous Waste Activity form. Copies of this form were mailed in mid-June. You probably already have a form and are reminded that it must be submitted by August 18, 1980. If you need a form, please contact the EPA Regional Office which serves your area. The second step is to submit the permit application forms included in this package by November 19, 1980. If you do not file a notification form and complete the permit application on time, you will be required by law to halt your operations until a permit is issued.

EPA is identifying hazardous waste in several stages. The first set of hazardous waste was identified and listed in regulations published in the May 19, 1980 Federal Register. Applications covering these wastes are due by November 19, 1980. In June, EPA will publish an additional set of hazardous wastes; a list of these wastes was included in the May 19 Federal Register and in the instruction package for the Notification of Hazardous Waste Activity form. Applications covering these wastes are required in December. If you treat, store, or dispose of wastes included in this second set of hazardous wastes you are encouraged to include those hazardous wastes in the application which is due by November 19, in order to eliminate the need for filing two separate permit applications.

Copies of the EPA regulations which were published on May 19 may be obtained by contacting:

Mr. Ed Cox
Solid Waste Publications
26 W. St. Claire Street
Cincinnati, Ohio 45268
(513) 684-5362

There are two parts to a RCRA permit application - Part A and Part B. Part A consists of Form 1 and Form 3 of EPA's Consolidated Permit Application. These forms are contained in this package and must be submitted by November 19, 1980.

Part B of the RCRA permit application contains detailed, site-specific information. The Part B information requirements have not yet been fully developed. We expect to publish the full set of Part B information requirements next October or November. Part B of the permit application will not have to be submitted until it is requested by EPA. You will then have up to six months to submit that part of the application. Given the large number of existing treatment, storage, and disposal facilities, we expect it will take at least several years before all Part B's will be requested.

Owners and operators of existing hazardous waste treatment, storage, and disposal facilities who file both their notification and Part A of their permit application on time will be sent an acknowledgement that EPA has received these documents. The acknowledgement will include the facility's EPA Identification Number. This number must be used on shipping manifests for transporting hazardous waste, on Annual Reports, and on all other correspondence with EPA.

Because thousands of persons will be filing permit applications, it will take four to eight weeks for the Agency to issue acknowledgements. If you do not receive an acknowledgement within eight weeks after your application is submitted, you should contact the appropriate EPA Regional Permit Contact listed in the enclosed instruction sheets entitled "How To Apply for a RCRA Permit."

Several State governments have permit requirements similar to EPA's. Even if you have a State hazardous waste permit you must file a RCRA permit application with EPA if you own or operate a facility where hazardous waste is treated, stored, or disposed.

The enclosed instruction sheets show the specific steps on how to apply for a RCRA permit. If after reading the instructions you have any questions regarding the permit application process, please contact the EPA Regional Permit Contact in your area for assistance.

Sincerely yours,

Douglas M. Costle

Enclosures

Who Must File a RCRA Permit Application

The Resource Conservation and Recovery Act of 1976 *(RCRA)* requires each person owning or operating a facility for the treatment, storage, or disposal of hazardous waste to have a permit. This includes individuals, trusts, firms, joint stock companies, corporations *(including government corporations)*, partnerships, associations, States, municipalities, commissions, interstate bodies and Federal Agencies. If you treat, store, or dispose of hazardous waste without obtaining a permit, you may be subject to civil or criminal penalty.

How to Determine if you Handle Hazardous Waste

OFF–SITE FACILITIES. Owners and operators of off–site treatment, storage, or disposal facilities are encouraged to obtain waste information from the generators they serve. If the generators will not supply this information, you are still responsible for determining if you handle a hazardous waste and should follow the procedures below for on–site facilities.

ON–SITE FACILITIES. Solid waste generators who treat, store, or dispose of their own waste on–site should follow the following procedures for determining if their waste is a hazardous waste. This determination is made as follows:

A. First, determine if the solid waste handled is excluded from regulation as a hazardous waste. The list of exclusions can be found in the regulation titled "Identification and Listing of Hazardous Waste", Sections 261.4 and 261.5 published in the "Federal Register," May 19, 1980. If the solid waste handled is excluded, a RCRA hazardous waste permit is not needed to treat, store, or dispose of these wastes.

B. If the solid waste handled is not excluded by Sections 261.4 or 261.5, determine if the waste is listed in Subpart D of "Identification and Listing of Hazardous Waste." Persons owning or operating facilities where listed hazardous waste is treated, stored, or disposed are subject to regulation and must file a RCRA permit application.

C. If the waste handled is not listed in Subpart D of "Identification and Listing of Hazardous Waste," the waste may still be hazardous because it possesses certain characteristics or contains certain contaminants. These characteristics and contaminants are contained in Subpart C of "Identification and Listing of Hazardous Waste." A determination that a waste possesses these characteristics or contaminants may be made either based on: (1) Your knowledge of the hazard characteristic of the waste in light of the materials or the processes used; or (2) The results of testing the waste according to the methods in Subpart C of "Identification and Listing of Hazardous Waste."

Certain persons who handle hazardous waste are not required to obtain a RCRA permit. They are:

Generators who accumulate their own hazardous waste on–site for less than 90 days as provided in 40 CFR 262.34;

Farmers who dispose of hazardous waste pesticide from their own use as provided in 40 CFR 262.51; and

Owners and operators of totally enclosed treatment facilities as defined in 40 CFR 260.10.

What Information Should be Filed and When

There are two parts to the RCRA permit application – Part A and Part B. Part A consists of Form 1 and Form 3 of EPA's Consolidated Permit Application. Part B requires detailed site–specific information such as geologic, hydrologic, and engineering data. 40 CFR 122.25 specifies the information that will be required from hazardous waste management facilities in Part B.

RCRA established a procedure for obtaining "interim status" which allows existing hazardous waste management facilities to continue their operations until a final hazardous waste permit is issued. In order to qualify for interim status, owners and operators of existing hazardous waste management facilities must complete and sign both Forms 1 and 3 and submit them to EPA by November 19, 1980. In order for an existing facility to receive a permit, a complete Part B must be submitted within six months after it is requested by EPA. For new facilities, both Part A and Part B must be submitted to EPA at least 180 days before physical construction is expected to commence.

Operation During Interim Status

As provided in 40 CFR 122.23(b), Part A of the permit application defines the processes to be used for treatment, storage, and disposal of hazardous wastes; the design capacity of such processes; and the specific hazardous wastes to be handled at a facility during the interim status period. Once Part A is submitted to EPA, changes in the hazardous wastes handled, changes in design of facilities, changes in processes, and changes in ownership or operational control at a facility during the interim status period may only be made in accordance with the procedures in 40 CFR 122.23(c). Changes in design capacity and changes in processes require prior EPA approval. Changes in the quantity of waste handled at a facility during interim status can be made without submitting a revised Part A provided the quantity does not exceed the design capacities of the processes specified in Part A of the permit application. Failure to furnish all information required to process a permit application is grounds for termination of interim status.

How Many Applications Should be Filed

You need submit only one RCRA permit application *(Part A and Part B)* per site or location, provided that you describe all of the activities at that site or location. If you conduct hazardous waste activity*(ies)* at more than one site or location, you must submit a separate application for each site or location.

Where to File

Permit applications should be sent to the EPA Regional office that serves the area where your hazardous waste management facility is located. If you previously received a notification packet from EPA that contains two preaddressed mailing labels and two envelopes, you should use one of the mailing labels and one of the envelopes to send your permit application to EPA. If you do not have a preaddressed mailing label, mail your permit application to the EPA Regional office that serves the area where your hazardous waste management facility is located. The mailing addresses for the EPA Regional offices are listed on the following page.

REGIONAL MAILING ADDRESSES AND PERMIT CONTACTS UP TO NOVEMBER 19, 1980

EPA REGION	AREA SERVED	PERMIT APPLICATION MAILING ADDRESSES[1]	EPA REGIONAL HAZARDOUS WASTE PERMIT CONTACTS[2]
I	Connecticut, Maine Massachusetts, Rhode Island, Vermont, New Hampshire	EPA Region I Permits Branch P.O. Box 8748 Boston, MA 02114	Rich Cavegnero (617) 223–0240
II	New Jersey, New York, Virgin Islands, Puerto Rico	EPA Region II Information Service Center 26 Federal Plaza New York, NY 10007	Harry Ruisi (212) 264–0503
III	Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia	EPA Region III P.O. Box 1480 Philadelphia, PA 19107	Shirley Bulkin (215) 597–8751
IV	Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee	EPA Region IV RCRA Activities 345 Courtland, N.E. [illegible]	Ray Cozart (404) 881–3446
V	Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin	[illegible]	[illegible] , *MI, MN,*
VI	Arkansas, Louisiana, New Mexico, Oklahoma, Texas	[illegible] 1201 Elm Street First International Bldg. Dallas, TX 75270	
VII	Iowa, Kansas, Missouri, Nebraska	EPA Region VII P.O. Box 15606 Kansas City, MO 64106	Dennis Degner (800) 892–3837 *(MO)* (800) 821–3714 *(IA, KS, NE)*
VIII	Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming	EPA Region VIII 8AH–WM (ON) 1860 Lincoln Street Denver, CO 80295	Jim Rakers (303) 837–2221 (800) 332–3321 *(CO)* (800) 525–3022 *(MT, ND, SD, UT, WY)*
IX	Arizona, California, Hawaii, Nevada, Guam, American Samoa, Commonwealth of the Northern Marianas	EPA Region IX Attn: A–3–2 215 Fremont Street San Francisco, CA 94105	Bill Wilson (415) 556–1407
X	Alaska, Idaho, Oregon, Washington	EPA Region X M/S 530–A 1200 Sixth Avenue Seattle, WA 98101	Betty Wiese (206) 442–1260 (800) 542–0841 *(WA)* (800) 426–0663 *(AL, ID, OR)*

[1] These mailing addresses should be used for all applications filed by November 19, 1980. After November 19, all applications should be mailed to the addresses listed in Table 1 in the instructions to Form 1 which are enclosed in this packet.

[2] These persons should be contacted if you need assistance in applying for a RCRA Hazardous Waste Permit up to November 19, 1980. After November 19, contact the persons listed in Table 1 in the instructions to Form 1 which are enclosed in this packet.

United States
Environmental Protection
Agency

Office of
Enforcement
Washington, DC 20460

EPA Form 3510-1
June 1980

Permits Division

EPA

Application Form 1 - General Information

Consolidated Permits Program

This form must be completed by all persons applying for a permit under EPA's Consolidated Permits Program. See the general instructions to Form 1 to determine which other application forms you will need.

DESCRIPTION OF CONSOLIDATED PERMIT APPLICATION FORMS

The Consolidated Permit Application Forms are:

Form 1 – General Information *(included in this part)*;

Form 2 – Discharges to Surface Water *(NPDES Permits)*:

2A. Publicly Owned Treatment Works *(Reserved – not included in this package)*,

2B. Concentrated Animal Feeding Operations and Aquatic Animal Production Facilities *(not included in this package)*,

2C. Existing Manufacturing, Commercial, Mining, and Silvicultural Operations *(not included in this package)*, and

2D. New Manufacturing, Commercial, Mining, and Silvicultural Operations *(Reserved – not included in this package)*;

Form 3 – Hazardous Waste Application Form *(RCRA Permits – included in Part 2 of this package)*;

Form 4 – Underground Injection of Fluids *(UIC Permits – Reserved – not included in this package)*; and

Form 5 – Air Emissions in Attainment Areas *(PSD Permits – Reserved – not included in this package)*.

FORM 1 PACKAGE TABLE OF CONTENTS

Section A. General Instructions

Section B. Instructions for Form 1

Section C. Activities Which Do Not Require Permits

Section D. Glossary

Form 1 *(two copies)*

SECTION A – GENERAL INSTRUCTIONS

Who Must Apply

With the exceptions described in Section C of these instructions, Federal laws prohibit you from conducting any of the following activities without a permit.

NPDES *(National Pollutant Discharge Elimination System Under the Clean Water Act, 33 U.S.C. 1251)*. Discharge of pollutants into the waters of the United States.

RCRA *(Resource Conservation and Recovery Act, 42 U.S.C. 6901)*. Treatment, storage, or disposal of hazardous wastes.

UIC *(Underground Injection Control Under the Safe Drinking Water Act, 42 U.S.C. 300f)*. Injection of fluids underground by gravity flow or pumping.

PSD *(Prevention of Significant Deterioration Under the Clean Air Act, 72 U.S.C. 7401)*. Emission of an air pollutant by a new or modified facility in or near an area which has attained the National Ambient Air Quality Standards for that pollutant.

Each of the above permit programs is operated in any particular State by either the United States Environmental Protection Agency *(EPA)* or by an approved State agency. You must use this application form to apply for a permit for those programs administered by EPA. For those programs administered by approved States, contact the State environmental agency for the proper forms.

If you have any questions about whether you need a permit under any of the above programs, or if you need information as to whether a particular program is administered by EPA or a State agency, or if you need to obtain application forms, contact your EPA Regional office *(listed in Table 1)*.

Upon your request, and based upon information supplied by you, EPA will determine whether you are required to obtain a permit for a particular facility. Be sure to contact EPA if you have a question, because Federal laws provide that you may be heavily penalized if you do not apply for a permit when a permit is required.

Form 1 of the EPA consolidated application forms collects general information applying to all programs. You must fill out Form 1 regardless of which permit you are applying for. In addition, you must fill out one of the supplementary forms *(Forms 2 – 5)* for each permit needed under each of the above programs. Item II of Form 1 will guide you to the appropriate supplementary forms.

You should note that there are certain exclusions to the permit requirements listed above. The exclusions are described in detail in Section C of these instructions. If your activities are excluded from permit requirements then you do not need to complete and return any forms.

NOTE: Certain activities not listed above also are subject to EPA administered environmental permit requirements. These include permits for ocean dumping, dredged or fill material discharging, and certain types of air emissions. Contact your EPA Regional office for further information.

Table 1. Addresses of EPA Regional Contacts and States Within the Regional Office Jurisdictions

REGION I

Permit Contact, Environmental and Economic Impact Office, U.S. Environmental Protection Agency, John F. Kennedy Building, Boston, Massachusetts 02203, (617) 223–4635, FTS 223–4635.
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.

REGION II

Permit Contact, Permits Administration Branch, Room 432, U.S. Environmental Protection Agency, 26 Federal Plaza, New York, New York 10007, (212) 264–9880, FTS 264–9880.
New Jersey, New York, Virgin Islands, and Puerto Rico.

REGION III

Permit Contact *(3 EN 23)*, U.S. Environmental Protection Agency, 6th & Walnut Streets, Philadelphia, Pennsylvania 19106, (215) 597–8816, FTS 597–8816.
Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia.

REGION IV

Permit Contact, Permits Section, U.S. Environmental Protection Agency, 345 Courtland Street, N.E., Atlanta, Georgia 30365, (404) 881–2017, FTS 257–2017.
Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee.

REGION V

Permit Contact *(5EP)*, U.S. Environmental Protection Agency, 230 South Dearborn Street, Chicago, Illinois 60604, (312) 353–2105, FTS 353–2105.
Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin.

Table 1 *(continued)*

REGION VI

Permit Contact *(6AEP)*, U.S. Environmental Protection Agency, First International Building, 1201 Elm Street, Dallas, Texas 75270, (214) 767–2765, FTS 729–2765.
Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.

REGION VII

Permit Contact, Permits Branch, U.S. Environmental Protection Agency, 324 East 11th Street, Kansas City, Missouri 64106, (816) 758–5955, FTS 758–5955.
Iowa, Kansas, Missouri, and Nebraska.

REGION VIII

Permit Contact *(8E–WE)*, Suite 103, U.S. Environmental Protection Agency, 1816 Lincoln Street, Denver, Colorado 80203, (303) 837–4901, FTS 837–4901.
Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.

REGION IX

Permit Contact, Permits Branch *(E–4)*, U.S. Environmental Protection Agency, 215 Fremont Street, San Francisco, California 94105, (415) 556–3450, FTS 556–3450.
Arizona, California, Hawaii, Nevada, Guam, American Samoa, and Trust Territories.

REGION X

Permit Contact *(M/S 521)*, U.S. Environmental Protection Agency, 1200 6th Avenue, Seattle, Washington 98101, (206) 442–7176, FTS 399–7176.
Alaska, Idaho, Oregon, and Washington.

Where to File

The application forms should be mailed to the EPA Regional office whose Region includes the State in which the facility is located *(see Table 1)*.

If the State in which the facility is located administers a Federal permit program under which you need a permit, you should contact the appropriate State agency for the correct forms. Your EPA Regional office *(Table 1)* can tell you to whom to apply and can provide the appropriate address and phone number.

When to File

Because of statutory requirements, the deadlines for filing applications vary according to the type of facility you operate and the type of permit you need. These deadlines are as follows:[1]

Table 2. Filing Dates for Permits

FORM*(permit)*	WHEN TO FILE
2A*(NPDES)*	180 days before your present NPDES permit expires.
2B*(NPDES)*	180 days before your present NPDES permit expires[2], or 180 days prior to start-up if you are a new facility.
2C*(NPDES)*	180 days before your present NPDES permit expires[2].
2D*(NPDES)*	180 days prior to startup.
3*(Hazardous Waste)*	Existing facility: Six months following publication of regulations listing hazardous wastes. New facility: 180 days before commencing physical construction.

Table 2 *(continued)*

4*(UIC)*	A reasonable time prior to construction for new wells; as directed by the Director for existing wells.
5*(PSD)*	Prior to commencement of construction.

[1] Please note that some of these forms are not yet available for use and are listed as "Reserved" at the beginning of these instructions. Contact your EPA Regional office for information on current application requirements and forms.

[2] If your present permit expires on or before November 30, 1980, the filing date is the date on which your permit expires. If your permit expires during the period December 1, 1980 – May 31, 1981, the filing date is 90 days before your permit expires.

Federal regulations provide that you may not begin to construct a new source in the NPDES program, a new hazardous waste management facility, a new injection well, or a facility covered by the PSD program before the issuance of a permit under the applicable program. Please note that if you are required to obtain a permit before beginning construction, as described above, you may need to submit your permit application well in advance of an applicable deadline listed in Table 2.

Fees

The U.S. EPA does not require a fee for applying for any permit under the consolidated permit programs. *(However, some States which administer one or more of these programs require fees for the permits which they issue.)*

Availability of Information to Public

Information contained in these application forms will, upon request, be made available to the public for inspection and copying. However, you may request confidential treatment for certain information which you submit on certain supplementary forms. The specific instructions for each supplementary form state what information on the form, if any, may be claimed as confidential and what procedures govern the claim. No information on Forms 1 and 2A through 2D may be claimed as confidential.

Completion of Forms

Unless otherwise specified in instructions to the forms, each item in each form must be answered. To indicate that each item has been considered, enter "NA," for not applicable, if a particular item does not fit the circumstances or characteristics of your facility or activity.

If you have previously submitted information to EPA or to an approved State agency which answers a question, you may either repeat the information in the space provided or attach a copy of the previous submission. Some items in the form require narrative explanation. If more space is necessary to answer a question, attach a separate sheet entitled "Additional Information."

Financial Assistance for Pollution Control

There are a number of direct loans, loan guarantees, and grants available to firms and communities for pollution control expenditures. These are provided by the Small Business Administration, the Economic Development Administration, the Farmers Home Administration, and the Department of Housing and Urban Development. Each EPA Regional office *(Table 1)* has an economic assistance coordinator who can provide you with additional information.

EPA's construction grants program under Title II of the Clean Water Act is an additional source of assistance to publicly owned treatment works. Contact your EPA Regional office for details.

SECTION B — FORM 1 LINE-BY-LINE INSTRUCTIONS

This form must be completed by all applicants.

Completing This Form

Please type or print in the unshaded areas only. Some items have small graduation marks in the fill—in spaces. These marks indicate the number of characters that may be entered into our data system. The marks are spaced at 1/6" intervals which accommodate elite type *(12 characters per inch)*. If you use another type you may ignore the marks. If you print, place each character between the marks. Abbreviate if necessary to stay within the number of characters allowed for each item. Use one space for breaks between words, but not for punctuation marks unless they are needed to clarify your response.

Item I

Space is provided at the upper right hand corner of Form 1 for insertion of your EPA Identification Number. If you have an existing facility, enter your Identification Number. If you don't know your EPA Identification Number, please contact your EPA Regional office *(Table 1)*, which will provide you with your number. If your facility is new *(not yet constructed)*, leave this item blank.

Item II

Answer each question to determine which supplementary forms you need to fill out. Be sure to check the glossary in Section D of these instructions for the legal definitions of the bold faced words. Check Section C of these instructions to determine whether your activity is excluded from permit requirements.

If you answer "no" to every question, then you do not need a permit, and you do not need to complete and return any of these forms.

If you answer "yes" to any question, then you must complete and file the supplementary form by the deadline listed in Table 2 along with this form. *(The applicable form number follows each question and is enclosed in parentheses.)* You need not submit a supplementary form if you already have a permit under the appropriate Federal program, unless your permit is due to expire and you wish to renew your permit.

Questions (I) and (J) of Item II refer to major new or modified sources subject to Prevention of Significant Deterioration *(PSD)* requirements under the Clean Air Act. For the purpose of the PSD program, major sources are defined as: (A) Sources listed in Table 3 which have the potential to emit 100 tons or more per year emissions; and (B) All other sources with the potential to emit 250 tons or more per year. See Section C of these instructions for discussion of exclusions of certain modified sources.

Table 3. 28 Industrial Categories Listed in Section 169(1) of the Clean Air Act of 1977

Fossil fuel—fired steam generators of more than 250 million BTU per hour heat input;
Coal cleaning plants *(with thermal dryers)*;
Kraft pulp mills;
Portland cement plants;
Primary zinc smelters;
Iron and steel mill plants;
Primary aluminum ore reduction plants;
Primary copper smelters;
Municipal incinerators capable of charging more than 250 tons of refuse per day;
Hydrofluoric acid plants;
Nitric acid plants;
Sulfuric acid plants;
Petroleum refineries;
Lime plants;
Phosphate rock processing plants;
Coke oven batteries;
Sulfur recovery plants;
Carbon black plants *(furnace process)*;
Primary lead smelters;
Fuel conversion plants;
Sintering plants;
Secondary metal production plants;
Chemical process plants;
Fossil fuel boilers *(or combination thereof)* totaling more than 250 million BTU per hour heat input;

Table 3 *(continued)*

Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;
Taconite ore processing plants;
Glass fiber processing plants; and
Charcoal production plants.

Item III

Enter the facility's official or legal name. Do not use a colloquial name.

Item IV

Give the name, title, and work telephone number of a person who is thoroughly familiar with the operation of the facility and with the facts reported in this application and who can be contacted by reviewing offices if necessary.

Item V

Give the complete mailing address of the office where correspondence should be sent. This often is not the address used to designate the location of the facility or activity.

Item VI

Give the address or location of the facility identified in Item III of this form. If the facility lacks a street name or route number, give the most accurate alternative geographic information *(e.g., section number or quarter section number from county records or at intersection of Rts. 425 and 22)*.

Item VII

List, in descending order of significance, the four 4—digit standard industrial classification *(SIC)* codes which best describe your facility in terms of the principal products or services you produce or provide. Also, specify each classification in words. These classifications may differ from the SIC codes describing the operation generating the discharge, air emissions, or hazardous wastes.

SIC code numbers are descriptions which may be found in the "Standard Industrial Classification Manual" prepared by the Executive Office of the President, Office of Management and Budget, which is available from the Government Printing Office, Washington, D.C. Use the current edition of the manual. If you have any questions concerning the appropriate SIC code for your facility, contact your EPA Regional office *(see Table 1)*.

Item VIII—A

Give the name, as it is legally referred to, of the person, firm, public organization, or any other entity which operates the facility described in this application. This may or may not be the same name as the facility. The operator of the facility is the legal entity which controls the facility's operation rather than the plant or site manager. Do not use a colloquial name.

Item VIII—B

Indicate whether the entity which operates the facility also owns it by marking the appropriate box.

Item VIII—C

Enter the appropriate letter to indicate the legal status of the operator of the facility. Indicate "public" for a facility solely owned by local government*(s)* such as a city, town, county, parish, etc.

Items VIII—D – H

Enter the telephone number and address of the operator identified in Item VIII—A.

Item IX

Indicate whether the facility is located on Indian Lands.

Item X

Give the number of each presently effective permit issued to the facility for each program or, if you have previously filed an application but have not yet received a permit, give the number of the application, if any. Fill in the unshaded area only. If you have more than one currently effective permit for your facility under a particular permit program, you may list additional permit numbers on a seperate sheet of paper. List any relevant environmental Federal *(e.g., permits under the Ocean Dumping Act, Section 404 of the Clean Water Act or the Surface Mining Control and Reclamation Act)*, State *(e.g., State permits for new air emission sources in nonattainment areas under Part D of the Clean Air Act or State permits under Section 404 of the Clean Water Act)*, or local permits or applications under "other."

Item XI

Provide a topographic map or maps of the area extending at least to one mile beyond the property boundaries of the facility which clearly show the following:

The legal boundaries of the facility;

The location and serial number of each of your existing and proposed intake and discharge structures;

All hazardous waste management facilities;

Each well where you inject fluids underground; and

All springs and surface water bodies in the area, plus all drinking water wells within 1/4 mile of the facility which are identified in the public record or otherwise known to you.

If an intake or discharge structure, hazardous waste disposal site, or injection well associated with the facility is located more than one mile from the plant, include it on the map, if possible. If not, attach additional sheets describing the location of the structure, disposal site, or well, and identify the U.S. Geological Survey *(or other)* map corresponding to the location.

On each map, include the map scale, a meridian arrow showing north, and latitude and longitude at the nearest whole second. On all maps of rivers, show the direction of the current, and in tidal waters, show the directions of the ebb and flow tides. Use a 7-1/2 minute series map published by the U.S. Geological Survey, which may be obtained through the U.S. Geological Survey Offices listed below. If a 7-1/2 minute series map has not been published for your facility site, then you may use a 15 minute series map from the U.S. Geological Survey. If neither a 7-1/2 nor 15 minute series map has been published for your facility site, use a plat map or other appropriate map, including all the requested information; in this case, briefly describe land uses in the map area *(e.g., residential, commercial)*.

You may trace your map from a geological survey chart, or other map meeting the above specifications. If you do, your map should bear a note showing the number or title of the map or chart it was traced from. Include the names of nearby towns, water bodies, and other prominent points. An example of an acceptable location map is shown in Figure 1–1 of these instructions. *(NOTE: Figure 1–1 is provided for purposes of illustration only, and does not represent any actual facility.)*

U.S.G.S. OFFICES	AREA SERVED
Eastern Mapping Center National Cartographic Information Center U.S.G.S. 536 National Center Reston, Va. 22092 Phone No. (703) 860–6336	Ala., Conn., Del., D.C., Fla., Ga., Ind., Ky., Maine, Md., Mass., N.H., N.J., N.Y., N.C., S.C., Ohio, Pa., Puerto Rico, R.I., Tenn., Vt., Va., W. Va., and Virgin Islands.
Mid Continent Mapping Center National Cartographic Information Center U.S.G.S. 1400 Independance Road Rolla, Mo. 65401 Phone No. (314) 341–0851	Ark., Ill., Iowa, Kans., La., Mich., Minn., Miss., Mo., N. Dak., Nebr., Okla., S. Dak., and Wis.
Rocky Mountain Mapping Center National Cartographic Infomation Center U.S.G.S. Stop 504, Box 25046 Federal Center Denver, Co. 80225 Phone No. (303) 234–2326	Alaska, Colo., Mont., N. Mex., Tex., Utah, and Wyo.
Western Mapping Center National Cartographic Information Center U.S.G.S. 345 Middlefield Road Menlo Park, Ca. 94025 Phone No. (415) 323–8111	Ariz., Calif., Hawaii, Idaho, Nev., Oreg., Wash., American Samoa, Guam, and Trust Territories

Item XII

Briefly describe the nature of your business *(e.g., products produced or services provided)*.

Item XIII

Federal statues provide for severe penalties for submitting false information on this application form.

18 U.S.C. Section 1001 provides that "Whoever, in any matter within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals or covers up by any trick, scheme, or device a material fact, or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than five years, or both."

Section 309(c)(2) of the Clean Water Act and Section 113(c)(2) of the Clean Air Act each provide that "Any person who knowingly makes any false statement, representation, or certification in any application, . . . shall upon conviction, be punished by a fine of no more than $10,000 or by imprisonment for not more than six months, or both."

In addition, Section 3008(d)(3) of the Resource Conservation and Recovery Act provides for a fine up to $25,000 per day or imprisonment up to one year, or both, for a first conviction for making a false statement in any application under the Act, and for double these penalties upon subsequent convictions.

FEDERAL REGULATIONS REQUIRE THIS APPLICATION TO BE SIGNED AS FOLLOWS:

A. For a corporation, by a principal executive officer of at least the level of vice president. However, if the only activity in Item II which is marked "yes" is Question G, the officer may authorize a person having responsibility for the overall operations of the well or well field to sign the certification. In that case, the authorization must be written and submitted to the permitting authority.

B. For partnership or sole proprietorship, by a general partner or the proprietor, respectively; or

C. For a municipality, State, Federal, or other public facility, by either a principal executive officer or ranking elected official.

SECTION C — ACTIVITIES WHICH DO NOT REQUIRE PERMITS

I. National Pollutant Discharge Elimination System Permits Under the Clean Water Act. You are not required to obtain an NPDES permit if your discharge is in one of the following categories, as provided by the Clean Water Act *(CWA)* and by the NPDES regulations *(40 CFR Parts 122—125)*. However, under Section 510 of CWA a discharge exempted from the federal NPDES requirements may still be regulated by a State authority; contact your State environmental agency to determine whether you need a State permit.

A. DISCHARGES FROM VESSELS. Discharges of sewage from vessels, effluent from properly functioning marine engines, laundry, shower, and galley sink wastes, and any other discharge incidental to the normal operation of a vessel do not require NPDES permits. However, discharges of rubbish, trash, garbage, or other such materials discharged overboard require permits, and so do other discharges when the vessel is operating in a capacity other than as a means of transportation, such as when the vessel is being used as an energy or mining facility, a storage facility, or a seafood processing facility, or is secured to the bed of the ocean, contiguous zone, or waters of the United States for the purpose of mineral or oil exploration or development.

B. DREDGED OR FILL MATERIAL. Discharges of dredged or fill material into waters of the United States do not need NPDES permits if the dredging or filling is authorized by a permit issued by the U.S. Army Corps of Engineers or an EPA approved State under Section 404 of CWA.

C. DISCHARGES INTO PUBLICLY OWNED TREATMENT WORKS *(POTW)*. The introduction of sewage, industrial wastes, or other pollutants into a POTW does not need an NPDES permit. You must comply with all applicable pretreatment standards promulgated under Section 307(b) of CWA, which may be included in the permit issued to the POTW. If you have a plan or an agreement to switch to a POTW in the future, this does not relieve you of the obligation to apply for and receive an NPDES permit until you have stopped discharging pollutants into waters of the United States.

(NOTE: Dischargers into privately owned treatment works do not have to apply for or obtain NPDES permits except as otherwise required by the EPA Regional Administrator. The owner or operator of the treatment works itself, however, must apply for a permit and identify all users in its application. Users so identified will receive public notice of actions taken on the permit for the treatment works.)

D. DISCHARGES FROM AGRICULTURAL AND SILVICULTURAL ACTIVITIES. Most discharges from agricultural and silvicultural activities to waters of the United States do not require NPDES permits. These include runoff from orchards, cultivated crops, pastures, range lands, and forest lands. However, the discharges listed below do require NPDES permits. Definitions of the terms listed below are contained in the Glossary section of these instructions.

1. Discharges from Concentrated Animal Feeding Operations. *(See Glossary for definitions of "animal feeding operations" and "concentrated animal feeding operations." Only the latter require permits.)*

2. Discharges from Concentrated Aquatic Animal Production Facilities. *(See Glossary for size cutoffs.)*

3. Discharges associated with approved Aquaculture Projects.

4. Discharges from Silvicultural Point Sources. *(See Glossary for the definition of "silvicultural point source.")* Nonpoint source silvicultural activities are excluded from NPDES permit requirements. However, some of these activities, such as stream crossings for roads, may involve point source discharges of dredged or fill material which may require a Section 404 permit. See 33 CFR 209.120.

E. DISCHARGES IN COMPLIANCE WITH AN ON—SCENE COORDINATOR'S INSTRUCTIONS.

II. Hazardous Waste Permits Under the Resource Conservation and Recovery Act. You may be excluded from the requirement to obtain a permit under this program if you fall into one of the following categories:

Generators who accumulate their own hazardous waste on—site for less than 90 days as provided in 40 CFR 262.34;

Farmers who dispose of hazardous waste pesticide from their own use as provided in 40 CFR 262.51;

Certain persons treating, storing, or disposing of small quantities of hazardous waste as provided in 40 CFR 261.4 or 261.5; and

Owners and operators of totally enclosed treatment facilities as defined in 40 CFR 260.10.

Check with your Regional office for details. Please note that even if you are excluded from permit requirements, you may be required by Federal regulations to handle your waste in a particular manner.

III. Underground Injection Control Permits Under the Safe Drinking Water Act. You are not required to obtain a permit under this program if you:

Inject into existing wells used to enhance recovery of oil and gas or to store hydrocarbons *(note, however, that these underground injections are regulated by Federal rules)*; or

Inject into or above a stratum which contains, within 1/4 mile of the well bore, an underground source of drinking water *(unless your injection is the type identified in Item II-H, for which you do need a permit)*. However, you must notify EPA of your injection and submit certain required information on forms supplied by the Agency, and your operation may be phased out if you are a generator of hazardous wastes or a hazardous waste management facility which uses wells or septic tanks to dispose of hazardous waste.

IV. Prevention of Significant Deterioration Permits Under the Clean Air Act. The PSD program applies to newly constructed or modified facilities *(both of which are referred to as "new sources")* which increase air emissions. The Clean Air Act Amendments of 1977 exclude small new sources of air emissions from the PSD review program. Any new source in an industrial category listed in Table 3 of these instructions whose potential to emit is less than 100 tons per year is not required to get a PSD permit. In addition, any new source in an industrial category not listed in Table 3 whose potential to emit is less than 250 tons per year is exempted from the PSD requirements.

Modified sources which increase their net emissions *(the difference between the total emission increases and total emission decreases at the source)* less than the significant amount set forth in EPA regulations are also exempt from PSD requirements. Contact your EPA Regional office *(Table 1)* for further information.

SECTION D – GLOSSARY

NOTE: This Glossary includes terms used in the instructions and in Forms 1, 2B, 2C, and 3. Additional terms will be included in the future when other forms are developed to reflect the requirements of other parts of the Consolidated Permits Program. If you have any questions concerning the meaning of any of these terms, please contact your EPA Regional office *(Table 1)*.

ALIQUOT means a sample of specified volume used to make up a total composite sample.

ANIMAL FEEDING OPERATION means a lot or facility *(other than an aquatic animal production facility)* where the following conditions are met:

A. Animals *(other than aquatic animals)* have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12 month period; and

B. Crops, vegetation, forage growth, or post–harvest residues are not sustained in the normal growing season over any portion of the lot or facility.

Two or more animal feeding operations under common ownership are a single animal feeding operation if they adjoin each other or if they use a common area or system for the disposal of wastes.

ANIMAL UNIT means a unit of measurement for any animal feeding operation calculated by adding the following numbers: The number of slaughter and feeder cattle multiplied by 1.0; Plus the number of mature dairy cattle multiplied by 1.4; Plus the number of swine weighing over 25 kilograms *(approximately 55 pounds)* multiplied by 0.4; Plus the number of sheep multiplied by 0.1; Plus the number of horses multiplied by 2.0.

APPLICATION means the EPA standard national forms for applying for a permit, including any additions, revisions, or modifications to the forms; or forms approved by EPA for use in approved States, including any approved modifications or revisions. For RCRA, "application" also means "Application, Part B."

APPLICATION, PART A means that part of the Consolidated Permit Application forms which a RCRA permit applicant must complete to qualify for interim status under Section 3005(e) of RCRA and for consideration for a permit. Part A consists of Form 1 *(General Information)* and Form 3 *(Hazardous Waste Application Form)*.

APPLICATION, PART B means that part of the application which a RCRA permit applicant must complete to be issued a permit. *(NOTE: EPA is not developing a specific form for Part B of the permit application, but an instruction booklet explaining what information must be supplied is available from the EPA Regional office.)*

APPROVED PROGRAM or APPROVED STATE means a State program which has been approved or authorized by EPA under 40 CFR Part 123.

AQUACULTURE PROJECT means a defined managed water area which uses discharges of pollutants into that designated area for the maintenance or production of harvestable freshwater, estuarine, or marine plants or animals. "Designated area" means the portions of the waters of the United States within which the applicant plans to confine the cultivated species, using a method of plan or operation *(including, but not limited to, physical confinement)* which, on the basis of reliable scientific evidence, is expected to ensure the specific individual organisms comprising an aquaculture crop will enjoy increased growth attributable to the discharge of pollutants and be harvested within a defined geographic area.

AQUIFER means a geological formation, group of formations, or part of a formation that is capable of yielding a significant amount of water to a well or spring.

AREA OF REVIEW means the area surrounding an injection well which is described according to the criteria set forth in 40 CFR Section 146.06.

AREA PERMIT means a UIC permit applicable to all or certain wells within a geographic area, rather than to a specified well, under 40 CFR Section 122.37.

ATTAINMENT AREA means, for any air pollutant, an area which has been designated under Section 107 of the Clean Air Act as having ambient air quality levels better than any national primary or secondary ambient air quality standard for that pollutant. Standards have been set for sulfur oxides, particulate matter, nitrogen dioxide, carbon monoxide, ozone, lead, and hydrocarbons. For purposes of the Glossary, "attainment area" also refers to "unclassifiable area," which means, for any pollutants, an area designated under Section 107 as unclassifiable with respect to that pollutant due to insufficient information.

BEST MANAGEMENT PRACTICES *(BMP)* means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMP's include treatment requirements, operation procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

BIOLOGICAL MONITORING TEST means any test which includes the use of aquatic algal, invertebrate, or vertebrate species to measure acute or chronic toxicity, and any biological or chemical measure of bioaccumulation.

BYPASS means the intentional diversion of wastes from any any portion of a treatment facility.

CONCENTRATED ANIMAL FEEDING OPERATION means an animal feeding operation which meets the criteria set forth in either (A) or (B) below or which the Director designates as such on a case–by–case basis:

A. More than the numbers of animals specified in any of the following categories are confined:

1. 1,000 slaughter or feeder cattle,

2. 700 mature dairy cattle *(whether milked or dry cows)*,

3. 2,500 swine each weighing over 25 kilograms *(approximately 55 pounds)*,

4. 500 horses,

5. 10,000 sheep or lambs,

6. 55,000 turkeys,

7. 100,000 laying hens or broilers *(if the facility has a continuous overflow watering)*,

8. 30,000 laying hens or broilers *(if the facility has a liquid manure handling system)*,

9. 5,000 ducks, or

10. 1,000 animal units; or

B. More than the following numbers and types of animals are confined:

1. 300 slaughter or feeder cattle,

2. 200 mature dairy cattle *(whether milked or dry cows)*,

3. 750 swine each weighing over 25 kilograms *(approximately 55 pounds)*,

4. 150 horses,

CONCENTRATED ANIMAL FEEDING OPERATION *(continued)*

5. 3,000 sheep or lambs,

6. 16,500 turkeys,

7. 30,000 laying hens or broilers *(if the facility has continuous overflow watering)*,

8. 9,000 laying hens or broilers *(if the facility has a liquid manure handling system)*,

9. 1,500 ducks, or

10. 300 animal units; AND

Either one of the following conditions are met: Pollutants are discharged into waters of the United States through a manmade ditch, flushing system or other similar manmade device *("manmade" means constructed by man and used for the purpose of transporting wastes)*; or Pollutants are discharged directly into waters of the Unites States which originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.

Provided, however, that no animal feeding operation is a concentrated animal feeding operation as defined above if such animal feeding operation discharges only in the event of a 25 year, 24 hour storm event.

CONCENTRATED AQUATIC ANIMAL PRODUCTION FACILITY means a hatchery, fish farm, or other facility which contains, grows or holds aquatic animals in either of the following categories, or which the Director designates as such on a case—by—case basis:

A. Cold water fish species or other cold water aquatic animals including, but not limited to, the Salmonidae family of fish *(e.g., trout and salmon)* in ponds, raceways or other similar structures which discharge at least 30 days per year but does not include:

1. Facilities which produce less than 9,090 harvest weight kilograms *(approximately 20,000 pounds)* of aquatic animals per year; and

2. Facilities which feed less than 2,272 kilograms *(approximately 5,000 pounds)* of food during the calendar month of maximum feeding.

B. Warm water fish species or other warm water aquatic animals including, but not limited to, the Ameiuridae, Cetrarchidae, and Cyprinidae families of fish *(e.g., respectively, catfish, sunfish, and minnows)* in ponds, raceways, or other similar structures which discharge at least 30 days per year, but does not include:

1. Closed ponds which discharge only during periods of excess runoff; or

2. Facilities which produce less than 45,454 harvest weight kilograms *(approximately 100,000 pounds)* of aquatic animals per year.

CONTACT COOLING WATER means water used to reduce temperature which comes into contact with a raw material, intermediate product, waste product other than heat, or finished product.

CONTAINER means any portable device in which a material is stored, transported, treated, disposed of, or otherwise handled.

CONTIGUOUS ZONE means the entire zone established by the United States under article 24 of the convention of the Territorial Sea and the Contiguous Zone.

CWA means the Clean Water Act *(formerly referred to the Federal Water Pollution Control Act)* Pub. L. 92—500, as amended by Pub. L. 95—217 and Pub. L. 95—576, 33 U.S.C. 1251 *et seq.*

DIKE means any embankment or ridge of either natural or manmade materials used to prevent the movement of liquids, sludges, solids, or other materials.

DIRECT DISCHARGE means the discharge of a pollutant as defined below.

DIRECTOR means the EPA Regional Administrator or the State Director as the context requires.

DISCHARGE *(OF A POLLUTANT)* means:

A. Any addition of any pollutant or combination of pollutants to waters of the United States from any point source; or

B. Any addition of any pollutant or combination of pollutants to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation.

This definition includes discharges into waters of the United States from: Surface runoff which is collected or channelled by man; Discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to POTW's; and Discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. This term does not include an addition of pollutants by any indirect discharger.

DISPOSAL *(in the RCRA program)* means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any hazardous waste into or on any land or water so that the hazardous waste or any constituent of it may enter the environment or be emitted into the air or discharged into any waters, including ground water.

DISPOSAL FACILITY means a facility or part of a facility at which hazardous waste is intentionally placed into or on land or water, and at which hazardous waste will remain after closure.

EFFLUENT LIMITATION means any restriction imposed by the Director on quantities, discharge rates, and concentrations of pollutants which are discharged from point sources into waters of the United States, the waters of the continguous zone, or the ocean.

EFFLUENT LIMITATION GUIDELINE means a regulation published by the Administrator under Section 304(b) of the Clean Water Act to adopt or revise effluent limitations.

ENVIRONMENTAL PROTECTION AGENCY *(EPA)* means the United States Environmental Protection Agency.

EPA IDENTIFICATION NUMBER means the number assigned by EPA to each generator, transporter, and facility.

EXEMPTED AQUIFER means an aquifer or its portion that meets the criteria in the definition of USDW, but which has been exempted according to the procedures in 40 CFR Section 122.35(b).

EXISTING HWM FACILITY means a Hazardous Waste Management facility which was in operation, or for which construction had commenced, on or before October 21, 1976. Construction had commenced if (A) the owner or operator had obtained all necessary Federal, State, and local preconstruction approvals or permits, and either (B1) a continuous on—site, physical construction program had begun, or (B2) the owner or operator had entered into contractual obligations, which could not be cancelled or modified without substantial loss, for construction of the facility to be completed within a reasonable time.

(NOTE: This definition reflects the literal language of the statute. However, EPA believes that amendments to RCRA now in conference will shortly be enacted and will change the date for determining when a facility is an "existing facility" to one no earlier than May of 1980; indications are the conferees are considering October 30, 1980. Accordingly, EPA encourages every owner or operator of a facility which was built or under construction as of the promulgation date of the RCRA program regulations to file Part A of its permit application so that it can be quickly processed for interim status when the change in the law takes effect. When those amendments are enacted, EPA will amend this definition.)

EXISTING SOURCE or EXISTING DISCHARGER *(in the NPDES program)* means any source which is not a new source or a new discharger.

EXISTING INJECTION WELL means an injection well other than a new injection well.

FACILITY means any HWM facility, UIC underground injection well, NPDES point source, PSD stationary source, or any other facility or activity *(including land or appurtenances thereto)* that is subject to regulation under the RCRA, UIC, NPDES, or PSD programs.

FLUID means material or substance which flows or moves whether in a semisolid, liquid, sludge, gas, or any other form or state.

GENERATOR means any person by site, whose act or process produces hazardous waste identified or listed in 40 CFR Part 261.

GROUNDWATER means water below the land surface in a zone of saturation.

HAZARDOUS SUBSTANCE means any of the substances designated under 40 CFR Part 116 pursuant to Section 311 of CWA. *(NOTE: These substances are listed in Table 2c—4 of the instructions to Form 2C.)*

HAZARDOUS WASTE means a hazardous waste as defined in 40 CFR Section 261.3 published May 19, 1980.

HAZARDOUS WASTE MANAGEMENT FACILITY *(HWM facility)* means all contiguous land, structures, appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous wastes. A facility may consist of several treatment, storage, or disposal operational units *(for example, one or more landfills, surface impoundments, or combinations of them)*.

IN OPERATION means a facility which is treating, storing, or disposing of hazardous waste.

INCINERATOR *(in the RCRA program)* means an enclosed device using controlled flame combustion, the primary purpose of which is to thermally break down hazardous waste. Examples of incinerators are rotary kiln, fluidized bed, and liquid injection incinerators.

INDIRECT DISCHARGER means a nondomestic discharger introducing pollutants to a publicly owned treatment works.

INJECTION WELL means a well into which fluids are being injected.

INTERIM AUTHORIZATION means approval by EPA of a State hazardous waste program which has met the requirements of Section 3006(c) of RCRA and applicable requirements of 40 CFR Part 123, Subparts A, B, and F.

LANDFILL means a disposal facility or part of a facility where hazardous waste is placed in or on land and which is not a land treatment facility, a surface impoundment, or an injection well.

LAND TREATMENT FACILITY *(in the RCRA program)* means a facility or part of a facility at which hazardous waste is applied onto or incorporated into the soil surface; such facilities are disposal facilities if the waste will remain after closure.

LISTED STATE means a State listed by the Administrator under Section 1422 of SDWA as needing a State UIC program.

MGD means millions of gallons per day.

MUNICIPALITY means a city, village, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of CWA.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM *(NPDES)* means the national program for issuing modifying, revoking and reissuing, terminating, monitoring, and enforcing permits and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of CWA. The term includes an approved program.

NEW DISCHARGER means any building, structure, facility, or installation: (A) From which there is or may be a new or additional discharge of pollutants at a site at which on October 18, 1972, it had never discharged pollutants; (B) Which has never received a finally effective NPDES permit for discharges at that site; and (C) Which is not a "new source." This definition includes an indirect discharger which commences discharging into waters of the United States. It also includes any existing mobile point source, such as an offshore oil drilling rig, seafood processing vessel, or aggregate plant that begins discharging at a location for which it does not have an existing permit.

NEW HWM FACILITY means a Hazardous Waste Management facility which began operation or for which construction commenced after October 21, 1976.

NEW INJECTION WELL means a well which begins injection after a UIC program for the State in which the well is located is approved.

NEW SOURCE *(in the NPDES program)* means any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced:

A. After promulgation of standards of performance under Section 306 of CWA which are applicable to such source; or

B. After proposal of standards of performance in accordance with Section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with Section 306 within 120 days of their proposal.

NON—CONTACT COOLING WATER means water used to reduce temperature which does not come into direct contact with any raw material, intermediate product, waste product *(other than heat)*, or finished product.

OFF—SITE means any site which is not "on—site."

ON—SITE means on the same or geographically contiguous property which may be divided by public or private right*(s)*—of—way, provided the entrance and exit between the properties is at a cross—roads intersection, and access is by crossing as opposed to going along, the right*(s)*—of—way. Non—contiguous properties owned by the same person, but connected by a right—of—way which the person controls and to which the public does not have access, is also considered on—site property.

OPEN BURNING means the combustion of any material without the following characteristics:

A. Control of combustion air to maintain adequate temperature for efficient combustion;

B. Containment of the combustion—reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion; and

C. Control of emission of the gaseous combustion products.

(See also "incinerator" and "thermal treatment").

OPERATOR means the person responsible for the overall operation of a facility.

OUTFALL means a point source.

OWNER means the person who owns a facility or part of a facility.

PERMIT means an authorization, license, or equivalent control document issued by EPA or an approved State to implement the requirements of 40 CFR Parts 122, 123, and 124.

PHYSICAL CONSTRUCTION *(in the RCRA program)* means excavation, movement of earth, erection of forms or structures, or similar activity to prepare a HWM facility to accept hazardous waste.

PILE means any noncontainerized accumulation of solid, nonflowing hazardous waste that is used for treatment or storage.

POINT SOURCE means any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture.

POLLUTANT means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical waste, biological materials, radioactive materials *(except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. Section 2011 et seq.))*, heat, wrecked or discarded equipment, rocks, sand, cellar dirt and industrial, municipal, and agriculture waste discharged into water. It does not mean:

A. Sewage from vessels; or

B. Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well used either to facilitate production or for disposal purposes is approved by authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.

(NOTE: Radioactive materials covered by the Atomic Energy Act are those encompassed in its definition of source, byproduct, or special nuclear materials. Examples of materials not covered include radium and accelerator produced isotopes. See Train v. Colorado Public Interest Research Group, Inc., 426 U.S. 1 (1976).)

PREVENTION OF SIGNIFICANT DETERIORATION *(PSD)* means the national permitting program under 40 CFR 52.21 to prevent emissions of certain pollutants regulated under the Clean Air Act from significantly deteriorating air quality in attainment areas.

PRIMARY INDUSTRY CATEGORY means any industry category listed in the NRDC Settlement Agreement *(Natural Resources Defense Council v. Train, 8 ERC 2120 (D.D.C. 1976), modified 12 ERC 1833 (D.D.C. 1979))*.

PRIVATELY OWNED TREATMENT WORKS means any device or system which is: (A) Used to treat wastes from any facility whose operator is not the operator of the treatment works; and (B) Not a POTW.

PROCESS WASTEWATER means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

PUBLICLY OWNED TREATMENT WORKS or POTW means any device or system used in the treatment *(including recycling and reclamation)* of municipal sewage or industrial wastes of a liquid nature which is owned by a State or municipality. This definition includes any sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

RENT means use of another's property in return for regular payment.

RCRA means the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976 *(Pub. L. 94–580, as amended by Pub. L. 95–609, 42 U.S.C. Section 6901 et seq.)*.

ROCK CRUSHING AND GRAVEL WASHING FACILITIES are facilities which process crushed and broken stone, gravel, and riprap *(see 40 CFR Part 436, Subpart B, and the effluent limitations guidelines for these facilities)*.

SDWA means the Safe Drinking Water Act *(Pub. L. 95–523, as amended by Pub. L. 95–1900, 42 U.S.C. Section 300(f) et seq.)*.

SECONDARY INDUSTRY CATEGORY means any industry category which is not a primary industry category.

SEWAGE FROM VESSELS means human body wastes and the wastes from toilets and other receptacles intended to receive or retain body wastes that are discharged from vessels and regulated under Section 312 of CWA, except that with respect to commercial vessels on the Great Lakes this term includes graywater. For the purposes of this definition, "graywater" means galley, bath, and shower water.

SEWAGE SLUDGE means the solids, residues, and precipitate separated from or created in sewage by the unit processes of a POTW. "Sewage" as used in this definition means any wastes, including wastes from humans, households, commercial establishments, industries, and storm water runoff, that are discharged to or otherwise enter a publicly owned treatment works.

SILVICULTURAL POINT SOURCE means any discernable, confined, and discrete conveyance related to rock crushing, gravel washing, log sorting, or log storage facilities which are operated in connection with silvicultural activities and from which pollutants are discharged into waters of the United States. This term does not include nonpoint source silvicultural activities such as nursery operations, site preparation, reforestation and subsequent cultural treatment, thinning, prescribed burning, pest and fire control, harvesting operations, surface drainage, or road construction and maintenance from which there is natural runoff. However, some of these activities *(such as stream crossing for roads)* may involve point source discharges of dredged or fill material which may require a CWA Section 404 permit. "Log sorting and log storage facilities" are facilities whose discharges result from the holding of unprocessed wood, e.g., logs or roundwood with bark or after removal of bark in self–contained bodies of water *(mill ponds or log ponds)* or stored on land where water is applied intentionally on the logs *(wet decking)*. *(See 40 CFR Part 429, Subpart J, and the effluent limitations guidelines for these facilities.)*

STATE means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Trust Territory of the Pacific Islands *(except in the case of RCRA)*, and the Commonwealth of the Northern Mariana Islands *(except in the case of CWA)*.

STATIONARY SOURCE *(in the PSD program)* means any building, structure, facility, or installation which emits or may emit any air pollutant regulated under the Clean Air Act. "Building, structure, facility, or installation" means any grouping of pollutant–emitting activities which are located on one or more contiguous or adjacent properties and which are owned or operated by the same person *(or by persons under common control)*.

STORAGE *(in the RCRA program)* means the holding of hazardous waste for a temporary period at the end of which the hazardous waste is treated, disposed, or stored elsewhere.

STORM WATER RUNOFF means water discharged as a result of rain, snow, or other precipitation.

SURFACE IMPOUNDMENT or IMPOUNDMENT means a facility or part of a facility which is a natural topographic depression, manmade excavation, or diked area formed primarily of earthen materials *(although it may be lined with manmade materials)*, which is designed to hold an accumulation of liquid wastes or wastes containing free liquids, and which is not an injection well. Examples of surface impoundments are holding, storage, settling, and aeration pits, ponds, and lagoons.

TANK *(in the RCRA program)* means a stationary device, designed to contain an accumulation of hazardous waste which is constructed primarily of non–earthen materials *(e.g., wood, concrete, steel, plastic)* which provide structural support.

THERMAL TREATMENT *(in the RCRA program)* means the treatment of hazardous waste in a device which uses elevated temperature as the primary means to change the chemical, physical, or biological character or composition of the hazardous waste. Examples of thermal treatment processes are incineration, molten salt, pyrolysis, calcination, wet air oxidation, and microwave discharge. *(See also "incinerator" and "open burning")*.

TOTALLY ENCLOSED TREATMENT FACILITY *(in the RCRA program)* means a facility for the treatment of hazardous waste which is directly connected to an industrial production process and which is constructed and operated in a manner which prevents the release of any hazardous waste or any constituent thereof into the environment during treatment. An example is a pipe in which waste acid is neutralized.

TOXIC POLLUTANT means any pollutant listed as toxic under Section 307(a)(1) of CWA.

TRANSPORTER *(in the RCRA program)* means a person engaged in the off–site transportation of hazardous waste by air, rail, highway, or water.

TREATMENT *(in the RCRA program)* means any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non–hazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.

UNDERGROUND INJECTION means well injection.

UNDERGROUND SOURCE OF DRINKING WATER or USDW means an aquifer or its portion which is not an exempted aquifer and:

A. Which supplies drinking water for human consumption; or

B. In which the ground water contains fewer than 10,000 mg/l total dissolved solids.

UPSET means an exceptional incident in which there is unintentional and temporary noncompliance with technology–based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

WATERS OF THE UNITED STATES means:

A. All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

B. All interstate waters, including interstate wetlands;

C. All other waters such as intrastate lakes, rivers, streams *(including intermittent streams)*, mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, and natural ponds, the use, degradation, or destruction of which would or could affect interstate or foreign commerce including any such waters:

1. Which are or could be used by interstate or foreign travelers for recreational or other purposes,

2. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce,

3. Which are used or could be used for industrial purposes by industries in interstate commerce;

D. All impoundments of waters otherwise defined as waters of the United States under this definition;

E. Tributaries of waters identified in paragraphs (A) – (D) above;

F. The territorial sea; and

G. Wetlands adjacent to waters *(other than waters that are themselves wetlands)* identified in paragraphs (A) – (F) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet requirement of CWA *(other than cooling ponds as defined in 40 CFR Section 423.11(m) which also meet the criteria of this definition)* are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States *(such as a disposal area in wetlands)* nor resulted from the impoundments of waters of the United States.

WELL INJECTION or UNDERGROUND INJECTION means the subsurface emplacement of fluids through a bored, drilled, or driven well; or through a dug well, where the depth of the dug well is greater than the largest surface dimension.

WETLANDS means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

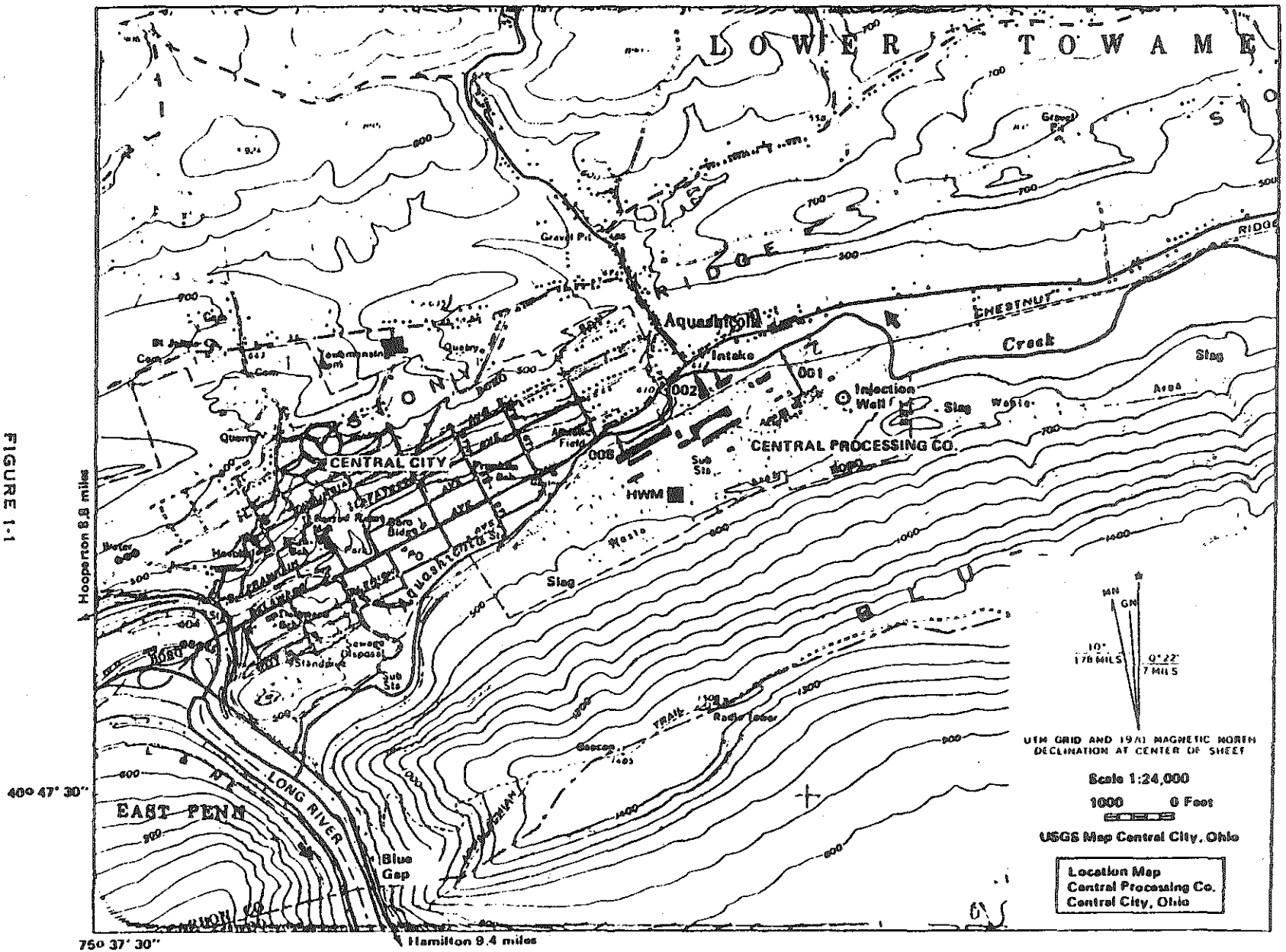

LOWER TOWAME
Aquashicola
Intake
Injection Well
CENTRAL PROCESSING CO.
CENTRAL CITY
HWM
Slag
Creek
CHESTNUT
Gravel Pit
Quarry
Sewage Disposal
Standpipe
Radio Tower
LONG RIVER
EAST PENN
Blue Gap
Hooperton 8.8 miles
Hamilton 9.4 miles
40° 47' 30"
75° 37' 30"
MN
GN
10°
178 MILS
0°22'
7 MILS
UTM GRID AND 1970 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET
Scale 1:24,000
1000 0 Feet
USGS Map Central City, Ohio
Location Map
Central Processing Co.
Central City, Ohio

FIGURE 1-1

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-R0175

FORM 1 GENERAL

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F D

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	MARK 'X' NO	MARK 'X' FORM ATTACHED
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)			
B. Does or will this facility *(either existing or proposed)* include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)			
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)			
D. Is this a proposed facility *(other than those described in A or B above)* which will result in a discharge to waters of the U.S.? (FORM 2D)			
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)			
F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)			
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)			
H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)			
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)			
J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)			

III. NAME OF FACILITY

1 SKIP

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)*

B. PHONE *(area code & no.)*

2

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3

B. CITY OR TOWN

C. STATE

D. ZIP CODE

4

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5

B. COUNTY NAME

C. CITY OR TOWN

D. STATE

E. ZIP CODE

F. COUNTY CODE *(if known)*

6

CONTINUED FROM THE FRONT

VII. SIC CODES *(4-digit, in order of priority)*

A. FIRST	B. SECOND
C 7 *(specify)*	C 7 *(specify)*
C. THIRD	**D. FOURTH**
C 7 *(specify)*	C 7 *(specify)*

VIII. OPERATOR INFORMATION

A. NAME

C 8

B. Is the name listed in Item VIII-A also the owner? ☐ YES ☐ NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box: if "Other", specify.)*

F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC *(other than federal or state)*
O = OTHER *(specify)*

(specify)

D. PHONE *(area code & no.)*

C A

E. STREET OR P.O. BOX

F. CITY OR TOWN

C 8

G. STATE

H. ZIP CODE

IX. INDIAN LAND

Is the facility located on Indian lands? ☐ YES ☐ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES *(Discharges to Surface Water)*	D. PSD *(Air Emissions from Proposed Sources)*
C T I 9 N	C T I 9 P
B. UIC *(Underground Injection of Fluids)*	**E. OTHER** *(specify)*
C T I 9 U	C T I 9 *(specify)*
C. RCRA *(Hazardous Wastes)*	**E. OTHER** *(specify)*
C T I 9 R	C T I 9 *(specify)*

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property bounderies. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS *(provide a brief description)*

XIII. CERTIFICATION *(see instructions)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE *(type or print)*	B. SIGNATURE	C. DATE SIGNED

COMMENTS FOR OFFICIAL USE ONLY

C

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-R0175

FORM 1 GENERAL

U.S. ENVIRONMENTAL PROTECTION AGENCY

GENERAL INFORMATION

Consolidated Permits Program

(Read the "General Instructions" before starting.)

I. EPA I.D. NUMBER

F D

LABEL ITEMS

I. EPA I.D. NUMBER

III. FACILITY NAME

V. FACILITY MAILING ADDRESS

VI. FACILITY LOCATION

PLEASE PLACE LABEL IN THIS SPACE

GENERAL INSTRUCTIONS

If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent *(the area to the left of the label space lists the information that should appear)*, please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete Items I, III, V, and VI *(except VI-B which must be completed regardless)*. Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.

II. POLLUTANT CHARACTERISTICS

INSTRUCTIONS: Complete A through J to determine whether you need to submit any permit application forms to the EPA. If you answer "yes" to any questions, you must submit this form and the supplemental form listed in the parenthesis following the question. Mark "X" in the box in the third column if the supplemental form is attached. If you answer "no" to each question, you need not submit any of these forms. You may answer "no" if your activity is excluded from permit requirements; see Section C of the instructions. See also, Section D of the instructions for definitions of bold-faced terms.

SPECIFIC QUESTIONS	MARK 'X' YES	MARK 'X' NO	MARK 'X' FORM ATTACHED
A. Is this facility a publicly owned treatment works which results in a discharge to waters of the U.S.? (FORM 2A)			
B. Does or will this facility *(either existing or proposed)* include a concentrated animal feeding operation or aquatic animal production facility which results in a discharge to waters of the U.S.? (FORM 2B)			
C. Is this a facility which currently results in discharges to waters of the U.S. other than those described in A or B above? (FORM 2C)			
D. Is this a proposed facility *(other than those described in A or B above)* which will result in a discharge to waters of the U.S.? (FORM 2D)			
E. Does or will this facility treat, store, or dispose of hazardous wastes? (FORM 3)			
F. Do you or will you inject at this facility industrial or municipal effluent below the lowermost stratum containing, within one quarter mile of the well bore, underground sources of drinking water? (FORM 4)			
G. Do you or will you inject at this facility any produced water or other fluids which are brought to the surface in connection with conventional oil or natural gas production, inject fluids used for enhanced recovery of oil or natural gas, or inject fluids for storage of liquid hydrocarbons? (FORM 4)			
H. Do you or will you inject at this facility fluids for special processes such as mining of sulfur by the Frasch process, solution mining of minerals, in situ combustion of fossil fuel, or recovery of geothermal energy? (FORM 4)			
I. Is this facility a proposed stationary source which is one of the 28 industrial categories listed in the instructions and which will potentially emit 100 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)			
J. Is this facility a proposed stationary source which is NOT one of the 28 industrial categories listed in the instructions and which will potentially emit 250 tons per year of any air pollutant regulated under the Clean Air Act and may affect or be located in an attainment area? (FORM 5)			

III. NAME OF FACILITY

1 SKIP

IV. FACILITY CONTACT

A. NAME & TITLE *(last, first, & title)* | B. PHONE *(area code & no.)*

2

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX

3

B. CITY OR TOWN | C. STATE | D. ZIP CODE

4

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER

5

B. COUNTY NAME

C. CITY OR TOWN | D. STATE | E. ZIP CODE | F. COUNTY CODE *(if known)*

6

CONTINUE ON REVERSE

CONTINUED FROM THE FRONT

VII. SIC CODES *(4-digit, in order of priority)*

A. FIRST	B. SECOND
C 7 *(specify)*	C 7 *(specify)*
C. THIRD	**D. FOURTH**
C 7 *(specify)*	C 7 *(specify)*

VIII. OPERATOR INFORMATION

A. NAME: C 8

B. Is the name listed in Item VIII-A also the owner? ☐ YES ☐ NO

C. STATUS OF OPERATOR *(Enter the appropriate letter into the answer box; if "Other", specify.)*

F = FEDERAL
S = STATE
P = PRIVATE
M = PUBLIC *(other than federal or state)*
O = OTHER *(specify)*

(specify)

D. PHONE *(area code & no.)*: C A

E. STREET OR P.O. BOX

F. CITY OR TOWN: C B

G. STATE

H. ZIP CODE

IX. INDIAN LAND

Is the facility located on Indian lands? ☐ YES ☐ NO

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES *(Discharges to Surface Water)*: C T 9 N	D. PSD *(Air Emissions from Proposed Sources)*: C T 9 P
B. UIC *(Underground Injection of Fluids)*: C T 9 U	E. OTHER *(specify)*: C T 9 *(specify)*
C. RCRA *(Hazardous Wastes)*: C T 9 R	E. OTHER *(specify)*: C T 9 *(specify)*

XI. MAP

Attach to this application a topographic map of the area extending to at least one mile beyond property bounderies. The map must show the outline of the facility, the location of each of its existing and proposed intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all springs, rivers and other surface water bodies in the map area. See instructions for precise requirements.

XII. NATURE OF BUSINESS *(provide a brief description)*

XIII. CERTIFICATION *(see instructions)*

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my inquiry of those persons immediately responsible for obtaining the information contained in the application, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME & OFFICIAL TITLE *(type or print)*	B. SIGNATURE	C. DATE SIGNED

COMMENTS FOR OFFICIAL USE ONLY: C

United States
Environmental Protection
Agency

Office of Water and
Hazardous Waste
Washington, DC 20460

EPA Form 3510-3
June 1980

Solid Waste

EPA

Application Form 3 - Hazardous Waste Information

Consolidated Permits Program

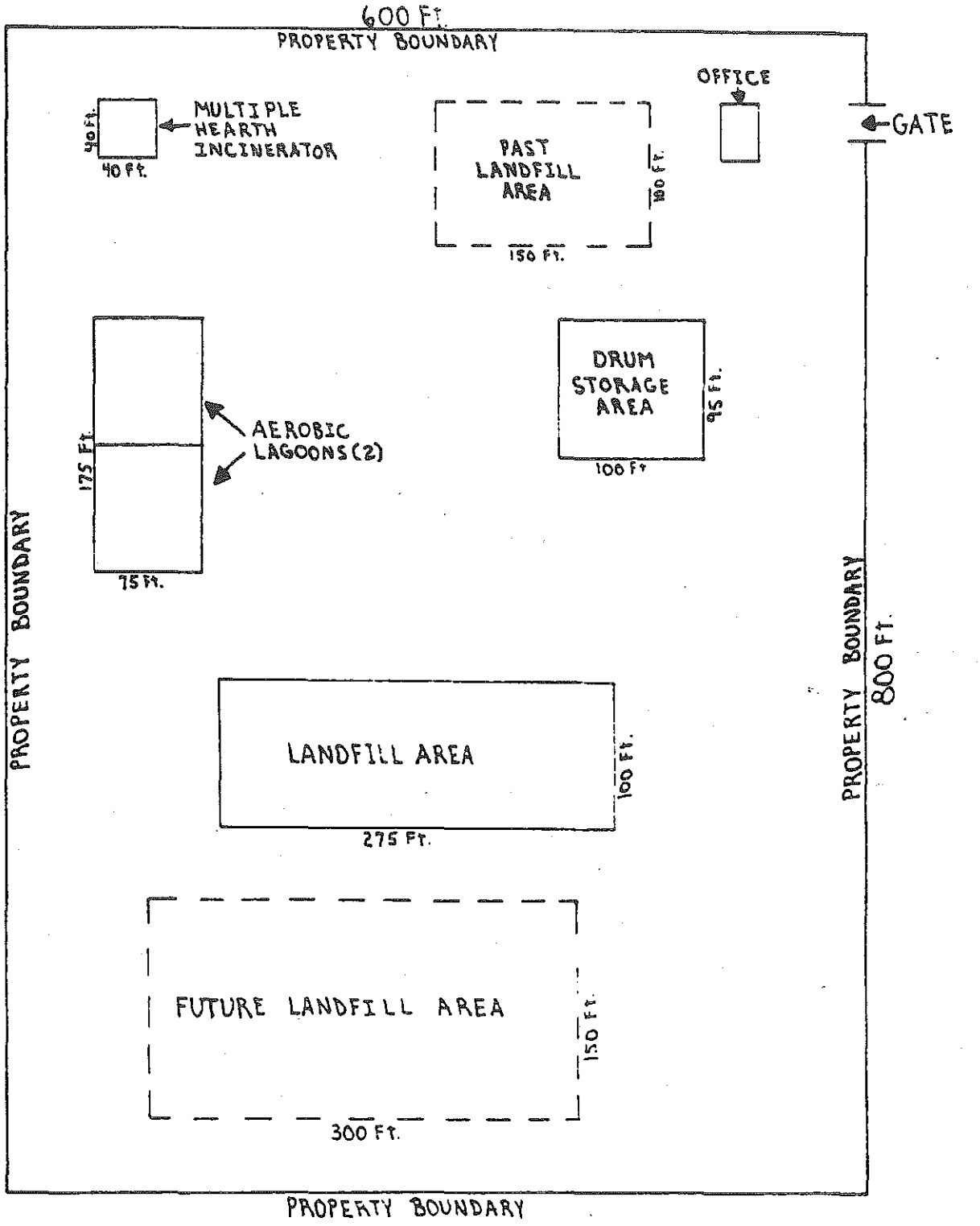
This form must be completed by all persons applying for an EPA hazardous waste permit.

Continued from page 4.

Form Approved OMB No. 158-S80004

V. FACILITY DRAWING (see page 4)

EXAMPLE



SCALE: 1 INCH = 100 FEET

FIGURE 3-1

FORM 3 – GENERAL INFORMATION

This form must be completed by all applicants who check "yes" to Item II–E in Form 1.

Permit Application Process

There are two parts to a RCRA permit application – Part A and Part B. Part A consists of this form and Form 1 of the Consolidated Permit Application. Part B requires detailed site–specific information such as geologic, hydrologic, and engineering data. 40 CFR 122.25 specifies the information that will be required from hazardous waste management facilities in Part B.

RCRA established a procedure for obtaining "interim status" which allows existing hazardous waste management facilities to continue their operations until a final hazardous waste permit is issued. In order to qualify for interim status, existing hazardous waste management facilities must submit Part A of the permit application to EPA within six months after the promulgation of regulations under Section 3001 of RCRA *(40 CFR Part 261)*. In order to receive a hazardous waste permit, existing facilities must submit a complete Part B within six months after it is requested by EPA. New facilities must submit both Part A and Part B to EPA at least 180 days before physical construction is expected to commence.

Operation During Interim Status

As provided in 40 CFR 122.23(b), Part A of the permit application defines the processes to be used for treatment, storage, and disposal of hazardous wastes; the design capacity of such processes; and the specific hazardous wastes to be handled at a facility during the interim status period. Once Part A is submitted to EPA, changes in the hazardous wastes handled, changes in design capacities, changes in processes, and changes in ownership or operational control at a facility during the interim status period may only be made in accordance with the procedures in 40 CFR 122.23(c). Changes in design capacity and changes in processes require prior EPA approval. Changes in the quantity of waste handled at a facility during interim status can be made without submitting a revised Part A provided the quantity does not exceed the design capacities of the processes specified in Part A of the permit application. Failure to furnish all information required to process a permit application is grounds for termination of interim status.

Confidential Information

All information submitted in this form will be subject to public disclosure, to the extent provided by RCRA and the Freedom of Information Act, 5 U.S.C. Section 552, and EPA's Business Confidentiality Regulations, 40 CFR Part 2 *(see especially 40 CFR 2.305)*. Persons filing this form may make claims of confidentiality. Such claims must be clearly indicated by marking "confidential" on the specific information on the form for which confidential treatment is requested or on any attachments, and must be accompanied, at the time of filing, by a written substantiation of the claim, by answering the following questions:

Confidential Information *(continued)*

A. Which portions of the information do you claim are entitled to confidential treatment?

B. For how long is confidential treatment desired for this information?

C. What measures have you taken to guard against undesired disclosure of the information to others?

D. To what extent has the information been disclosed to others, and what precautions have been taken in connection with that disclosure?

E. Has EPA or any other Federal agency made a pertinent confidentiality determination? If so, include a copy of such determination or reference to it, if available.

F. Will disclosure of the information be likely to result in substantial harmful effects on your competitive position? If so, what would those harmful effects be and why should they be viewed as substantial? Explain the causal relationship between disclosure and the harmful effects.

Information covered by a confidentiality claim and the above substantiation will be disclosed by EPA only to the extent and by means of the procedures set forth in 40 CFR Part 2.

If no claim of confidentiality or no substantiation accompanies the information when it is submitted, EPA may make the information available to the public without further notice to the submitter.

Definitions

Terms used in these instructions and in this form are defined in the Glossary section of the instructions to Form 1. For additional definitions and procedures to use in applying for a permit for a hazardous waste management facility, refer to the regulations promulgated under Section 3005 of RCRA and published in 40 CFR Parts 122 and 124.

FORM 3 LINE–BY–LINE INSTRUCTIONS

Completing This Form

Please type or print in the unshaded areas only. Some items have small graduation marks or boxes in the fill–in spaces. These marks indicate the number of characters that may be entered into our data system. The marks are spaced at 1/6" intervals which accommodate elite type *(12 characters per inch – one space between letters)*. If you do not have a typewriter with elite type then please print, placing each character between the marks. Abbreviate if necessary to stay within the number of characters allowed for each item. Use one space for breaks between words, but not for punctuation marks unless the space is needed to clarify your information.

Item I

Existing hazardous waste management facilities should enter their EPA Identification Number *(if known)*. New facilities should leave this item blank.

Item II

A. FIRST APPLICATION. If this is the first application that is being filed for the facility place an "X" in either the Existing Facility box or the New Facility box.

1. EXISTING FACILITY. Existing facilities are

a. Those facilities which received hazardous waste for treatment, storage, and or disposal on or before October 21, 1976, or

b. Those facilities for which construction had commenced on or before October 21, 1976. Construction had "commenced" only if:

(1) The owner or operator had obtained all necessary Federal, State, and local preconstruction approvals or permits; and

Item II *(continued)*

(2-a) A continuous physical, on—site construction program had begun *(facility design or other preliminary non—physical and non—site specific preparatory activities do not constitute an on—site construction program)*, or

(2-c) The owner or operator had entered into contractual obligations *(options to purchase or contracts for feasibility, engineering, and design studies do not constitute contractual obligations)* which could not be cancelled or modified without substantial loss. Generally, a loss is deemed substantial if the amount an owner or operator must pay to cancel construction agreements or stop construction exceeds 10% of the total project cost.

(NOTE: This definition of "existing facility" reflects the literal language of the statute. However, EPA believes that amendments to RCRA now in conference will shortly be enacted and will change the date for determining when a facility is an "existing facility" to one no earlier than May of 1980; indications are the conferees are considering October 30, 1980. When those amendments are enacted, EPA will amend the definition of "existing facility."

Accordingly, EPA encourages every facility built or under construction on the promulgation date of the RCRA program regulations to notify EPA and file Part A of the permit application so that it can be quickly processed for interim status when the change in the law takes effect.)

EXISTING FACILITY DATE. If the Existing Facility box is marked, enter the date hazardous waste operations began *(i.e., the date the facility began treating, storing, or disposing of hazardous waste)* or the date construction commenced.

2. NEW FACILITY. New facilities are all facilities for which construction commenced, or will commence, after October 21, 1976.

NEW FACILITY DATE. If the New Facility box is marked, enter the date that operation began or is expected to begin.

B. REVISED APPLICATION. If this is a subsequent application that is being filed to amend data filed in a previous application, place an "X" in the appropriate box to indicate whether the facility has interim status or a permit.

1. FACILITY HAS INTERIM STATUS. Place an "X" in this box if this is a revised application to make changes at a facility during the interim status period.

2. FACILITY HAS A PERMIT. Place an "X" in this box if this is a revised application to make changes at a facility for which a permit has been issued.

(NOTE: When submitting a revised application, applicants must resubmit in their entirety each item on the application for which changes are requested. In addition, Items I and IX (and Item X if applicable) must be completed. It is not necessary to resubmit information for other items that will not change).

Item III

The information in Item III describes all the processes that will be used to treat, store, or dispose of hazardous waste at the facility. The design capacity of each process must be provided as part of the description. The design capacity of injection wells and landfills at existing facilities should be measured as the remaining, unused capacity. See the form for the detailed instructions to Item III.

Item IV

The information in Item IV describes all the hazardous wastes that will be treated, stored, or disposed at the facility. In addition, the processes that will be used to treat, store, or dispose of each waste and the estimated annual quantity of each waste must be provided. See the form for the detailed instructions to Item IV.

Item V

All existing facilities must include a drawing showing the general layout of the facility. This drawing should be approximately to scale and fit in the space provided on the form. This drawing should show the following:

The property boundaries of the facility;

The areas occupied by all storage, treatment, or disposal operations that will be used during interim status;

The name of each operation. *(Example — multiple hearth incinerator, drum storage area, etc.)*;

Areas of past storage, treatment, or disposal operations;

Areas of future storage, treatment, or disposal operations; and

The approximate dimensions of the property boundaries and all storage, treatment, and disposal areas.

See Figure 3—1 for an example of a facility drawing. New facilities do not have to complete this item.

Item VI

All existing facilities must include photographs that clearly delineate all existing structures; all existing areas for storing, treating, or disposing of hazardous waste; and all known sites of future storage, treatment, or disposal operations. Photographs may be color or black and white, ground—level or aerial. Indicate the date the photograph was taken on the back of each photograph.

Item VII

Enter the latitude and longitude of the facility in degrees, minutes, and seconds. For larger facilities, enter the latitude and longitude at the approximate mid—point of the facility. You may use the map you provided for Item XI of Form 1 to determine latitude and longitude. Latitude and longitude information is also available from Regional Offices of the U.S. Department of Interior, Geological Survey and from State Agencies, such as the Department of Natural Resources.

Item VIII

See the form for the instructions to Item VIII.

Item IX and Item X

All facility owners must sign Item IX. If the facility will be operated by someone other than the owner, then the operator must sign Item X. Federal regulations require the certification to be signed as follows:

A. For a corporation, by a principal executive officer at least the level of vice president;

B. For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or

C. For a municipality, State, Federal, or other public facility, by either a principal executive officer or ranking elected official.

The Resource Conservation and Recovery Act provides for severe penalties for submitting false information on this application form.

Section 3008(a) of the Resource Conservation and Recovery Act provides that "Any person who knowingly makes any false statement or representation in any application, . . . shall, upon conviction be subject to a fine of not more than $25,000 for each day of violation, or to imprisonment not to exceed one year, or both."

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-S80004

FORM 3 RCRA

U.S. ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

I. EPA I.D. NUMBER F

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate data)*

☐ 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

☐ 2. NEW FACILITY *(Complete item below.)*

FOR EXISTING FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*

FOR NEW FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR IS EXPECTED TO BEGIN

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

☐ 1. FACILITY HAS INTERIM STATUS

☐ 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES — CODES AND DESIGN CAPACITIES

A. PROCESS CODE — Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the form *(Item III-C)*.

B. PROCESS DESIGN CAPACITY — For each code entered in column A enter the capacity of the process.
1. AMOUNT — Enter the amount.
2. UNIT OF MEASURE — For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER *(barrel, drum, etc.)*	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G	LITERS PER DAY	V	ACRE-FEET	A
LITERS	L	TONS PER HOUR	D	HECTARE-METER	F
CUBIC YARDS	Y	METRIC TONS PER HOUR	W	ACRES	B
CUBIC METERS	C	GALLONS PER HOUR	E	HECTARES	Q
GALLONS PER DAY	U	LITERS PER HOUR	H		

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below)*: A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

C DUP

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S02	600	G		5				
X-2	T03	20	E		6				
1					7				
					8				
3					9				
4					10				

Continued from the front.

III. PROCESSES *(continued)*

C. SPACE FOR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESSES *(code "T04")*. FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

IV. DESCRIPTION OF HAZARDOUS WASTES

A. EPA HAZARDOUS WASTE NUMBER – Enter the four–digit number from 40 CFR, Subpart D for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four–digit number*(s)* from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. ESTIMATED ANNUAL QUANTITY – For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non–listed waste*(s)* that will be handled which possess that characteristic or contaminant.

C. UNIT OF MEASURE – For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. PROCESSES

1. PROCESS CODES:
   For listed hazardous waste: For each listed hazardous waste entered in column A select the code*(s)* from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.
   For non–listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code*(s)* from the list of process codes contained in Item III to indicate all the processes that will be used to store, treat, and/or dispose of all the non–listed hazardous wastes that possess that characteristic or toxic contaminant.
   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code*(s)*.

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER – Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B,C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING ITEM IV *(shown in line numbers X-1, X-2, X-3, and X-4 below)* – A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non–listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. EPA HAZARD. WASTE NO. *(enter code)*	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE *(enter code)*	D. PROCESSES 1. PROCESS CODES *(enter)*	D. PROCESSES 2. PROCESS DESCRIPTION *(if a code is not entered in D(1))*
X-1	K054	900	P	T03 D80	
X-2	D002	400	P	T03 D80	
X-3	D001	100	P	T03 D80	
X-4	D002				*included with above*

 CONTINUE ON PAGE 3

Continued from page 2.

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1): W

FOR OFFICIAL USE ONLY: W DUP 2 DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
1					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					

Continued from the front.

IV. DESCRIPTION OF HAZARDOUS WASTES *(continued)*

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3.

EPA I.D. NO. *(enter from page 1)*

F 6

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail).*

VI. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground–level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail).*

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE *(degrees, minutes, & seconds)*	LONGITUDE *(degrees, minutes, & seconds)*

VIII. FACILITY OWNER

A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. *(area code & no.)*
E	

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
F	G		

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED

CONTINUE ON PAGE 5

Continued from page 4.

Form Approved OMB No. 158-S80004

V. FACILITY DRAWING *(see page 4)*

Please print or type in the unshaded areas only
(fill-in areas are spaced for elite type, i.e., 12 characters/inch).

Form Approved OMB No. 158-S80004

FORM 1 RCRA

U.S. ENVIRONMENTAL PROTECTION AGENCY

HAZARDOUS WASTE PERMIT APPLICATION

Consolidated Permits Program

(This information is required under Section 3005 of RCRA.)

I. EPA I.D. NUMBER

F

FOR OFFICIAL USE ONLY

APPLICATION APPROVED	DATE RECEIVED (yr., mo., & day)	COMMENTS

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below *(mark one box only)* to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA I.D. Number, or if this is a revised application, enter your facility's EPA I.D. Number in Item I above.

A. FIRST APPLICATION *(place an "X" below and provide the appropriate date)*

☐ 1. EXISTING FACILITY *(See instructions for definition of "existing" facility. Complete item below.)*

FOR EXISTING FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR THE DATE CONSTRUCTION COMMENCED *(use the boxes to the left)*

☐ 2. NEW FACILITY *(Complete item below.)*

FOR NEW FACILITIES, PROVIDE THE DATE (yr., mo., & day) OPERATION BEGAN OR IS EXPECTED TO BEGIN

B. REVISED APPLICATION *(place an "X" below and complete Item I above)*

☐ 1. FACILITY HAS INTERIM STATUS

☐ 2. FACILITY HAS A RCRA PERMIT

III. PROCESSES – CODES AND DESIGN CAPACITIES

A. PROCESS CODE – Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the code(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process *(including its design capacity)* in the space provided on the form *(Item III-C)*.

B. PROCESS DESIGN CAPACITY – For each code entered in column A enter the capacity of the process.

1. AMOUNT – Enter the amount.
2. UNIT OF MEASURE – For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Storage:		
CONTAINER *(barrel, drum, etc.)*	S01	GALLONS OR LITERS
TANK	S02	GALLONS OR LITERS
WASTE PILE	S03	CUBIC YARDS OR CUBIC METERS
SURFACE IMPOUNDMENT	S04	GALLONS OR LITERS
Disposal:		
INJECTION WELL	D79	GALLONS OR LITERS
LANDFILL	D80	ACRE-FEET *(the volume that would cover one acre to a depth of one foot)* OR HECTARE-METER
LAND APPLICATION	D81	ACRES OR HECTARES
OCEAN DISPOSAL	D82	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	D83	GALLONS OR LITERS

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
Treatment:		
TANK	T01	GALLONS PER DAY OR LITERS PER DAY
SURFACE IMPOUNDMENT	T02	GALLONS PER DAY OR LITERS PER DAY
INCINERATOR	T03	TONS PER HOUR OR METRIC TONS PER HOUR; GALLONS PER HOUR OR LITERS PER HOUR
OTHER *(Use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Item III-C.)*	T04	GALLONS PER DAY OR LITERS PER DAY

UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE	UNIT OF MEASURE	UNIT OF MEASURE CODE
GALLONS	G	LITERS PER DAY	V	ACRE-FEET	A
LITERS	L	TONS PER HOUR	D	HECTARE-METER	F
CUBIC YARDS	Y	METRIC TONS PER HOUR	W	ACRES	B
CUBIC METERS	C	GALLONS PER HOUR	E	HECTARES	G
GALLONS PER DAY	U	LITERS PER HOUR	H		

EXAMPLE FOR COMPLETING ITEM III *(shown in line numbers X-1 and X-2 below)*: A facility has two storage tanks, one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

C DUP

LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT (specify)	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY	LINE NUMBER	A. PROCESS CODE (from list above)	B. PROCESS DESIGN CAPACITY 1. AMOUNT	B. PROCESS DESIGN CAPACITY 2. UNIT OF MEASURE (enter code)	FOR OFFICIAL USE ONLY
X-1	S02	600	G		5				
X-2	T03	20	E		6				
1					7				
					8				
3					9				
4					10				

 CONTINUE ON REVERSE

Continued from the front.

III. PROCESSES *(continued)*

C. SPACE FOR ADDITIONAL PROCESS CODES OR FOR DESCRIBING OTHER PROCESSES *(code "T04")*. FOR EACH PROCESS ENTERED HERE INCLUDE DESIGN CAPACITY.

IV. DESCRIPTION OF HAZARDOUS WASTES

A. **EPA HAZARDOUS WASTE NUMBER** — Enter the four—digit number from 40 CFR, Subpart D for each listed hazardous waste you will handle. If you handle hazardous wastes which are not listed in 40 CFR, Subpart D, enter the four—digit number*(s)* from 40 CFR, Subpart C that describes the characteristics and/or the toxic contaminants of those hazardous wastes.

B. **ESTIMATED ANNUAL QUANTITY** — For each listed waste entered in column A estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A estimate the total annual quantity of all the non—listed waste*(s)* that will be handled which possess that characteristic or contaminant.

C. **UNIT OF MEASURE** — For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
POUNDS	P	KILOGRAMS	K
TONS	T	METRIC TONS	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. **PROCESSES**

1. PROCESS CODES:
   For listed hazardous waste: For each listed hazardous waste entered in column A select the code*(s)* from the list of process codes contained in Item III to indicate how the waste will be stored, treated, and/or disposed of at the facility.
   For non—listed hazardous wastes: For each characteristic or toxic contaminant entered in column A, select the code*(s)* from the list of process codes contained in Item III to indicate all the processes that will be used to store, treat, and/or dispose of all the non—listed hazardous wastes that possess that characteristic or toxic contaminant.
   Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of Item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code*(s)*.

2. PROCESS DESCRIPTION: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: HAZARDOUS WASTES DESCRIBED BY MORE THAN ONE EPA HAZARDOUS WASTE NUMBER — Hazardous wastes that can be described by more than one EPA Hazardous Waste Number shall be described on the form as follows:

1. Select one of the EPA Hazardous Waste Numbers and enter it in column A. On the same line complete columns B,C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other EPA Hazardous Waste Number that can be used to describe the waste. In column D(2) on that line enter "included with above" and make no other entries on that line.
3. Repeat step 2 for each other EPA Hazardous Waste Number that can be used to describe the hazardous waste.

EXAMPLE FOR COMPLETING ITEM IV *(shown in line numbers X-1, X-2, X-3, and X-4 below)* — A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non—listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste. The other waste is corrosive and ignitable and there will be an estimated 100 pounds per year of that waste. Treatment will be in an incinerator and disposal will be in a landfill.

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (if a code is not entered in D(1))
X-1	K054	900	P	T03 D80	
X-2	D002	400	P	T03 D80	
X-3	D001	100	P	T03 D80	
X-4	D002				included with above

 CONTINUE ON PAGE 3

Continued from the front.

IV. DESCRIPTION OF HAZARDOUS WASTES *(continued)*

E. USE THIS SPACE TO LIST ADDITIONAL PROCESS CODES FROM ITEM D(1) ON PAGE 3.

EPA I.D. NO. *(enter from page 1)*

F 6

V. FACILITY DRAWING

All existing facilities must include in the space provided on page 5 a scale drawing of the facility *(see instructions for more detail)*.

VI. PHOTOGRAPHS

All existing facilities must include photographs *(aerial or ground—level)* that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas *(see instructions for more detail)*.

VII. FACILITY GEOGRAPHIC LOCATION

LATITUDE *(degrees, minutes, & seconds)*	LONGITUDE *(degrees, minutes, & seconds)*

VIII. FACILITY OWNER

☐ A. If the facility owner is also the facility operator as listed in Section VIII on Form 1, "General Information", place an "X" in the box to the left and skip to Section IX below.

B. If the facility owner is not the facility operator as listed in Section VIII on Form 1, complete the following items:

1. NAME OF FACILITY'S LEGAL OWNER	2. PHONE NO. *(area code & no.)*
E	

3. STREET OR P.O. BOX	4. CITY OR TOWN	5. ST.	6. ZIP CODE
F	G		

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. NAME *(print or type)*	B. SIGNATURE	C. DATE SIGNED

CONTINUE ON PAGE 5

Continued from page 2.

NOTE: Photocopy this page before completing if you have more than 26 wastes to list.

Form Approved OMB No. 158-S80004

EPA I.D. NUMBER (enter from page 1)	FOR OFFICIAL USE ONLY
W	W DUP 2 DUP

IV. DESCRIPTION OF HAZARDOUS WASTES (continued)

LINE NO.	A. EPA HAZARD. WASTE NO. (enter code)	B. ESTIMATED ANNUAL QUANTITY OF WASTE	C. UNIT OF MEASURE (enter code)	D. PROCESSES 1. PROCESS CODES (enter)	D. PROCESSES 2. PROCESS DESCRIPTION (If a code is not entered in D(1))
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					
26					

Continued from page 4.

Form Approved OMB No. 158-S80004

V. FACILITY DRAWING *(see page 4)*

GERAGHTY & MILLER
ENGINEERS, INC.

Closure Plan
General Electric Company
Morris Operation
Evaporation Pond

Prepared for:

General Electric Company
Morris Operation
7555 E. Collins Road
Morris, Illinois

Prepared by:

Geraghty & Miller Engineers, Inc.
75 East Wacker Drive
Suite 1100
Chicago, Illinois 60601
(312) 263-6703

in Cooperation with

Geraghty & Miller, Inc.
322 East Michigan Street
Suite 600
Milwaukee, Wisconsin 53202
(414) 276-7742

March 30, 1989

GERAGHTY & MILLER ENGINEERS, INC.

CLOSURE PLAN
GENERAL ELECTRIC COMPANY
MORRIS OPERATION
EVAPORATION POND

TABLE OF CONTENTS

Section		Page
1.0	**INTRODUCTION**	1
2.0	**REGULATORY FRAME WORK**	5
	2.1 USEPA Compliant and Compliance Order.	5
	2.2 Consent Agreement and Final Order . .	6
3.0	**FACILITY DESCRIPTION**	8
	3.1 Facility Location	9
	3.2 Hydrogeologic Conditions	9
	3.3 Hazardous Waste Management Unit . . .	11
	3.3.1 Demineralized Water System . .	12
4.0	**SAMPLING AND ANALYSIS WORK PLAN**	15
	4.1 Introduction	15
	4.2 Site Geology	16
	4.3 Site Hydrology	18
	4.4 Surface Sediment Sampling Plan . . .	19
	4.4.1 Sediment Sampling Rationale .	19
	4.4.2 Random Sample Locations . . .	20
	4.4.3 Sediment Sampling Procedure .	22
	4.5 Ground-Water Monitoring Plan	23
	4.5.1 Monitoring Well Location Rationale	23
	4.5.2 Monitoring Well Installation .	24
	4.5.3 Monitoring Well Development. .	32
	4.5.4 Ground Water Sampling	33
	4.5.4.1 Sampling Procedures .	33
	4.5.4.2 Sample Numbering . .	36
	4.5.4.3 Sample Preservation .	37
	4.5.4.4 Sample Handling . . .	37
5.0	**CLOSURE COST ESTIMATE**	40
6.0	**FINANCIAL ASSURANCE**	41
7.0	**REFERENCES**	42

TABLE OF CONTENTS

Section	
APPENDICES	
Appendix A	Quality Assurance Project Plan
Appendix B	Written Demonstration for Waiver from 40 CFR 265 Subpart F Ground-Water Monitoring Requirements
Appendix C	Demonstration by General Electric Company of Financial Responsibility for Liability Coverage and Closure and/or Post-Closure Care

GERAGHTY & MILLER
ENGINEERS, INC.

LIST OF FIGURES

Figure No.		Page
1	Site Location Map	10
2	Demineralized Water Process Diagram	13
3	Site Area Bedrock Lithology Map . .	17
4	Sediment Sampling Locations	21
5	Well Construction Detail	30

LIST OF TABLES

Table No.		Page
1	Summary of Sampling Procedures . . .	39

1.0 INTRODUCTION

This closure plan has been prepared for the former evaporation pond that was operated under interim status by the General Electric Company (GE) at its nuclear fuel storage facility (Morris Operation) located in Morris, Illinois. GE operated the pond until September, 1985 during which the pond received discharges from the Morris Operation's demineralized water system (Van Hoomissen, 1985). The discharges consisted of the acidic (nitric acid) and caustic (sodium hydroxide) rinse waters that were used to regenerate the ion-exchange units. These discharges were arguably regulated under the Resource Conservation and Recovery Act (RCRA) as a characteristic hazardous waste (261.22(a)(1)) because of their corrosiveness. GE submitted a Part A permit application as a TSD to USEPA Region V in November, 1980 and operated the evaporation pond under interim status until September, 1985, when a neutralization tank was installed to receive the regeneration waste streams, prior to their discharge to the evaporation pond.

With the elimination of corrosive wastewater discharges to the evaporation pond after the installation of the neutralization tank, GE believed that it had met the performance standards for "clean-closure" of interim status surface impoundments contained at 265.228(b), since characteristic hazardous wastes were no longer being managed in the evaporation pond. In October, 1985 GE advised USEPA Region V by letter that it did not intend seeking permanent TSD status for the Morris Operation evaporation pond (Van Hoomissen, 1985). On October 28, 1985 GE submitted a closure plan for all the TSDs that had been identified on its Part A application, which consisted of two drum storage areas, and the evaporation pond (Voiland, 1985). Reference is made

therein to GE's intention to discontinue the operation of the surface impoundment as an "elementary neutralization unit". GE believed that it had met the performance standards for clean-closure under Part 265 by discontinuing the direct discharge of the demineralizer regeneration waste streams to the evaporation pond. GE took this position based on its consideration of the characteristics of the waste streams and the evaporation pond. Demineralizer regeneration occurred approximately once every two weeks and generated a wastestream of 10 gpm for approximately four hours. Considering the volume of the pond (i.e., between 5 and 14 million gallons at all times) dilution of the regeneration discharge pH would have been instantaneous. In fact, GE regularly monitored the evaporation pond for pH, and for the 70 measurements reported, which covered a seven-year period, the range of pH measurements was 7 to 9.9 (Ingels, 1988).

Regardless of the appropriateness of GE's assumption, that it had successfully closed the Morris Operation evaporation pond, changes in the RCRA-regulations brought about by the Hazardous and Solid Waste Amendment of 1984 (HSWA) have resulted in significant changes to the rules that govern closure of interim-status surface impoundments.

Prior to the enactment of HSWA, surface impoundments could close under interim status and be exempt from all future Part 265 ground-water monitoring requirements by making the closure demonstrations allowed under 265.228(b). HSWA (Section 3005(i)) requires that any surface impoundment that received hazardous waste after July 26, 1982 or that certified closure after January 26, 1983 must meet the Part

264 Subpart F requirements for new permitted units. Unlike Section 265.90(e), Subpart F of Part 264 does not allow a waiver from ground-water monitoring requirements for neutralization surface impoundments.[1] Subpart F of Part 264 contains the regulations governing the detection and corrective action of releases from solid waste management units to ground water. The extent of Subpart F requirements at closed permitted surface impoundments is based on the type of closure that was implemented for the unit. Under the new regulations, an interim status surface impoundment can be closed in basically one of two ways(264.228); (1.) closure as a landfill, which requires a 30-year post-closure monitoring period, or (2.) closure by removal and decontamination, i.e., clean-closure.

The new interim status regulations, which were finalized in September, 1987 require interim status units to meet the same closure standards as permitted units (Fed. Reg. 8706, March 19, 1987). An interim status surface impoundment that was clean-closed under the old interim status closure standards (265.228(b)), may not have met the Part 264 closure by "removal or decontamination" standard for permitted units (264.228(a)).

---

(1) **A condition of the waiver allowed under 265.90(e) is that a written demonstration be prepared that establishes that any corrosive wastes that may have entered the surface impoundment would be neutralized to the extent that they no longer exhibit the corrosivity characteristic before they could have migrated out of the impoundment. Appendix B of this Closure Plan contains the written demonstration for the Morris Operation evaporation pond, and is submitted to comply with Item No. 2 of USEPA's Consent Agreement and Final Order (CAFO).**

The purpose of the proposed sediment sampling and ground-water monitoring at the Morris Operation evaporation pond is to make an "equivalency" demonstration to show that GE's previous closure of the evaporation pond met the Part 264 standards. The basis of the equivalency demonstration will be the results from the sediment sampling and ground-water monitoring program that GE will conduct.

This Closure Plan report has been organized into the following sections. Section 2.0 summarizes the specific actions required of GE as a result of the USEPA's Consent Agreement and Final Order (CAFO). Section 3.0 consists of a description of the facility conditions and a discussion of its historical operation.

Section 4.0 describes the Sampling and Analysis program that will be conducted by GE. The Sediment Sampling Plan and the Ground-Water Monitoring Plan are presented in this section.

Section 5.0 presents the closure cost estimate for clean-closure of the Morris Operation surface impoundment.

The support data in the Appendices consists of the following documents:

- Quality Assurance Project Plan.
- Written Demonstration for Waiver under 265.90(e) from 265 Subpart F Ground-Water Monitoring Requirements.

2.0 REGULATORY FRAMEWORK

2.1 USEPA COMPLAINT AND COMPLIANCE ORDER

On September 26, 1988 USEPA Region V filed a Complaint and Compliance Order against the General Electric Company (GE) for RCRA violations related to the operation of an interim-status surface impoundment at GE's Morris Operation located in Morris, Illinois. The State of Illinois has received final authorization from the USEPA to administer a hazardous waste program in place of the Federal RCRA program. The Illinois Environmental Protection Agency (IEPA) has been designated as the State agency responsible for administering the program. Therefore, facilities in Illinois that qualify for interim status under the Federal Code (40 CFR 270.70) are regulated under the Illinois provisions found at 35 Illinois Administrative Code (IAC) Part 720, rather than the Federal regulations found in 40 CFR Part 265. Therefore, throughout this closure plan, the Illinois Administrative Code will be referenced whenever regulatory citations are required for clarification.

The Complaint and Compliance Order was filed on behalf of the IEPA by the USEPA, which has the authority to enforce state regulations in those states authorized to administer a hazardous waste program.

A summary of the regulatory violations cited in the Complaint is presented below:

- The provisions of 35 Illinois Administrative Code 725.212(a) and 725.212(c)(1), which require the preparation and submittal of a written closure plan to address closure of the evaporation pond at the GE Morris Operation.

- The provisions of 35 Illinois Administrative Code 725.242(a) and 725.242(b) which require preparation of a written closure cost estimate.

- The provisions of 35 Illinois Administrative Code 725.243 which require the demonstration of financial assurance for closure of interim status units.

- The provisions of 35 Illinois Administrative Code 725.190 through 725.194 which require compliance with the interim-status ground-water monitoring requirements.

2.2 CONSENT AGREEMENT AND FINAL ORDER

Based on the findings contained in the Complaint and Compliance Order, the General Electric Company and the USEPA have entered into a Consent Agreement and Final Order (CAFO) to address the regulatory violations cited in the Complaint (see Section 2.1). The effective date of the CAFO, as defined in the Stipulations Section therein, was February 15, 1989.

There are four specific orders contained in the CAFO regarding the evaporation pond at the GE Morris Operation, that require a response by the General Electric Company. These specific items are enumerated below:

1. Preparation of a closure plan, and if necessary a post-closure plan for the evaporation pond. The plan(s) must meet the requirements of 35 Illinis Administrative Code (IAC) 725, Subpart G.

This Closure Plan report has been prepared, and is being submitted in response to this order. It is GE's intention to make an "equivalency" demonstration of clean-closure for the

Morris Operation evaporation pond, by implementing the Sampling and Analysis Program that is described in Section 4.0 of this Closure Plan report. The Sampling and Analysis Program has been designed to provide the analytical data necessary to document that the pond sediments and subsoils (i.e., ground water by USEPA regulatory interpretation) are not contaminated with hazardous waste, and that the "removal and decontamination" closure performance standard at 35 IAC 725.328(a) has been met.

2. Preparation of a written plan for a ground-water monitoring program as required by 35 IAC 725, Subpart F. USEPA has indicated in the CAFO that this requirement can be met by preparation of a written demonstration for a waiver from the ground water monitoring requirements, as allowed under 35 IAC 725.190(e). The referenced paragraph of the Illinois Administrative Code states that the ground-water monitoring requirements for interim status facilities described in Subpart F, may be waived for any surface impoundment that was used to neutralize wastes which were hazardous solely because they exhibited the characteristic of corrosivity.

This waiver provision specifically addresses the conditions that existed at the GE Morris evaporation pond during its operation under RCRA interim status. A condition of the waiver is that the wastes are neutralized to the extent that they no longer meet the corrosivity characteristic before they could migrate out of the impoundment (35 IAC 725.190(e)(2)).

GE believes that the Morris Operation evaporation pond qualifies, and always did qualify, for the waiver as allowed under the Illinois Administrative Code. GE intends responding to this particular order in the CAFO by preparing

the written demonstration as allowed by the previously cited regulations. The written demonstration for a waiver has been incorporated into this Closure Plan report as Appendix B.

3. As part of the closure plan discussed in Item (1.) above, a cost estimate must be developed that addresses the specific closure requirements for surface impoundments contained at 35 IAC 725.328.

An estimate of the closure cost for the Morris Operation evaporation pond is presented in Section 5.0 of this Closure Plan report. The estimate consists of the costs required to make the clean-closure "equivalency" demonstration.

4. Submittal to the Illinois Environmental Protection Agency (IEPA) by GE, financial assurance for the cost of closure of the Morris Operation evaporation pond. The financial assurance must be for the total cost contained in the closure cost estimate discussed in item (3.) above.

3.0 FACILITY DESCRIPTION

The USEPA has issued guidance pertaining to the information that should be presented in a closure plan (USEPA, 1987). The closure plan must provide sufficient detail to allow the USEPA and state regulatory agencies to evaluate whether the conditions assumed in the plan adequately reflect the actual conditions at the facility; and also, whether the cost estimates presented are consistent with the proposed activities described in the plan. This section of the Closure Plan report for the GE Morris Operation evaporation pond presents site-specific information related to conditions at the facility. The types of

information presented include; a facility description, a general description of hydrogeologic conditions in the vicinity of the evaporation pond, and a description of the evaporation pond and its historical operation.

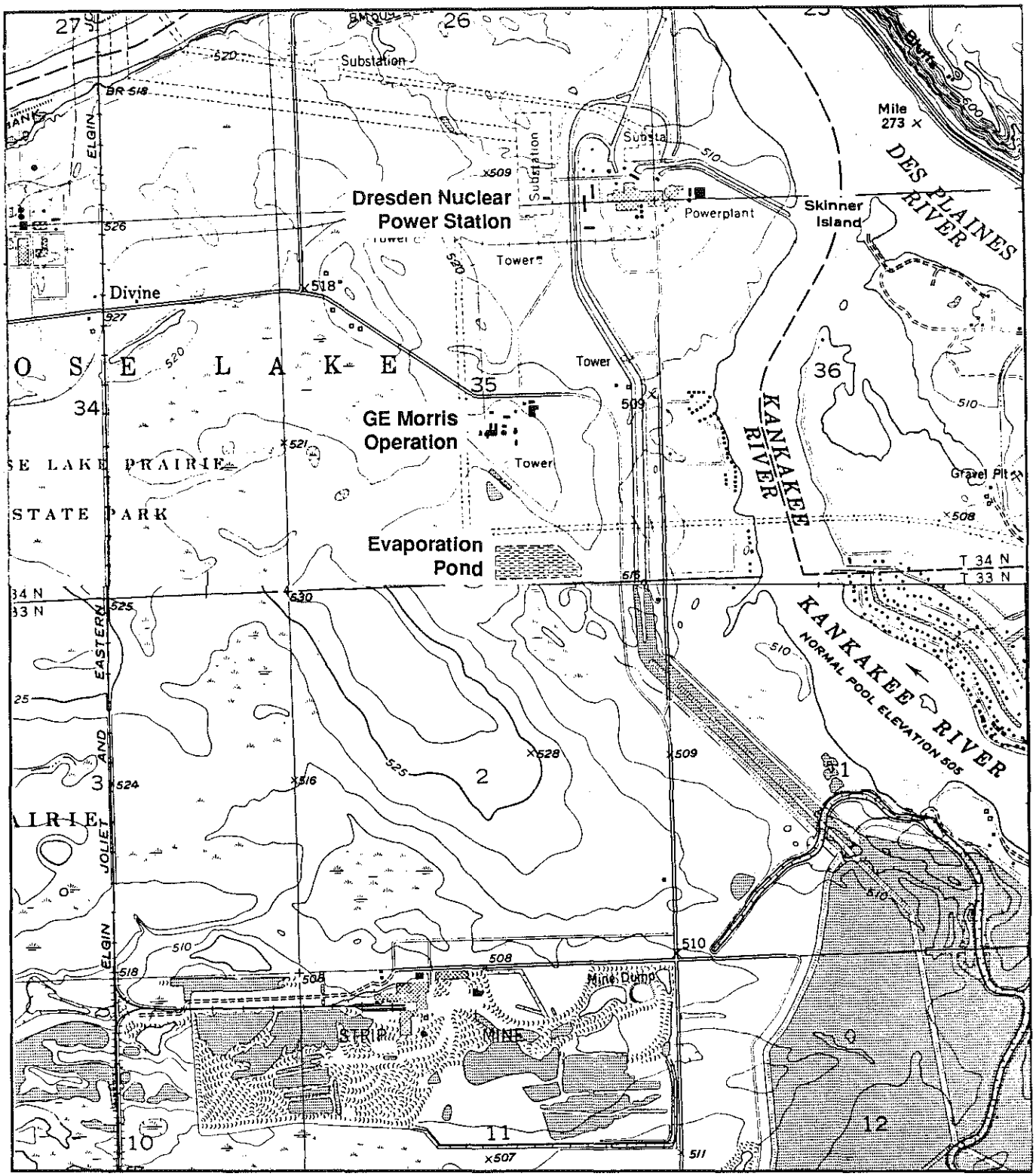
3.1 FACILITY LOCATION

The GE Morris Operation is located east of Morris, Illinois in the southeast 1/4 of Section 35, Township 34 North, Range 8 East in Grundy County. The cities of Joliet and Chicago are 14 miles and 48 miles northeast of the site, respectively. The site is approximately 6,000 feet southwest of the confluence of the Kankakee and Des Plaines Rivers. These rivers form the Illinois River, which flows in a westward direction. Figure 1, Site Location Map, shows the site location in relation to local features.

The site is located on a topographic high that is about 530 feet above mean sea level (MSL). The topographic relief in the vicinity of the site is on the order of 25 feet. The Kankakee River is about 3,000 feet east of the site and the Illinois River is about 6,500 feet north of the site; both rivers have an average water elevation (near the site) of 505 feet MSL.

3.2 HYDROGEOLOGIC CONDITIONS

A discussion of the general subsurface stratigraphy and hydrology at the facility is presented in Section 4.0 of this Closure Plan report (see Sections 4.2 and 4.3).



SOURCE: USGS 7.5 Minute Topographic Maps, MINOOKA & COAL CITY, ILLINOIS Quadrangles, 1980

N

0 1000 2000 4000

SCALE IN FEET

GERAGHTY & MILLER, INC.
Ground-Water Services

FIGURE 1
SITE LOCATION MAP
GENERAL ELECTRIC COMPANY
MORRIS, ILLINOIS

3.3 HAZARDOUS WASTE MANAGEMENT UNIT

The GE Morris Operation is a nuclear fuel storage facility, which is licensed by the Nuclear Regulatory Commission. The facility is used to store spent nuclear fuel rods from commercial reactors. The rods are stored in tanks which must be filled with demineralized water. Demineralized water is produced at the plant from water supplied by an onsite production well, which is then treated by an ion-exchange process. The cation and anion resins contained in the ion-exchange beds require periodic regeneration.

Acid and caustic rinse solutions are used to regenerate the resin beds. The discharged rinsewaters from the resin regeneration step may have been for brief periods, a RCRA-characteristic waste due to their corrosivity (i.e., pH less than or equal to 2 or greater than or equal to 12.5). This waste was managed by GE onsite, in an interim- status evaporation pond until September, 1985, when a neutralization tank (i.e., elementary neutralization tank) was installed to receive the regeneration rinsewaters prior to their discharge to the evaporation pond. GE submitted a Part A permit application as a TSD, for operation of the evaporation pond to USEPA Region V in November, 1980. The interim-status evaporation pond is the hazardous waste management unit that is the subject of this Closure Plan report.

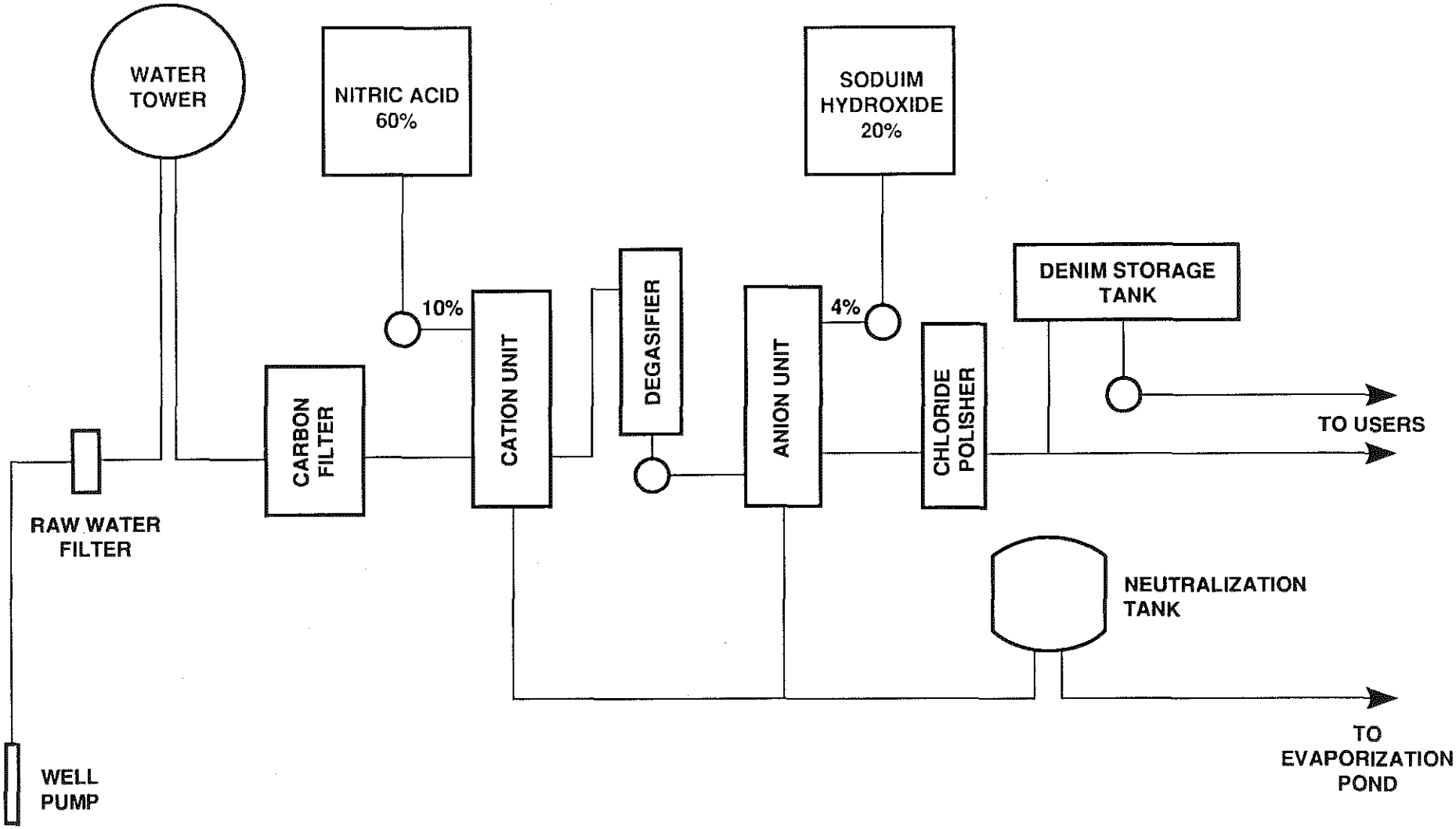
3.3.1 Demineralized Water System

The demineralized water system consists of six major pieces of equipment; a carbon filter, cation exchange units, degasification tower, anion exchange units, polishing unit, and a neutralization tank was added to the system in 1985. A schematic diagram of the process flow is presented in Figure 2.

The purpose of the carbon unit is to remove suspended solids and other impurities from the well water. From there water moves to one of the two cation units. The function of the cation unit is to remove the metallic impurities such as magnesium, calcium, and sodium through ion exchange which takes place in the unit which is 30 inches in diameter and six feet high.

In the degasification tower fresh air is introduced to the water flowing through the tower, thereby removing dissolved carbon dioxide from the water. Water from the tower is then pumped to one of the anion units. The function of the anion unit is to remove negatively charged ions such as chlorides and nitrates through an ion exchange process.

From the anion unit water moves to the water polisher which removes trace amounts of chlorides and nitrates which may be remaining in the demineralized water stream. The unit contains a mixed bed anion-cation resin which is not regenerable and is replaced when exhausted. Once through the polishing unit the demineralized water is ready for use throughout the facility.



GERAGHTY & MILLER, INC.
Ground-Water Services

FIGURE 2
PROCESS DIAGRAM
DEMINERALIZED WATER TREATMENT SYSTEM
GENERAL ELECTRIC COMPANY
MORRIS, ILLINOIS

The importance of demineralized water necessitates very rigorous automated and manual monitoring and control. Whenever unacceptable levels of hardness are detected, spent units are taken out of line and regenerated or replaced. It is the past regeneration process discharges which were arguably regulated under the RCRA program. Since 1985 the waste generated during the regeneration of the cation and anion units has been neutralized in a neutralization tank. Prior to September, 1985 regeneration wastes were discharged into the 15-acre evaporation pond in the southern part of the facility. Depending on the climatic conditions the pond would typically contain between 5 and 14 million gallons of water with a pH regularly monitored, and varying between 7.3 and 9.9. Discharges to the pond were sequential; that is, the rinse waters from the cation regeneration were discharged first then immediately thereafter the rinsewaters from the anion regeneration. Wastes flowed through a 4-inch diameter pipe and were discharged directly into the evaporation pond.

The regeneration process starts with a water backwash which takes 10 minutes. The cation regeneration process involves the injection of a combined water acid stream of 10 percent acid. After the acid injection is terminated water is pumped through the bed to displace excess acid. The total process takes about 105 minutes including the water backwash cycle.

The anion regeneration is accomplished by injecting a flow of 4 percent caustic into the anion unit. Water is then pumped through the unit to remove excess caustic. The process takes about 125 minutes.

Following the regeneration of the cation and anion units a rinse down cycle takes place to insure the units have been properly regenerated and are operating properly. Once monitoring shows that the units are functioning properly the controls are adjusted to terminate discharge as waste and the units are ready for operation. The rinse-down phase typically takes 60 minutes and starts with a discharge pH of 10.5. Thus, the total time for regeneration is 290 minutes or approximately 4.5 to 5.0 hours. The pH of the regeneration wastewaters varies from 9.5 to 1.5 to 2.75 during the acid injection, displacement and cation rinse and from 2.75 to 12.5 to 10.5 during the caustic injection, displacement and anion rinse. Final rinse down drops the pH to the 7.5 to 8.5 range from 10.5. The regeneration process associated with the introduction of acid and caustic substances lasts approximately 230 minutes (290 minutes - 60 minutes final rinse). During this 230 minutes, the regeneration process generates approximately 2,390 gallons: 1,500 gallons for the cation unit regeneration phase and 890 gallons for the anion unit regeneration phase. Regeneration frequency is variable but a historical average was once every 11 days.

4.0 SAMPLING AND ANALYSIS WORK PLAN

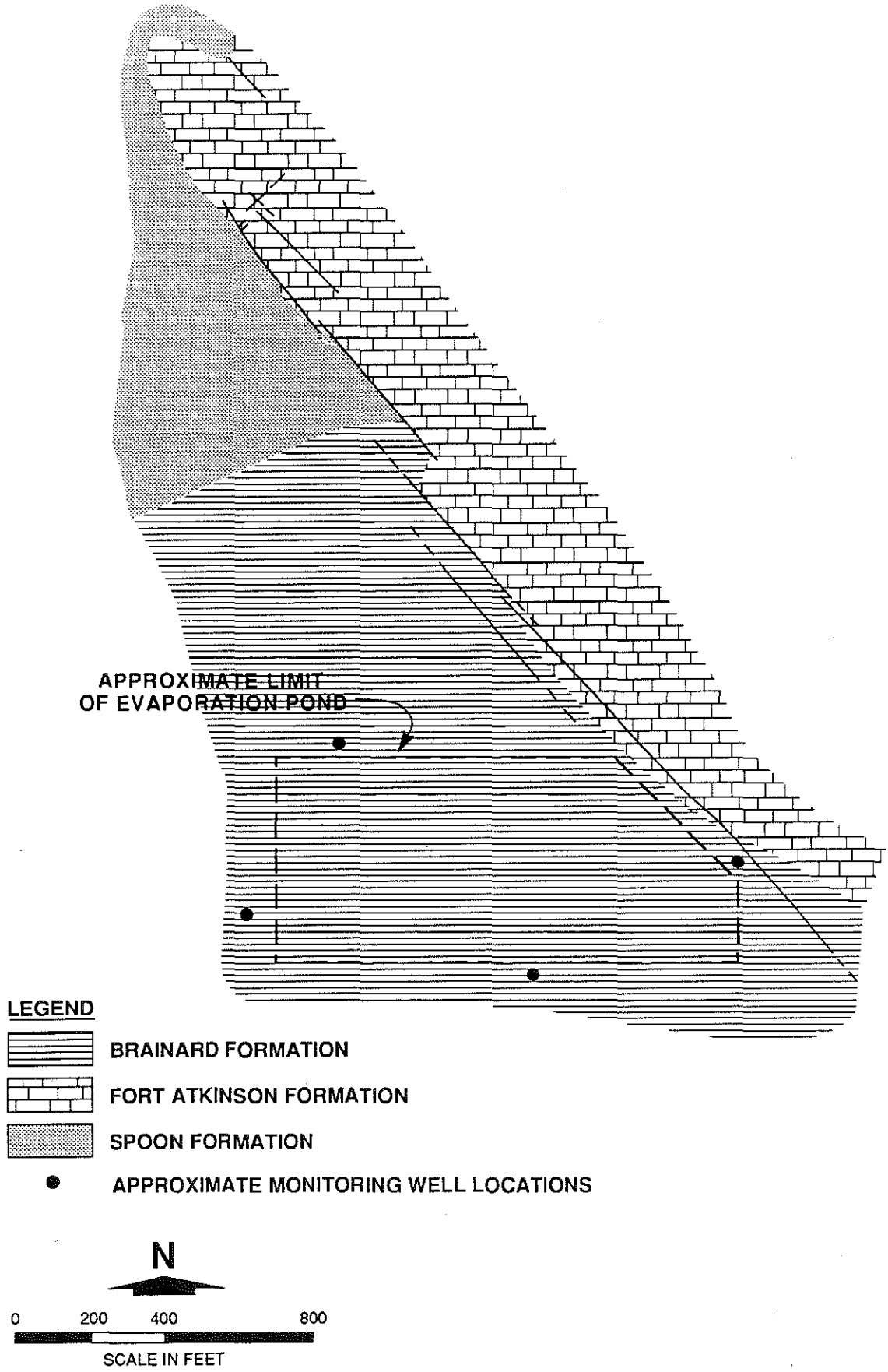
4.1 INTRODUCTION

This Work Plan prepared by Geraghty & Miller, Inc. outlines the sediment sampling and ground-water monitoring plans to be implemented to achieve the closure of a former evaporation pond (pond) operated by General Electric Company

at its Morris, Illinois Operation Facility (Figure 1). When in use, the 15.5-acre pond received pH-neutralized waste water from a water demineralization treatment system at the facility. The inactive pond is unlined and its bottom is overgrown with vegetation. The pond is occasionally filled with water from precipitation. The pond is regulated as a surface impoundment under the interim-status Resource Conservation and Recovery Act (RCRA) regulations. Sediment sampling and analysis and ground-water monitoring are required by USEPA as part of the clean-closure equivalency demonstration for the pond. Several geotechnical and hydrogeologic investigations have been conducted at the main plant area of the facility by Dames and Moore (Dames and Moore, 1977).

4.2 SITE GEOLOGY

The general subsurface stratigraphy at the facility consists of a thin layer of unconsolidated material overlying Pennsylvanian and Ordovician bedrock. The overburden material ranges in thickness from 2-to-10 feet and generally consists of glacial and weathered bedrock material. The Brainard Shale (Ordovician) is delineated to be the uppermost bedrock unit present beneath the pond (Figure 3). This shale is absent in the main plant area, but is reported to be up to 13 feet thick in the vicinity of the pond. Some thin, scattered occurrences of the Spoon Formation (Pennsylvanian sandstone) overlying the Brainard Shale are reported to occur in the vicinity of the pond. The Fort Atkinson Formation (Ordovician limestone) underlies the Brainard Shale and is reported to be up to 40 feet thick. Beneath the Fort Atkinson Formation is the Scales Shale (Ordovician) which is reported to be 65 to 70 feet thick.



GERAGHTY & MILLER, INC.
Ground-Water Services

FIGURE 3
SITE AREA
BEDROCK LITHOLOGY MAP
GENERAL ELECTRIC COMPANY
MORRIS, ILLINOIS

A fault, which is part of the Sandwich Fault Zone and LaSalle Anticline Belt, underlies the main plant and has been the focus of many site investigations (Dames and Moore, 1977). The fault has been accurately defined in the main plant area, however; it is not as precisely located near the pond. Previous investigations estimated the fault location to be less than 100 feet northeast of the pond (Figure 3).

4.3 SITE HYDROLOGY

RCRA ground-water monitoring requirements state that monitoring wells will be installed in the uppermost aquifer beneath the pond. The water table is expected to occur 10 to 20 feet below ground surface. The unconsolidated surficial material and the Spoon sandstone (if present) are anticipated to be unsaturated and are not regarded as aquifers. Underlying the unconsolidated materials is the Brainard Shale which is expected to be approximately 15 feet thick in the area of the pond. Because of the variability in the thickness of the overburden and Spoon Formation, and the fluctuations in seasonal water level elevations, it is not known whether the Brainard Shale lies entirely within the saturated zone. When compared to other aquifers in the area, the Brainard Shale is a relatively impermeable unit which would yield only limited amounts of ground water. These factors indicate that the Brainard Shale would not function as the uppermost aquifer in the area of the pond. Underlying the shale is the Atkinson Formation (limestone) which previous studies have demonstrated to be relatively permeable. This unit is anticipated to be saturated and is designated the uppermost aquifer in the vicinity of the pond.

Previous investigations have shown that the general ground-water flow direction on the downthrown side of the fault in the Fort Atkinson Formation is to the southwest (Dames & Moore, 1977). The fault functions as a barrier to ground-water flow in the main plant study area with the hydraulic head being greater on the upthrown side than on the downthrown side of the fault. Previous studies have also documented that a downward hydraulic gradient exists between the Spoon/Brainard Shale Formations and the Fort Atkinson Formation.

4.4 SURFACE SEDIMENT SAMPLING

4.4.1 Sediment Sampling Rationale

USEPA requires that surface sediment samples be collected from the floor of the pond to demonstrate clean-closure equivalency. These sediment samples will be used to evaluate the nature and extent of any residual contamination of the sediments in the pond, and provide data to assess the potential risks and environmental impacts that may exist. The locations and number of sediment samples to be collected were selected to provide a statistically representative data base that is appropriately precise and accurate for this closure plan.

The number of sediment samples is based on USEPA guidelines and recommendations presented in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW 846) for monitoring land treatment and environmental units. The approximate pond boundaries were estimated and the surface area of the pond floor is calculated to be approximately 15.5

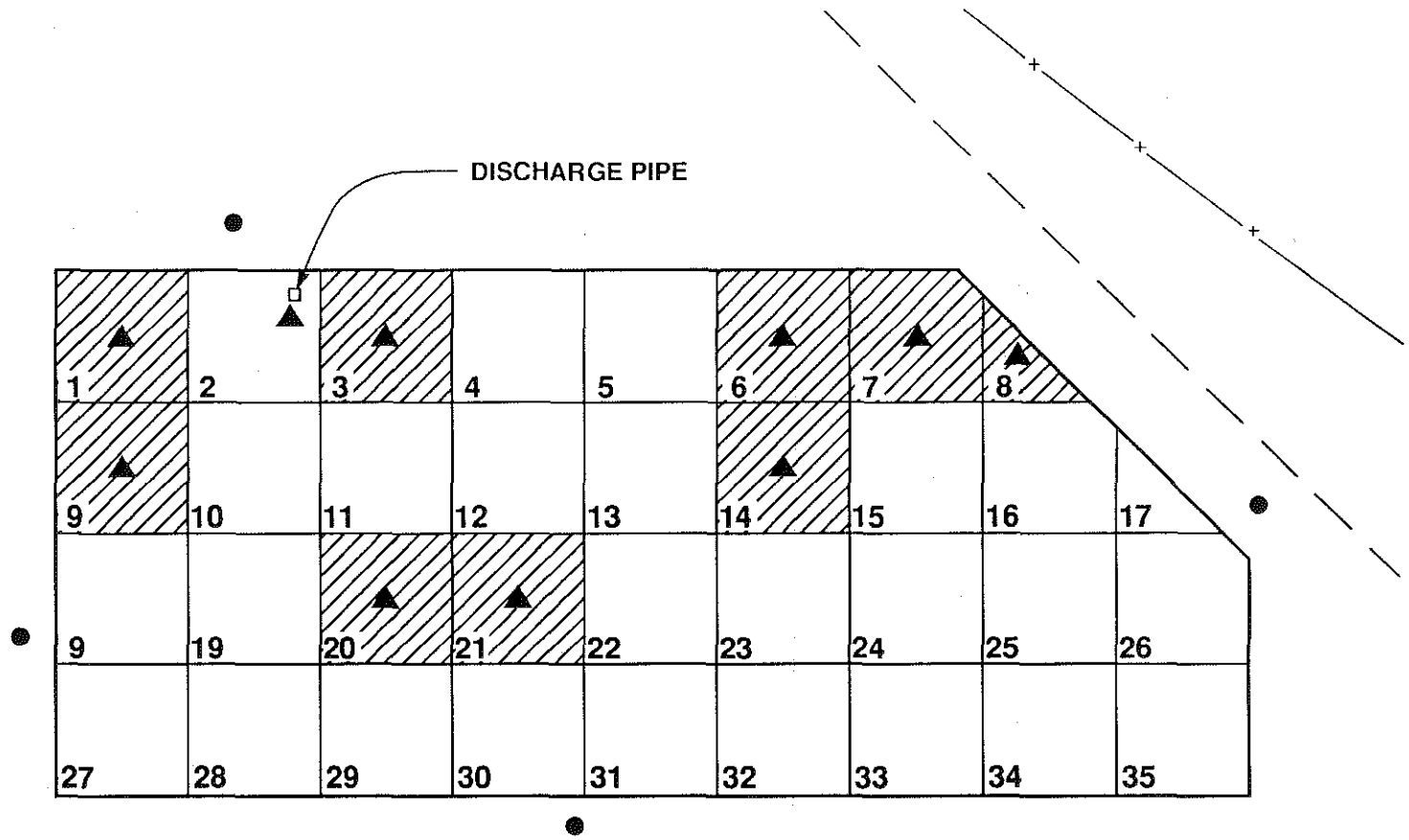
acres. Based on USEPA sampling strategy guidance (SW-846, Chapter 9) the pond surface area has been divided into a defined grid system. A total of nine discrete randomly selected sediment samples will be collected plus one additional targetted sediment sample from near the discharge pipe.

4.4.2 Random Sample Locations

The procedures used to select the random sampling points consisted of dividing the pond into a 150 ft. grid system (Figure 4). This resulted in a total of thirty-five 150 ft. x 150 ft. grids within the pond area. Each of the grids was then assigned an integer from 1 to 35 as a unique identifier. Nine random numbers were then identified within the total field of 35 grid numbers, using a random number generator algorithm. Each random number so identified, defined the correspondingly numbered grid as a randomly selected sampling location.

A baseline coordinate system will be established in the field for the grid system. The sampling point will be located in the field to the nearest foot using a pocket transit and measuring tape. If conditions permit and accuracy can be maintained, distance measurements will be paced.

The grid origin and sampling collection points will be marked with survey stakes and/or pin flags. These markers will remain after sampling so that in the future they can be easily relocated. The collection point markers will be clearly labeled with sample number and quadrant grid coordinates.



SOURCE: GRADING PLAN
EVAPORATION POND, FLUOR CORPORATION, 1968

N

0 100 200 400

SCALE IN FEET

GERAGHTY & MILLER, INC.
Ground-Water Services

LEGEND

● **PROPOSED MONITORING WELL LOCATION**

▲ **SEDIMENT SAMPLING LOCATION**

— — **ESTIMATED FAULT LOCATION**

FIGURE 4
RANDOM SEDIMENT SAMPLING LOCATIONS
GENERAL ELECTRIC COMPANY
MORRIS, ILLINOIS

4.4.3 Sediment Sampling Procedure

At each sampling location in the pond, a sediment sample will be collected from the upper two to six inches of sediment using a clean stainless steel trowel or scoop. The sampling procedures will be as follows:

- On the sediment sample collection form, the sample location (sketch map with sample quadrant grid coordinates), sample identification number, date, time, sampling personnel, sampling method and any other noteworthy information will be properly recorded.
- The upper surface vegetation litter will be removed from the area surrounding the sample location using a clean trowel or scoop. To monitor (for health and safety purposes) the air and soil quality, the exposed sediment will be immediately screened for volatile organics with a photoionization detector (HNU). If there is no detection of organic vapors, the sample will then be collected and placed in the appropriate glass sample container. If organic vapors are detected the vapors will be allowed to dissipate before sampling.
- The full sample jar will then be properly labeled and stored on ice in a secure storage area until subsequent packaging and shipment to the laboratory.

To prevent sample cross contamination, all sampling equipment, instruments, etc. will be properly decontaminated between each use. Equipment decontamination procedures will include using a tap-water/trisodium phosphate (TSP) solution wash, tap-water rinse and final deionized water rinse.

Surface sediment samples will be analyzed for EP Tox metals and laboratory pH.

Equipment for the surface sediment sampling program will include:

- Field notebook with appropriate collection forms, pens, marking pens, labels, custody tape, strapping tape.
- Eight-ounce glass sample jars (provided by the project laboratory).
- Stainless steel trowel or scoop.
- Organic vapor analyzer.
- Personal safety equipment.
- Distilled/deionized and tap water.
- TSP and scrub brushes.
- Cooler with ice.

4.5 GROUND-WATER MONITORING PLAN

As part of the RCRA clean-closure equivalency demonstration for the pond, four monitoring wells will be installed. The monitoring well network design is based on the results of previous investigations conducted at the site that defined the various aquifer units, and the general ground-water flow directions. Subsurface materials will be sampled during the installation of the monitoring wells. This information will be used to better define the geology and hydrology in the vicinity of the pond. Ground-water samples will also be collected quarterly, for one year, from the newly installed monitoring wells.

4.5.1 Monitoring Well Location Rationale

The monitoring wells are scheduled to be installed along the perimeter of the pond (Figure 4). The monitoring wells on the north, west and south side of the pond will be on the downthrown side of the fault. The monitoring well on the

east side of the pond, where the fault is not accurately defined, is anticipated to be on the downthrow side of the fault. This boring will also determine if any part of the pond was constructed on the upthrown side of the fault. The eastern monitoring well will be hydraulically upgradient (i.e., in the direction of increasing static head) of the pond and serve as a background monitoring well. Based on previous investigations, this background monitoring well will yield ground-water quality data that has not been influenced by the pond. Monitoring wells on the south and west sides of the pond are hydraulically downgradient (in the direction of decreasing static head). All the monitoring wells will be installed in the Fort Atkinson Formation which has been determined to be the uppermost aquifer in the vicinity of the pond.

If during this investigation, the Spoon Formation is discovered to be the uppermost aquifer (i.e., the formation is horizontally and vertically extensive enough, and saturated) then the monitoring wells will be constructed in this aquifer system.

4.5.2 Monitoring Well Installation

The monitoring wells will be installed following RCRA, USEPA and IEPA monitoring well construction standards. The monitoring wells will be installed in the Fort Atkinson Formation, if as expected, it is determined to be the upper most aquifer in the vicinity of the pond. The entire thickness of the Fort Atkinson is anticipated to be saturated. The monitoring wells will be constructed of two-inch (ID) stainless screen and casing. All the monitoring wells will be screened and gravel/sand packed. The annular

space above the gravel/sand pack will be properly sealed to prevent surface sources of contaminant from entering the aquifer.

The Fort Atkinson aquifer is overlain by approximately 2-to-10 feet of overburden material and approximately 15 feet of Brainard Shale. Ground water in the Fort Atkinson aquifer is anticipated to be between 10 and 20 feet below ground surface. Studies have shown substantial seasonal ground-water elevation fluctuations (greater than 10 feet) in the Fort Atkinson aquifer system when it is not covered by the Brainard Shale. It is expected that the seasonal fluctuations will be subdued in the Fort Atkinson aquifer where the Brainard Shale is present.

At the east and west monitoring well locations, the Brainard Shale, Fort Atkinson Limestone, and upper few feet of Scales Shale will be continuously cored to evaluate the geology and hydrology beneath the pond. The rock cores will be advanced a few additional feet past the Fort Atkinson-Scales Shale unconformity to accurately define this contact. Many bedrock cores have already been collected in the vicinity of the main plant during previous investigations; however, there is limited stratigraphic information near the pond. The east and west monitoring well borings will be advanced first and if these core logs are substantially different from the other previous study's core logs, then the other two boring will also be cored. If the east and west boring core logs are similar to the previous study's core logs then the north and south borings will be simply drilled out but not cored.

Previous studies have shown that the permeability in the Fort Atkinson decreases slightly with depth. The most permeable zones appear to be located in the uppermost horizon of competent limestone. This horizon appears to have the greatest concentration of joints and fractures. The monitoring wells will be screened in this horizon such that the top of the screen is 2-to-3 feet below the top of the Fort Atkinson limestone.

Rock coring will be made through minimum six-inch ID augers or temporary casing that has been driven or seated into the top of bedrock. This will be done to prevent seepage between the overburden material and bedrock during rock coring. Prior to coring, all loose and foreign material will be removed from the inside of the augers or temporary casing. The bedrock surface is estimated to be between two and ten feet below ground surface. The top of weathered bedrock and top of competent bedrock will be clearly noted on the boring record.

Rock coring procedures will be conducted according to ASTM Designation 2113 "Diamond Core Drilling for Site Investigation." Coring will be done using an N series (NX or NWM) double-tube core barrel with diamond bit and reaming shell or NQ wire line. In soft or friable formations, an NWM double-tube core barrel will be used. The drill rod will be N-series, or equivalent. Rock core runs will be no longer than 10 feet.

Immediately upon recovery of the core barrel from the boring, the rock core will be carefully removed from the barrel and placed in the core box. To monitor (for health

and safety purposes) the air and rock core quality, the rock core box will then be scanned for organic vapors with a photoionization detector and properly recorded on the rock core log and field notebook. The rock core will then be logged by the site geologist. The following information will be included on the rock core log.

- Heading information such as project name and number, boring number and location, personnel responsible for logging the core, ground water elevation, date started and date completed.
- Depth/elevation of stratigraphic changes recorded in feet and tenths of feet;
- Detailed rock description including rock type, color, bedding thickness, grain size, composition, hardness, cementation and/or friability, fractures, soundness, weathering and any other noteworthy information;
- Run number;
- Depth/elevation of top and bottom of run;
- Total core recovery;
- Percent core recovery;
- Rock Quality Designation (RQD); and,
- Water level information and method of determination;

All rock core boxes will be constructed of wood, or approved equivalent. The rock core boxes will be stored in such as manner as to preserve their relative position by depth. Intervals of lost core shall be annotated in the core sequence with wooden blocks or dowels. The top and bottom of

each core run will be clearly marked on the core box and core with permanent ink markers. The boxes will be properly labeled on the inside and outside lid with the following information.

- Project name and number.
- Boring number.
- Date.
- Run number and cored interval.
- Box number in case of multiple boxes.

After the core box is properly labeled it will be photographed in the field.

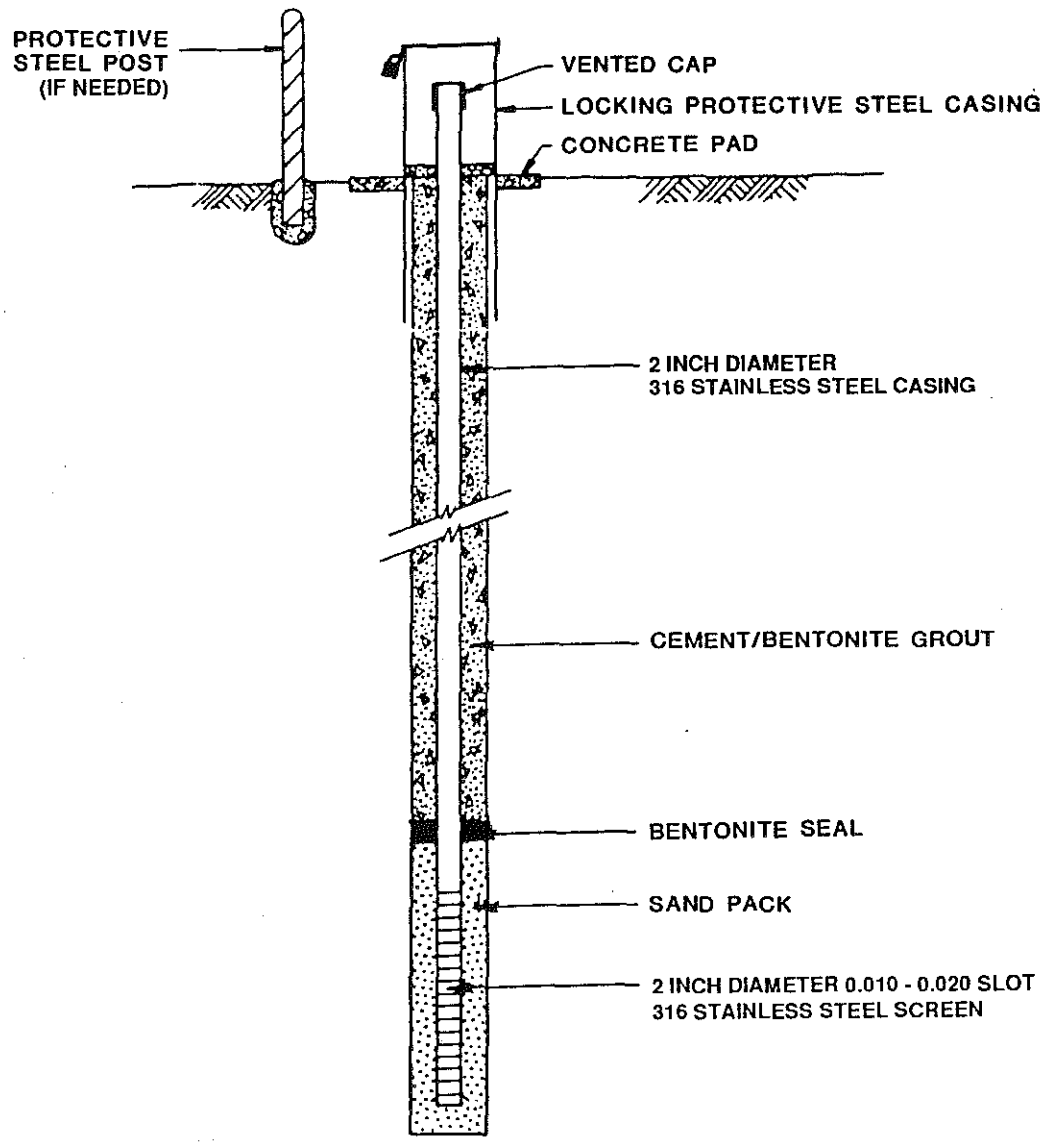
After coring has been completed to the desired depth, the hole will be reamed to a minimum of five inches in diameter using air or tap-water percussion or rotary methods. If rock cores are not collected the boring will be drilled out using the same methods. The borings that are not cores will be advanced to the depth where the monitoring well will be constructed. Prior to monitoring well installation, if conditions permit, tap water will be circulated in the open boring to remove any fine grained material that may be in the fractures, joints or bedding partings.

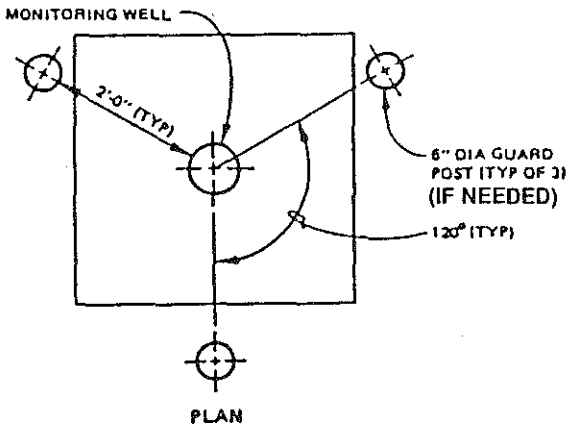
Before the monitoring well is constructed in the cored boring, the borehole will be properly sealed with grout from the contact between the Fort Atkinson and Scales Shale Formations to 2-to-3 feet below the bottom of the monitoring well screen. This will be done to guarantee that there is no leakage from deeper in the Fort Atkinson Formation that could possibly influence the ground water samples to be collected. Monitoring wells will be sand-packed because the bedrock may

have joints and partings which contained fine grained material. By installing sand-pack material and monitoring well screens, the amount of fine grained material entering into the monitoring well will be minimized. Although the monitoring well yield will be reduced, this reduction should not significantly affect the ground-water sampling effort.

Monitoring well construction will be supervised by the site geologist. Construction details such as design, depth of the screen, sand-pack material, and grout seal will be determined in the field. The site geologist will keep a record of all material placed in the boring, including depth of the screened intervals, top and bottom of seal and monitoring well outer protective casing. The monitoring well installation will follow the procedures outlined below. The basic configuration of the bedrock monitoring well is shown on Figure 5.

- The boring will be cored and reamed, or drilled to the desired depth and flushed to clean out as much fine grained material as possible from the borehole prior to constructing the monitoring well.
- In the cores boreholes a 10 percent bentonite-cement grout mix will be placed in the borehole using a tremie pipe from the Fort Atkinson and Scales Shale Formation contact to 2-to-3 feet below where the monitoring well screen will be set.
- The bottom cap will be 316 stainless steel flush screw-type coupled.
- Monitoring well screen material will be 316 stainless steel, two-inch ID, flush screw-type coupled, wire wound 0.010 or 0.020 inch slot size. The screen will be 10 feet long and be installed such that the top of the screen is 2-to-3 feet below the top of the Fort Atkinson limestone.





GERAGHTY & MILLER, INC.
Ground-Water Services

FIGURE 5
MONITORING WELL
CONSTRUCTION DETAIL
GENERAL ELECTRIC COMPANY
MORRIS, ILLINOIS

- Monitoring well casing material will be 316 stainless steel, two-inch ID, flush screw-type coupled.

- One or more stainless steel centralizers may be installed to insure the well casing is centered in the boring.

- Two feet of casing will extend above ground surface.

- The top cap will be stainless steel with a vent hole.

- The well screen and casing will be straight, plumb and centered in the boring.

- Well-sorted quartz sand pack will be placed in the boring annulus from the bottom of the boring or grout plug to a minimum of two feet above the top of the screen.

- The remainder of the annular space will be filled with a 10 percent bentonite-cement grout mix through a tremie pipe. A 1-to-2 foot sodium bentonite pellet plug may be placed between the sand pack and grout to insure the grout does not infiltrate into the sand pack.

- A minimum six-inch ID by five-foot long steel, or approved equivalent, protective casing will be set over the top of the monitoring well casing to a height of 2.5 feet above ground surface. The protective casing lid will be hinged and have a hasp for locking.

- A concrete apron will be poured around the protective casing and be in contact with the grout.

- The protective casing will have a drain hole drilled at the apron level, and have the monitoring well number permanently stamped or welded on the lid and coated with a weatherproof paint.

- If needed, steel guard posts will be installed around the periphery of the concrete apron to protect the monitoring well against vehicle hazards.

The rock cores will not be subject to analytical or physical testing and be stored in a secure area on site for future reference.

To prevent cross contamination between the monitoring wells, all downhole drilling equipment will be properly decontaminated. This will be done before each monitoring well is started using high pressure steam.

4.5.3 Monitoring Well Development

After the monitoring wells are constructed, they will be developed prior to ground-water sampling to maximize yields and minimize the turbidity of the water during sampling. A variety of development methods are available; however, monitoring well surging using a surge block or bailer is recommended. Air development method could be used because volatile organics are not scheduled to be sampled. Monitoring wells will be considered developed when they can continuously yield sediment free water, or a minimum of ten boring volumes have been removed. During development the pH, specific conductance and temperature will be periodically measured. When these parameters stabilize (i.e., yield consistent values), they will be properly recorded along with the volume of water removed.

The development equipment will be properly decontaminated using high pressure steam to prevent cross contamination between monitoring wells. If pumps are used, the outside of the pump will be decontaminated following the above procedures and internal parts of the pump will be flushed with tap water.

Equipment needed for the monitoring well installation and development include:

- Field notebook and appropriate sample collection forms, pens, marking pens, labels.
- Drilling equipment with auguring, and rock coring and reaming,or approved equivalent, capabilities.
- Personal safety equipment.
- Volatile organic photoionization detector meter.
- Water level indicator.
- Rock core boxes.
- High pressure steam generator.
- TSP and scrub brushes.
- Distilled/deionized water.

4.5.4 Ground-Water Sampling

Each of the monitoring wells installed will be sampled quarterly for one year after installation. Ground water sampling results will be used to evaluate the impact, if any, that the pond has had on the ground-water quality in the area. It is GE's intention to cease monitoring after one year, unless adverse results indicate otherwise.

4.5.4.1 Ground-Water Sampling Procedures

Prior to sampling, the monitoring well will be purged to obtain a fresh, representative sample. Purging will be conducted using a positive displacement pump or bottom check-valve type bailer. A minimum of three-to-five boring volumes will be purged. If the monitoring well is pumped dry, and recovery is less than 50 percent within 15 minutes after complete evacuation, then the amount of ground water removed from the well will be recorded and a ground-water sample collected.

The sampling procedure for the monitoring wells will include the following steps.

1. Record well number, sample number, date, time, sampling personnel and other noteworthy information on the ground water sample collection form.

2. Clean the top of the monitoring well with a clean rag to prevent loose particulate matter from falling into the monitoring well.

3. Remove the monitoring well cap and monitor for organic vapors. If organic vapors are not detected then proceed with the sampling by wiping the inside of the casing with a clean cloth. If organic vapors are detected let the monitoring well stand open and vent itself until the vapors have dissipated.

4. Measure and record the water level in the well using a decontaminated water level indicator or steel tape. The measurement will be made to the nearest 0.01 foot.

5. Calculate the volume of water standing in the monitoring well and boring annulus and purge the monitoring well.

6. Record pH, temperature and specific conductivity while purging the monitoring well. When these parameters have stabilize, record the values and amount of water purged on the field log.

7. Remove the purge pump, if used, from the monitoring well. Care will be taken not to reintroduce purge water back into the monitoring well.

8. Collect the sample by means of a bottom check valve type bailer. To monitor (for health and safety purposes) the air and water quality, the first bailer from the monitoring well will be field screened for volatile organics with a photoionization detector and then discarded. This measurement will be recorded on the field log.

9. Sample water will be gently poured directly from the bailor into the sample bottles. The metals sample will be filtered prior to preservation in the field.

The ground-water samples will be analyzed in the laboratory for EP Tox metals and pH. Measurements of field pH, specific conductance and temperature will be taken while the monitoring well is being purged and when the ground-water sample is collected.

The following field equipment will be used for ground water sampling:

- Field notebook with appropriate collection forms, pens, marking pens, labels.
- Clean rags, disposable gloves.
- Water level indicator.
- Distilled/deionized water and wash bottles.
- TSP and scrub brushes.
- Purge pump.
- Teflon or stainless steel bailers.
- Bailor cord.
- Tools required to open the monitoring wells.
- Sample jars (provided by the project laboratory).
- Water filtering equipment including 0.45 micron filter paper.
- pH and conductivity meters (with calibration solutions) and thermometer.
- Ice chest and ice.

To prevent sample cross contamination, all sampling equipment, instruments, etc. will be properly decontaminated between each use. Equipment decontamination procedures include using a tap-water/TSP solution wash, tap-water rinse and final deionized-water rinse. If purge pumps are used the outside of the pump will be decontaminated following the above procedure and internal parts of the pump will be flushed with tap water.

4.5.4.2 Sample Numbering

A standardized sample numbering system will be used to identify each sample for chemical analysis, including replicate samples and field blanks. A listing of sample identification numbers will be maintained in a site logbook by the site geologist. The sample number will also be recorded on the appropriate sample collection form. Each sample number will consist of two components that identify the sample location and a sample identifier.

The first part of each sample number will be an alpha-code corresponding to the sample type, followed by a two-digit sample location number. The alpha codes are as follows:

GMMW--monitoring well (ground water).
GMSS--surface soil sample.
GMSB--soil boring.
GMRB--rinsate blank. Rinsate blanks will have an RB followed by the alpha code for the type of blank (i.e., a ground-water rinsate blank will be GMRBMW).

The second part of the sample number will have a two-digit number that will be the sample identifier. If multiple sampling events or depths are necessary, the event or depth identifier will start with 01 and progress sequentially with additional sampling events or depth. The sequential sample numbers will be recorded on the appropriate collection form and the field notebook. Sample identifier example numbers are shown below.

GMMW01-02	Ground water sample from monitoring well number 1 during sampling event number 2.
GMSS08-01	Surface soil sample from sample location 8, first sample collected.

As each sample is collected in the field, it will be placed in a labeled bottle and stored in an iced cooler. Metals samples (water) will be field-filtered using 0.45 micron filters prior to preservation. The appropriate preservation methods will then be followed for each sample type and analysis. The maximum holding time for each sample type to be collected is summarized in Table 1. Chain-of-Custody documents will be prepared for all samples shipped to the project laboratory.

4.5.4.3 Sample Preservation

Sample preservation requirements for the analytical parameters of concern are summarized on Table 1. All sample bottles will arrive at the site, from the project laboratory, pre-cleaned with teflon-lined lids on.

4.5.4.4 Sample Handling

Samples shipped to the laboratory for analysis will be prepared using the following procedures:

- Tighten sample bottle lids "hand" tight.
- Place two-inches of appropriate packing material in the bottom of waterproof metal or equivalent strength plastic cooler.
- Place sample bottles in the cooler in such a way that they do not touch.

- Put ice in plastic bags, or blue ice, on and around the bottles.
- Fill the remaining space in the cooler with packing material.
- Put paperwork in a plastic bag and tape it to the inside lip of the cooler.
- Close cooler and secure lid by taping cooler completely around with strapping tape at two locations.
- Tape the drain hole closed.
- Place laboratory address on top of cooler.
- Put "This Side Up" and "Fragile" labels on the cooler. Do not cover labels with strapping tape.
- Affix custody seals on front right and back left of cooler and cover seals with wide, clear tape.

While awaiting screening or packaging, samples will be stored on ice in coolers. All samples will be preserved on the same day they are collected. If samples cannot be shipped on the same day they are collected, packaging will be delayed until the following morning so that the samples can be shipped with a full load of ice. These samples will be stored on ice in coolers, and kept in a secure area.

After the samples have been packaged for shipping, custody will be transferred to the overnight courier. The laboratory will be notified of the sample shipment and the expected arrival date. An effort will be made to provide the laboratory with advance notice of the shipment.

GERAGHTY & MILLER ENGINEERS, INC.

TABLE 1

Summary of Sampling Procedures

	Sediment	Ground Water
Number of Proposed Samples	10	4
Number of Quality Control Samples	2	2
Total Samples Collected	12	6
Analysis Parameters	EP Tox Metals/pH	EP Tox Metals/pH
Volume required	500 ml/4 oz.	500 ml/25 ml
Sample Containers	glass/glass	plastic/glass

EP Tox Metals include: arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver

Preservative:

Sediment;	for EP Tox and pH	cool to 4°C
Ground water;	for EP Tox	after filtration acidify to pH < 2 cool to 4°C
	for pH	cool to 4°C

Holding Times: EP Tox (after extraction) 6 months
pH immediately upon arrival at laboratory

All soil and ground-water samples are assumed to be classified as "low hazard" samples. If medium or high hazard samples are encountered, they will be prepared in accordance with the procedures specified in "Sample Handling Protocol for Hazardous Waste REM/FIT Contract", prepared by USEPA Region V, Environmental Services Division, May 3, 1983 (USEPA, 1983).

5.0 CLOSURE COST ESTIMATE

The closure costs for the GE Morris Operation evaporation pond are those costs related to making the clean-closure "equivalency" demonstration under 40 CFR Part 265 Subpart K. A breakdown of these costs is presented below:

Activity	Cost
Preparation of Projects Plans	$14,000
Sampling and Analysis	62,000
Closure Plan	12,000
Total	$88,000

6.0 FINANCIAL ASSURANCE

The entire amount of the Closure Cost Estimate shown in Section 5.0 has already been accounted for in the 1989 Financial Operating Plan for the Morris Facility.

The General Electric Company is a New York Corporation, with total assets, including affiliated companies, in excess of $100 billion. Because of the number of Company divisions and regulated facilities involved, the standard practice has been to update on a quarterly basis the Demonstration by the General Electric Company of Financial Responsibility for Liability Coverage and/or Post-Closure Care, which is signed by the Senior Vice President - Finance.

The request to incorporate the Closure Cost Estimate for the Morris Evaporation Pond in this Demonstration for the first quarter of 1989 (a copy of which is attached as Appendix C) was made too late to secure its inclusion. A copy of the Demonstration, amended to include this relatively minor closure obligation, will be transmitted when available, which is anticipated to be at or before the end of the second quarter of 1989.

7.0 REFERENCES

American Society of Testing and Materials, 1983. Diamond Core Drilling for Site Investigation. D2113-83, Philadelphia, Pennsylvania.

Dames and Moore, 1977. Ground-Water Investigations for Phase IV Fuel Storage Capacity Expansion at the General Electric Morris Operation, Morris, Illinois, August 3, 1977.

General Electric Company, 1985. Morris Operation Closure Plan. E. Voiland and Van Hoomissen, J. September 30, 1985.

Ingels, T.E. 1988. General Electric Company. Letter to W. Francis, U.S. EPA, Region V, January 28, 1988.

U.S. Environmental Protection Agency, 1983. Sample Handling Protocol for Hazardous Waste REM/FIT Contract. Environmental Services Division, Region V, USEPA, Chicago, Illinois.

U.S. Environmental Protection Agency, 1986. Test Methods for Evaluating Solid Wastes. Publ. No. SW-846, November, 1986.

U.S. Environmental Protection Agency, 1987. RCRA Guidance Manual for Subpart G Closure and Post-Closure Care Standards and Subpart H Cost Estimating Requirements. EPA-530-SW87-010. Washington, D.C.

Van Hoomissen, J.E. 1985. General Electric Company. Letter to K. Klepitsch, U.S. EPA, Region V, October 28, 1985.

GERAGHTY & MILLER
ENGINEERS, INC.

Appendix A

Quality Assurance Project Plan
General Electric Evaporation Pond Closure
Morris, Illinois

GERAGHTY & MILLER
GINEERS, INC.

Quality Assurance Project Plan

General Electric Evaporation Pond Closure
Morris, Illinois

GERAGHTY & MILLER
ENGINEERS, INC.

Quality Assurance Project Plan
Evaporation Pond Closure
Morris, Illinois

Prepared for:
General Electric

Prepared By:
Geraghty & Miller, Inc.

	Approval:	Date:
Geraghty & Miller, Inc. Project Manager	_____	_____
Geraghty & Miller, Inc. Quality Assurance Control Officer	_____	_____
General Electric Project Coordinator	_____	_____
Environmental Protection Agency Quality Assurance Officer	_____	_____

GERAGHTY & MILLER ENGINEERS, INC.

Quality Assurance Project Plan

TABLE OF CONTENTS

1. INTRODUCTION 1

2. PROJECT DESCRIPTION. 2
   2.1. Background. 2
   2.2. Project Objectives. 2
   2.3. Data Uses and Data Needs. 4
   2.4. Data Quality Objectives 6

3. PROJECT ORGANIZATION 7
   3.1. General Organization. 7
   3.2. Field Organization. 8
   3.3. Laboratory Organization 11

4. QUALITY ASSURANCE OBJECTIVES 12
   4.1. Precision 12
   4.2. Accuracy. 13
   4.3. Completeness. 13
   4.4. Representativeness. 13
   4.5. Comparability 14

5. SAMPLING PROCEDURES 15

6. SAMPLE CUSTODY 31
   6.1. Field Custody 31
   6.2. Transfer of Custody and Shipment. 32
   6.3. Sample Shipment Procedures. 33
   6.4. Field Documentation Responsibilities. 35
   6.5. Laboratory Custody. 36

7. EQUIPMENT CALIBRATION. 37

8. ANALYTICAL SERVICES. 38
   8.1. Project Laboratory Analytical Services. 38
      8.1.1. Analytical and Calibration Procedures. 38
      8.1.2. Data Reduction, Validation and Reporting 39
      8.1.3. Performance and System Audits. 39
      8.1.4. Preventative Maintenance 40
      8.1.5. Data Assessment Procedures 40
      8.1.6. Corrective Action Procedures 40
   8.2. Field Analytical Services 41
      8.2.1. Analytical and Calibration Procedures. 41
      8.2.2. Internal Quality Control 41
      8.2.3. Data Reduction/Validation. 42
      8.2.4. Performance/System Audit 42
      8.2.5. Data Assessment. 42
      8.2.6. Accuracy/Precision Definitions 42
      8.2.7. Corrective Actions 42

9. QUALITY ASSURANCE REPORTS. 43

1.0 INTRODUCTION

This Quality Assurance Project Plan (QAPP) was prepared by Geraghty & Miller, Inc. for the General Electric Morris, Illinois Facility Evaporation Pond Closure Plan. The QAPP presents the policies, organization, objectives, functional activities and QA/QC activities that will be utilized to ensure that all data collected and reported during this closure investigation are representative of existing conditions. This QAPP is designed to achieve the specific data quality goals of this closure plan.

2.0 PROJECT DESCRIPTION

This investigation is designed to gather the information necessary for the clean closure of the inactive pond and determine if a potential hazard to human health or the environment exists. The Closure Plan is designed to gather the necessary data to develop and evaluate the site conditions concerning the potential for contamination of ground water near the pond.

2.1 Background

General Electric has operated an evaporation pond at their Morris, Illinois Facility since the early 1970's. The pond is considered to be a surface impoundment by the Resource Conservation and Recovery Act (RCRA) regulations. Prior to 1985, the 15.5-acre pond received regeneration discharges from the water demineralization treatment system at the facility. Since 1985, the demineralizer regeneration discharges have been pumped to an elementary netralization tank prior to discharge to the evaporation pond. The pond is unlined. The pond bottom is overgrown with vegetation and occasionally covered with precipitation water. Pond sediment and ground-water sampling and analysis are required by USEPA as part of the pond closure plan. Several geotechnical and hydrogeologic investigations have been conducted at the main plant area north of the pond by Dames and Moore. Data presented in these investigations were used to help define the geologic and hydrogeologic conditions near the pond.

2.2 Project Objectives

The overall objective of the pond closure investigation is to determine the nature and extent of the threat posed by the release, or

threat of release, of hazardous substances from the pond. The following project objectives have been identified for the pond closure investigation:

- Determine the nature and extent of wastes and contamination in the pond sediment and ground water;

- Identify and evaluate, if possible, potential routes of contaminant release and migration;

- If ground water at the site has been adversely affected by the pond, determine the potential for off-site migration and the possible affects on nearby water supplies; and

- Determine the characteristics of the hydrogeologic units beneath the pond to evaluate potential contaminant migration, and physical and chemical parameters that may affect potential ground-water monitoring after closure.

Tasks designed to collect the data necessary to meet these objectives have been identified and the attached Closure Plan contains descriptions of these tasks. In summary, the field data gathering activities include:

- Collection of 10 random sediment samples from the pond bottom;

- Subsurface soil and bedrock sampling and installation of four monitoring wells;

- Collection of ground-water quality samples from the newly installed monitoring wells.

Sediment Sampling Rationale

USEPA requires that random surface sediment samples be collected from the floor of the pond. These sediment samples will be used to evaluate the nature and extent of the sediments in the pond and provide data to assess the potential risks and environmental impacts that may exist.

Monitoring Well Location Rationale

To comply with part of the RCRA closure requirements for the pond, four monitoring wells are to be installed. Ground-water samples will also be collected quarterly, for one year, from the newly installed monitoring wells.

Following collection of the necessary data and determination that no additional phases of investigations are required, a clean closure application will be submitted.

2.3 Data Uses and Data Needs

Consistent with the project objectives, sampling and analysis activities during the study have been developed for the purpose of characterizing the site (determining if contamination has occurred). This analysis will provide input to demonstrate the pond has not impacted the environment and can be removed from RCRA regulation. If remedial actions are needed this investigation will provide preliminary information for screening and evaluating possible remedial alternatives. This investigation incorporates hydrogeologic,

hydrologic and geochemical data that satisfy the closure requirements. Data collected and analyzed during this investigation will:

- Assess the nature and extent of pond sediment and ground-water contamination, if present;

- Estimate the potential impact and risks to human health and the environment from the presence or release of contaminants from the pond; and

- If contamination is detected, determine if remedial measures are required to reduce the risk or threat posed by the presence, or potential release, of contamination on-site

Geraghty & Miller will execute sampling and analysis activities. The intended use of the data collected during the pond closure investigation will be to:

- Create a data base that will define the hydrogeology, hydrology and geochemistry in the vicinity of the pond;

- Determine if contaminants at the site have been released to subsurface soils and bedrock, or ground water and migrated away from the pond;

- Evaluate the potential for endangerment to the public health, welfare, or environment;
- Determine whether any subsequent phases of field investigation are needed.

2.4 Data Quality Objectives

The Data Quality Objectives (DQOs) to address the data needs and data uses for the pond closure are:

- To quantitatively identify any environmental media contamination from pond waste constituents.
- To analytically confirm and document levels of constituents present in pond sediments and ground water.
- To support selection of remedial alternatives, if needed.

To meet these three DQOs, proposals in the Closure Plan include the use of analytical techniques in accordance with the analytical levels defined in "Data Quality Objectives for Remedial Response Action" (EPA 540/G-87/003A). Analytical methods to satisfy these DQOs will require use of the procedures in accordance with USEPA SW-846 "Test Methods for Evaluating Solid Waste Physical/Chemical Methods, Volume 1, Laboratory Manual Physical/Chemical Methods."

3.0 PROJECT ORGANIZATION

Geraghty & Miller, Inc. will be responsible for the overall management of the project, including field supervision of all drilling and sampling activities.

3.1 General Organization

Geraghty & Miller will perform the field investigations and prepare the Closure Plan report. Primary responsibility for project management is with the Project Manager. Responsibility for all QA/QC review is with the Quality Assurance Officer. The review of all environmental and hydrogeologic data will be conducted by the Quality Assurance Officer, the Project Manager and the Project Hydrogeologist. Where quality assurance problems or deficiencies requiring special action are identified, the Project Officer, Project Manager and Project QA/QC Officer will identify the appropriate corrective action.

The following responsibilities have been assigned for the project:

- Project Manager
  (USEPA Region V)
- Project Manager
  (Geraghty & Miller, Inc.)
- Project Administrator
  (Geraghty & Miller, Inc.)
- Quality Assurance Officer
  (Geraghty & Miller, Inc.)
- Off-site Laboratory Operations
  Project Laboratory
  (Attachment 1)

3.2 Field Organization

The Geraghty & Miller, Inc. field investigation team will be organized according to the sampling activity to be undertaken. The actual sampling team make-up will depend on the type and extent of sampling and will consist of a combination of the following:

- Project Manager;
  (Geraghty & Miller, Inc.)

- Project Hydrogeologist;
  (Geraghty & Miller, Inc.)

- Quality Assurance/Quality Control Officer;
  (Geraghty & Miller, Inc.)

- Site Geologist;
  (Geraghty & Miller, Inc.)

- Site Health and Safety Officer;
  (Geraghty & Miller, Inc.)

- Sampling Coordinator; (if needed)

- Preparation Area Technician; (if needed)

The Project Manager will be responsible for the coordination of all personnel on site and for providing technical assistance when required. The Project Manager, or other qualified designated person, will be present whenever sampling occurs and will also keep a general site log. This log will describing activities conducted on site, identifying

personnel entering the site, and noting general observations regarding site activities.

The Project Hydrogeologist will be responsible for assuring that all team members adhere to the protocols defined in the Sampling and Analysis Plan. The Site Geologist will conduct the sediment and ground- water sampling and be responsible for providing technical supervision of the drilling subcontractor during the installation and development of the monitoring wells. The Site Geologist will be responsible for the geologic logging performed during the subsurface soil/rock sampling and installation of the monitoring wells.

The Quality Assurance/Quality Control Officer will be responsible for the adherence of all QA/QC guidelines as defined in the QA/QC plan. Strict adherence to these procedures is critical to the collection of acceptable/representative data.

The Site Health and Safety Officer will be responsible for assuring that all team members adhere to the site health and safety requirements. Additional responsibilities of the Site Health and Safety Officer are as follows:

- Updating equipment or procedures based upon new information gathered during the site inspection.

- Modifying the levels of protection based upon site observations.

- Determining and posting locations and routes to medical facilities, including poison control centers, and arranging for emergency transportation to medical facilities.

- Notifying local public emergency officers, including police and fire departments, of the nature of the team's operations and posting their telephone numbers.

- Examining work-party members for symptoms of exposure or stress.

- Providing emergency medical care and first aid as necessary on-site. He also has the responsibility to stop any field operation that threatens the health or safety of the team or the surrounding populace.

The Sampling Coordinator (if needed) will be responsible for the coordination of all sampling efforts and will assure the availability and maintenance of the necessary shipping/packing materials and sampling equipment. The responsibilities include: 1) supervise the completion of all sampling documentation; 2) ensure the proper handling and shipping of the samples; 3) be responsible for the accurate completion of the field sampling log; and 4) provide close coordination with the Project Manager and Project Hydrogeologist.

The Preparation Area Technician (if needed) will assume custody of all ground-water and surface-water samples from the sampling team. These responsibilities also include: 1) the completion of all chain-of-custody forms; 2) maintaining communication with on-site personnel; 3) logging all communications; and 4) site entries and departures during sampling.

3.3 Laboratory Organization

The laboratory organization is separated along lines of responsibility; laboratory operations, QA functions and project management. The operations organization of the Project Laboratory will be submitted after selection of the laboratory vendor.

4.0 QUALITY ASSURANCE OBJECTIVES

The general quality assurance objective is to ensure that environmental monitoring data of known and acceptable quality is provided. Environmental data collection efforts will adhere to the QA/QC procedures developed by Geraghty & Miller, Inc. for the collection and preservation of environmental samples. Laboratory analysis efforts by the Project Laboratory will adhere to the QA/QC procedures developed for the USEPA guidelines. The QA objectives for the chemical analyses of this project are to achieve the QC criteria stated USEPA SW-846 "Test Methods for Evaluating Solid Waste Physical/Chemical Methods". QA objectives for field measurements, such as pH and specific conductance, includes proper operation of the field equipment based on the operator's manual instructions.

4.1 Precision

The QA/QC aim in testing the precision is to demonstrate the reproducibility of the data. The precision of analytical project measurements will be evaluated and reported along with the method reference number in a manner consistent with previously published data on precision. Moreover, precision measurements will be done with high purity materials, knowledgeable laboratory personnel, internal quality controls and following consistent scientific practice. Precision objectives will be consistent with those of the USEPA.

4.2 Accuracy

Accuracy is the relationship of the reported data to the "true" value, and will be: (a) reported with the data; (b) attained by independent audits using standards which are different from those used during routine operations; and (c) consistent with any previously published accuracy data from the applicable literature, and Federal and State regulations and guidelines. Accuracy objectives will be consistent with those of the USEPA.

4.3 Completeness

Completeness is a measure of the amount of valid data obtained from a measurement program, compared to the amount that would be expected to be obtained under correct normal conditions. The data base will be routinely assessed on the basis of expected versus actual data and will be developed to a point where it is capable of supporting statistical analyses for interpretational purposes.

4.4 Representativeness

All data should be representative of the actual conditions at the sampling location. Considerations in evaluating the representativeness of the data include, but are not limited to the location being sampled, the methods used to obtain environmental samples at the site, and the appropriateness of the analytical method to the type of sample obtained.

4.5 Comparability

All data will be reported in units consistent with both Federal and State regulations, methods, and guidelines. Comparability between data bases will also be achieved by citing standardized sampling and analysis methods and data formats. Any deviation from the standard operating procedures will be noted and data will be qualified for comparative purposes.

5.0 SAMPLING PROCEDURES

All sampling for this field investigation will be performed in accordance with the procedures and equipment as described in the pond Closure Plan. These procedures adhere to the QA/QC methods developed by Geraghty & Miller, Inc.

5.1. Pond Sediment Sampling

Pond Sediment Random Sample Locations

The sediment sampling locations were randomly selected using a 150 foot square grid. The sampling points will be located in the field to the nearest foot using a pocket transit and measuring tape. If conditions permit and accuracy can be maintained, distance measurements will be paced.

The grid origin and sampling collection points will be marked with survey stakes and/or pin flags. These markers will remain after sampling so that in the future they can be easily relocated. The collection point markers will be clearly labeled with sample number and quadrant grid coordinates.

Sediment Sampling Procedure

At each sampling location in the pond, a sediment sample will be collected from the upper two to six inches of sediment using a clean stainless steel trowel or scoop. The sampling procedures will be as follows:

- On the sediment sample collection form, the sample location (sketch map with sample quadrant grid coordinates), sample identification number, date, time, sampling personnel, sampling method and any other noteworthy information will be properly recorded.

- The upper surface vegetation litter will be removed from the area surrounding the sample location using a clean trowel or scoop. To monitor (for health and safety purposes) the air and soil quality, the exposed sediment will be immediately screened for volatile organics with a photoionization detector (HNu). If there is no detection of organic vapors, the sample will then be collected and placed in the appropriate glass sample container. If organic vapors are detected the vapors will be allowed to dissipate before sampling.

- The full sample jar will then be properly labeled and stored on ice in a secure storage area until subsequent packaging and shipment to the laboratory.

To prevent sample cross contamination, all sampling equipment, instruments, etc. will be properly decontaminated between each use. Equipment decontamination procedures will include using a tap-water/trisodium phosphate (TSP) solution wash, tap-water rinse and final deionized water rinse.

Surface sediment samples will be analyzed for EP Toxicity metals and laboratory pH.

Equipment for the surface sediment sampling program will include:

- Field notebook with appropriate collection forms, pens, marking pens, labels, custody tape, strapping tape.
- Eight-ounce glass sample jars (provided by the project laboratory).
- Stainless steel trowel or scoop.
- Organic vapor analyzer.
- Personal safety equipment.
- Distilled/deionized and tap water.
- TSP and scrub brushes.
- Cooler with ice.

5.2. GROUND-WATER MONITORING

The monitoring wells are scheduled to be installed along the perimeter of the pond and follow RCRA, USEPA and IEPA monitoring well construction standards. The monitoring wells will be constructed and screened in the Fort Atkinson Formation which has been determined to be the upper most aquifer in the vicinity of the pond. The monitoring wells will be constructed of two-inch (ID) stainless steel screen and casing. All the monitoring wells will be screened and gravel/sand packed. The annular space above the gravel/sand pack will be properly sealed to prevent surface sources of contaminant from entering the aquifer. The Fort Atkinson aquifer is overlain by approximately 2-to-

10 feet of overburden material and approximately 15 feet of Brainard Shale.

At the east and west monitoring well locations, the Brainard Shale, Fort Atkinson Limestone, and upper few feet of Scales Scale will be continuously cored to evaluate the geology and hydrology beneath the pond. The rock cores will be advanced a few additional feet past the Fort Atkinson-Scales Shale unconformity to accurately define this contact. The east and west monitoring well borings will be advanced first and if these core logs are substantially different from the other previous study's core logs, then the other two boring will also be cored. If the east and west boring core logs are similar to the previous study's core logs, then the north and south borings will be simply drilled out and not cored. The monitoring wells will be screened in this horizon (Fort Atkinson Limestone) such that the top of the screen is 2-to-3 feet below the top of the Fort Atkinson Limestone.

Monitoring Well Installation

Rock coring will be conducted through minimum six-inch ID augers or temporary casing that has been driven or seated into the top of bedrock. This will be done to prevent seepage between the overburden material and bedrock during rock coring. Prior to coring, all loose and foreign material will be removed from the inside of the augers or temporary casing. The bedrock surface is estimated to be between two and ten feet below ground surface. The top of weathered bedrock and top of competent bedrock will be clearly noted on the boring record. Rock coring procedures will be conducted according to ASTM Designation 2113 "Diamond Core Drilling for Site Investigation." Coring will be done using an N series (NX or NWM) double-tube core barrel with diamond bit and reaming shell or NQ wire line. In soft or friable formations,

an NWM double-tube core barrel will be used. The drill rod will be N-series, or equivalent. Rock core runs will be no longer than 10 feet. Immediately upon recovery of the core barrel from the boring, the rock core will be carefully removed from the barrel and placed in the core box. To monitor (for health and safety purposes) the air and rock core quality, the rock core box will then be scanned for organic vapors with a photoionization detector and properly recorded on the rock core log and field notebook. The rock core will than be logged by the site geologist. The following information will be included on the rock core log.

- Heading information such as project name and number, boring number and location, personnel responsible for logging the core, ground water elevation, date started and date completed.

- Depth/elevation of stratigraphic changes recorded in feet and tenths of feet.

- Detailed rock description including rock type, color, bedding thickness, grain size, composition, hardness, cementation and/or friability, fractures, soundness, weathering and any other noteworthy information.

- Run number.

- Depth/elevation of top and bottom of run.

- Total core recovery.

- Percent core recovery.

- Rock Quality Designation (RQD).

- Water level information and method of determination.

All rock core boxes will be constructed of wood, or approved equivalent. The rock core boxes will be stored in such as manner as to preserve their relative position by depth. Intervals of lost core shall be annotated in the core sequence with wooden blocks or dowels. The top and bottom of each core run will be clearly marked on the core box and core with permanent ink markers. The boxes will be properly labeled on the inside and outside lid with the following information.

- Project name and number.
- Boring number.

- Date.

- Run number and cored interval.

- Box number in case of multiple boxes.

After the core box is properly labeled it will be photographed in the field.

After coring has been completed to the desired depth, the hole will be reamed to a minimum of five inches in diameter using air or tap-water percussion or rotary methods. If rock cores are not collected the boring will be drilled out using the same methods. The borings that are not cores will be advanced to the depth where the monitoring well will be constructed. Prior to monitoring well installation, if conditions permit, tap water will be circulated in the open boring to

remove any fine grained material that may be in the fractures, joints or bedding partings.

Before the monitoring well is constructed in the cored boring, the borehole will be properly sealed with grout from the contact between the Fort Atkinson Limestone and Scales Shale Formations to 2-to-3 feet below the bottom of the monitoring well screen. This will be done to guarantee that there is no leakage from deeper in the Fort Atkinson Formation that could possibly influence the ground water samples to be collected. Monitoring wells will be sand-packed because the bedrock may have joints and partings which contained fine grained material. By installing sand-pack material and monitoring well screens, the amount of fine grained material entering into the monitoring well will be minimized. Although the monitoring well yield will be reduced, this reduction should not significantly affect the ground-water sampling effort.

Monitoring well construction will be supervised by the site hydrogeologist. Construction details such as design, depth of the screen, sand-pack material, and grout seal will be determined in the field. The site hydrogeologist will keep a record of all material placed in the boring, including depth of the screened intervals, top and bottom of seal and monitoring well outer protective casing. The monitoring well installation will follow the procedures outlined below.

- The boring will be cored and reamed, or drilled to the desired depth and flushed to clean out as much fine grained material as possible from the borehole prior to constructing the monitoring well.

- In the cores boreholes a 10 percent bentonite-cement grout mix will be placed in the borehole using a tremie pipe from the Fort Atkinson Limestone and Scales Shale Formation contact to 2-to-3 feet below where the monitoring well screen will be set.

- The bottom cap will be 316 stainless steel flush screw-type coupled.

- Monitoring well screen material will be 316 stainless steel, two-inch ID, flush screw-type coupled, wire wound 0.010 or 0.020 inch slot size. The screen will be 10 feet long and be installed such that the top of the screen is 2-to-3 feet below the top of the Fort Atkinson limestone.

- Monitoring well casing material will be 316 stainless steel, two-inch ID, flush screw-type coupled.

- One or more stainless steel centralizers may be installed to insure the well casing is centered in the boring.

- Two feet of casing will extend above ground surface.

- The top cap will be stainless steel with a vent hole

- The well screen and casing will be straight, plumb and centered in the boring.

- Well sorted quartz sand pack will be placed in the boring annulus from the bottom of the boring or grout plug to a minimum of two feet above the top of the screen.

- The remainder of the annular spaced will be filled with a 10 percent bentonite-cement grout mix through a tremie pipe. A 1-to-2 foot sodium bentonite pellet plug may be placed between the sand pack and grout to insure the grout does not infiltrate into the sand pack.

- A minimum six-inch ID by five foot long steel, or approved equivalent, protective casing will be set over the top of the monitoring well casing to a height of 2.5 feet above ground surface. The protective casing lid will be hinged and have a hasp for locking.

- A concrete apron will be poured around the protective casing and be in contact with the grout.

- The protective casing will have a drain hole drilled at the apron level, and have the monitoring well number permanently stamped or welded on the lid and coated with a weatherproof paint.

- If needed, steel guard posts will be installed around the periphery of the concrete apron to protect the monitoring well against vehicle hazards.

The rock cores will not be subject to analytical or physical testing and be stored in a secure area onsite for future reference.
To prevent cross contamination between the monitoring wells, all downhole drilling equipment will be properly decontaminated. This will be done before each monitoring well is started using high pressure steam.

Monitoring Well Development

After the monitoring wells are constructed, they will be developed prior to ground-water sampling to maximize yields and minimize the turbidity of the water during sampling. A variety of development methods are available; however, monitoring well surging using a surge block or bailor is recommended. Air development method can be used because volatile organic are not scheduled to be analyzed for. Monitoring wells will be considered developed when they can continuously yield sediment free water or a minimum of ten boring volumes have been removed. During development pH, specific conductance and temperature will be periodically measured. When these parameters stabilize or yield consistent values, they will be properly recorded along with the volume of water removed.

The development equipment will be properly decontaminated using high pressure steam to prevent cross contamination between monitoring well. If pumps are used, the outside of the pump will be decontaminated following the above procedures and internal parts of the pump will be flushed with tap water.

Equipment needed for the monitoring well installation and development include:

- Field notebook and appropriate sample collection forms, pens, marking pens, labels.
- Drilling equipment with auguring, and rock coring and reaming,or approved equivalent, capabilities.
- Personal safety equipment.

- Volatile organic photoionization detector meter.
- Water level indicator.
- Rock core boxes.
- High pressure steam generator.
- TSP and scrub brushes.
- Distilled/deionized and tap water.

Each of the monitoring well installed will be sampled quarterly for one year after installation. Ground-water sampling results will be used to evaluate the impact, if any, that the pond has had on the ground-water quality in the area.

Ground-Water Sampling Procedures

Prior to sampling, the monitoring well will be purged to obtain a fresh, representative sample. Purging will be conducted using a positive displacement pump or bottom check-valve type bailor. A minimum of three-to-five boring volumes will be purged. If the monitoring well is pumped dry, and recovery is less than 50 percent within 15 minutes after complete evacuation, then the amount of ground water removed from the well will be recorded and a ground water sample collected.

The sampling procedure for the monitoring wells will include the following steps.

- Record well number, sample number, date, time, sampling personnel and other noteworthy information on the ground water sample collection form.

- Clean the top of the monitoring well with a clean rag to prevent loose particulate matter from falling into the monitoring well.

- Remove the monitoring well cap and monitor for organic vapors. If organic vapors are not detected then proceed with the sampling by wiping the inside of the casing with a clean cloth. If organic vapors are detected let the monitoring well stand open and vent itself until the vapors have dissipated.

- Measure and record the water level in the well using a decontaminated water level indicator or steel tape. The measurement will be made to the nearest 0.01 foot.

- Calculate the volume of water standing in the monitoring well and boring annulus and purge the monitoring well.

- Record pH, temperature and specific conductivity while purging the monitoring well. When these parameters have stabilized, record the values and amount of water purged on the field log.

- Remove the purge pump, if used, from the monitoring well. Care will be taken not to reintroduce purge water back into the monitoring well.

- Collect the sample by means of a bottom check valve type bailor. To monitor (for health and safety purposes) the air and water quality, the first bailer from the monitoring well will be field screened for volatile organics with a photoionization detector and then discarded. This measurement will be recorded on the field log.

- Sample water will be gently poured directly from the bailor into the sample bottles. The metals sample will be filtered prior to preservation in the field.

The ground-water samples will be analyzed in the laboratory for EP Toxicity metals and pH. Measurements of field pH, specific conductance and temperature will be taken while the monitoring well is being purged and when the ground-water sample is collected.

The following field equipment will be used for ground-water sampling:

- Field notebook with appropriate collection forms, pens, marking pens, labels.

- Clean rags, disposable gloves.

- Water level indicator.

- Distilled/deionized water and wash bottles.

- TSP and scrub brushes.

- Purge pump.

- Teflon or stainless steel bailors.
- Bailor cord.
- Tools required to open the monitoring wells.
- Sample jars (provided by the project laboratory).
- Water filtering equipment including 0.45 micron filter paper.
- pH and conductivity meters (with calibration solutions) and thermometer.
- Ice chest and ice.

To prevent sample cross contamination, all sampling equipment, instruments, etc. will be properly decontaminated between each use. Equipment decontamination procedures include using a tap-water/TSP solution wash, tap-water rinse and final deionized-water rinse. If purge pumps are used the outside of the pump will be decontaminated following the above procedure and internal parts of the pump will be flushed with tap water.

5.3. Sample Numbering

A standardized sample numbering system will be used to identify each sample for chemical analysis, including replicate samples and field blanks. A listing of sample identification numbers will be maintained in a site logbook by the site geologist. The sample number will also be recorded on the appropriate sample collection form. Each sample

number will consist of two components that identify the sample location and a sample identifier.

The first part of each sample number will be an alpha-code corresponding to the sample type, followed by a two-digit sample location number. The alpha codes are as follows:

GMMW--monitoring well (ground water).
GMSS--surface soil sample.
GMSB--soil boring.
GMRB--rinsate blank. Rinsate blanks will have an RB followed by the alpha code for the type of blank (i.e., a ground-water rinsate blank will be GMRBMW).

The second part of the sample number will have a two-digit number that will be the sample identifier. If multiple sampling events or depths are necessary, the event or depth identifier will start with 01 and progress sequentially with additional sampling events or depth. The sequential sample numbers will be recorded on the appropriate collection form and the field notebook. Sample identifier example numbers are shown below.

GMMW01-02	Ground-water sample from monitoring well number 1 during sampling event number 2.
GMSS08-01	Surface soil sample from sample location 8, first sample collected.

5.4. Sample Preservation

Sample preservation requirements for the analytical parameters of concern are summarized in Table 1 of the Sampling and Analysis Plan. All sample bottles will arrive at the site, from the project laboratory, precleaned with teflon-lined lids on.

6.0 SAMPLE CUSTODY

Sample custody procedures are designed to comply with USEPA and National Enforcement Investigation Council (NEIC) requirements for sample control. An example of the chain-of-custody form which will be used during this investigation is presented in the attachments.

Samples collected during the site investigation will be the responsibility of identified persons from the time they are collected until they or their derived data are incorporated into the final report. Stringent chain-of-custody procedures will be followed to maintain and document sample possession.

6.1 Field Custody

The Project Hydrogeologist or Preparation Area Technician (if needed) is personally responsible for the care and custody of the samples collected until they are personally delivered to the analyzing laboratory, or entrusted to a carrier. Chain-of-custody forms will be properly completed prior to sample shipment. They will include the following information: sample number, time collected, data collected, source of sample (including type of sample), preservative and name of sampler. These forms will be filled out in a legible manner using water-proof ink and will be signed by the sampler. Similar information will be provided on the sample tag which is securely attached to the sample bottle.

Log books and other sample collection records will also be properly filled out, signed and dated on each page. Sample collection logs, log books and other records will not accompany the samples but remain with the other site field records.

6.2 Transfer of Custody and Shipment

The following procedure will be used when transferring custody of samples.

- Samples will always be accompanied by a chain-of-custody record. When transferring samples, the individuals relinquishing and receiving them will sign, date and note the time on the record. This record documents sample custody transfer from the sampler, often through another person, to the laboratory.

- Samples will be packaged properly for shipment and dispatched to the appropriate laboratory for analysis with a separate custody record accompanying each shipment. Shipping containers will be sealed for shipment to the laboratory. The method of shipment, courier name and other pertinent information will be entered in the remarks section of the custody record.

- All shipments will be accompanied by the chain-of- custody record identifying its contents. The original record will accompany the shipment and a copy will be retained by the field sampler.

- Proper documentation will be maintained for shipments by common carrier.

6.3 Sample Shipment Procedures

The following procedures will be followed when shipping samples for laboratory analysis:

- Samples requiring refrigeration will be promptly chilled with ice or "Blue Ice" to a temperature of 4oC and packaged in an insulated cooler for transport to the analyzing laboratory.
- Only shipping containers which meet all applicable State and Federal standards for safe shipment will be used.
- The shipping containers will be sealed with tape and chain-of-custody seals in such a manner that will allow the receiver to quickly identify any tampering which may have taken place during transport to the laboratory.
- The field chain-of-custody document will be placed inside the shipping container in a sealed plastic envelope after the courier has signed the document.
- Shipment will be by overnight courier if required.

Samples shipped to the laboratory for analysis will be prepared using the following procedures:

- Tighten sample bottle lids "hand" tight.
- Place two-inches of appropriate packing material in the bottom of waterproof metal or equivalent strength plastic cooler.

- Place sample bottles in the cooler in such a way that they do not touch.

- Put ice in plastic bags, or blue ice, on and around the bottles.

- Fill the remaining space in the cooler with packing material.

- Put paperwork in a plastic bag and tape it to the inside lip of the cooler.

- Close cooler and secure lid by taping cooler completely around with strapping tape at two locations.

- Tape the drain hole closed.

- Place laboratory address on top of cooler.

- Put "This Side Up" and "Fragile" labels on the cooler. Do not cover labels with strapping tape.

- Affix custody seals on front right and back left of cooler and cover seals with wide, clear tape.

While awaiting screening or packaging, samples will be stored on ice in coolers. All samples will be preserved on the same day they are collected. If samples cannot be shipped on the same day they are collected, packaging will be delayed until the following morning so

that the samples can be shipped with a full load of ice. These samples will be stored on ice in coolers, and kept in a secure area.

After the samples have been packaged for shipping, custody will be transferred to the overnight courier. The laboratory will be notified of the sample shipment and the expected arrival date. An effort will be made to provide the laboratory with advance notice of the shipment.

All soil and ground-water samples are assumed to be classified as "low hazard" samples. If medium or high hazard samples are encountered, they will be prepared in accordance with the procedures specified in "Sample Handling Protocol for Hazardous Waste REM/FIT Contract", prepared by USEPA Region V, Environmental Services Division, May 3, 1983.

6.4 Field Documentation Responsibilities

It will be the responsibility of the Site Geologist to secure all documents produced in the field (i.e. hydrogeologists' daily logs, lithologic and sampling logs, communications, etc.) at the end of each day and insure they are properly completed. The possession of all records will be documented in the project field notebook. Only the Site Geologist and Project Manager may remove field data from the site for reduction and evaluation before completion of the field activities. After the completion of the field work, the records will be transported to the managing project office and placed in the project files.

6.5 Laboratory Custody

The chain of custody in the laboratory consists of two primary areas, receipt of samples and maintenance of internal custody of samples as they are transferred throughout the facility. Detailed descriptions of the procedures implemented by the laboratory to maintain the chain-of-custody of samples submitted to the Project Laboratory for analyses will be submitted after selection of the laboratory vendor.

7.0 EQUIPMENT CALIBRATION

Field equipment, such as the pH, specific conductance, HNU, OVA and Photovac TIP meters, used during this investigation, will be calibrated and operated in accordance with the manufacturer's instructions and manuals. Operating and calibration procedures for these instruments are attached. Copies of all such instructions and manuals will be available at the site. Documentation of calibrations will be maintained in the project file.

Calibration procedures for laboratory equipment used in the analyses of the soil and ground-water samples will be those contained in the Project Laboratory's Generic Quality Assurance Plan.

8.0 ANALYTICAL SERVICES

Sediment and ground-water samples collected during this field investigation will be analyzed by the Project Laboratory in accordance with the USEPA SW-846 analytical procedures. Several field measurements will also be performed. QAPP elements for the Project Laboratory are listed below and will be documented after selection of the Project Laboratory.

QAPP Element	Project Laboratory
Calibration Procedures	Will be provided
Analytical Procedures	after selection
Internal QC	of Project
Data Reduction/Validation	Laboratory.
Performance/System Audit	
Data Assessment	
Accuracy/Precision	
Definitions	
Corrective Action	

8.1 Project Laboratory Analytical Services

8.1.1 Analytical and Calibration Procedures

All samples collected will be analyzed for RCRA EP Toxicity metals and pH. Table 1 in the Sampling and Analysis Plan summarizes the number of samples, replicates, and blanks to be collected during this pond closure investigation, the analyses to be conducted on the various samples collected, and the analytical level as defined in "Data Quality Objectives for Remedial Response Activities" (EPA 540/G-871003A). All

testing of sediment and ground water will conform to the protocols of the USEPA as specified in USEPA SW-846.

8.1.2 Data Reduction, Validation and Reporting

All raw data collected from project sampling tasks, including quality control samples, will be summarized, validated and reported by the testing laboratory. The Quality Assurance Manager of Geraghty & Miller, Inc. will review all geochemical data received from the analytical laboratory prior to its release in a document to verify that it reasonably reflects known or expected conditions.

Quality control of data will involve the collection of field replicates and the preparation of rinsate blanks. Volatile ogranics are not being sampled or analyzed for, so trip blanks will not be used. Internal quality control procedures for sediment and ground water will follow the protocols of the USEPA for inorganic chemical analyses.

8.1.3 Performance and System Audits

Performance and systems audits are considered an essential part of a quality control program. A performance audit independently collects measurement data using performance evaluation samples. A systems audit consists of a review of the total data production process which includes on-site inspections of field and laboratory operational systems and physical facilities for sampling, calibration and measurement protocols.

A systems audit of the field procedures may be conducted by the Quality Assurance/Quality Control Officer and additional staff, if found to be necessary. An unscheduled field audit may also be performed during the

course of the investigation and sampling program. The Project Manager and Project QA/QC Officer will ensure that the field project is performed in accordance with approved procedures. The audit will review sampling methodology and sample chain-of-custody, as well as review all data reporting methods and data files.

Field blanks will be prepared using site sampling equipment and will be analyzed to determine whether the procedures may be biasing the data.

8.1.4 Preventative Maintenance

The maintenance of laboratory equipment will be performed by the appropriate laboratory according to specified equipment calibration, operation and maintenance procedures.

8.1.5 Data Assessment Procedures

Analytical data will be assessed by the analytical lab in accordance with standard operating procedures and will include the analysis of reference samples and performance audits.

The Quality Assurance Manager of Geraghty and Miller, Inc. will review all water and sediment chemical data. The chemical data will be reviewed to determine if they are consistent with known or anticipated hydrogeologic conditions and accepted hydrogeologic principles. The physical data will be reviewed in a similar manner by the QA/QC officer.

8.1.6 Corrective Action Procedures

If the quality control audit results in the detection of unacceptable conditions or data, the Project Manager and Project QA/QC Officer are responsible for developing and initiating corrective action procedures. Corrective action may include:

- Reanalyzing the samples if the holding time criteria permit.
- Resampling and analyzing.
- Evaluating and amending sampling and analytical procedures.
- Accepting data while acknowledging a level of uncertainty.

8.2 Field Analytical Services

8.2.1 Analytical and Calibration Procedures

Ground water samples will be analyzed for pH, specific conductance, and temperature. Specific operating and calibration procedures for the pH and conductivity meters to be used in the field are consistent with the operating manuals.

8.2.2 Internal Quality Control

Field analyses are performed on-site and do not involve samples that are collected and retained. The primary QA/QC objective is to obtain reproducible measurements to a degree of accuracy consistent with limits imposed by analytical methodologies used and with the intended use of the data. Quality control procedures will be limited to checking the reproducibility of measurements by taking multiple readings and by calibration of instruments (where appropriate).

8.2.3 Data Reduction/Validation

All field recording sheets, instrument outputs, and work-sheets for calculating results will be retained. Summarized raw data will be appropriately identified in reports and included in a separate appendix of the final closure report.

8.2.4 Performance/System Audit

All instruments used in making field measurements will be regularly calibrated (where appropriate).

8.2.5 Data Assessment

The Sample Team Leader will assess data to assure QA/QC objectives are met.

8.2.6 Accuracy/Precision Definitions

No quantitative levels are specified.

8.2.7 Corrective Actions

If variability among multiple readings at a single site is judged excessive, instruments will be recalibrated (if appropriate) and the measurement repeated. If variability remains unacceptably high and instruments fail to properly calibrate, the Project Manager and Quality Assurance Offices will be notified.

9.0 QUALITY ASSURANCE REPORTS

No separate Quality Assurance report for this project is anticipated. The final Closure Plan application will contain separate QA sections that summarize data quality information collected during the investigation.

GERAGHTY & MILLER
ENGINEERS, INC.

Appendix B

Written Demonstration for 265.90(e) Waiver from Subpart F Ground-Water Monitoring Requirements

1.0 INTRODUCTION

The following materials are provided to describe the operation of the Demineralized Water System at the General Electric Company Morris Operation near Morris, Illinois. The site is located east of Morris, Illinois, in the southeast 1/4 of Section 35, Township 34 North, Range 8 East in Grundy County. The cities of Joliet and Chicago are 14 miles and 48 miles northeast of the site, respectively. The site is approximately 6,000 feet southwest of the confluence of the Kankakee and Des Plaines Rivers. These rivers form the Illinois River, which flows in a westward direction. The Site Location Map which is found in the Attachments to this document, shows the site location in relation to local features.

The site is located on a topographic high that is about 530 feet above mean sea level (MSL). The topographic relief in the vicinity of the site is on the order of 25 feet. The Kankakee River is about 3,000 feet east of the site and the Illinois River is about 6,500 feet north of the site; both rivers have an average water elevation (near the site) of 505 feet MSL.

The climate of the region is continental with warm summers and cold winters. The average annual precipitation of the site area is 33 inches (Walton, 1965). June is generally the wettest month and February the driest (Suter, et al., 1959). The average annual runoff in the area as measured on the Kankakee River near Wilmington is 10 inches (U.S. Geological Survey, 1972).

The purpose of General Electric's Morris facility is to safely store spent nuclear fuel rods. These rods are stored

in tanks which must be filled with demineralized water. Demineralized water is produced on site using an onsite deep well as a water source and an ion exchange (demineralization) process for removal of impurities. Waste water resulting from the regeneration of the demineralization system was discharged on site to 15 acre evaporation pond until September of 1985, at which time a neutralization tank was added resulting in the waste stream being neutralized prior to discharge to the pond.

2.0 DISCUSSION OF THE DEMINERALIZED WATER SYSTEMS

The Morris operation is an NRC-licensed fuel storage facility. As a part of the fuel storage operation a demineralized water system is maintained to insure a supply of high purity water for use in the fuel storage basin, in the utility steam system, and as laboratory water for analytical work. Water for the plant is pumped from an onsite well 788 feet deep. The demineralized water system consists of six major pieces of equipment; a carbon filter, cation exchange units, degasification tower, anion exchange units, polishing unit, and starting in 1985 a neutralization tank. A process diagram of the demineralized water system is presented in the Attachments.

The purpose of the carbon unit is to remove suspended solids and other impurities from the well water. From there water moves to one of the two cation units. The cation unit consists of a regenerable cation resin bed. The function of the cation unit which is 30 inches in diameter and six feet high is to remove metallic impurities such as magnesium, calcium, and sodium through ion exchange.

Next the water passes through the degasification tower where fresh air is introduced to the water flowing through the tower to remove dissolved carbon dioxide from the water.

Water from the degasification tower is then pumped to one of the anion units, whose function is to remove negatively charged ions such as chlorides and nitrates through an ion exchange process.

From the anion unit, water moves to the water polisher, which removes any trace amounts of chlorides and nitrates which may be remaining in the demineralized water stream. The unit contains a mixed bed anion-cation resin which is not regenerable and is replaced when exhausted. Once through the polishing unit, the demineralized water is ready for use throughout the facility.

The importance of high purity demineralized water necessitates very rigorous automated and manual monitoring and control of the demineralizer system. Whenever unacceptable levels of hardness are detected, spent ion exchange units are taken out of line and regenerated or replaced. It is the past regeneration process discharges which are assertedly regulated under the RCRA program. Since 1985 the waste generated during the regeneration of the cation and anion units has been neutralized in a neutralization tank prior to discharge to the evaporation pond. Prior to September 1985 regeneration wastes were discharged into the 15-acre evaporation pond on the southern part of the facility. Depending on the climatic conditions, the pond typically contained between 5 and 14 million gallons of water with, pH regularly monitored and varying

between 7.0 and 9.9. Discharges to the pond were sequential; that is, the wastes from the cation regeneration were discharged first then immediately thereafter wastes from the anion regeneration. Wastes flowed through a four inch pipe and were discharged directly into the pond.

The regeneration process starts with a water backwash which takes 10 minutes. The cation regeneration process involves the injection of a combined water acid stream of 10 percent acid. After the acid injection is terminated water is pumped through the bed to displace excess acid. The total process takes about 105 minutes including the water backwash cycle.

The anion regeneration is accomplished by injecting the flow of 4 percent caustic into the anion unit. Water is then pumped through the unit to remove excess caustic. This is followed by an anion rinse. The process takes about 125 minutes.

Following the regeneration of the cation and anion units a rinse down cycle takes place to insure the units have been properly regenerated and are operating properly. Once monitoring shows that the units are functioning properly the controls are adjusted to terminate discharge as waste and the units are ready for operation. The rinse down phase typically takes 60 minutes and starts with a discharge pH of 10.5. Thus, the total time for regeneration is 290 minutes or approximately 4-1/2 to 5 hours. The pH of the regeneration waste waters varies from 9.5 to 1.5-2.75 during the acid injection, displacement and cation rinse, and from 2.75 to 12.5-10.5 during the caustic injection, displacement

and anion rinse. Final rinse down drops the pH to the 7.5 to 8.5 range from 10.5 and is thus not included in pH variation calculations. The regeneration process associated with the introduction of acid and caustic substances lasts approximately 230 minutes (290 minutes less the 60 minutes final rinse). During this 230 minutes, the regeneration process generates approximately 2,390 gallons: 1,500 gallons for the cation unit regeneration phase and 890 gallons for the anion unit regeneration phase. Regeneration frequency is variable but a historical average is once every 11 days. An operational record of regeneration of the demineralizer water system is presented in the Attachments.

The GE Morris evaporation pond is assertedly subject to closure under RCRA as a result of the characteristic of corrosivity (U.S. EPA hazardous waste number (D002). While discharges to the evaporation pond may have exceeded the range of 2 to 12. 5 for short periods of time, the pH of the pond has invariably measured well within that range. A tabulation of historical pH measurements of the evaporation pond is presented in the Attachments. The discharges to the pond were at the very low rates discussed above and lasted for a period of only 3-1/2 to 4 hours on an average of once in 11 days. Considering the volume of the pond (5 to 14 million gallons), the pH of the waste streams from the regeneration process would have remained in the corrosive range for no more than a few seconds (if at all) upon discharge to the pond. We have calculated the expected pH in the evaporation pond after mixing with the anion and cation regeneration discharges under worst case conditions (i.e., minimum volume in pond). Under those conditions the calculated pH ranged from 5.0 to 9.9 which is well within the non-corrosive range as defined by RCRA. The pH calculation brief is presented in the Attachments. In as much as the source of the water which was demineralized was an onsite

aquifer, and since the acids and caustics used were commercial grade, and since the demineralized water system is a closed system, no other hazardous wastes were discharged to the pond as a result of the regeneration process.

The following documents which are presented in the Attachments, provide background on the process and site characteristics:

1. Site Location Map
2. Process Diagram of the Demineralizer System
3. Demineralizer Regeneration Record
4. Evaporation Pond (historical pH data)
5. pH Variation of Waste Stream During Demin. Units Regeneration
6. pH Calculations - Worst Case Scenarios

3.0 CONCLUSIONS

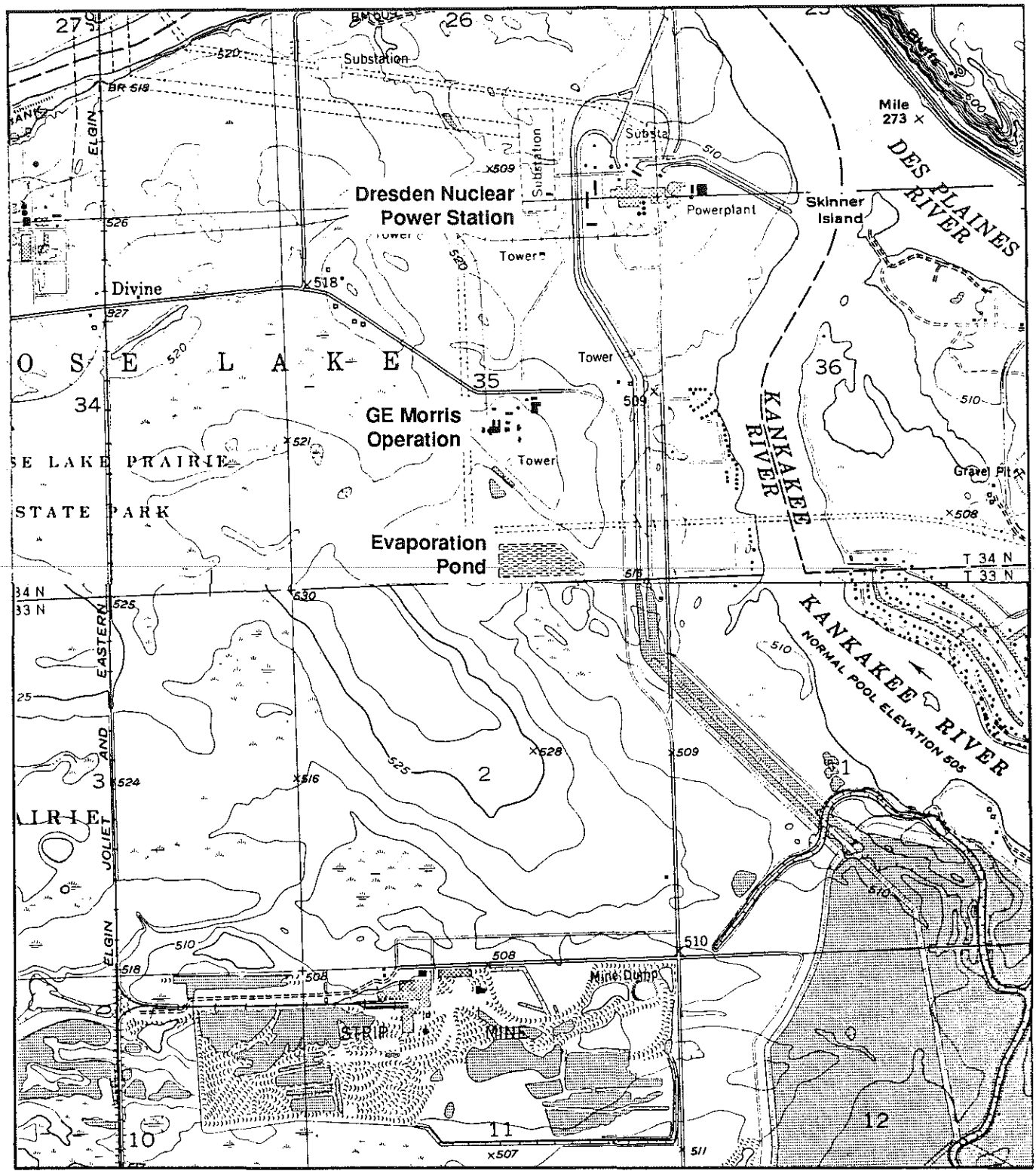
General Electric believes that no hazardous wastes remain in the evaporation pond or indeed ever existed in the pond for more than a few seconds at a time. The current regeneration process is the same as has been historically employed, with the exception of the addition of the neutralization tank. This process has always been carefully monitored because of the importance of the demineralized water system to plant operations. In addition the economics of not wasting acid and caustics ($0.115/lb and $0/13/lb) respectively) called for termination of the regeneration cycle as soon as it was effectively completed.

Current discharges to the pond do not qualify as hazardous waste. Given the volume of the pond (14 million gallons at 3 foot depth, 5 million gallons at 1 foot depth) and the rate of discharge (less than 10 GPM), the pH variation of the pond even immediately proximate to the

historical discharge would be negligible. Corrosive characteristics would have been immediately eliminated upon mixing in the pond. Therefore it is not surprising that pH in the pond has never been measured approaching the corrosive limits. Based on a review of plant records and the pH calculations presented, the demonstration has been made that the demineralizer waste stream had been neutralized to the extent that it no longer met the corrosivity characteristic before it could have migrated from the evaporation pond. Therefore the conditions of the waiver from Subpart F ground-water monitoring requirements contained in 35 IAC 725.190(e)(2) have been met.

GERAGHTY & MILLER
ENGINEERS, INC.

ATTACHMENTS



SOURCE: USGS 7.5 Minute Topographic Maps, MINOOKA & COAL CITY, ILLINOIS Quadrangles, 1980

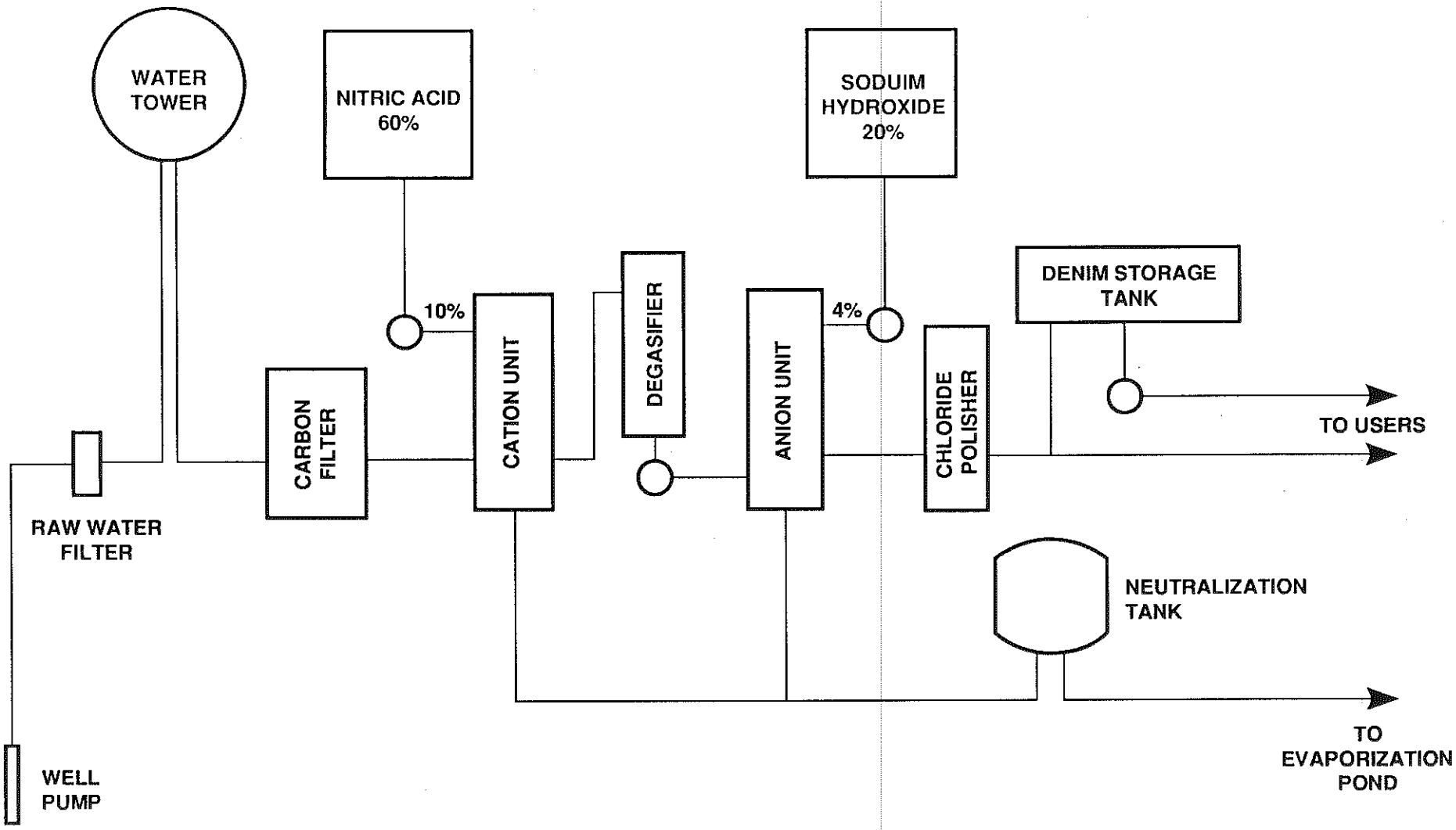
N

0 1000 2000 4000

SCALE IN FEET

GERAGHTY & MILLER, INC.
Ground-Water Services

SITE LOCATION MAP
GENERAL ELECTRIC COMPANY
MORRIS, ILLINOIS



GERAGHTY & MILLER, INC.
Ground-Water Services

PROCESS DIAGRAM
DEMINERALIZED WATER TREATMENT SYSTEM
GENERAL ELECTRIC COMPANY
MORRIS, ILLINOIS

GERAGHTY & MILLER ENGINEERS, INC.

Demineralized Water System
Regeneration Record

Year	Number of Regenerations	NaOH Consumed (LBS)	HNO_3 Consumed (LBS)
1980	131*	19,700	29,475
1981	119*	7,700	26,775
1982	67*	7,300	15,000
1983	56*	5,900	12,600
1984	60	9,475	13,500
1985	51	9,850	11,500

*Estimated, based upon drop-out from nitric acid storage tank (average of 225 pounds HNO_3 per regeneration).

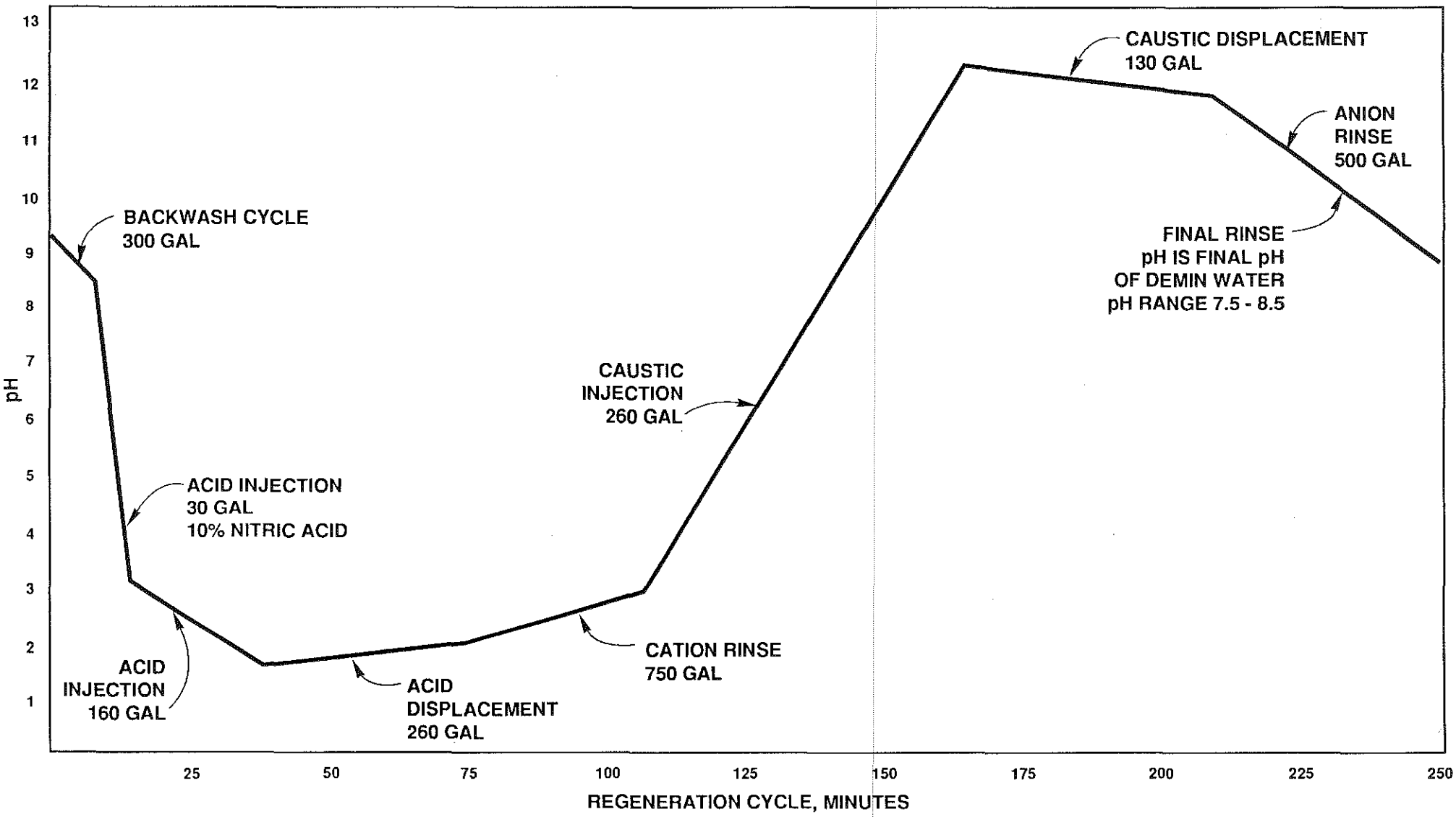
GERAGHTY & MILLER
ENGINEERS, INC.

Historical pH Measurements
in GE Morris Evaporation Pond

Date	pH
10-29-81	8.6
12-22-81	8.2
1-29-82	9.1
2-24-82	7.0
3-31-82	7.8
4-27-82	8.1
5-27-82	9.9
6-29-82	9.5
7-21-82	8.9
8-31-82	9.3
9-29-82	9.7
10-28-82	9.0
11-30-82	8.4
12-21-82	7.8
1-28-83	8.6
2-28-83	8.0
3-31-83	8.2
4-29-83	8.5
5-31-83	8.4
6-30-83	8.9
7-25-83	8.9
9-1-83	8.9
9-30-83	9.5
11-1-83	8.1
11-30-83	7.9
12-83	--
2-1-84	8.9
2-29-84	8.2
3-26-84	7.8
4-26-84	7.7
5-29-84	8.4
6-20-84	8.2
7-31-84	8.8
8-30-84	8.4
10-4-84	9.5
10-10-84	9.0
11-15-84	7.4
12-22-84	8.0
1-84	--
2-25-85	7.3
3-16-85	8.1
4-13-85	7.9
5-18-85	8.0
6-18-85	8.2
7-28-85	9.9
8-22-85	9.2

GERAGHTY & MILLER
ENGINEERS, INC.

Date	pH
9-20-85	8.6
10-25-85	8.6
11-23-85	8.1
12-85	--
1-18-86	8.8
2-86	--
3-21-86	8.0
4-14-86	8.3
5-16-86	8.3
6-16-86	8.8
7-15-86	9.7
8-18-86	9.4
9-26-86	7.9
10-21-86	8.1
11-17-86	8.0
12-12-86	8.2
1-87	--
2-20-87	7.9
3-19-87	8.4
4-20-87	8.1
5-21-87	8.7
6-9-87	9.4
7-17-87	9.8
8-12-87	9.4
9-18-87	9.4
10-16-87	8.4
11-25-87	8.1
12-11-87	7.8



GERAGHTY & MILLER, INC.
Ground-Water Services

pH VARIATIONS OF WASTE STREAM DURING DEMIN UNITS REGENERATION

GENERAL ELECTRIC
MORRIS, ILLINOIS

GERAGHTY & MILLER ENGINEERS, INC.

pH CALCULATION UNDER WORST CASE CONDITIONS

BASIC ASSUMPTIONS

Pond

minimum volume = 5 x10(6) gallons
minimum pH = 7.0
maximum pH = 9.9

Regeneration Discharge

parameter	volume	cycle total	pH extreme
Anion Cycle			
Backwash (no injection)	300		
Acid injection	30+160=190	1500	1.5
Acid displacement	260		
Cation rinse	750		
Cation Cycle			
Caustic injection	260		
Caustic displacement	130	125	12.5
Anion rinse	500		

Mixing

Occurs as though the whole discharge takes place at once.

pH CALCULATIONS

Anion Regeneration Cycle

Mix 1500 gallons of pH 1.5 with 5 million gallons of pH 7.0. Assumes all of the regeneration discharge is at the lowest pH and discharge is to the pond at the low level and lowest recorded pH.

pH = -log [H+] represent molarity

pH pond = 7.0 = -log [H+]
[H+] = 10E-7

pH discharge = 1.5 = -log [H+]
[H+] = 3.16 x 10E-2

$$[H+]\ \text{mixture} = \frac{V\ \text{pond} \times [H+]\ \text{pond} + V\ \text{anion cycle} \times [H+]\ \text{anion cycle}}{V\ \text{pond} + V\ \text{anion cycle}}$$

$$= \frac{(5E6\ \text{gal})\ (10E{-}7\ \text{moles/1}) + (1.5\ E3\ \text{g})\ (3.16\ E{-}2\ \text{moles/1})}{5\ E6\ \text{gal} + 1.5\ E3\ \text{gal}}$$

[H+] mixture = 9.6 E-6

GERAGHTY & MILLER
ENGINEERS, INC.

pH mixture = -log [9.6 E-6] = 5.02

Cation Regeneration Cycle

Mix 890 gallons of pH 12.5 with 5 million gallons of 9.9. Assumes all of the regeneration discharge is at the highest pH and discharge is to the pond at the low level and highest recorded pH.

pH = -log [H+] where [H+] represents molarity

pH pond = 9.9 = -log [H+]
[H+] = 1.259 E-10

pH discharge = 12.5 = -log [H+]
[H+] = 3.162 E-13

$$[H+]\ \text{mixutre} = \frac{V\ \text{pond} \times [H+]\ \text{pond} + V\ \text{cation cycle} \times [H+]\ \text{cation cycle}}{V\ \text{pond} + V\ \text{cation cycle}}$$

$$= \frac{(5\ E6)\ (1/259\ E-10) + (8.9\ E2)\ (3.162\ E-13)}{5\ E6 + 8.9\ E2}$$

[H+] mixture = 1.259 E-10

pH = 9.9

GERAGHTY & MILLER
ENGINEERS, INC.

Appendix C

Demonstration by General Electric Company of Financial Responsibility for Liability Coverage and Closure and/or Post-Closure Care

Corporate Environmental Programs
General Electric Company
3135 Easton Turnpike, Fairfield, CT 06431

March 24, 1989

Re: Demonstration by General Electric Company of Financial Responsibility for Liability Coverage and Closure and/or Post-Closure Care.

Dear Sir or Madam:

The attached information is submitted by the General Electric Company to comply with the financial responsibility requirements of your state's hazardous waste program:

- Letter from Chief Financial Officer, with wording for the financial test, including:
  - Attachment listing affected facilities as specified in the Letter from Chief Financial Officer.
  - List of facilities whose closure or post-closure cost estimates differ from inflation-adjusted estimates from last year, and explanations for those discrepancies. Please note, we used an inflation factor of 3.14% and all estimates were rounded to the nearest thousand.
- Copy of General Electric's 1988 Annual Report, which includes the independent public accountant's report on examination of financial statements for the latest completed fiscal year.
- Special report from Peat, Marwick, Mitchell, & Co. with respect to General Electric Company's financial information included in the Letter from Chief Financial Officer.

If you have any questions about the information submitted, please contact me at (203) 373-2950.

Sincerely,

Paul Chin
Environmental Consultant

LETTER FROM CHIEF FINANCIAL OFFICER

(To demonstrate liability coverage and/or to demonstrate
both liability coverage and assurance of closure
and/or post-closure care.)

Director
Illinois Environmental Protection Agency
2200 Churchill Road
P.O. Box 19276
Springfield, Illinois 62794-9276

Dear Sir or Madam:

I am the chief financial officer of GENERAL ELECTRIC COMPANY, 1 River Road, Schenectady, NY 12345 (1).

This letter is in support of the use of the financial test to demonstrate financial responsibility for liability coverage and closure and/or post closure care (2) as specified in Subpart H of 40 CFR Parts 264 and 265 and/or Subpart H of 35 Illinois Administrative Code Parts 724 and 725. (3)

The firm identified above is the owner or operator of the following facilities for which liability coverage for both sudden and nonsudden (4) accidental occurrences is being demonstrated through the financial test specified in Subpart H of Illinois Administrative Code 724 and 725.

Please attach a separate page if more space is needed for all facilities.

USEPA I.D. No. _____
(5)
Name SEE ATTACHMENT A
ddress _____
City _____

This firm identified above guarantees, through the corporate guarantee specified in Subpart H of 35 Illinois Administrative Code 724 and 725, liability coverage for both sudden and nonsudden (6) accidental occurences at the following facilities owned or operated by the following subsidiaries of the firm:

USEPA I.D. No. SEE ATTACHMENT A
(5)
Name _____
Address _____
City _____

USEPA I.D. No. _____
(5)
Name _____
Address _____
City _____

The Agency is authorized to require, pursuant to Illinois Revised Statutes 1983, Chapter 111 1/2, Paragraphs 1021(d) and 1021.1, that this information be submitted to the Agency by any person conducting a waste disposal operation. Failure to provide this information or falsification of this information may result in a civil penalty of not to exceed $10,000 and an additional civil penalty not to exceed $1,000 per day of violation, and a fine not to exceed $1,000 and imprisonment up to one year. This form has been approved by the Forms Management Center.

IL 532-1602
LPC 261 7/87

USEPA I.D. No. _____

Name _____

Address _____ _____

City _____

4. The firm identified above owns or operates the following hazardous waste management facilities for which financial assurances for closure or, if a disposal facility, post-closure care, is not demonstrated either to IEPA, USEPA or a State through the financial test or any other financial assurance mechanisms specified in Subpart H of 40 CFR Parts 264 and 265 or equivalent or substantially equivalent state mechanisms. The current closure or post-closure cost estimates not covered by such financial assurance are shown for each facility: NONE

Please attach a separate page if more space is needed for all facilities.

USEPA I.D. No. (5)	Closure Amount (6)	Post-Closure Amount (7)	Closure and Post-Closure Amounts (8)
Name			
Address			
City			
USEPA I.D. No.			
Name			
Address			
City			

This firm is the owner or operator of the following UIC facilities for which financial assurance for plugging and abandonment is required under Part 144. The current closure cost estimates as required by 40 CFR 144.62 or Subpart A of Illinois Administrative Code 704 are shown for each facility. NONE

Please attach a separate page if more space is needed for all facilities.

USEPA I.D. No. (5)	Closure Amount (6)
Name	
Address	
City	
USEPA I.D. No.	
Name	
Address	
City	

This firm is required (9) to file a Form 10K with the Securities and Exchange Commission (SEC) for the latest fiscal year:

The fiscal year of this firm ends on December 31. The figures for the following items marked with an asterisk derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year, ended 12/31/88.

Alternative II

1. Sum or current closure and post-closure cost estimates (total of all cost estimates listed above) ..... $ 42,192
2. Amount of annual aggregate liability coverage to be demonstrated [At least $8 million] ..... $ 31,000
3. Sum of lines 1 and 2 ..... $ 73,192
4. Current bond rating of most recent issuance and name of rating service ..... Aaa - Moody's Aaa - Standard's & Poor
5. Date of issuance of bond 2/10/88
6. Date of maturity of bond 1991

*7. Tangible net worth (if any portion of the closure or post-closure cost estimates is included in "total liabilities" on your financial statements you may add that portion to this line) ..... $ 9,914,000

*8. Total assets in the U.S. (required only is less than 90% of assets are located in the U.S.) ..... $ NOT APPLICABLE

	Yes	No
9. Is line 7 at least $10 million?	x	
10. Is line 7 at least 6 times line 3?	x	
*11. Are at least 90% of assets located in the U.S.? If not, complete line 12.	x	
12. Is line 8 at least 6 times line 3?		

Signature

Typed name DENNIS D. DAMMERMAN

Title Sr. Vice President - Finance

Date March 24, 1989

Part B. Closure or Post-Closure Care and Liability Coverage (See Instructions 14 and 15)

Alternative I

1. Sum of current closure and post-closure cost estimates (total of *all* cost estimates listed above) ..... $_____

2. Amount of annual aggregate liability coverage to be demonstrated ..... $_____

`um of lines 1 and 2 ..... $_____

.tal liabilities (if any portion of your closure or post-closure cost estimates is included in your total liabilities, you may deduct that portion from this line and add that amount to lines 5 and 6) ..... $_____

*5. Tangible net worth ..... $_____

*6. Net worth ..... $_____

*7. Current assets ..... $_____

*8. Current liabilities ..... $_____

9. Net working capital (line 7 minus line 8) ..... $_____

10. The sum of net income plus depreciation, depletion, and amortization ..... $_____

*11. Total assets in U.S. (required only if less than 90% of assets are located in the U.S.) ..... $_____

		Yes	No
12.	Is line 5 at least $10 million?	_____	_____
13.	Is line 5 at least 6 times line 3?	_____	_____
14.	Is line 9 at least 6 times line 3?	_____	_____
15.	Are at least 90% of assets located in the U.S.? If not, complete line 16.	_____	_____
16.	Is line 11 at least 6 times line 3?	_____	_____
17.	Is line 4 divided by line 6 less than 2.0?	_____	_____
18.	Is line 10 divided by line 4 greater than 0.1?	_____	_____
19.	Is line 7 divided by line 8 greater than 1.5?	_____	_____

Signature _____

Typed name _____

Title _____

USEPA I.D. No. (5)	Closure Amount (6)	Post-Closure Amount (7)	Closure and Post-Closure Amounts (8)
ıme SEE ATTACHMENT B			
.ddress			
City			

Part A. Liability Coverage for Accidental Occurrences (See Instruction 12 and 13)

Alternative I

1. Amount of annual aggregate liability coverage to be demonstrated ..... $_____

*2. Current assets ..... $_____

Current liabilities ..... $_____

4. Net working capital (line 2 minus line 3) ..... $_____

*5. Tangible net worth ..... $_____

*6. If less than 90% of assets are located in the U.S., give total U.S. assets ..... $_____

	Yes	No
7. Is line 5 at least $10 million?	_____	_____
8. Is line 4 at least 6 times line 1?	_____	_____
9. Is line 5 at least 6 times line 1?	_____	_____
*10. Are at least 90% of assets located in the U.S.? If not, complete line 11.	_____	_____
11. Is line 6 at least 6 times line 1?	_____	_____

Signature _____

Typed name _____

Title _____

Date _____

Part A. Liability Coverage for Accidental Occurrences (See Instruction 12 and (13)

Alternative II

1. Amount of annual aggregate liability coverage to be demonstrated ..... $_____

2. Current bond rating of most recent issuance and name of rating service ..... _____

3. Date of issuance of bond ..... _____

4. Date of maturity of bond ..... _____

*5. Tangible net worth ..... $_____

*6. Total assets in U.S. (required only if less than 90% of assets are located in U.S.) ..... $_____

	Yes	No
7. Is line 5 at least $10 million?	_____	_____
8. Is line 5 at least 6 times line 1?	_____	_____
*9. Are at least 90% of assets located in the U.S.? If not, complete line 10.	_____	_____
10. Is line 6 at least 6 times line 1?	_____	_____

Signature _____

Typed name _____

Title _____

Date _____

1. The firm identified above owns or operates the following facilities for which financial assurance for closure and/or post-closure ca demonstrated through the financial test specified in Subpart H of 35 Ill. Adm. Code Parts 724 and 725. The current closure and/or post-closure estimates covered by the test are shown for each facility:

(Please attach a separate page if more space is needed for all facilities.)

USEPA I.D. No. (5)	Closure Amount (6)	Post-Closure Amount (7)	Closure a. Post-Closu Amount (8)
Name SEE ATTACHMENT B			
Address			
City			
USEPA I.D. No.			
Name			
Address			
City			

2. The firm identified above guarantees, through the corporate guarantee specified in Subpart H of 35 Ill. Adm. Code Parts 724 and 725, the clos and/or post-closure care of the following facilities owned or operated by its subsidiaries. The current cost estimates for closure or post-closure c so guaranteed are shown for each facility:

Please attach a separate page if more space is needed for all facilities.

USEPA I.D. No. (5)	Closure Amount (6)	Post-Closure Amount (7)	Closure an Post-Closur Amounts (8)
Name SEE ATTACHMENT B			
Address			
City			
USEPA I.D. No.			
Name			
Address			
City			

3. In states where IEPA is not administering the financial requirements of Subpart H of 40 CFR Parts 264 and 265, this firm is demonstrating fina cial assurance for the closure or post-closure care of the following facilities through the use of a test equivalent or substantially equivalent to t financial test specified in Subpart H of 40 CFR Parts 264 and 265. The current closure or post-closure cost estimates covered by such a test a shown for each facility:

Please attach a separate page if more space is needed for all facilities.

USEPA I.D. No. (5)	Closure Amount (6)	Post-Closure Amount (7)	Closure and Post-Closure Amounts (8)
Name SEE ATTACHMENT B			
Address			
City			

ATTACHMENT A

LIABILITY -- ALL OWNED/OPERATED FACILITIES
(Sorted alphabetically by State)

EPA_ID	FAC_NAME	STREET	CITY	ST	ZIP
ALD981026677	GE PLASTICS-BURKVILLE OPERATION	ONE PLASTICS DRIVE	BURKVILLE	AL	36752
CAD000819680	GE ULTRASOUND PLANT	3920 SECURITY PARK DRIVE	RANCHO CORDOVA	CA	95670
CAD009208075	GE SAN FRANCISCO SERVICE CENTER	5441 E. 14TH STREET	OAKLAND	CA	94601
CAD009542721	GE EMC/ONTARIO	1923 E. AVION STREET	ONTARIO	CA	91761
CAD030584502	GE LOS ANGELES SERVICE CENTER	3601 E. LaPALMA AVENUE	ANAHEIM	CA	92806
CAD053914206	GE VALLERCITOS NUCLEAR CENTER	PO BOX 460	PLEASONTON	CA	94566
CAT000611095	GE ED & C	11115 VAN OWEN STREET	NORTH HOLLYWOOD	CA	91605
CAT000613471	GE NUCLEAR ENERGY	175 CURTNER AVENUE	SAN JOSE	CA	95125
CTD000842492	GE WASTEWATER SETTLING AREA	41 WOODFORD AVENUE	PLAINVILLE	CT	06062
CTD001453711	GE	1285 BOSTON AVENUE	BRIDGEPORT	CT	06601
FLD001690924	GE SIMULATED & CONTROL SYSTEMS DEPT	BOX 2500	DAYTONA BEACH	FL	32015
GAD003308145	GE MEDIUM TRANSFORMER OPERATION	1935 REDMOND CIRCLE	ROME	GA	30161
IAD000678037	GE BURLINGTON BASKET COMPANY	1404-1418 WEST PLEASANT ST.	W.BURLINGTON	IA	52655
IAD005272703	GE SWITCHGEAR OPERATIONS	510 AGENCY ROAD	W. BURLINGTON	IA	52655
IAD075836130	GE APPLIANCE CONTROL DEPARTMENT	1803 RADIANTANCY	CARROLL	IA	51401
ILD005272992	GE APPLIANCE CONTROLS	709 W. WALL STREET	MORRISON	IL	61270
ILD005443866	GE MATTON LAMP	1501 S. 19TH STREET	MATTON	IL	61938
ILD005453691	GE GENERAL PURPOSE CONTROLS	1601 GE ROAD	BLOOMINGTON	IL	61704
ILD070015714	GE SERVICE SHOP - CHICAGO	6045 SOUTH NOTTINGHAM	CHICAGO	IL	60638
ILD980503023	GE	1540 S. 54TH AVENUE	CICERO	IL	60650
IND000803726	GE BLOOMINGTON PLANT OPERATIONS	301 NORTH CURRY PIKE	BLOOMINGTON	IN	47402
IND004557815	GE SPECIALTY TRANSFORMER OPERATION	1701 COLLEGE STREET	FORT WAYNE	IN	46802
IND006040299	GEM	12TH ST. SE. P.O. BOX 657	LINTON	IN	47441
IND006376362	GE PLASTICS	LEXAN LANE	MT. VERON	IN	47620
KSD041917501	GE-AEMC	STROTHER FIELD	ARKANSAS CITY	KS	67005
KYD006387021	GE APPLIANCE PARK	APPLIANCE PARK	LOUISVILLE	KY	40225
KYD074047556	GE AIRCRAFT ENGINES	US HIGHWAY 41A ROUTE 2	MADISONVILLE	KY	42431
LAD053782413	GE NEW ORLEANS SERVICE CENTER	1115 DeARMAS STREET	NEW ORLEANS	LA	70114
MDD046279311	GE APPLIANCE PARK-EAST	9001 SNOWDEN RIVER PARKWAY	COLUMBIA	MD	21046
MID050676622	GE DETROIT SERVICE CENTER	18075 KRAUSE STREET	RIVERVIEW	MI	48192
MND980501407	GE MINNEAPOLIS SERVICE CENTER	2025 49TH AVENUE NORTH	MINNEAPOLIS	MN	55430
MOD006312375	GE ST. LOUIS LAMP	6251 ETZEL AVENUE	ST. LOUIS	MO	63133
MOD030709539	GE MOTORS - SPRINGFIELD	P.O. BOX 3798, 2401 E.SUNSHINE	SPRINGFIELD	MO	65803

ATTACHMENT A

LIABILITY -- ALL OWNED/OPERATED FACILITIES
(Sorted alphabetically by State)

EPA_ID	FAC_NAME	STREET	CITY	ST	ZIP
NCD003237948	GE HICKORY TRANSFORMER PLANT	1223 FAIRGROVE CHURCH ROAD	HICKORY	NC	28601
NCD050409150	GE WILMINGTON	CASTLE HAYNE RD. MC J26	WILMINGTON	NC	28402
NJD003918570	GE NEW YORK SERVICE CENTER	6001 TONNELLE AVENUE	NORTH BERGAN	NJ	07047
NYD000521971	GE AEROSPACE ELECTRONIC SYSTEMS	FRENCH ROAD	UTICA	NY	13503
NYD002080034	GE SILICONE PRODUCTS DIVISION	260 HUDSON RIVER ROAD	WATERFORD	NY	12188
NYD002080075	GE CAPACITOR & POWER PROTECTION	JOHN STREET	HUDSON FALLS	NY	12839
NYD002084135	GE	1 RIVER ROAD, BUILDING 41-111	SCHENECTADY	NY	12345
NYD059385120	GE ELECTRONICS PK, BG 7 CHEM ANNEX	P.O. BOX 4840	SYRACUSE	NY	13221
NYD066832023	GE PLASTICS - SELKIRK OPERATIONS	NORYL AVENUE	SELKIRK	NY	12158
NYD067539940	GE BUFFALO SERVICE CENTER	175 MILENS ROAD	TONAWANDA	NY	14150
NYD071094197	GE CORPORATE RESEARCH & DEVELOPMENT	PO BOX 8, BLDG. K-1, ROOM 1A69	SCHENECTADY	NY	12301
NYD093256063	GE CAPACITOR & POWER PROTECTION	381 UPPER BROADWAY	FORT EDWARD	NY	12828101
OHD000721456	GE ACSC/C	MAILING - 333 W. SEYMOUR AVENUE	CINCINNATI	OH	45216
OHD000817304	GE ACSC/C	MAILING-333 W. SEYMOUR AVENUE	CINCINNATI	OH	45216
OHD000817312	GE AIRCRAFT ENGINES - EVANDALE	1 NEUMANN WAY - MD N123	CINCINNATI	OH	45215
OHD004176046	GE NILES/MAHONING GLASS	403 W. MAIN STREET	NILES	OH	44446
OHD004224960	GE TRUMBULL LAMP	1313 W. MARKET STREET	WARREN	OH	44485
OHD004226171	GE YOUNGSTOWN LAMP	40 HUGHES STREET	YOUNGSTOWN	OH	445027
OHD004227369	GE LIGHTING - TUNGSTEN PRODUCTS	21800 TUNGSTEN ROAD	EUCLID	OH	44117
OHD004302428	GE COSHOCTON PLANT	1350 SOUTH SECOND STREET	COSHOCTON	OH	43812
OHD009101494	GE ACSC/C	333 W. SEYMOUR AVENUE	CINCINNATI	OH	45216
OHD048432975	GE EUCLID SPECIALTY	1133 E. 152ND STREET	CLEVELAND	OH	44110
OHD048433080	GE CHEMICAL PRODUCTS	1099 IVANHOE ROAD	CLEVELAND	OH	44110
OHD059061317	GE RAVENNA LAMP	6800 N. CHESTNUT STREET	RAVENNA	OH	44266
OHD066052804	GE OHIO LAMP	1210 N. PARK AVENUE	WARREN	OH	44483
OHD074713561	GE CINCINNATI SERVICE CENTER	156 CIRCLE FREEWAY DRIVE	CINCINNATI	OH	45246
PAD003026903	GE PROPERTY	NEW HOLLAND AVENUE	LANCASTER	PA	17604
PAD005033055	GE - ERIE PLANT	2901 EAST LAKE ROAD, BLG 2-2	ERIE	PA	16531
PAD059290908	DIESEL ENGINE - GROVE CITY PLANT	INDUSTRIAL DRIVE	GROVE CITY	PA	16127
PAD060682622	GE BRIDGEVILLE GLASS	MAYER STREET	BRIDGEVILLE	PA	15017
SCD067002147	GE MOBILE COMMUNICATINS - FLORENCE	3001 WEST RADIO DRIVE	FLORENCE	SC	29501
TXD060718269	GE HOUSTON SERVICE CENTER	8800 WALLISVILLE ROAD	HOUSTON	TX	77029
TXD064114242	GE DALLAS SERVICE CENTER	3202 MANOR WAY	DALLAS	TX	75235
TXD079400545	GE EDRCS HOUSTON	3530 W. 12TH STREET	HOUSTON	TX	77224
VAD003132255	GE MOBILE COMMUNICATIONS	MOUNTAIN VIEW ROUAD	LYNCHBURG	VA	24502
VAD003132255	GE MOBILE COMMUNICATIONS	MOUNTAIN VIEW ROAD	LYNCHBURG	VA	24502
VAD070360219	GE WINCHESTER LAMP	ROUTE 3, PO BOX 310	WINCHESTER	VA	22601
VTD002083434	GE ARMAMENT SYSTEMS DEPARTMENT	LAKESIDE AVENUE	BURLINGTON	VT	05401

ATTACHMENT A

LIABILITY -- ALL OWNED/OPERATED FACILITIES
(Sorted alphabetically by State)

EPA_ID	FAC_NAME	STREET	CITY	ST	ZIP
WAD009278706	GE GEAE SCMC/SEATTLE	220 SOUTH DAWSON STREET	SEATTLE	WA	98108
WAD046207379	GE SEATTLE SERVICE CENTER	1031 4TH AVENUE NORTH	KENT	WA	98031
WID000808717	GE CT MANUFACTURING	16800 W. RYERSON ROAD	NEW BERLIN	WI	53151
WID000808725	GE ELECTRICAL PRODUCTION OPERATION	315 W. EDGERTON AVENUE	WILWAUKEE	WI	53207
WID006121347	GE APPLIANCES - MILWAUKEE PLANT	2205 SOUTH 43RD STREET	WEST MILWAUKEE	WI	53219
WID006121354	GE X-RAY MANUFACTURING	3000 N. GRANDVIEW BLVD.	WAUKESHA	WI	53188
WID086686003	GE TUBE MANUFACTURING	4855 WEST ELECTRIC AVENUE	MILWAUKEE	WI	53219
WID980683569	GE E. DALE TROUT	3114 N. GRANDVIEW BLVD.	WAUKESHA	WI	53188

79

ATTACHMENT A

LIABILITY -- CORPORATE GUARANTEED FACILITIES
(Sorted alphabetically by State)

EPA_ID	FAC_NAME	STREET	CITY	ST	ZIP
PRD000692582	GE CARIBE PRODUCTS, INC. VIEQUES	P.O. BOX 187	VIEQUES	PR	00765
PRD000692590	GE CARIBE PRODUCTS INC., RIO PIEDES	CALLE LA BRISA #5 SABANA LLANA	RIO PIEDRAS	PR	00924
PRD090070459	GE CARIBE	PO BOX 9069	HUMACAO	PR	00661
PRD090282757	GE CARIBE PRODUCTS	P.O. BOX 1430	JUANA DIAZ	PR	00665
PRD090306077	GE RECONSTRUCCION INDUSTRIAL CORP.		PONCE 00731	PR	00731
PRD090383860	CARBIBE GE PRODUCTS INC.	ZENO GANDIA PARK, RTE 120	ARECIBO	PR	00613
PRD090492109	GE-PATILLAS	STATE ROAD #3 KM 122.9	PATILAS	PR	00723
PRD090510793	GE CARIBE	P.O. BOX #377	PALMER	PR	00721
PRD091019224	CARIBE GE PRODUCTS INC.	P.O. BOX 186	SAN GERMAN	PR	00753
TXD061382206	GE RAILCAR REPAIR SERVICES CORP.	P.O. BOX 115/TIFFON ROAD	RANGER	TX	76470
VAD980551782	GE FANUC AUTOMATION NORTH AMERICA	PO BOX 8106	CHARLOTTESVILLE	VA	22906

ATTACHMENT B

CLOSURE/POST CLOSURE -- ALL OWNED/OPERATED FACILITIES
(Sorted Alphabetically by State)

EPA_ID	FAC_NAME	ADDRESS			CLOSURE	POST CLO
ALD981026677	GE PLASTICS-BURKVILLE OPERATIO	ONE PLASTICS DRIVE	BURKVILLE	AL 36752	44423	
				STATE TOTAL:	44423	
CAD000819680	GE ULTRASOUND PLANT	3920 SECURITY PARK DRIVE	RANCHO CORDOVA	CA 95670	2104200	
CAD009208075	GE SAN FRANCISCO SERVICE CTR.	5441 E. 14TH STREET	OAKLAND	CA 94601	30000	
CAD009542721	GE EMC/ONTARIO	1923 E. AVION STREET	ONTARIO	CA 91761	33800	
CAD030584502	GE LOS ANGELES SERVICE CENTER	3601 E. LaPALMA AVENUE	ANAHEIM	CA 92806	26000	
CAD053914206	GE VALLERCITOS NUCLEAR CENTER	PO BOX 460	PLEASONTON	CA 94566	174781	
CAT000611095	GE ED & C	11115 VAN OWEN STREET	NORTH HOLLYWOOD	CA 91605	21659	
CAT000613471	GE NUCLEAR ENERGY	175 CURTNER AVENUE	SAN JOSE	CA 95125	785000	
				STATE TOTAL:	3175440	0
CTD000842492	GE WASTEWATER SETTLING AREA	41 WOODFORD AVENUE	PLAINVILLE	CT 06062	2578500	1408387
CTD001453711	GE	1285 BOSTON AVENUE	BRIDGEPORT	CT 06601	710000	590000
				STATE TOTAL:	3288500	1998387
FLD001690924	GE SIMULATED & CONTROL SYSTEMS	BOX 2500	DAYTONA BEACH	FL 32015	20000	
				STATE TOTAL:	20000	0
GAD003308145	GE MEDIUM TRANSFORMER OPERATIO	1935 REDMOND CIRCLE	ROME	GA 30161	224300	
				STATE TOTAL:	224300	0
IAD000678037	GE BURLINGTON BASKET COMPANY	1404-1418 WEST PLEASANT ST.	W.BURLINGTON	IA 52655		1450000
IAD005272703	GE SWITCHGEAR OPERATIONS	510 AGENCY ROAD	W. BURLINGTON	IA 52655	412560	20628
IAD075836130	GE APPLIANCE CONTROL DEPARTMEN	1803 RADIANTANCY	CARROLL	IA 51401	10314	
				STATE TOTAL:	422874	1470628
ILD005272992	GE APPLIANCE CONTROLS	709 W. WALL STREET	MORRISON	IL 61270	200000	
ILD005443866	GE MATTON LAMP	1501 S. 19TH STREET	MATTON	IL 61938	22244	
ILD005453691	GE GENERAL PURPOSE CONTROLS	1601 GE ROAD	BLOOMINGTON	IL 61704	80750	
ILD070015714	GE SERVICE SHOP - CHICAGO	6045 SOUTH NOTTINGHAM	CHICAGO	IL 60638	10314	0
ILD980503023	GE	1540 S. 54TH AVENUE	CICERO	IL 60650	37130	18565
				STATE TOTAL:	350438	18565

ATTACHMENT B

CLOSURE/POST CLOSURE -- ALL OWNED/OPERATED FACILITIES
(Sorted Alphabetically by State)

EPA_ID	FAC_NAME	ADDRESS			CLOSURE	POST C
IND000803726	GE BLOOMINGTON PLANT OPERATION	301 NORTH CURRY PIKE	BLOOMINGTON	IN 47402	80901	
IND004557815	GE SPECIALTY TRANSFORMER OPERA	1701 COLLEGE STREET	FORT WAYNE	IN 46802	45000	
IND006040299	GEM	12TH ST. SE. P.O. BOX 657	LINTON	IN 47441	22521	
IND006376362	GE PLASTICS	LEXAN LANE	MT. VERON	IN 47620	37337	
				STATE TOTAL:	185759	
KSD041917501	GE-AEMC	STROTHER FIELD	ARKANSAS CITY	KS 67005	27230	
				STATE TOTAL:	27230	
KYD006387021	GE APPLIANCE PARK	APPLIANCE PARK	LOUISVILLE	KY 40225	162000	
KYD074047556	GE AIRCRAFT ENGINES	US HIGHWAY 41A ROUTE 2	MADISONVILLE	KY 42431	186000	
				STATE TOTAL:	348000	
LAD053782413	GE NEW ORLEANS SERVICE CENTER	1115 DeARMAS STREET	NEW ORLEANS	LA 70114	18565	
				STATE TOTAL:	18565	
MDD046279311	GE APPLIANCE PARK-EAST	9001 SNOWDEN RIVER PARKWAY	COLUMBIA	MD 21046		223226
				STATE TOTAL:	0	223226
MND980501407	GE MINNEAPOLIS SERVICE CENTER	2025 49TH AVENUE NORTH	MINNEAPOLIS	MN 55430	12377	0
				STATE TOTAL:	12377	0
MOD006312375	GE ST. LOUIS LAMP	6251 ETZEL AVENUE	ST. LOUIS	MO 63133	36099	
MOD030709539	GE MOTORS - SPRINGFIELD	P.O. BOX 3798, 2401 E.SUNSHINE	SPRINGFIELD	MO 65808	23464	
				STATE TOTAL:	59563	0
NCD003237948	GE HICKORY TRANSFORMER PLANT	1223 FAIRGROVE CHURCH ROAD	HICKORY	NC 28601	10000	462000
NCD050409150	GE WILMINGTON	CASTLE HAYNE RD. MC J26	WILMINGTON	NC 28402	88679	
				STATE TOTAL:	98679	4620000
NYD000521971	GE AEROSPACE ELECTRONIC SYSTEM	FRENCH ROAD	UTICA	NY 13503	20000	
NYD002080034	GE SILICONE PRODUCTS DIVISION	260 HUDSON RIVER ROAD	WATERFORD	NY 12188	12040500	5194
NYD002080075	GE CAPACITOR & POWER PROTECTIO	JOHN STREET	HUDSON FALLS	NY 12839	221448	
NYD002084135	GE	1 RIVER ROAD, BUILDING 41-111	SCHENECTADY	NY 12345	410850	
NYD059385120	GE ELECTRONICS PK, BG 7 CHEM A	P.O. BOX 4840	SYRACUSE	NY 13221	44074	
NYD066832023	GE PLASTICS - SELKIRK OPERATIO	NORYL AVENUE	SELKIRK	NY 12158	509032	137761
NYD067539940	GE BUFFALO SERVICE CENTER	175 MILENS ROAD	TONAWANDA	NY 14150	304488	
NYD071094197	GE CORPORATE RESEARCH & DEVELO	PO BOX 8, BLDG. K-1, ROOM 1A69	SCHENECTADY	NY 12301	405775	
NYD093256063	GE CAPACITOR & POWER PROTECTIO	381 UPPER BROADWAY	FORT EDWARD	NY 12828101	506316	
				STATE TOTAL:	14462483	189707

ATTACHMENT B

CLOSURE/POST CLOSURE -- ALL OWNED/OPERATED FACILITIES
(Sorted Alphabetically by State)

EPA_ID	FAC_NAME	ADDRESS			CLOSURE	POST C
OHD000721456	GE ACSC/C	3023 SYMMES RD.	HAMILTON	OH 45216	19506	
OHD000817304	GE ACSC/C	1350 TENNESSEE AVE.	CINCINNATI	OH 45229	29781	
OHD000817312	GE AIRCRAFT ENGINES - EVANDALE	1 NEUMANN WAY - MD N123	CINCINNATI	OH 45215	360459	
OHD004176046	GE NILES/MAHONING GLASS	403 N. MAIN STREET	NILES	OH 44446	43034	
OHD004224960	GE TRUMBULL LAMP	1313 W. MARKET STREET	WARREN	OH 44485	17439	
OHD004226171	GE YOUNGSTOWN LAMP	40 HUGHES STREET	YOUNGSTOWN	OH 445027	5157	
OHD004227369	GE LIGHTING - TUNGSTEN PRODUCT	21800 TUNGSTEN ROAD	EUCLID	OH 44117	172317	
OHD004302428	GE COSHOCTON PLANT	1350 SOUTH SECOND STREET	COSHOCTON	OH 43812	112638	
OHD009101494	GE ACSC/C	333 W. SEYMOUR AVENUE	CINCINNATI	OH 45216	12373	
OHD048432975	GE EUCLID SPECIALTY	1133 E. 152ND STREET	CLEVELAND	OH 44110	386964	
OHD048433080	GE CHEMICAL PRODUCTS	1099 IVANHOE ROAD	CLEVELAND	OH 44110	1103321	
OHD059061317	GE RAVENNA LAMP	6800 N. CHESTNUT STREET	RAVENNA	OH 44266	28879	
OHD066052804	GE OHIO LAMP	1210 N. PARK AVENUE	WARREN	OH 44483	90650	
OHD074713561	GE CINCINNATI SERVICE CENTER	156 CIRCLE FREEWAY DRIVE	CINCINNATI	OH 45246	6188	
				STATE TOTAL:	2388706	
SCD067002147	GE MOBILE COMMUNICATINS - FLOR	3001 WEST RADIO DRIVE	FLORENCE	SC 29501	139913	9806
				STATE TOTAL:	139913	9806
TXD060718269	GE HOUSTON SERVICE CENTER	8800 WALLISVILLE ROAD	HOUSTON	TX 77029	346909	
TXD064114242	GE DALLAS SERVICE CENTER	3202 MANOR WAY	DALLAS	TX 75235	10314	
TXD079400545	GE EDRCS HOUSTON	3530 W. 12TH STREET	HOUSTON	TX 77224	50000	
				STATE TOTAL:	407223	
VAD003132255	GE MOBILE COMMUNICATIONS	MOUNTAIN VIEW ROUAD	LYNCHBURG	VA 24502	75500	
VAD003132255	GE MOBILE COMMUNICATIONS	MOUNTAIN VIEW ROAD	LYNCHBURG	VA 24502	44996	
VAD070360219	GE WINCHESTER LAMP	ROUTE 3, PO BOX 310	WINCHESTER	VA 22601	33000	
				STATE TOTAL:	153496	
VTD002083434	GE ARMAMENT SYSTEMS DEPARTMENT	LAKESIDE AVENUE	BURLINGTON	VT 05401	48366	
				STATE TOTAL:	48366	
WAD009278706	GE GEAE SCMC/SEATTLE	220 SOUTH DAWSON STREET	SEATTLE	WA 98108	34803	
WAD046207379	GE SEATTLE SERVICE CENTER	1031 4TH AVENUE NORTH	KENT	WA 98031	7220	
				STATE TOTAL:	42023	
67				GRAND TOTAL:	25,918,358	11,510,2

ATTACHMENT B

CLOSURE/POST CLOSURE -- CORPORATE GUARANTEED FACILITIES
(Sorted Alphabetically by State)

EPA_ID	FAC_NAME	ADDRESS			CLOSURE	POST CLO
PRD000692582	GE CARIBE PRODUCTS, INC. VIEQU	P.O. BOX 187	VIEQUES	PR 00765	63000	250000
PRD000692590	GE CARIBE PRODUCTS INC., RIO P	CALLE LA BRISA #5 SABANA LLANA	RIO PIEDRAS	PR 00924	68072	
PRD090070459	GE CARIBE	PO BOX 9069	HUMACAO	PR 00661	45000	
PRD090282757	GE CARIBE PRODUCTS	P.O. BOX 1430	JUANA DIAZ	PR 00665	47150	
PRD090306077	GE RECONSTRUCCION INDUSTRIAL C		PONCE 00731	PR 00731	3370	
PRD090383860	CARBIBE GE PRODUCTS INC.	ZENO GANDIA PARK, RTE 120	ARECIBO	PR 00613	115000	0
PRD090492109	GE-PATILLAS	STATE ROAD #3 KM 122.9	PATILAS	PR 00723	1852390	0
PRD090510793	GE CARIBE	P.O. BOX #377	PALMER	PR 00721	825120	
PRD091019224	CARIBE GE PRODUCTS INC.	P.O. BOX 186	SAN GERMAN	PR 00753	40150	
				STATE TOTAL:	3059252	250000
TXD061382206	GE RAILCAR REPAIR SERVICES COR	P.O. BOX 115/TIFFON ROAD	RANGER	TX 76470	800000	500000
				STATE TOTAL:	800000	500000
VAD980551782	GE FANUC AUTOMATION NORTH AMER	PO BOX 8106	CHARLOTTESVILLE	VA 22906	154000	0
				STATE TOTAL:	154000	0
11				GRAND TOTAL:	4,013,252	750,000

EXPLANATION OF COST ESTIMATES
ADJUSTED DIFFERENT FROM INFLATION FACTOR

EPA I.D.		COMMENTS
ARK007037823	G	No estimate, operating as Generator Only status
CAD000819680	I	Revised to include groundwater testing
CAD009208075	I	Revised estimate based on updated disposal and labor rates
CAD009542721	I	Revised based on updated drum removal costs
CAD030584502	I	Revised based on soil and underground tank removal costs
COD062753702	G	No estimate, operating as Generator Only status
CTD000842492	I	Revised Closure Plan Cost estimates
CTD001453711	I	Revised Closure Plan Cost estimates
FLD001690924	I	Undergoing Closure. Permit filed 11/88
IAD000678037	I	Revised plan to include monitoring and pump & treat
ILD005272992	I	Undergoing Closure
ILD005443866	I	Revised Closure Plan Cost estimate
ILD005453691	I	Revised Plan to meet specified IEPA requirements
IND004557815	I	Revised to include updated third party analytical costs
IND005422084	G	No estimate, closure certified complete, 11/87
IND005448683	G	No estimate, closure certified complete, 8/88
IND006392773	G	No estimate, closure certified complete, 1/88
KSD041917501	I	Revised to account for closed storage tank
MDD046279311	P	Completed Closure of Landfill in 1988
MID050676622	I	Completed Closure, awaiting approval
MOD030709539	I	Undergoing Closure
NCD003237948	P	Revised to account for reduced analytical costs
NYD002080034	I	Revised to account for closed surface impoundments and updated estimates for landfill
NYD002084135	I	Revised to account for potential additional volume
NYD052987096	S	No estimate, sold 3/18/88
NYD066832023	P	Revised to account for partial Closure in 1988
NYD067539940	I	Revised to account for additonal potential TSD capacity
NYD071094197	I	Revised Closure Plan cost estimate
OHD000721456	I	Revised Closure Plan cost estimate
OHD000817304	I	Undergoing Closure, Loss of Interim Status
OHD000817312	I	Revised Closure Plan cost estimate
OHD004226171	I	Undergoing Closure, revised to account for actual closures
OHD004302428	I	Revised Closure Plan cost estimate
OHD009101494	I	Undergoing Closure, revised to account for actual closures
OHD048111090	S	No estimate, sold 1987
PAD001680719	G	No estimate, operatng as Generaor Only status 8/88
PAD003026903		Undergoing closure, sold 7/87
PRD000692582	I	Revised to include groundwater monitoring
PRD090070459	P	Revised Closure Plan cost estimates
PRD090383860	I	Revised Closure Plan cost estimates
PRD090510793	I	Revised Closure Plan cost estimates
PRD091019224	I	Revised Closure Plan cost estimates
SCD067002147	P	Revised to account for Closure of Surface Impoundment
TND066709130	G	No estimate, Closure certified complete, 6/87
TXD061382206	I	Undergoing Closure, revised to account for actual closures
VAD980551782	I	Revised Closure Plan cost estimates
WID006121347	I	Revised estimate to account for closure storage and tanks
WID086686003	I	Revised at request of WDNR to reflect 100% external costs

Peat Marwick

Certified Public Accountants

Peat Marwick Main & Co.
Stamford Square
3001 Summer Street
Stamford, CT 06905

March 24, 1989

Mr. Dennis D. Dammerman
Senior Vice President - Finance
General Electric Company
3135 Easton Turnpike
Fairfield, Connecticut 06431

Dear Mr. Dammerman:

At your request, we have performed the procedures enumerated below with respect to Part B of your certificate on behalf of General Electric Company, dated March 24, 1989, to the Environmental Protection Agency. These procedures were performed solely to assist you in connection with the filing of the above mentioned certificate, and our report is not to be used for any other purpose. The procedures we performed are summarized as follows:

- The dollar amount of tangible net worth included under item 7, Part B, certificate Page Two - We compared the dollar amount of tangible net worth, which represents total share owners' equity less total intangible assets, with the amount of total share owners' equity included in the Company's 1988 Annual Report less the total of intangible assets included in Note 20 on page 58 of the Company's 1988 Annual Report and found them to be in agreement.

- To determine that the "Not Applicable" response to item 8, Part B, certificate Page Two, and the positive response to item 11, Part B, certificate Page Three were correct, we compared the amount of United States assets included in the geographic segment information disclosed in Note 34 on page 69 of the Company's Annual Report with the product of 90% times total assets as shown on the "Statement of Financial Position" page 26 of the Company's 1988 Annual Report and found that the dollar amount of assets in the United States was greater than the result of the computation described above.

Because the above procedures do not constitute an audit in accordance with generally accepted auditing standards, we express no opinion on any of the items referred to above. In connection with the procedures referred to above, no matters came to our attention that caused us to believe that the specified amounts or items should be adjusted. Had we performed additional procedures, matters might have come to our attention that would have been reported to you. This report relates only to the amounts and items specified above and does not extend to any financial statements of General Electric Company and consolidated affiliates taken as a whole.

Very truly yours,

PEAT MARWICK MAIN & CO.

E.J. Santoro, Partner

March 24, 1989

Letter from Chief Financial Officer to Demonstrate Both Liability Coverage and Assurance of Closure or Post Closure

Environmental Protection Agency
Regional Administrator - Region V
230 South Dearborn
Chicago, IL 60604

I am the chief financial officer of the General Electric Company, 1 River Road, Schenectady, New York 12345. This letter is in support of the use of the financial test to demonstrate financial responsibility for liability coverage and closure and/or post-closure care as specified in Subpart H of 40 CFR Parts 264 and 265.

The firm identified above is the owner or operator of the following facilities for which liability coverage for both sudden and nonsudden accidental occurrences is being demonstrated through the financial test specified in Subpart H of 40 CFR Parts 264 and 265: See Attachment A.

The firm identified above guarantees, through the corporate guarantee specified in Subpart H of 40 CFR Parts 264 and 265, liability coverage for both sudden and nonsudden accidental occurrences at the following facilities owned or operated by the following subsidiaries of the firm: See Attachment A.

1. The firm identified above owns or operates the following facilities for which financial assurance for closure or post-closure care is demonstrated through the financial test specified in Subpart H of 40 CFR Parts 264 and 265. The current closure and/or post-closure cost estimates covered by the test are shown for each facility: See Attachment B.

2. The firm identified above guarantees, through the corporate guarantee specified in Subpart H of 40 CFR Parts 264 and 265, the closure and post-closure care of the following facilities owned or opeated by its subsidiaries. The current cost estimates for the closure or post-closure care so guaranteed are shown for each facility: See Attachment B.

3. In states where EPA is not administering the financial requirements of Subpart H of 40 CFR Parts 264 and 265, this firm is demonstrating financial assurance for the closure or post-closure care of the following facilities through the use of a test equivalent or substantially equivalent to the financial test specified in Subpart H of 40 CFR Parts 264 and 265. The current closure or post-closure cost estimates covered by such a test are shown for each facility: See Attachment C.

4. The firm identified above owns or operates the following hazardous waste management facilities for which financial assurance for closure or, if a disposal facility, post-closure care, is not demonstrated either to EPA or a State through the financial test or any other financial assurance mechanisms specified in Subpart H of 40 CFR Oarts 264 and 265 or equivalent or substantially equivalent State mechanism. The current closure and/or post-closure cost estimates not covered by such financial assurance are shown for each facility: None

5. This firm is the owner or operator of the following UIC facilities for which financial assurance for plugging and abandonment is required under Part 144. The current closure cost estimates as required by 40 CFR 144.62 are shown for each facility: None

This firm is required to file a Form 10K with the Securities and Exchange Commission (SEC) for the latest fiscal year.

The fiscal year of this firm ends on December 31. The figures for the following items marked with an asterisk are derived from this firm's independently audited, year-end financial statements for the latest completed fiscal year ended December 31, 1988.

Part B. Closure or Post-Closure Care and Liability Coverage.

Alternative II

		(Dollars in thousands)
1.	Sum of current closure and post-closure cost estimates (total of all cost estimates listed above)	$42,268
2.	Amount of annual aggregate liability coverage to be demonstrated	$31,000
3.	Sum of lines 1 and 2	$73,268
4.	Current bond rating of most recent issuance and name of rating service	Aaa - Moody's AAA - Standard & Poor's
5.	Date of issuance of bond	2/10/1988
6.	Date of maturity of bond	1991
*7.	Tangible net worth (if any portion of the closure or post-closure cost estimates is included in "total liabilities" on your financial statements, you may add that portion to this line)	$ 9,914,000
*8.	Total assets in the U.S. (required only if less than 90% of assets are located in the U.S.)	$ Not Applicable

ATTACHMENT A

LIABILITY -- ALL OWNED/OPERATED FACILITIES
(Sorted alphabetically by State)

EPA_ID	FAC_NAME	STREET	CITY	ST	ZIP
ALD981026677	GE PLASTICS-BURKVILLE OPERATION	ONE PLASTICS DRIVE	BURKVILLE	AL	36752
CAD000819680	GE ULTRASOUND PLANT	3920 SECURITY PARK DRIVE	RANCHO CORDOVA	CA	95670
CAD009208075	GE SAN FRANCISCO SERVICE CENTER	5441 E. 14TH STREET	OAKLAND	CA	94601
CAD009542721	GE EMC/ONTARIO	1923 E. AVION STREET	ONTARIO	CA	91761
CAD030584502	GE LOS ANGELES SERVICE CENTER	3601 E. LaPALMA AVENUE	ANAHEIM	CA	92806
CAD053914206	GE VALLERCITOS NUCLEAR CENTER	PO BOX 460	PLEASONTON	CA	94566
CAT000611095	GE ED & C	11115 VAN OWEN STREET	NORTH HOLLYWOOD	CA	91605
CAT000613471	GE NUCLEAR ENERGY	175 CURTNER AVENUE	SAN JOSE	CA	95125
CTD000842492	GE WASTEWATER SETTLING AREA	41 WOODFORD AVENUE	PLAINVILLE	CT	06062
CTD001453711	GE	1285 BOSTON AVENUE	BRIDGEPORT	CT	06601
FLD001690924	GE SIMULATED & CONTROL SYSTEMS DEPT	BOX 2500	DAYTONA BEACH	FL	32015
GAD003308145	GE MEDIUM TRANSFORMER OPERATION	1935 REDMOND CIRCLE	ROME	GA	30161
IAD000678037	GE BURLINGTON BASKET COMPANY	1404-1418 WEST PLEASANT ST.	W.BURLINGTON	IA	52655
IAD005272703	GE SWITCHGEAR OPERATIONS	510 AGENCY ROAD	W. BURLINGTON	IA	52655
IAD075836130	GE APPLIANCE CONTROL DEPARTMENT	1803 RADIANTANCY	CARROLL	IA	51401
ILD005272992	GE APPLIANCE CONTROLS	709 W. WALL STREET	MORRISON	IL	61270
ILD005443866	GE MATTON LAMP	1501 S. 19TH STREET	MATTON	IL	61938
ILD005453691	GE GENERAL PURPOSE CONTROLS	1601 GE ROAD	BLOOMINGTON	IL	61704
ILD070015714	GE SERVICE SHOP - CHICAGO	6045 SOUTH NOTTINGHAM	CHICAGO	IL	60638
ILD980503023	GE	1540 S. 54TH AVENUE	CICERO	IL	60650
IND000803726	GE BLOOMINGTON PLANT OPERATIONS	301 NORTH CURRY PIKE	BLOOMINGTON	IN	47402
IND004557815	GE SPECIALTY TRANSFORMER OPERATION	1701 COLLEGE STREET	FORT WAYNE	IN	46802
IND006040299	GEM	12TH ST. SE. P.O. BOX 657	LINTON	IN	47441
IND006376362	GE PLASTICS	LEXAN LANE	MT. VEROW	IN	47620
KSD041917501	GE-AEMC	STROTHER FIELD	ARKANSAS CITY	KS	67005
KYD006387021	GE APPLIANCE PARK	APPLIANCE PARK	LOUISVILLE	KY	40225
KYD074047556	GE AIRCRAFT ENGINES	US HIGHWAY 41A ROUTE 2	MADISONVILLE	KY	42431
LAD053782413	GE NEW ORLEANS SERVICE CENTER	1115 DeARMAS STREET	NEW ORLEANS	LA	70114
MDD046279311	GE APPLIANCE PARK-EAST	9001 SNOWDEN RIVER PARKWAY	COLUMBIA	MD	21046
MID050676622	GE DETROIT SERVICE CENTER	18075 KRAUSE STREET	RIVERVIEW	MI	48192
MND980501407	GE MINNEAPOLIS SERVICE CENTER	2025 49TH AVENUE NORTH	MINNEAPOLIS	MN	55430
MOD006312375	GE ST. LOUIS LAMP	6251 ETZEL AVENUE	ST. LOUIS	MO	63133
MOD030709539	GE MOTORS - SPRINGFIELD	P.O. BOX 3798, 2401 E.SUNSHINE	SPRINGFIELD	MO	65808

ATTACHMENT A

LIABILITY -- ALL OWNED/OPERATED FACILITIES
(Sorted alphabetically by State)

EPA_ID	FAC_NAME	STREET	CITY	ST	ZIP
NCD003237948	GE HICKORY TRANSFORMER PLANT	1223 FAIRGROVE CHURCH ROAD	HICKORY	NC	28601
NCD050409150	GE WILMINGTON	CASTLE HAYNE RD. MC J26	WILMINGTON	NC	28402
NJD003918570	GE NEW YORK SERVICE CENTER	6001 TONNELLE AVENUE	NORTH BERGAN	NJ	07047
NYD000521971	GE AEROSPACE ELECTRONIC SYSTEMS	FRENCH ROAD	UTICA	NY	13503
NYD002080034	GE SILICONE PRODUCTS DIVISION	260 HUDSON RIVER ROAD	WATERFORD	NY	12188
NYD002080075	GE CAPACITOR & POWER PROTECTION	JOHN STREET	HUDSON FALLS	NY	12839
NYD002084135	GE	1 RIVER ROAD, BUILDING 41-111	SCHENECTADY	NY	12345
NYD059385120	GE ELECTRONICS PK, BG / CHEM ANNEX	P.O. BOX 4840	SYRACUSE	NY	13221
NYD066832023	GE PLASTICS - SELKIRK OPERATIONS	NORYL AVENUE	SELKIRK	NY	12158
NYD067539940	GE BUFFALO SERVICE CENTER	175 MILENS ROAD	TONAWANDA	NY	14150
NYD071094197	GE CORPORATE RESEARCH & DEVELOPMENT	PO BOX 8, BLDG. K-1, ROOM 1A69	SCHENECTADY	NY	12301
NYD093256063	GE CAPACITOR & POWER PROTECTION	381 UPPER BROADWAY	FORT EDWARD	NY	12828101
OHD000721456	GE ACSC/C	MAILING - 333 W. SEYMOUR AVENUE	CINCINNATI	OH	45216
OHD000817304	GE ACSC/C	MAILING-333 W. SEYMOUR AVENUE	CINCINNATI	OH	45216
OHD000817312	GE AIRCRAFT ENGINES - EVANDALE	1 NEUMANN WAY - MD N123	CINCINNATI	OH	45215
OHD004176046	GE NILES/MAHONING GLASS	403 N. MAIN STREET	NILES	OH	44446
OHD004224960	GE TRUMBULL LAMP	1313 W. MARKET STREET	WARREN	OH	44485
OHD004226171	GE YOUNGSTOWN LAMP	40 HUGHES STREET	YOUNGSTOWN	OH	445027
OHD004227369	GE LIGHTING - TUNGSTEN PRODUCTS	21800 TUNGSTEN ROAD	EUCLID	OH	44117
OHD004302428	GE COSHOCTON PLANT	1350 SOUTH SECOND STREET	COSHOCTON	OH	43812
OHD009101494	GE ACSC/C	333 W. SEYMOUR AVENUE	CINCINNATI	OH	45216
OHD048432975	GE EUCLID SPECIALTY	1133 E. 152ND STREET	CLEVELAND	OH	44110
OHD048433080	GE CHEMICAL PRODUCTS	1099 IVANHOE ROAD	CLEVELAND	OH	44110
OHD059061317	GE RAVENNA LAMP	6800 N. CHESTNUT STREET	RAVENNA	OH	44266
OHD066052804	GE OHIO LAMP	1210 N. PARK AVENUE	WARREN	OH	44483
OHD074713561	GE CINCINNATI SERVICE CENTER	156 CIRCLE FREEWAY DRIVE	CINCINNATI	OH	45246
PAD003026903	GE PROPERTY	NEW HOLLAND AVENUE	LANCASTER	PA	17604
PAD005033055	GE - ERIE PLANT	2901 EAST LAKE ROAD, BLG 2-2	ERIE	PA	16531
PAD059290908	DIESEL ENGINE - GROVE CITY PLANT	INDUSTRIAL DRIVE	GROVE CITY	PA	16127
PAD060682622	GE BRIDGEVILLE GLASS	MAYER STREET	BRIDGEVILLE	PA	15017
SCD067002147	GE MOBILE COMMUNICATINS - FLORENCE	3001 WEST RADIO DRIVE	FLORENCE	SC	29501
TXD060718269	GE HOUSTON SERVICE CENTER	8800 WALLISVILLE ROAD	HOUSTON	TX	77029
TXD064114242	GE DALLAS SERVICE CENTER	3202 MANOR WAY	DALLAS	TX	75235
TXD079400545	GE EDRCS HOUSTON	3530 W. 12TH STREET	HOUSTON	TX	77224
VAD003132255	GE MOBILE COMMUNICATIONS	MOUNTAIN VIEW ROUAD	LYNCHBURG	VA	24502
VAD003132255	GE MOBILE COMMUNICATIONS	MOUNTAIN VIEW ROAD	LYNCHBURG	VA	24502
VAD070360219	GE WINCHESTER LAMP	ROUTE 3, PO BOX 310	WINCHESTER	VA	22601
VTD002083434	GE ARMAMENT SYSTEMS DEPARTMENT	LAKESIDE AVENUE	BURLINGTON	VT	05401

ATTACHMENT A

LIABILITY -- ALL OWNED/OPERATED FACILITIES
(Sorted alphabetically by State)

EPA_ID	FAC_NAME	STREET	CITY	ST	ZIP
WAD009278706	GE GEAE SCMC/SEATTLE	220 SOUTH DAWSON STREET	SEATTLE	WA	98108
WAD046207379	GE SEATTLE SERVICE CENTER	1031 4TH AVENUE NORTH	KENT	WA	98031
WID000808717	GE CT MANUFACTURING	16800 W. RYERSON ROAD	NEW BERLIN	WI	53151
WID000808725	GE ELECTRICAL PRODUCTION OPERATION	315 W. EDGERTON AVENUE	WILWAUKEE	WI	53207
WID006121347	GE APPLIANCES - MILWAUKEE PLANT	2205 SOUTH 43RD STREET	WEST MILWAUKEE	WI	53219
WID006121354	GE X-RAY MANUFACTURING	3000 N. GRANDVIEW BLVD.	WAUKESHA	WI	53188
WID086686003	GE TUBE MANUFACTURING	4855 WEST ELECTRIC AVENUE	MILWAUKEE	WI	53219
WID980683569	GE E. DALE TROUT	3114 N. GRANDVIEW BLVD.	WAUKESHA	WI	53188

ATTACHMENT A

LIABILITY -- CORPORATE GUARANTEED FACILITIES
(Sorted alphabetically by State)

EPA_ID	FAC_NAME	STREET	CITY	ST	ZIP
PRD000692582	GE CARIBE PRODUCTS, INC. VIEQUES	P.O. BOX 187	VIEQUES	PR	00765
PRD000692590	GE CARIBE PRODUCTS INC., RIO PIEDES	CALLE LA BRISA #5 SABANA LLANA	RIO PIEDRAS	PR	00924
PRD090070459	GE CARIBE	PO BOX 9069	HUMACAO	PR	00661
PRD090282757	GE CARIBE PRODUCTS	P.O. BOX 1430	JUANA DIAZ	PR	00665
PRD090306077	GE RECONSTRUCCION INDUSTRIAL CORP.		PONCE 00731	PR	00731
PRD090383860	CARBIBE GE PRODUCTS INC.	ZENO GANDIA PARK, RTE 120	ARECIBO	PR	00613
PRD090492109	GE-PATILLAS	STATE ROAD #3 KM 122.9	PATILAS	PR	00723
PRD090510793	GE CARIBE	P.O. BOX #377	PALMER	PR	00721
PRD091019224	CARIBE GE PRODUCTS INC.	P.O. BOX 186	SAN GERMAN	PR	00753
TXD061382206	GE RAILCAR REPAIR SERVICES CORP.	P.O. BOX 115/TIFFON ROAD	RANGER	TX	76470
VAD980551782	GE FANUC AUTOMATION NORTH AMERICA	PO BOX 8106	CHARLOTTESVILLE	VA	22906

11

ATTACHMENT B

CLOSURE/POST CLOSURE -- OWNED/OPERATED FACILITIES WHERE EPA ADMINISTERS

(Sorted by alphabetically by State)

EPA_ID	FAC_NAME	ADDRESS			CLOSURE	POST CLO
CAD000819680	GE ULTRASOUND PLANT	3920 SECURITY PARK DRIVE	RANCHO CORDOVA	CA 95670	2104200	
CAD009208075	GE SAN FRANCISCO SERVICE CTR.	5441 E. 14TH STREET	OAKLAND	CA 94601	30000	0
CAD009542721	GE EMC/ONTARIO	1923 E. AVION STREET	ONTARIO	CA 91761	33800	
CAD030584502	GE LOS ANGELES SERVICE CENTER	3601 E. LaPALMA AVENUE	ANAHEIM	CA 92806	26000	0
CAD053914206	GE VALLERCITOS NUCLEAR CENTER	PO BOX 460	PLEASONTON	CA 94566	174781	
CAT000611095	GE ED & C	11115 VAN OWEN STREET	NORTH HOLLYWOOD	CA 91605	21659	
CAT000613471	GE NUCLEAR ENERGY	175 CURTNER AVENUE	SAN JOSE	CA 95125	785000	
				STATE TOTAL:	3,175,440	0
CTD000842492	GE WASTEWATER SETTLING AREA	41 WOODFORD AVENUE	PLAINVILLE	CT 06062	2578500	1408387
CTD001453711	GE	1285 BOSTON AVENUE	BRIDGEPORT	CT 06601	710000	590000
				STATE TOTAL:	3,288,500	1,998,387
IAD000678037	GE BURLINGTON BASKET COMPANY	1404-1418 WEST PLEASANT ST.	W.BURLINGTON	IA 52655		1450000
IAD005272703	GE SWITCHGEAR OPERATIONS	510 AGENCY ROAD	W. BURLINGTON	IA 52655	412560	20628
IAD075836130	GE APPLIANCE CONTROL DEPARTMEN	1803 RADIANTANCY	CARROLL	IA 51401	10314	
				STATE TOTAL:	422,874	1,470,628
OHD000721456	GE ACSC/C	3023 SYMMES RD.	HAMILTON	OH 45216	19506	
OHD000817304	GE ACSC/C	1350 TENNESSEE AVE.	CINCINNATI	OH 45229	29781	
OHD000817312	GE AIRCRAFT ENGINES - EVANDALE	1 NEUMANN WAY - MD N123	CINCINNATI	OH 45215	360459	
OHD004176046	GE NILES/MAHONING GLASS	403 N. MAIN STREET	NILES	OH 44446	43034	
OHD004224960	GE TRUMBULL LAMP	1313 W. MARKET STREET	WARREN	OH 44485	17439	
OHD004226171	GE YOUNGSTOWN LAMP	40 HUGHES STREET	YOUNGSTOWN	OH 445027	5157	
OHD004227369	GE LIGHTING - TUNGSTEN PRODUCT	21800 TUNGSTEN ROAD	EUCLID	OH 44117	172317	
OHD004302428	GE COSHOCTON PLANT	1350 SOUTH SECOND STREET	COSHOCTON	OH 43812	112638	
OHD009101494	GE ACSC/C	333 W. SEYMOUR AVENUE	CINCINNATI	OH 45216	12373	
OHD048432975	GE EUCLID SPECIALTY	1133 E. 152ND STREET	CLEVELAND	OH 44110	386964	
OHD048433080	GE CHEMICAL PRODUCTS	1099 IVANHOE ROAD	CLEVELAND	OH 44110	1103321	
OHD059061317	GE RAVENNA LAMP	6800 N. CHESTNUT STREET	RAVENNA	OH 44266	28879	
OHD066052804	GE OHIO LAMP	1210 N. PARK AVENUE	WARREN	OH 44483	90650	
OHD074713561	GE CINCINNATI SERVICE CENTER	156 CIRCLE FREEWAY DRIVE	CINCINNATI	OH 45246	6188	0
				STATE TOTAL:	2,388,706	0
				GRAND TOTAL:	9,275,520	3,469,015

ATTACHMENT B

CLOSURE/POST CLOSURE -- CORPORATE GUARANTEED FACILITIES WHERE EPA ADMINISTERS

(Sorted Alphabetically by State)

EPA_ID	FAC_NAME	ADDRESS			CLOSURE	POST CLO
PRD000692582	GE CARIBE PRODUCTS, INC. VIEQU	P.O. BOX 187	VIEQUES	PR 00765	63000	250000
PRD000692590	GE CARIBE PRODUCTS INC., RIO P	CALLE LA BRISA #5 SABANA LLANA	RIO PIEDRAS	PR 00924	68072	
PRD090070459	GE CARIBE	PO BOX 9069	HUMACAO	PR 00661	45000	
PRD090282757	GE CARIBE PRODUCTS	P.O. BOX 1430	JUANA DIAZ	PR 00665	47150	
PRD090306077	GE RECONSTRUCCION INDUSTRIAL C		PONCE 00731	PR 00731	3370	
PRD090383860	CARBIBE GE PRODUCTS INC.	ZENO GANDIA PARK, RTE 120	ARECIBO	PR 00613	115000	0
PRD090492109	GE-PATILLAS	STATE ROAD #3 KM 122.9	PATILAS	PR 00723	1852390	0
PRD090510793	GE CARIBE	P.O. BOX #377	PALMER	PR 00721	825120	
PRD091019224	CARIBE GE PRODUCTS INC.	P.O. BOX 186	SAN GERMAN	PR 00753	40150	
				STATE TOTAL:	3059252	250000
9				GRAND TOTAL:	3,059,252	250,000

ATTACHMENT C

CLOSURE/POST CLOSURE -- OWNED/OPERATED FACILTIES WHERE STATE ADMINISTERS

(Sorted Alphabetically by State)

EPA_ID	FAC_NAME	ADDRESS			CLOSURE	POST CLO
ALD981026677	GE PLASTICS-BURKVILLE OPERATIO	ONE PLASTICS DRIVE	BURKVILLE	AL 36752	44423	
				STATE TOTAL:	44423	0
FLD001690924	GE SIMULATED & CONTROL SYSTEMS	BOX 2500	DAYTONA BEACH	FL 32015	20000	
				STATE TOTAL:	20000	0
GAD003308145	GE MEDIUM TRANSFORMER OPERATIO	1935 REDMOND CIRCLE	ROME	GA 30161	224300	
				STATE TOTAL:	224300	0
ILD005272992	GE APPLIANCE CONTROLS	709 W. WALL STREET	MORRISON	IL 61270	200000	
ILD005443866	GE MATTON LAMP	1501 S. 19TH STREET	MATTON	IL 61938	22244	
ILD005453691	GE GENERAL PURPOSE CONTROLS	1601 GE ROAD	BLOOMINGTON	IL 61704	80750	
ILD070015714	GE SERVICE SHOP - CHICAGO	6045 SOUTH NOTTINGHAM	CHICAGO	IL 60638	10314	0
ILD980503023	GE	1540 S. 54TH AVENUE	CICERO	IL 60650	37130	18565
				STATE TOTAL:	350438	18565
IND000803726	GE BLOOMINGTON PLANT OPERATION	301 NORTH CURRY PIKE	BLOOMINGTON	IN 47402	80901	
IND004557815	GE SPECIALTY TRANSFORMER OPERA	1701 COLLEGE STREET	FORT WAYNE	IN 46802	45000	
IND006040299	GEM	12TH ST. SE, P.O. BOX 657	LINTON	IN 47441	22521	
IND006376362	GE PLASTICS	LEXAN LANE	MT. VERON	IN 47620	37337	
				STATE TOTAL:	185759	0
KSD041917501	GE-AEMC	STROTHER FIELD	ARKANSAS CITY	KS 67005	27230	
				STATE TOTAL:	27230	0
KYD006387021	GE APPLIANCE PARK	APPLIANCE PARK	LOUISVILLE	KY 40225	162000	
KYD074047556	GE AIRCRAFT ENGINES	US HIGHWAY 41A ROUTE 2	MADISONVILLE	KY 42431	186000	
				STATE TOTAL:	348000	0
LAD053782413	GE NEW ORLEANS SERVICE CENTER	1115 DeARMAS STREET	NEW ORLEANS	LA 70114	18565	0
				STATE TOTAL:	18565	0
MDD046279311	GE APPLIANCE PARK-EAST	9001 SNOWDEN RIVER PARKWAY	COLUMBIA	MD 21046		2232269
				STATE TOTAL:	0	2232269
MND980501407	GE MINNEAPOLIS SERVICE CENTER	2025 49TH AVENUE NORTH	MINNEAPOLIS	MN 55430	12377	0
				STATE TOTAL:	12377	0

ATTACHMENT C

CLOSURE/POST CLOSURE -- OWNED/OPERATED FACILTIES WHERE STATE ADMINISTERS

(Sorted Alphabetically by State)

EPA-ID	FAC-NAME	ADDRESS			CLOSURE	POST CLO
MOD006312375	GE ST. LOUIS LAMP	6251 ETZEL AVENUE	ST. LOUIS	MO 63133	36099	
MOD030709539	GE MOTORS - SPRINGFIELD	P.O. BOX 3798, 2401 E.SUNSHINE	SPRINGFIELD	MO 65808	23464	
				STATE TOTAL:	59563	0
NCD003237948	GE HICKORY TRANSFORMER PLANT	1223 FAIRGROVE CHURCH ROAD	HICKORY	NC 28601	10000	4620000
NCD050409150	GE WILMINGTON	CASTLE HAYNE RD. MC J26	WILMINGTON	NC 28402	88679	
				STATE TOTAL:	98679	4620000
NYD000521971	GE AEROSPACE ELECTRONIC SYSTEM	FRENCH ROAD	UTICA	NY 13503	20000	
NYD002080034	GE SILICONE PRODUCTS DIVISION	260 HUDSON RIVER ROAD	WATERFORD	NY 12188	12040500	51944
NYD002080075	GE CAPACITOR & POWER PROTECTIO	JOHN STREET	HUDSON FALLS	NY 12839	221448	
NYD002084135	GE	1 RIVER ROAD, BUILDING 41-111	SCHENECTADY	NY 12345	410850	0
NYD059385120	GE ELECTRONICS PK, BG 7 CHEM A	P.O. BOX 4840	SYRACUSE	NY 13221	44074	
NYD066832023	GE PLASTICS - SELKIRK OPERATIO	NORYL AVENUE	SELKIRK	NY 12158	509032	137763
NYD067539940	GE BUFFALO SERVICE CENTER	175 MILENS ROAD	TONAWANDA	NY 14150	304488	0
NYD071094197	GE CORPORATE RESEARCH & DEVELO	PO BOX 8, BLDG. K-1, ROOM 1A69	SCHENECTADY	NY 12301	405775	
NYD093256063	GE CAPACITOR & POWER PROTECTIO	381 UPPER BROADWAY	FORT EDWARD	NY 12828101	506316	
				STATE TOTAL:	14462483	189707
SCD067002147	GE MOBILE COMMUNICATINS - FLOR	3001 WEST RADIO DRIVE	FLORENCE	SC 29501	139913	980691
				STATE TOTAL:	139913	980691
TXD060718269	GE HOUSTON SERVICE CENTER	8800 WALLISVILLE ROAD	HOUSTON	TX 77029	346909	0
TXD064114242	GE DALLAS SERVICE CENTER	3202 MANOR WAY	DALLAS	TX 75235	10314	0
TXD079400545	GE EDRCS HOUSTON	3530 W. 12TH STREET	HOUSTON	TX 77224	50000	
				STATE TOTAL:	407223	0
VAD003132255	GE MOBILE COMMUNICATIONS	MOUNTAIN VIEW ROUAD	LYNCHBURG	VA 24502	75500	
VAD003132255	GE MOBILE COMMUNICATIONS	MOUNTAIN VIEW ROAD	LYNCHBURG	VA 24502	44996	
VAD070360219	GE WINCHESTER LAMP	ROUTE 3, PO BOX 310	WINCHESTER	VA 22601	33000	
				STATE TOTAL:	153496	0
VTD002083434	GE ARMAMENT SYSTEMS DEPARTMENT	LAKESIDE AVENUE	BURLINGTON	VT 05401	48366	
				STATE TOTAL:	48366	0
WAD009278706	GE GEAE SCMC/SEATTLE	220 SOUTH DAWSON STREET	SEATTLE	WA 98108	34803	
WAD046207379	GE SEATTLE SERVICE CENTER	1031 4TH AVENUE NORTH	KENT	WA 98031	7220	0
				STATE TOTAL:	42023	0
41				GRAND TOTAL:	16,642,838	8,041,232

ATTACHMENT C

CLOSURE/POST CLOSURE -- CORPORATE GUARANTEED FACILITIES WHERE THE STATE ADMINISTERS

(Sorted Alphabetically by State)

EPA_ID	FAC_NAME	ADDRESS			CLOSURE	POST CLO
TXD061382206	GE RAILCAR REPAIR SERVICES COR	P.O. BOX 115/TIFFOM ROAD	RANGER	TX 76470	800000	500000
				STATE TOTAL:	800000	500000
VAD980551782	GE FANUC AUTOMATION NORTH AMER	PO BOX 8106	CHARLOTTESVILLE	VA 22906	154000	0
				STATE TOTAL:	154000	0
2						
				GRAND TOTAL:	954,000	500,000