APPENDIX C

Radiological Disposition Program Plan
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Introduction

The purpose of Pinellas Plant Radiological Area Disposition (RAD) Program Plan is to describe a program for cleaning radioactively contaminated areas at the Pinellas Plant by September 30, 1997, when the Lockheed Martin Specialty Components (LMSC) M&O contract expires. This Radiological Area Disposition Program Plan identifies constraints, issues, responsibilities and resource requirements for accomplishing the work scope. Earlier drafts of this Radiological Area Disposition Program Plan were used to prepare for FY 97 budget submission to EM.

Elements of the Plan

The RAD Plan defines the areas to be cleaned, the activities to accomplish this work and the desired end state when cleaning is finished. Human resources and the responsibilities of both line and staff are identified for the work effort. The RAD Plan describes general Technical Criteria for managing, conducting and certifying completion of the RAD work. The Costs, Schedule and the major milestones for the project are also discussed. Finally, due to the complexity of the undertaking, a section of the RAD Plan is also devoted to issues and barriers which might adversely impact accomplishing the work scope.

Assumptions

The RAD Plan is based upon assumptions which are valid as of this writing. Some of the assumptions (e.g., Assumption #4) are in the future and represent the "worst case" planning basis for estimating the work to be done within the time constraints imposed by various factors. In the case of Assumption #4, LMSC is assumed to decide to abandon use of tritium in its new business at the last possible moment, thereby adversely affecting the time available for disposition of the radiologically contaminated areas. Of course, if LMSC decides to continue work with tritium elsewhere, or decides to end tritium work earlier, then the impact of #4 would be reassessed.

Following is an itemization of the planning assumptions that conditioned the elements of the Plan described above.
1. Shutdown and Deactivation and Compliance will continue to be funded by DOE throughout FY 95-96-97.

2. DOE funds will be allocated to perform tasks described in this Program Plan within the timeframes required.

3. Tritium work (supporting an ICO contract with Sandia National Laboratory) in building 100 by LMSC will continue until 3/31/96.

4. LMSC decides on 1/31/96 to discontinue all other tritium-related commercial business activities.

5. LMSC goal is to complete clean up of Pinellas Plant by 9/30/97. This includes decontamination of all radiological areas and disposal of contaminated equipment.

6. All Radiological wastes must be removed from the site by 9/30/97. The site includes any and all areas of the real property being transferred to the County, with the exception of below ground pipes and contamination that may exist under buildings.

7. Pinellas County Industry Council does not exercise option to demolish building 100.

8. Below ground piping and associated soil contamination, if any, will be left in place, since building 100 will not be demolished.

9. All DOE Order requirements are still to be met for the duration of the M&O contract (i.e., push back initiatives are not approved by DOE).

10. The current HP Drain cleanup project will be completed, so it is not part of the scope of this plan.

11. Areas 108, 132, 109 have asbestos tile that will be removed before 9-30-97.

12. All contaminated equipment will be removed from contaminated areas by 9-30-96. Radiologically contaminated equipment that cannot be cleaned (to below the ALARA goal of 220 dpm/100 square centimeters) will be scrapped; due to the time and expense to decontaminate such equipment, it will not be exercised or any other type of disposition.
13. Security will have negligible impact on clean up.

14. East Stack can be cleaned to reduce waste disposition costs.

15. Local, State and Federal Regulators will accept these assumptions as a planning basis for transfer of the facility to the PCIC on or before 10-1-97.

16. Assume that concrete below the flooring will not have to be removed in radiological areas.

Program Plan

The scope of the Program Plan to disposition radiological areas is defined as follows:

Buildings: 800, 1010, 200, 1040, 1000
Systems:
  - HP drains system including Lift Stations and HP Holding Tanks;
  - Radiological Exhaust System and the main stack, building 200 and 800 stacks, stack monitoring systems, associated stack equipment;
  - Ductwork in buildings 200 and 800 and ductwork associated with radiological areas in building 100, especially Area 108;
  - Tritium Recovery System (TRS), TRS Plant piping outside of 132J, K, L, Tritium sniffer piping outside monitored areas, SECS components;

Equipment: Contaminated equipment will be dispositioned subject to the Assumptions described above.

The activities to accomplish this Plan will include the following:

  - Flush, characterize and cap drain system below ground; remove above ground system; remove vents through the roof;
  - Characterize and cap roof penetrations;
  - Characterize soil and groundwater under buildings 200 and 100.
  - Remove walls, ceilings, flooring tiles, ducts in areas that cannot be cleaned in place; sand blast structural members that cannot be removed;
  - Purge equipment to reduce contamination levels to acceptable level for disassembly and shipment offsite for burial/disposal.
  - Disposition contaminated waste water sludge.

The objective of these activities will be to bring the areas (walls, floors and ceilings) to an end state available for alternate use. Equipment will be disposed of as waste if it is contaminated. Systems will be disposed of as waste if they are contaminated, consistent with
the site's High Risk Property Procedures. LMSC has defined this to mean that when the radioactive systems/components are cleaned or removed, the areas will be available for alternative uses and will have no radiological control requirements imposed. In other words, the end state of an area after it is cleaned shall leave it free and clear of any radiological control requirement. It is the intent of DOE that the CRO assume no liability for hazardous or radioactive materials/wastes when the cleanup is completed, and that such areas as described above are acceptable for industrial use.

Since contamination below the buildings, if any, will not be remediated, the release of areas will be restricted to the extent that if, in the future, there is a need to excavate below the buildings, under the concrete flooring, or the buildings are removed, then additional assessment for radiological contamination will be necessary prior to implementing alternate uses. The possibility of future discovery of contamination is discussed in the Sale Agreement between the PCIC and the DOE, and DOE agrees to remediate such contamination if any is discovered and it can be shown that it is linked to the former DOE operations on the site.

Health Physics has issued a plan that determines when cleanup of residual contamination has been completed to a level that is acceptable given the above paragraph. The Survey Plan for Determining Final Radiological Status of the Pinellas Plant (part I. covers areas ventilated by the West Stack Exhaust System) calls out the NUREG/CR-5849 Manual for Conducting Radiological Surveys in Support of License Termination. See the Survey Plan for the technical release criteria. Generally the cleaning of radiological contamination is based on the site standard of 1000 dpm/100 square centimeters for exposure limits. The site ALARA goal is 220 dpm/100 square centimeters. For more information, see the Pinellas Plant’s RadCon Manual, Table 2-2.

Roles and Responsibilities

Disposition of contaminated areas will involve several oversight organizations as well as line organizations performing the actual cleaning tasks. These general responsibilities are described below by organization.

- **Plant Engineering**
  Layout and design engineering for the facilities work will be performed. This work will include maintenance of the Plant as-buil drawings to ensure any modifications to the facility are reflected in the drawings and receive proper change authorization. Additional support services will include definition of conceptual layouts, providing any engineering cost estimates as options are explored for disposition of an area and technical support to other Facilities.
Facilities Maintenance
Purchase necessary equipment for cleanup actions, schedule personnel to perform the cleaning work. Provide time and material contractor for all cleanup or demolition of facilities and/or plant equipment that is associated with plant radiological areas.

Shutdown Operations
Shutdown of operating equipment in the areas. Initiate the Preliminary Change Decision Form process and secure its resolution. Complete Area Shutdown project plan to identify schedule for activities to remove equipment, documents, wastes and materials. Complete all Area Shutdown tasks leading to turnover of the area to Facilities for final disposition. (See the Shutdown Project Planning Template for activities.)
The Radiochemistry lab will analyze tritium smears during the clean up.

Environmental Restoration and Permitting
This organization, within the consolidated Environment Safety and Health division, provides oversight for the stack monitoring system operation and ensures compliance with Clean Air Act, Clean Water Act and State/Local requirements, if any, related to radiological air and water effluents.

Additional activities managed by this group include characterizing and documenting building penetrations, the state of the ground under building 100 and the as-left condition of the areas following clean up.

The ER&P department provides consultation regarding clean up activities to maintain ALARA releases of tritium and krypton, asbestos abatement certification and final authorization for any Plant project which could change (whether to increase or decrease) the output of radiological and non-radiological air and wastewater effluents.

Waste Management
This organization is also located within the consolidated Environment Health and Safety Division. Its responsibilities include provision of radiological waste containers for waste disposal, procedures for specific cleanup and packaging activities, characterizing waste generated by Waste Management and disposal of any mixed waste. Waste Management also provides oversight concerning proposed project plans and procedures for cleanup activities.
Compliance Management
Ensures that Safe Shutdown activities are in compliance with DOE Orders and regulations.

Health Physics
Health Physics, within the Quality, Ethics and Compliance department, ensures compliance with DOE Orders 5480.11 and 5400.5, DOE rule 10 CFR 835 and State of Florida regulations 10D-91. HP will direct the radiological operations to ensure work is conducted in an ALARA manner. HP operations are covered by the LMSC Radiological Control Manual issued by the site radiological control manager. HP will provide training to all personnel involved with operations to carry out this plan.

Risk Management
This organization, within the consolidated Environment Safety and Health division, reviews Preliminary Change Analyses to determine whether preventive/corrective change analysis is required, to determine whether a change requires safety evaluation and to coordinate the change analysis with other divisions to ensure comprehensive review prior to initiation of the change.

Industrial Hygiene
This organization, within the consolidated Environment Safety and Health division, ensures compliance with DOE Order 5480.10, 29 CFR 1910 and 40 CFR 61. In addition, Industrial Hygiene personnel assist in hazard assessment, assess non-routine work, identify administrative, engineering and physical controls required, determine level of cleanliness of equipment/materials leaving the facility, assist in defining decontamination procedures and specify personal protective equipment to minimize exposure to chemical, physical and/or biological hazards. Industrial Hygiene also manages the Plant programs for Asbestos, Hazard Communications, Respiratory Protection, and Confined Space and provide oversight to hazardous waste operations and emergency response (HAZWOPER).

Business Management
This division establishes projects in the financial systems, reporting variances between actual and planned performance. Business Management also coordinates operating/capital budgeting, submits funding requests, communicates funding status to DOE and manages both the Work Authorization Directive and Activity Data Sheet processes.

EM Transition Program Manager
Definition of programmatic requirements for transition of the Plant from its
Defense mission to alternate use is the responsibility of the EM Transition Program Manager. Shutdown/Reconfiguration activities are coordinated with these programmatic requirements. The Program Manager also integrates such activities with the plans of the Community Reuse Organization. The EM Transition Program Manager is the current owner of this Radiological Area Disposition Plan.

Quality Assurance
Ensure compliance with DOE Order 5700.6C and 10 CFR 830-120 and determine the need for additional quality plans.

Technical Criteria

Specific DOE Orders and DOE Standards will be relevant to the clean up action. Following is a list of the Orders and Standards identified:

- DOE Orders: 4300.1C; 5820.2A; 5400.5; 5700.6C; 5400.1; 5400.5; 5480.10; 5000.3C; 5480.19; 5480.26
- DOE Standards: DOE/CH-8901; DOE/EP-0100; DOE EH-0173T; DOE and ALO Outleasing Policies

Following are regulatory/statutory requirements relevant to clean up action:

- Federal: 40 CFR 300 (CERCLA); 40 CFR 373, 42 USC 9620.Sec.120(h), and PL 102-426 (CERFA); 41 CFR 101-47.202-2, 10 CFR 830-120; 29 CFR 1910; 40 CFR 61; 10 CFR 834; 40 CFR 63;
- Local: Pinellas County Ordinance. 91-26; State DEP Rule 62-213-100(19), FAC. (Clean Air Act)

Multiple administrative controls are in place to ensure technical requirements are met during the disposition of the radiological areas. Several administrative controls ensure compliance with regulations. They include the Preliminary Change Decision Analysis, the Special Work Permit Process, Environmental Assessments, Record Keeping/Log Keeping, NEPA Documentation, the EM and ES&H Procedures and the GOP/SOP's.

Reports, permits, plans, legal documents and other pertinent information may be required to be modified or created to ensure compliance.

- LMSC Health Physics has developed the Survey Plan for Determining Final
Radiological Status of the Pinellas Plant (part I. covers areas ventilated by the West Stack Exhaust System), which calls out the NUREG/CR-5849 Manual for Conducting Radiological Surveys in Support of License Termination. This document is the technical basis (along with the Pinellas Plant RadCon Manual) for determining when areas in the Plant may be released for alternate uses.

- Wastewater Permit #153-IE; Stormwater Permit (Pending)
- Air Permit #A052-233355 and subsequent modifications
- NEPA Environmental Assessments (D&D, Commercializations and Programmatic Non Nuclear Consolidation Environmental Assessment).
- Annual Radiological Air Emissions Report
- Radiological Effluent/On-site Discharge Report.

**Costs**

Funding for the removal of wastes, both hazardous and radioactive, has been requested in the Waste Management Activity Data Sheet submission. Funding for the removal of contaminated equipment and the cleanup of contaminated areas has been requested in the Deactivation and Compliance Activity Data Sheet submission. Following is a summary of the funds targeted by BRMD in the FY 1997 Budget and what LMSC has estimated is required to finish the Plant transition work by the end of FY 1997.

<table>
<thead>
<tr>
<th>FY 1996</th>
<th>Funding Target</th>
<th>Funding Requested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deactivation</td>
<td>$10,427,000</td>
<td>$16,620,000</td>
</tr>
<tr>
<td>Waste Mgt.</td>
<td>$2,409,000</td>
<td>$4,152,000</td>
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</table>

<table>
<thead>
<tr>
<th>FY 1997</th>
<th>Funding Target</th>
<th>Funding Requested</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deactivation</td>
<td>$12,004,000</td>
<td>$21,300,000</td>
</tr>
<tr>
<td>Waste Mgt.</td>
<td>$2,000,000</td>
<td>$3,063,000</td>
</tr>
</tbody>
</table>

The analysis of the impacts of funding Deactivation at the target level are included in the Activity Data Sheet submitted in the FY 1997 for Pinellas Plant. Essentially, the impact will be with respect to schedule and cost, not compliance, insofar as insufficient funding in FY 1996 and/or FY 1997 will cause cleanup work to carryover into FY
1998, thereby causing additional Landlord costs that would otherwise have been avoided. As of this writing, EM has indicated that funding at the Plan level will be allocated to ensure the completion of cleanup by the end of FY 1997.

Not all of the funding submitted in the FY 1996 and FY 1997 requests are for cleanup of radiological and hazardous contamination areas. Following is a breakout of the Deactivation and Compliance funding for FY 1996:

<table>
<thead>
<tr>
<th>Description</th>
<th>($000's)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radiological / Hazardous Cleanup</td>
<td>3,830.4</td>
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<tr>
<td>Characterization</td>
<td>773.8</td>
</tr>
<tr>
<td>Documents disposition</td>
<td>1,644.9</td>
</tr>
<tr>
<td>Equipment / material disposition</td>
<td>4,400.7</td>
</tr>
<tr>
<td>Waste prep for removal</td>
<td>638.4</td>
</tr>
<tr>
<td>Facility transition activities</td>
<td>4,490.1</td>
</tr>
<tr>
<td>Demilitarization</td>
<td>261.7</td>
</tr>
<tr>
<td>Tritium Recovery System maintenance</td>
<td>579.9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>16,619.9</strong></td>
</tr>
</tbody>
</table>

**Schedule**

Attachments 1 and 2 are the schedules for cleanup of radiological areas in the west end of the building 100, including removal of the West Stack.

Attachment 3 is the schedule for relocation of tritium operations to building 200 for commercial work, and the cleanup of Area 108, the major area in the east end of building 100 requiring decontamination. It should be noted that Facilities planners will establish specific project plans for key activities in the other areas to be completed as well.

**Barriers/Issues**

Organizations have identified the specific issues that will potentially adversely affect their performance of the work described in the Scope section. Specific project planning activities will address these issues.

- **Waste Management**

  LMSC is working with Savannah River Plant (SRP) to obtain a certification for sending radioactive waste to their storage cells program. The current authorization to send such waste from Pinellas to the SRP landfill program is extremely limited: Only 10 curies or less per barrel may be shipped to SRP.
Current Pinellas Plant Radiological storage areas are full. The certification for storage of radiological waste in the SRP storage cells will probably solve this problem before 1995 ends. LMSC is also working with the Nevada Test Site (NTS) to gain approval for shipment of radioactive waste oil to NTS. Approval is expected by end of 1995. LMSC is working on a contingency plan for mixed waste disposal.

**Occurrence Reporting/DNFSB**
A higher Occurrence Reporting frequency is expected during this project. Such reports, corrective actions and operational readiness checks may impact schedules. Involvement of the Defense Nuclear Facilities Safety Board (DNFSB) could also delay implementation and push up support and administrative costs if numerous reviews are required. Their past visits have resulted in significant costs to supply them with information.

**Safety, Risk Management, Environmental Management**
Recent experiences with the removal of the West Stack have provided insight with respect to the numerous issues and activities that must be coordinated. It has become apparent that the time it takes to complete such projects is significantly impacted when there is a new and/or unknown risk factor involved.

**Facilities**
Cleanup of radioactive areas will be to the flooring layer; LMSC has not budgeted for excavation and removal of concrete below the flooring. Should it become necessary to remove the concrete below the flooring, then additional funding may be required. The assumption is that the PCIC will continue to use the facility and hence removal of the concrete below will not be necessary between now and FY 1997's end.

**Capabilities/Capacities**

Organizations were asked to identify issues concerning capabilities or capacities that will constrain meeting the program scope within the Assumptions. For example, are there limits established by our Permits that would inhibit accomplishment of the work by 9-30-97 within the Assumptions? Each organization shall clearly define these limitations and how they will be addressed in their respective plans to ensure completion by 9-30-97 within the Assumptions.

**Facilities Maintenance**
Insufficient funding in FY 96 may result in loss of technical facilities personnel
who would be needed in FY 97 for cleanup work to proceed. Current schedules and capacity are not sufficient to remove concrete below the flooring layer in radiological areas.

- **Shutdown Operations**
  Equipment that is contaminated must be purged to the Tritium Recovery System prior to its being opened. The TRS can currently purge two to four items at once, so additional capacity is needed. A request to fund building a portable TRS system to add the required capacity has been approved by DOE.

- **Environmental Restoration and Permitting**
  Any resultant air and waste water discharge must remain below permit limits. There is currently adequate margin within existing permits to accommodate increases in emissions.

The ALARA process will be used to minimize radiological emissions. EM has identified, however, that extensive radiological sampling and monitoring will be required to ensure compliance with permits for waste assessment and worker safety. To meet scheduled milestones, it will be necessary to maintain internal radiological analysis capability.

DOE may require that additional NEPA documentation be developed to characterize the environmental impacts of disposition of the radiological areas prior to initiation of some tasks of the project.

Environmental Monitoring will continue for some period after 9/97 to document successful completion of the project, as required by CERCLA and existing DOE Orders.

- **Waste Management**
  A destination for all radiological wastes from Pinellas is not yet identified. Assumption 6 will not be satisfied if a radiological waste site is not available.

Walls, ceiling and ductwork will be disposed of in some of the areas. Much of this will have been painted to fix contamination and will not be cleanable. This waste will be voluminous, and access to a sufficient number of containers for transport could be a serious capacity issue.

- **Industrial Hygiene**
  Work that requires asbestos abatement will be subcontracted; funding required will depend on the quantity in these areas, which is not known.
Health Physics
Currently the site has a limit on the number of contamination smears that can be conducted each work day. The limitation is due to having insufficient volume of counting equipment and lab personnel. LMSC is in the process of acquiring more equipment and evaluating the need for adding laboratory personnel to increase capacity for smears analysis.
APPENDIX D

Pinellas Plant
Industrial Wastewater Discharge Permit
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INDUSTRIAL WASTEWATER DISCHARGE PERMIT

PINELLAS COUNTY SEWER SYSTEM
PINELLAS COUNTY, FLORIDA

In accordance with all terms and conditions of the Pinellas County Sewer Use Ordinance #91-26 and any applicable provisions of Federal or State law or regulation;

U. S. Department of Energy
Pinellas Plant
is hereby granted permission to discharge industrial wastewater from a facility located at:

7887 Bryan Dairy Road
Largo, Florida
34649

this permit is granted in accordance with the application filed on July 1, 1994 in the office of the Director of the Sewer System and in conformity with plans, specifications and other data submitted to the Director in support of the above application, all of which are filed with and considered as part of this permit, together with the appended named conditions and requirements.

Effective this 28th day of August, 1994.
To expire the 28th day of August, 1997.

Permit Number 153-IE

[Signature]
Todd L. Thunberg, P.E.
Director, Sewer System
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SECTION A. STANDARD CONDITIONS

1. PROHIBITIONS

The permittee shall comply with all the prohibitions and limitations on discharge, as stated in Section 5 of the Pinellas County Sewer Use Ordinance #91-26.

2. DUTY TO COMPLY

The permittee must comply with all conditions of this permit. Failure to comply with the requirements of this permit may be grounds for administrative action, or enforcement proceedings including civil or criminal penalties, injunctive relief and service termination.

3. PERMIT DURATION

This permit shall be issued for a time period not to exceed THREE (3) years. The terms and conditions of the permit may be subject to modification by the Director during the term of the permit as limitations or requirements of this agreement are modified, as stated in Section A, §12. The permittee shall have an opportunity to discuss proposed changes in the permit at least thirty (30) days prior to the effective date of change. Any changes or new conditions in the permit shall include a reasonable time schedule for compliance.

4. RIGHT OF ENTRY

The permittee shall allow the County or its representatives, exhibiting proper credentials to enter upon the premises of the permittee, at all reasonable hours, for the purposes of inspection, sampling, or records inspection. Reasonable hours in the context of inspection and sampling includes any time the permittee is operating any process which results in a process wastewater discharge to the County’s Wastewater Treatment Facility, as defined in Section 8 of the County’s Ordinance.

5. RECORDS RETENTION

The permittee shall retain and preserve for a period of no less than three (3) years, all records, books, documents, memoranda, reports, correspondence, and any and all summaries thereof, relating to monitoring, sampling, chemical analyses, and this permit and application, made by or in behalf of the permittee in connection with its discharge. All records that pertain to matters that are the subject of special orders or any other enforcement or litigation activities brought by the County shall be retained and preserved by the permittee until all enforcement activities have concluded and all periods of limitation with respect to any and all appeals have expired.
SECTION A. (Continued)

6. CONFIDENTIAL INFORMATION

Except for data determined to be confidential under Section 12 of the County’s Ordinance, all reports required by this permit shall be available for public inspection at the office of the Director.

7. RECORDING OF RESULTS

For each measurement of sample taken pursuant to the requirements of this permit, the permittee shall record the following information:

a) The exact place, date, and time of sampling;
b) The sampling methodology, including preservation techniques or procedures;
c) Who performed the sampling or measurements;
d) The date(s) the analyses were performed;
e) The person(s) who performed the analyses;
f) The analytical techniques or methods used; and
g) The results of all required analyses.

8. DILUTION

No permittee shall increase the use of potable or process water or, in any way, attempt to dilute a discharge as a partial or complete substitute for adequate treatment to achieve compliance with the limitations contained in this permit.

9. PROPER DISPOSAL OF PRETREATMENT SLUDGES AND SPENT CHEMICALS

The disposal of sludges and spent chemicals generated shall be done in accordance with applicable Federal regulations, specifically Section 405 of the Clean Water Act and State regulations, specifically Subtitles C and D of the Resource Conservation and Recovery Act.

10. REVOCATION OF PERMIT

The permit issued to the permittee by the County may be revoked in whole or in part during its term for the following causes:

a) If, after inspection, monitoring, or analysis it is determine that the discharge of wastewater to the sanitary sewer is in violation of Federal, State, or local laws, ordinances, or regulations.
b) If the permittee knowingly makes any false statement on any report or other document required by this permit.
c) If the permittee knowingly renders any monitoring device or method inaccurate.
SECTION A. (Continued)

d) If a permittee fails to pay sewer charges or fines, fails to meet compliance schedules, or refuses to allow timely access to the facility premises and records.

These actions may also result in punishment as violations of County Ordinances, as well as being subject to civil penalties and relief.

11. LIMITATION ON PERMIT TRANSFER

Wastewater discharge permits are issued to a specific user for a specific operation. The permittee must give at least a thirty (30) days advanced notice of the proposed transfer to the Director. This notice must be a written certification by the prospective new owner which:

a) States what the new owner's immediate intent is regarding the facility's operations and processes.
b) Identifies the specific date on which the transfer is to occur.
c) Acknowledges full responsibility for complying with the permit.

A permit shall not be reassigned, transferred, or sold to a new owner, new facility, different premises, or a new operation without the prior written approval of the Director. If transfer or reassignment is approved, any succeeding owner or user shall also comply with the terms and conditions of the existing permit.

12. MODIFICATION OR REVISION OF THE PERMIT

This permit may be modified or revised for good causes including, but not limited to, the following:

a) To incorporate any new or revised Federal, State, or local pretreatment standards or requirements.
b) Material or substantial alterations or additions to the permittee's operation processes, or discharge volume or character which were not considered in drafting the effective permit.
c) A change in any condition in either the permittee or the County that requires either a temporary or permanent reduction or elimination of the authorized discharge.
d) Information indicating that the permitted discharge poses a threat to the Pinellas County's Sewer System, the County's personnel, or the receiving waters.
e) Violation of any terms or conditions of the permit.
f) Misrepresentation or failure to disclose fully all relevant facts in the permit application or in any required reporting.
SECTION A. (Continued)

g) To correct typographical or other errors in the permit.
h) To reflect transfer of the facility ownership and/or operation to a new owner/operator.
i) Upon request by the permittee, provided such request does not create a violation of any applicable requirements, standards, laws, or rules and regulations.

Any permit modifications which result in new conditions in the permit shall include an opportunity for the permittee to discuss any proposed changes, and a reasonable time schedule for compliance, as necessary.

13. DUTY TO REAPPLY

The County shall notify the permittee ninety (90) days prior to the expiration of the permittee's permit. Within thirty (30) days of the notification, the permittee shall reapply for reissuance of the permit on a form provided by the County.

14. SEVERABILITY

The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

15. PROPERTY RIGHTS

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any invasion of personal rights, nor any infringement of Federal, State, or local laws or regulations.

16. CONTINUATION OF EXPIRED PERMIT

An expired permit will continue to be effective and enforceable until the permit is reissued if:

a) The permittee has submitted a complete permit application at least sixty (60) days prior to the expiration date of the permittee's existing permit.

b) The failure to reissue the permit, prior to expiration of the previous permit, is not due to any act or failure to act or the part of the permittee.
SECTION B. DEFINITIONS

The meaning of terms or abbreviations used in this permit shall be as defined in Section 2 of the Pinellas County Sewer Use Ordinance #91-26. Additional terms are defined below:

1. **Composite Sample** - the accumulation of grab samples collected at equal intervals and combined proportional to flow; a sample continuously collected proportional to flow; or equal volumes taken at varying time intervals.

2. **Daily Maximum** - the maximum allowable discharge of pollutant during a calendar day. Where daily maximum limitations are expressed in terms of concentration, the daily discharge is the arithmetic average measurement of the pollutant concentration derived from all measurements taken that day.

3. **Director** - means the Director of the PCSS or the duly authorized representative. The duly authorized representative of the Director for all matters related to the Industrial Monitoring Program is the Industrial Program Supervisor.

4. **Four-Day Average** - an arithmetic average calculated from the independent results of four consecutive sampling days. These sampling days are not necessarily calendar days, but reflect the sampling frequency.

5. **Grab Sample** - an individual sample collected over a period of time not exceeding 15 minutes, without regard to flow or time.

6. **Monthly Average** - an arithmetic average calculated from the results of all sampling events performed in a calendar month.

7. **Total Metals** - the sum of the concentration or mass of Copper, Chromium (total), Nickel, and Zinc.

8. **Toxic Organic Management Plan (TOMP)** - a management plan that must specify the toxic organic compounds used, the method of disposal used and procedures for assuring that toxic organics do not routinely spill or leak into wastewater discharged to the PCSS. A certification statement must also be submitted with this plan.

9. **Total Toxic Organic (TTO) Standard** - the sum of the concentrations of individual toxic organic compounds when they are present in a regulated waste stream in a concentration greater than 0.01 mg/l.
SECTION C. WASTEWATER DISCHARGE STANDARDS

The permittee is authorized to discharge process wastewater to the Pinellas County Sewer System (PCSS) in accordance with: a) Categorical Pretreatment Standards [40 CFR 433] developed by the United States Environmental Protection Agency (US EPA), and b) local standards set forth in the Pinellas County Sewer Use Ordinance #91-26. The permittee shall comply with the effluent standards specified below:

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<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadmium</td>
<td>0.28 mg/l</td>
<td>0.10 mg/l</td>
<td>0.2 mg/l</td>
</tr>
<tr>
<td>Chromium</td>
<td>1.10 mg/l</td>
<td>0.68 mg/l</td>
<td>2.6 mg/l</td>
</tr>
<tr>
<td>Copper</td>
<td>1.35 mg/l</td>
<td>0.83 mg/l</td>
<td>1.0 mg/l</td>
</tr>
<tr>
<td>Cyanide, A</td>
<td>--- mg/l</td>
<td>--- mg/l</td>
<td>---</td>
</tr>
<tr>
<td>Cyanide, T</td>
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<td>0.26 mg/l</td>
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<tr>
<td>Lead</td>
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</tr>
<tr>
<td>Mercury</td>
<td>--- mg/l</td>
<td>--- mg/l</td>
<td>0.1 mg/l</td>
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<tr>
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<tr>
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<tr>
<td>Zinc</td>
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</tr>
<tr>
<td>Total Metals</td>
<td>--- mg/l</td>
<td>--- mg/l</td>
<td>---</td>
</tr>
<tr>
<td>TTO</td>
<td>0.85 mg/l</td>
<td>--- mg/l</td>
<td>---</td>
</tr>
<tr>
<td>BOD</td>
<td>--- mg/l</td>
<td>--- mg/l</td>
<td>250 mg/l</td>
</tr>
<tr>
<td>TSS</td>
<td>--- mg/l</td>
<td>--- mg/l</td>
<td>250 mg/l</td>
</tr>
<tr>
<td>Oil/Grease (m)</td>
<td>--- mg/l</td>
<td>--- mg/l</td>
<td>50 mg/l</td>
</tr>
<tr>
<td>(a)</td>
<td>--- mg/l</td>
<td>--- mg/l</td>
<td>100 mg/l</td>
</tr>
<tr>
<td>Temperature</td>
<td>--- °C</td>
<td>--- °C</td>
<td>≤ 65.5 °C</td>
</tr>
<tr>
<td>pH</td>
<td>--- units</td>
<td>--- units</td>
<td>5.5 - 9.5 units</td>
</tr>
</tbody>
</table>

(m) mineral  (a) animal/vegetable

* Categorical Standards adjusted using Combined Wastestream Formula
See Attachment A for calculations of adjusted standards.

The permittee’s discharge shall comply with all other applicable laws, regulations, standards, and requirements contained in the County’s Ordinance, and any applicable Federal laws, regulations, standards, and requirements, including those which may become effective during the term of this permit.

These effluent standards are applied to the permittee’s discharge at the sampling point(s) specified in Section D. The Categorical Standards apply to wastewater discharges after pretreatment; whereas, the local standards apply to wastewater discharges at the point of entry into the PCSS. Where both Categorical Standards and local standards limit a pollutant, the more stringent of the two shall be used to assess compliance.
SECTION D. WASTEWATER MONITORING REQUIREMENTS

In accordance with Section 6(e)(1) of the Pinellas County Sewer Use Ordinance #91-26, the permittee is required to sample, analyze, and report on the volume and quality of its wastewater discharge to the PCSO. The required information shall be reported for each sampling event on the report forms provided by the PCSO, and in accordance with the schedule set forth in Section E. The self-monitoring requirements for the permittee are defined below.

MONITORING SITE DESCRIPTION

The permittee shall provide and maintain a suitable sampling point or points at a specified location to observe, measure, and sample the discharged wastewater to the PCSO. The sampling point(s) and monitoring equipment shall be subject to approval by the Director, as stated in Section 6(e)(1b) & (e)(3) of the County’s Ordinance.

All monitoring of the permittee’s wastewater discharge shall be performed at the sampling point(s) specified in this permit. The sampling point(s) shall not be changed without notification to, and approval by, the Director. The permitted sampling point(s) is(are) as follows:

The permittee shall monitor the combined wastestream at the neutralization facility. PCSO will monitor the combined wastestream at the flume located to the northwest of the neutralization facility.

SAMPLE COLLECTION METHOD

Samples shall be collected by the method appropriate for the type of analyses to be performed, taking into consideration the type and frequency of the discharge.

Grab samples are required when analyzing wastewater for cyanide, oil/grease, pH, sulfides, temperature, total phenols, and volatile organics. Cyanide samples must be collected in accordance with Federal regulations. Grab samples for pH analyses shall be collected at the beginning and at the end of a composited period, and every two (2) hours throughout the composited period. ALTERNATE METHOD: if preferred, the permittee shall monitor the pH of its regulated waste stream continuously by installing a continuous pH recorder.

Composite samples are required when analyzing for metals, TSS’s, and BOD’s. Composite samples shall consist of individual grabs collected at least once an hour; the volume of each grab shall be no less than 100 ml. The total volume of the composite sample shall be no less than two (2) liters. Samples may be composited manually or using an automatic sampler. Where applicable, composite samples shall be flow proportional.

ALL SAMPLES SHALL BE COLLECTED DURING NORMAL OPERATIONAL HOURS AT A TIME WHEN THE FLOW IS REPRESENTATIVE OF THE DISCHARGE. OPERATIONAL HOURS SHALL INCLUDE ALL CLEANING ACTIVITIES THAT GENERATE WASTEWATER.
SECTION D.  (Continued)

SAMPLING AND ANALYSIS

The sampling procedure, preservation, handling, and analytical methods used by the permittee shall conform to the methods specified by the PCSS in accordance with Section 304(h) of the Federal Clean Water Act and with the techniques prescribed in 40 CFR 136.

<table>
<thead>
<tr>
<th>PARAMETERS</th>
<th>FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cadmium</td>
<td>* twice/year</td>
</tr>
<tr>
<td>Chromium</td>
<td>monthly</td>
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<tr>
<td>Copper</td>
<td>+ weekly</td>
</tr>
<tr>
<td>Cyanide, A</td>
<td></td>
</tr>
<tr>
<td>Cyanide, T</td>
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<tr>
<td>Lead</td>
<td>monthly</td>
</tr>
<tr>
<td>Mercury</td>
<td>* twice/year</td>
</tr>
<tr>
<td>Nickel</td>
<td>monthly</td>
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<tr>
<td>Silver</td>
<td>monthly</td>
</tr>
<tr>
<td>Zinc</td>
<td>monthly</td>
</tr>
<tr>
<td>Total Metals</td>
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<tr>
<td>Total Toxic Organics</td>
<td>* twice/year</td>
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<tr>
<td>BOD</td>
<td>twice/year</td>
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<td>TSS</td>
<td>twice/year</td>
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<td>Oil/Grease</td>
<td>twice/year</td>
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<tr>
<td>Temperature</td>
<td></td>
</tr>
<tr>
<td>pH</td>
<td>^ daily</td>
</tr>
</tbody>
</table>

# As defined in Section B.

* One sampling event shall take place during the first six (6) months of the year, and the second sampling event shall take place during the latter six (6) months of the year.

+ See Section F. - Special Conditions §8.

^ As specified in "Sample Collection Method".

In accordance with Section 6(e)(1)(a) of the County's Ordinance §91-26, manual pH meters must be calibrated daily and continuous pH meters must be calibrated weekly, using a 2-point calibration. Records of calibration shall be kept in a bound ledger and made available for review by the PCSS at all times.
SECTION E. REPORTING REQUIREMENTS

1. The permittee shall submit the self-monitoring results obtained during the previous ONE month to the Director on the provided report forms. The reports shall be post marked no later than the 15th day of the month following the completed reporting period. If no discharge occurs during the reporting period, "no discharge" shall be reported. The first report is due on September 15, 1994.

2. The permittee is required to sample its wastewater for the pollutants specified in Section D, and report on compliance. Any reason(s) for non-compliance and any step(s) being taken by the permittee to comply shall be a part of this compliance report. In addition to the non-compliance report, the permittee must resample its waste stream within thirty (30) days of any noted violation. The permittee must also notify the Director within twenty-four (24) hours upon becoming aware of such violation. This requirement is in accordance with 40 CFR 403.12(g).

3. If the permittee monitors any pollutant more frequently than is required by this permit, in accordance with 40 CFR 136 or other EPA approved methods, the results of such monitoring shall also be submitted with the permittee's self-monitoring reports.

4. The PCSS may require more frequent monitoring, or the monitoring of other pollutants not required in this permit by written notification.

5. The permittee shall implement an adequate quality assurance and quality control program. The permittee shall calibrate, inspect, and perform maintenance procedures on all monitoring and analytical instruments at regular intervals to ensure the accuracy of measurements. These records and procedures shall be made available to the PCSS at all times.

6. The permittee shall maintain all records concerning any monitoring and sampling activity of its industrial wastewater discharge in accordance with Section 6(e)(1) of the County's Ordinance. These records shall be made available to the PCSS at all times.

7. The permittee shall provide a summary of all pH excursions lasting greater than ten (10) minutes and less than or equal to one (1) hour in duration. This summary shall include the date, time, duration, and a brief description of the cause of each excursion. This summary is to be submitted with the monthly self-monitoring report. The permittee shall follow procedures as stated in Section E. 8 or 9 for reporting pH excursions lasting more than one (1) hour in duration, and include a copy of the pH strip chart indicating the excursion, time of day, and chart scale.
SECTION E. (Continued)

8. The permittee shall notify the Director by phone immediately upon the occurrence of an accidental discharge to the PCSS in accordance with Section 6(f) of the County's Ordinance. A detailed, written report describing the circumstances, causes, and remedies must be submitted to the Director within five (5) calendar days of the occurrence. A copy of the Accidental Spill Notification Procedure is included with this permit.

9. Any upset experienced by the permittee of its operations or pretreatment system that places it in a temporary state of non-compliance with wastewater discharge standards contained in this permit or other limitations specified in the County's Ordinance, shall be reported to the Director within twenty-four (24) hours of first awareness of the upset. A detailed report shall be submitted within five (5) calendar days.

10. The permittee shall notify the Director prior to the introduction of new wastewater or pollutants, or any changes/additions to the pretreatment process, or any substantial change (>10%) in the volume or characteristics of the wastewater being introduced into the PCSS from the permittee's industrial processes. A formal written notification shall be submitted to the Director thirty (30) days prior to such introduction.

11. All reports required herein shall be submitted to the following address:

Industrial Pretreatment Program  
Water Quality Management Division  
Pinellas County Sewer System  
14850 118th Avenue North  
Largo, Florida 34644  
phone: (813) 582-2282
SECTION F. SPECIAL CONDITIONS

1. The permittee shall comply with the Monitoring Requirements for TTO's in accordance with 40 CFR 433. The permittee need only to sample and analyze for those organics that are known or expected to be present in the permittee's effluent.

2. The permittee shall submit an annual summary report to document the generation and/or disposal of all wastes. This report shall include the type, quantity, transportation date, transporter, and disposal site of all wastes. (Copies of waste manifests for the calendar year will suffice, if all the requested information is included on the manifests.) The permittee shall submit this report to the PCSS by January 15th of each year.

3. In accordance with Section 5(a)(15) of the County's Ordinance, the permittee shall provide means to prevent large solids from entering the wastewater discharge.

4. The permittee shall monitor its discharge volume by taking flow meter readings for each day of operation, including all cleaning activities. The permittee shall record the date, time, and meter reading in a bound ledger, which shall be made available to the PCSS at all times. The daily flow shall be reported on the self-monitoring report forms.

5. The permittee shall monitor the batch discharge from the area for Treatment of Non-Hazardous Aqueous Solutions, and shall record the date, time, and quantity of discharge in a bound ledger which shall be made available to the PCSS at all times. The beginning and ending meter reading for each month and for each discharge shall be reported on the self-monitoring report forms.

6. The permittee is required to maintain all pH strip charts in a bound ledger. The daily minimum and maximum values shall be recorded on the self-monitoring report forms.

7. The permittee shall submit an Industrial User Survey for each Incubator business at least thirty (30) days prior to the start up and/or discharge to the DOE waste treatment system or PCSS lines from such Incubator business (see Attachment B).

8. The monitoring frequency for copper as stated in Section D. will be reviewed after six (6) months of data have been submitted. If consistent compliance has been demonstrated, an addendum to the permit will be issued adjusting the monitoring frequency to monthly.
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ATTACHMENT A

Industry: U.S. Department of Energy Permit #: 153-IE


\[ F_t = 209,149 \text{ gpd} \] (Total Flow = regulated/unregulated processes, sanitary, cleaning, dilution)

\[ F_d = 125,644 \text{ gpd} \] (Dilution = sanitary, cooling tower/boiler blow down, noncontact cooling, 40 CFR 403 Appendix D)

\[ \frac{F_t - F_d}{F_t} \times \text{Standard Limit} = \frac{209,149 - 125,644}{209,149} = 0.39926 \]

CWF CON/FAC

Daily Maximum (mg/l)

<table>
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<tr>
<th>Pollutant</th>
<th>Standard Limit</th>
<th>CWF Conversion Factor</th>
<th>CWF Adjusted Limit</th>
</tr>
</thead>
<tbody>
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</tr>
<tr>
<td>Ni</td>
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<td>&quot;</td>
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<tr>
<td>Ag</td>
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<td>&quot;</td>
</tr>
<tr>
<td>Zn</td>
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<tr>
<td>Cn(T)</td>
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<td>&quot;</td>
</tr>
<tr>
<td>TTO</td>
<td>2.13</td>
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Maximum Monthly Average (mg/l)

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<th>CWF Conversion Factor</th>
<th>CWF Adjusted Limit</th>
</tr>
</thead>
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<tr>
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</tr>
<tr>
<td>Ni</td>
<td>2.38</td>
<td>X</td>
<td>&quot;</td>
</tr>
<tr>
<td>Ag</td>
<td>0.24</td>
<td>X</td>
<td>&quot;</td>
</tr>
<tr>
<td>Zn</td>
<td>1.48</td>
<td>X</td>
<td>&quot;</td>
</tr>
<tr>
<td>Cn(T)</td>
<td>0.65</td>
<td>X</td>
<td>&quot;</td>
</tr>
<tr>
<td>TTO</td>
<td>----</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
This page left blank intentionally.
Please complete this discharge application with all information available. Where additional space is needed, attach extra pages. Please indicate estimated values with an "E" following the number. For information which is not yet available, indicate when you expect to obtain the information.

A. GENERAL INFORMATION

1. Company Name: ____________________________________________
   Mailing Address: ____________________________________________
   City, State, Zip: ____________________________________________
   Telephone Number: ( )

2. On site person authorized to represent company.
   Name: _____________________________________________________
   Title: _____________________________________________________

3. Brief description of the manufacturing, industrial processes, production, or business activities conducted by this company:
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________
   __________________________________________________________

4. Indicate applicable Standard Industrial Classification (SIC) for all processes:
   __________________________________________________________

5. Are any of these activities regulated under Federal Categorical Pretreatment Standards? _____ Yes _____ No _____ Unsure

6. Projected hours of operation and number of employees per shift:
   2nd Shift _____ _____ _____ _____ _____ _____ _____
   3rd Shift _____ _____ _____ _____ _____ _____ _____

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B. WATER USAGE AND WASTEWATER DESCRIPTION

1. What is the projected average water use for this company: 
   ___________ gallons/month

2. Will any water be recycled?:       ____ Yes     ____ No
   If yes, please give a brief description of recycling processes.

3. Will this company discharge any wastewater other than from 
   restrooms to the Pinellas County Sewer System? ___ Yes    ___ No
   If yes, please indicate the source(s) of the wastewater:

   [___] Cooling water, non-contact   [___] Boiler/Tower blowdown
   [___] Cooling water, contact       [___] Pollution Control Unit
   [___] Process (Specify):           [___] Other (Specify):

4. What is the projected daily discharge flow rate: _____ gpd.

5. Will any form of wastewater treatment be used prior to combining 
   with the wastewater discharge from the Department of Energy? 
   ____ Yes       ____ No.
   If yes, briefly describe the operation of the wastewater treatment 
   system. Include chemicals used and what they are used for.

6. Schematic Process Flow Diagram: For each major activity in which 
   wastewater will be generated or treated, draw a diagram of the 
   flow of materials, products, water, and wastewater from the start 
   of the activity to its completion, showing all unit processes. 
   Indicate which processes use water and which generate waste 
   streams. Include the average daily volume and maximum daily 
   volume of each waste stream.
7. Please list ALL chemicals (in quantities greater than one gallon) used and/or stored on site:

<table>
<thead>
<tr>
<th>Chemical</th>
<th>Average Quantity (on site)</th>
<th>Will this chemical be in wastewater discharged to Pinellas County Sewer?</th>
</tr>
</thead>
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<tr>
<td></td>
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<td>[ ]yes [ ]no</td>
</tr>
<tr>
<td></td>
<td></td>
<td>[ ]yes [ ]no</td>
</tr>
</tbody>
</table>

8. Are there any floor drains in the manufacturing or chemical storage area(s)? ___ Yes ___ No

If yes, briefly describe where these floor drains discharge to:

____________________________________________________________________

9. Will any liquid or solid wastes be generated and NOT disposed of in the Pinellas County Sewer System? ___ Yes ___ No

If yes, indicate the type(s) of waste generated:

[ ]Acids, Alkalies [ ]Dyes, Inks [ ]Heavy Metals
[ ]Inorganic Compounds [ ]Oil/Grease [ ]Organic Compounds
[ ]Paints [ ]Pesticides [ ]Sludge
[ ]Solvents [ ]Other (Specify):

How will the indicated waste(s) be disposed of? (provide name and address of waste haulers)

____________________________________________________________________

C. CERTIFICATION

I hereby state that the information contained on this survey is familiar to me, and to the best of my knowledge and belief, such information is true, complete, and accurate.


Title  D-21  Date
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ACCIDENTAL DISCHARGE NOTIFICATION PROCEDURE
Pinellas County Sewer Use Ordinance #91-26, Section 6 (f)

In the event of an accidental discharge to the Pinellas County Sewer System (PCSS), the following must be met.

1) TELEPHONE NOTIFICATION

Notification must be made immediately by contacting one of the following, in the order given below:

Industrial Pretreatment Program: 582-2282
(Water Quality Management Division)

South Cross Bayou WWTF: 582-7953
(Operators on duty 24 hrs/day)

Director, Sewer System: 464-4721
(Main office)

2) WRITTEN NOTIFICATION

A detailed written report describing the cause of the discharge and corrective measures taken must be submitted to the PCSS within five (5) calendar days following such accidental discharge. This report is to be submitted to the following address:

Industrial Pretreatment Program
Water Quality Management Division
Pinellas County Sewer System
14850 118th Avenue North
Largo, Florida 34644
ANALYTICAL METHODS


Cadmium - Ref A: 213.1(F1), 213.2(Fr), 200.7(ICP)
Ref B: 3111 B/C(F1), 3113 B(Fr), 3500 Cd-D(Cl), 3120 B(ICP)

Chromium - Ref A: 218.1(F1), 218.2(Fr), 200.7(ICP)
Ref B: 3111 B/C(F1), 3113 B(Fr), 3500 Cr-D(Cl), 3120 B(ICP)

Copper - Ref A: 220.1(F1), 220.2(Fr), 200.7(ICP)
Ref B: 3111 B/C(F1), 3113 B(Fr), 3500 Cu-D(Cl), 3120 B(ICP)

Lead - Ref A: 239.1(F1), 239.2(Fr), 200.7(ICP)
Ref B: 3111 B/C(F1), 3113 B(Fr), 3500 Pb-D(Cl), 3120 B(ICP)

Mercury - Ref A: 245.1(cold vapor), 245.2(automated)
Ref B: 3112 B(cold vapor)

Molybdenum - Ref A: 246.1(F1), 246.2(Fr), 200.7(ICP)
Ref B: 3111 D(F1), 3113 B(Fr), 3120 B(ICP)

Nickel - Ref A: 249.1(F1), 249.2(Fr), 200.7(ICP)
Ref B: 3111 B/C(F1), 3113 B(Fr), 3500 Ni-D(Cl), 3120 B(ICP)

Silver - Ref A: 272.1(F1), 272.2(Fr), 200.7(ICP)
Ref B: 3111 B/C(F1), 3113 B(Fr)

Zinc - Ref A: 289.1(F1), 289.2(Fr), 200.7(ICP)
Ref B: 3111 B/C(F1), 3500 Zn-E(Cl), 3120 B(ICP)

Cyanide(T) - Ref A: 335.2(spectrophotometric), 335.3(automated)
Ref B: 4500 Cn-D(titrimetric), 4500 Cn-E(spectrophotometric)

Cyanide(A) - Ref A: 335.1(titrimetric/spectrophotometric)
Ref B: 4500 Cn-G(titrimetric/spectrophotometric)

BOD - Ref A: 405.1 Dissolved Oxygen Depletion(BOD₅)
Ref B: 5210 Dissolved Oxygen Depletion(BOD₅)

Oil/Grease - Ref A: 413.1(gravimetric)
Ref B: 5520 B(gravimetric)

TSS - Ref A: 160.2(gravimetric)
Ref B: 2540 D(gravimetric)

pH - Ref A: 150.1(electrometric)
Ref B: 4500 H(electrometric)

Temperature - Ref A: 170.1(thermometric)
Ref B: 2550 B(thermometric)

TTO's - EPA Methods 601-613, 624-625. TTO analyses must be performed in accordance with 40 CFR 136.3.

F1=Flame, Fr=Furnace, ICP=Inductively Coupled Plasma, Cl=Colorimetric

D-25
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<table>
<thead>
<tr>
<th>DAY</th>
<th>SAMPLE TYPE*</th>
<th>START TIME+</th>
<th>END TIME+</th>
<th>WATER USE (gpd)</th>
<th>DISCHARGE FLOW (gpd)</th>
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Samples analyzed by: ________________________________

If an outside laboratory performed any of the analyses contained in this report, give the name and address of the laboratory and specify the data they supplied.

"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 gathered and evaluated the information submitted. Based on my inquiry of the person or 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 fines and imprisonment for knowing violation."

Authorized Representative/Title ______________________ Date __________

TOTAL DAYS OF PRODUCTION: ______________________

(FOR PCSS USE ONLY)

Checked by: ______________________ Date: __________
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APPENDIX E

Pinellas Plant
Hazardous and Solid Waste Amendments Permit
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Pursuant to the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act of 1976, as amended (42 USC §6901 et seq., commonly known as RCRA) and regulations promulgated thereunder by the U.S. Environmental Protection Agency (EPA) (codified and to be codified in Title 40 of the Code of Federal Regulations), a permit is issued to U.S. DOE (hereafter called the Permittee), who operates a hazardous waste treatment and storage facility located in Largo, Florida latitude 27°52'30'' North and longitude 82°45'00'' West.

This Permit, in conjunction with the Hazardous Waste Management Permit issued by the State of Florida, constitutes the RCRA permit for this facility. The Permittee shall be required to investigate any releases of hazardous waste or hazardous constituents from any solid waste management unit at the facility regardless of the time at which waste was placed in such unit and to take appropriate corrective action for any such releases. The Permit also requires the Permittee to certify annually that on-site generation of hazardous waste is minimized to the extent practicable.

The Permittee must comply with all terms and conditions of this permit. This permit consists of the conditions contained herein (including those in any attachments) and applicable regulations contained in 40 CFR Parts 260 through 264, 266, 268, 270, and 124 as specified in the permit and statutory requirements of RCRA, as amended by the Hazardous and Solid Waste Amendments of 1984, P.L. 98-616, (the RCRA amendments). Nothing in this permit shall preclude the Regional Administrator from reviewing and modifying the permit at any time during its term in accordance with 40 CFR §270.41.

This Permit is based on the assumption that the information and reports submitted to date, and subsequent to issuance of this permit by the Permittee are accurate. Any inaccuracies found in this information may be grounds for termination or modification of this permit in accordance with 40 CFR §§270.41, 270.42, and 270.43 and potential enforcement action. The Permittee must inform EPA of any deviation from or changes in the information in the application which would affect the Permittee's ability to comply with the applicable regulations or permit conditions.

This Permit is effective as of Feb. 9, 1990, and shall remain in effect until Feb. 8, 2000, unless revoked and reissued, or terminated under 40 CFR §§270.41 and .43 or continued in accordance with 40 CFR §270.51(a).

[Signature]
Patrick M. Tobin
Director
Waste Management Division

2-9-90
Date
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PART I - STANDARD CONDITIONS

I.A. EFFECT OF PERMIT

Compliance with this RCRA permit constitutes compliance, for purposes of enforcement, with Subtitle C of RCRA except for those requirements not included in the permit which become effective by statute or which are promulgated under 40 CFR Part 268 restricting placement of hazardous waste in or on the land. Issuance of this permit does not convey property rights of any sort or any exclusive privilege; nor does it authorize any injury to persons or property, any invasion of other private rights, or any infringement of state or local law or regulations. Compliance with the terms of this permit does not constitute a defense to any order issued or any action brought under Section 3013 or Section 7003 of RCRA, Sections 106(a), 104, or 107 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (42 U.S.C. 9601 et seq., commonly known as CERCLA), or any other law providing for protection of public health or the environment.

I.B. PERMIT ACTIONS

This permit may be modified, revoked and reissued, or terminated for cause as specified in 40 CFR §§270.41, 270.42, and 270.43. The filing of a request for a permit modification, revocation and reissuance, or termination, or the notification of planned changes, or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition.

I.C. SEVERABILITY

The provisions of this permit are severable, as specified in 40 CFR §124.16 and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

I.D. DUTIES AND REQUIREMENTS

I.D.1. Duty to Comply

The Permittee shall comply with all conditions of this permit, except to the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance, other than noncompliance authorized by an emergency permit, constitutes a violation of RCRA and is grounds for enforcement action, permit termination, revocation and reissuance, modification, or denial of a permit renewal application.

I.D.2. Duty to Reapply

If the Permittee will continue an activity allowed by this permit after the expiration date of this permit, the Permittee
shall submit a complete application for a new permit at least 180
days before this permit expires, unless permission for a later
date has been granted by the Regional Administrator.

I.D.3. Permit Expiration

If the State does not have RCRA hazardous waste permitting authority
under 40 CFR Part 271 for the 1984 RCRA Amendments, this permit and
all conditions herein will remain in effect beyond the permit's
expiration date, as specified in 40 CFR §270.51. This applies
only if the Permittee has submitted a timely, complete application
in accordance with 40 CFR §270.10(c) and, through no fault of the
Permittee, the Regional Administrator has not issued a new permit
with an effective date under 40 CFR §124.15 on or before the expira-
tion date of the previous permit.

If the State does have RCRA hazardous waste permitting authority
under 40 CFR Part 271 for the 1984 RCRA Amendments and if the
Permittee has submitted a timely and complete application under
applicable state law and regulations, the terms and conditions of
this permit continue in force beyond the expiration date of the
permit, but only until the effective date of the state's issuance
or denial of a state RCRA permit.

I.D.4. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for the Permittee in an enforcement
action that it would have been necessary to halt or reduce the
permitted activity in order to maintain compliance with the condi-
tions of this permit.

I.D.5. Duty to Mitigate

In the event of noncompliance with the permit, the Permittee shall
take all reasonable steps to minimize releases to the environment,
and shall carry out such measures as are reasonable to prevent
significant adverse impacts on human health or the environment.

I.D.6. Proper Operation and Maintenance

The Permittee shall at all times properly operate and maintain all
facilities and systems of treatment and control (and related ap-
portenances) which are installed or used by the Permittee to achieve
compliance with the conditions of this permit. Proper operation
and maintenance includes effective performance, adequate funding,
adequate operator staffing and training, and adequate laboratory
and process controls, including appropriate quality assurance
procedures. This provision requires the operation of backup or
auxiliary facilities or similar systems only when necessary to
achieve compliance with the conditions of the permit.
I.D.7. **Duty to Provide Information**

The Permittee shall furnish to the Regional Administrator, within a reasonable time, any relevant information which the Regional Administrator may request to determine whether cause exists for modifying, revoking, and reissuing, or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Regional Administrator, upon request, copies of records required to be kept by this permit.

I.D.8. **Inspection and Entry**

The Permittee shall allow the Regional Administrator, or an authorized representative, upon the presentation of credentials and other documents as may be required by law to:

I.D.8.a. Enter at reasonable times upon the Permittee’s premises where a regulated activity is located or conducted, or where records must be kept under the conditions of this permit;

I.D.8.b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

I.D.8.c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated, or required under this permit; and

I.D.8.d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by RCRA, any substance, or parameters at any location.

I.D.9. **Monitoring and Records**

I.D.9.a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample to be analyzed must be the appropriate method from Appendix I of 40 CFR Part 261 or an equivalent method approved by the Regional Administrator. Laboratory methods must be those specified in the most recent edition of Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846 or Methods for Chemical Analysis of Water and Wastes, (EPA-600/4-79-020).

I.D.9.b. The Permittee shall retain at the facility, or other appropriate location as provided for under 40 CFR Part 264, records of all monitoring information required under the terms of this permit, including all calibration and maintenance records, records of all data used to prepare documents required by this permit, copies of all reports and records required by this permit, the certification required by 40 CFR 264.73(b)(9), and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report, certifi-
cation or application, or until corrective action is completed, whichever date is later. These periods may be extended by request of the Regional Administrator at any time and are automatically extended during the course of any unresolved enforcement action regarding this facility.

I.D.9.c. Records of monitoring information shall specify:

I.D.9.c.i. The dates, exact place, and times of sampling, or measurements;

I.D.9.c.ii. The individuals who performed the sampling or measurements;

I.D.9.c.iii. The dates analyses were performed;

I.D.9.c.iv. The individuals who performed the analyses;

I.D.9.c.v. The analytical techniques or methods used; and

I.D.9.c.vi. The results of such analyses.

I.D.10. Reporting Planned Changes

The Permittee shall give notice to the Regional Administrator as soon as possible of any planned physical alterations or additions to the permitted facility. This would apply to all contiguous land, structures, other appurtenances and improvements on the land, used for the treatment, storage or disposal of solid waste.

I.D.11. Anticipated Noncompliance

The Permittee shall give advance notice to the Regional Administrator of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements.

I.D.12. Transfer of Permits

This permit may be transferred to a new owner or operator only if it is modified or revoked and reissued pursuant to 40 CFR §270.41(b)(2) or §270.42(d). Before transferring ownership or operation of the facility during its operating life, the Permittee shall notify the new owner or operator in writing of the requirements of 40 CFR Parts 264 and 270, the 1984 RCRA Amendments and this permit.

I.D.13. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date.
I.D.14. Twenty-four Hour Reporting

I.D.14.a. The Permittee shall report any noncompliance which may endanger human health or the environment. Any such information shall be reported orally within 24 hours from the time the Permittee becomes aware of the circumstances. This report shall include:

I.D.14.a.i. Information concerning the release of any hazardous waste or hazardous constituents which may endanger public drinking water supplies.

I.D.14.a.ii. Information concerning the release or discharge of any hazardous waste or hazardous constituents, or of a fire or explosion at the facility, which could threaten the environment or human health outside the facility.

I.D.14.b. The description of the occurrence and its cause shall include:

I.D.14.b.i. Name, address, and telephone number of the owner or operator;

I.D.14.b.ii. Name, address, and telephone number of the facility;

I.D.14.b.iii. Date, time, and type of incident;

I.D.14.b.iv. Name and quantity of materials involved;

I.D.14.b.v. The extent of injuries, if any;

I.D.14.b.vi. An assessment of actual or potential hazard to the environment and human health outside the facility, where this is applicable; and

I.D.14.b.vii. Estimated quantity and disposition of recovered material that resulted from the incident.

I.D.14.c. A written report shall also be provided to the Regional Administrator within 15 days of the time the Permittee becomes aware of the circumstances. The written report shall contain the information specified under Condition I.D.14a. and b.; a description of the noncompliance and its cause; the periods of noncompliance (including exact dates and times); whether the noncompliance has been corrected; and if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.

I.D.15. Other Noncompliance

The Permittee shall report all other instances of noncompliance not otherwise required to be reported above, at the time written reports as required by this permit are submitted. The reports shall contain the information listed in Condition I.D.14.b. as appropriate.
I.D.16. Other Information

Whenever the Permittee becomes aware that it failed to submit any relevant facts or submitted incorrect information in any document(s) submitted to the Regional Administrator, the Permittee shall promptly submit such facts or information.

I.E. SIGNATORY REQUIREMENT

All applications, reports, or information submitted to the Regional Administrator shall be signed and certified in accordance with 40 CFR §270.11.

I.F. CONFIDENTIAL INFORMATION

The Permittee may claim confidential any information required to be submitted by this permit in accordance with 40 CFR §270.12.

I.G. DEFINITIONS

For purposes of this permit, terms used herein shall have the same meaning as those in RCRA and 40 CFR Parts 124, 260, 261, 264, and 270, unless this permit specifically provides otherwise; where terms are not defined in the regulation, the permit, or EPA guidances or publications, the meaning associated with such terms shall be defined by a standard dictionary reference or the generally accepted scientific or industrial meaning of the term.

I.G.1. The term "solid waste" means any garbage, refuse, sludge from a waste treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities, but does not include solid or dissolved material in domestic sewage, or solid or dissolved materials in irrigation return flows or industrial discharges which are point sources subject to permits under section 402 of the Federal Water Pollution Control Act, as amended (86 Stat. 880), or source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954, as amended (68 Stat. 923).

I.G.2. A "hazardous constituent" for purposes of this permit are those substances listed in 40 CFR Part 261 Appendix VIII.

I.G.3. A "solid waste management unit" for the purposes of this permit includes any unit which has been used for the treatment, storage, or disposal of solid waste at any time, irrespective of whether the unit is or ever was intended for the management of solid waste. RCRA regulated hazardous waste management units are also solid waste management units.
I.G.4. A "unit" for the purposes of this permit includes, but is not limited to, any landfill, surface impoundment, waste pile, land treatment unit, incinerator, injection well, tank, container storage area, septic tank, drain field, wastewater treatment unit, elementary neutralization unit, transfer station, or recycling unit.

I.G.5. A "release" for purposes of this permit includes any spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping, or disposing into the environment of any hazardous waste or hazardous constituents.

I.G.6. "Contamination" for purposes of this permit refers to the presence of any hazardous constituent in a concentration which exceeds the naturally occurring concentration of that constituent in the immediate vicinity of the facility (in areas not affected by the facility).

I.G.7. "Corrective action," for purposes of this permit, may include all corrective measures necessary to protect human health and the environment for all releases of hazardous waste or hazardous constituents from any solid waste management unit at the facility, regardless of the time at which waste was placed in the unit, as required under 40 CFR §264.101. Corrective measures may address releases to air, soils, surface water or groundwater.
Part II - Solid Waste Management Units

II.A. **Applicability**

The Conditions of this Part apply to:

II.A.1. The solid waste management units identified in Appendix A. Paragraph I.

II.A.2. Any additional solid waste management units or releases of hazardous waste or hazardous constituents other than those referenced above, discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means.

II.A.3. For releases from solid or hazardous waste management units at the facility that migrate off-site, the Permittee shall implement corrective actions beyond the facility boundary, where necessary to protect human health and the environment, unless the permittee demonstrates to the satisfaction of the Regional Administrator that, despite the permittee's best efforts, the permittee was unable to obtain the necessary permission to undertake such actions. The permittee is not relieved of all responsibility to clean up a release that has migrated beyond the facility boundary where off-site access is denied. On-site measures to address such releases will be determined on a case-by-case basis.

II.B. **RCRA Facility Assessment (RFA)**

II.B.1. The Permittee shall notify the Regional Administrator of any additional solid waste management unit(s) with releases of hazardous constituents or hazardous waste not identified in Condition II.A.1., discovered during the course of groundwater monitoring, field investigations, environmental audits or other means within fifteen (15) days of discovery.

II.B.2. The Permittee shall prepare and submit to the Regional Administrator a RCRA Facility Assessment (RFA) Plan with a proposed schedule of implementation and completion for any additional solid waste management unit(s) or release(s) which is discovered subsequent to the issuance of this permit. The Plan shall include methods and specific actions as necessary to determine whether a prior or continuing release of hazardous waste or hazardous constituents has occurred at each solid waste management unit. The plan must also include, at a minimum, the following information for each unit:

1. Location of unit(s) on a topographic map of appropriate scale such as required under 40 CFR §270.14(b)(19).
2. Designation of type and function of unit(s).
3. General dimensions, capacities and structural description of unit(s) (supply any available plans/drawing).
(4) Dates that the unit(s) was operated.
(5) Specification of all wastes that have been managed at/in the unit(s).
(6) All available information pertaining to any release of hazardous waste or hazardous constituents from such unit(s) (to include groundwater data, soil analyses, and/or surface water data).
(7) Results of sampling and analysis of groundwater, landsurface and subsurface strata, surface water or air requested by the Regional Administrator.

II.B.3. If the time required to conduct the RFA is greater than 180 days, the Permittee shall provide the EPA with quarterly Progress Reports (90 day intervals) beginning ninety (90) days from implementation of the approved plan containing:

a. A description of the portion of the RFA completed;
b. Summaries of findings;
c. Summaries of all deviations from the approved RFA Plan during the reporting period;
d. Summaries of all problems or potential problems encountered during the reporting period;
e. Projected work for the next reporting period; and
f. Copies of daily reports, inspection reports, laboratory/monitoring data, etc.

II.B.4 The Permittee shall prepare and submit to the Regional Administrator a RCRA Facility Assessment Report of the results of the RFA required under Condition II.B.2 in accordance with the schedule(s) under Condition II.B. The RFA Report must include at a minimum the information listed under Condition II.B.2. and other appropriate information necessary to determine the need for a RFI under Condition II.C.2.

II.C. RCRA Facility Investigation (RFI)

II.C.1. The Permittee shall prepare and submit to the Regional Administrator a RCRA Facility Investigation (RFI) Plan or plans for those units indicated in Appendix A paragraph I as subject to the RFI, which includes schedules of implementation and completion of specific actions necessary to determine the nature and extent of releases and the potential pathways of contaminant releases to the air, land, surface water, and groundwater. The Permittee must provide sufficient justification and/or documentation that a release is not probable if a media/pathway associated with a unit (groundwater, surface water, soil or air) is not included in the RFI Plan(s). Such deletions of a media or pathway from the RFI are subject to the approval of the Regional Administrator.

II.C.2. The Permittee shall prepare and submit to the Regional Administrator
a RCRA Facility Investigation (RFI) Plan for those units identified under Condition II.B. which includes schedules of implementation and completion of specific actions necessary to determine the nature and extent of releases indicated by the assessment, and the potential pathways of contaminant releases to the air, land, surface water, and groundwater. The Permittee must provide sufficient justification and/or documentation that a release is not probable if a unit identified under Condition II.B. or a media/pathway associated with such unit (groundwater, surface water, soil or air) is not included in the RFI plan. Such deletions of a unit, media or pathway from the RFI are subject to the approval of the Regional Administrator.

II.C.3. The RFI Plan(s) shall meet the requirements of Appendix B at a minimum. The RFI shall be conducted in accordance with the approved RFI Plan(s) and Appendix B. The Permittee shall provide written sufficient justification for any omissions or deviations from the minimum requirements of Appendix B. Such omissions or deviations are subject to the approval of the Regional Administrator. The scope of the RFI Plan(s) shall include all investigations necessary to ensure compliance with 40 CFR §264.101(c).

II.C.4. If the time required to conduct the RFI is greater than 180 days, the Permittee shall provide the EPA with quarterly RFI Progress Reports (90 day intervals) beginning ninety (90) days from implementation of the approved plan containing:

a. A description of the portion of the RFI completed;

b. Summaries of findings;

c. Summaries of all deviations from the approved RFI Plan during the reporting period;

d. Summaries of all problems or potential problems encountered during the reporting period;

e. Projected work for the next reporting period; and

f. Copies of daily reports, inspection reports, laboratory/monitoring data, etc.

II.C.5. The Permittee shall prepare and submit to the Regional Administrator a Draft and Final RCRA Facility Investigation Report. The RFI Reports shall be submitted in accordance with the schedule(s) under Condition II.H.5. The RFI Report shall include an analysis and summary of all required investigations of solid waste management units and their results. The summary shall include a report on the type and extent of contamination at the facility, including sources and migration pathways, and a description of actual or potential receptors. The report shall also describe the extent of contamination (qualitative/quantitative in relation to background levels indicative for the area. The objective of this task shall
be to ensure that the investigation data are sufficient in quality (e.g., quality assurance procedures have been followed) and quantity to describe the nature and extent of contamination, potential threat to human health and/or the environment, and to support a Corrective Measures Study and/or a Corrective Action Plan, if necessary.

II.D. **Interim Measures**

II.D.1. The Permittee, (upon approval by the Regional Administrator), may conduct interim measures to contain, remove or treat contamination resulting from the release of hazardous constituents from a solid waste management unit in order to protect public health and the environment. Such interim measures may be conducted concurrently with investigations required under the terms of this permit.

II.D.2. The Permittee shall notify the Regional Administrator of any proposed interim/corrective measures at least thirty (30) days prior to implementation. The notice shall include a description and a schedule of implementation of any proposed interim measures.

II.D.3. The Permittee shall give notice to the Regional Administrator as soon as possible of any planned changes, reduction or additions to the interim measures.

II.D.4. Final approval of interim measures as corrective action required under 40 CFR §264.101 shall be in accordance with 40 CFR §270.41 and Condition IIE.2. as a permit modification.

II.D.5 If the time required for completion of an Interim Measure is greater than 180 days, the Permittee shall provide EPA with quarterly progress reports (90 day intervals) beginning ninety (90) days after initiation of the Interim Measure(s). Such reports shall include:

a. A description of the portion of the Interim Measure completed;

b. Summaries of all deviations from the Interim Measures Plan during the reporting period;

c. Summaries of all problems or potential problems encountered during the reporting period;

d. Projected work for the next reporting period; and

e. Copies of laboratory/monitoring data.

II.D.6. Upon completion of Interim Measures conducted under this Condition, the Permittee shall submit an Interim Measures Report to EPA that contains:
a. A description of measure(s) implemented;

b. Summaries of results;

c. Summaries of all problems encountered;

d. Summaries of accomplishments and/or effectiveness of interim measure; and

e. Copies of all relevant laboratory/monitoring data, etc. in accordance with Condition I.D.9.

II.E.  Corrective Measures Study

II.E.1. The Regional Administrator will review the final RFI report(s) required under Condition II.C.5. and notify the Permittee of the need for further investigative actions and/or the need for a Corrective Measures Study (CMS) to meet the requirements of CFR §264.101.

II.E.2. Within 90 days of the notification by the Regional Administrator that a Corrective Measures Study (CMS) is required, the Permittee shall prepare and submit a CMS Plan or Plans for those units requiring a CMS. The Plan(s) developed to meet the requirements of Condition II.E.3.

II.E.3. The CMS Plan(s) shall meet the requirements of Appendix C at a minimum. This Plan shall include schedules of implementation and completion of specific actions necessary to complete a CMS. The CMS shall be conducted in accordance with the approved CMS Plan and Appendix C. The Permittee shall provide sufficient written justification for any omissions or deviations, which are subject to the approval of the Regional Administrator. The scope of the CMS Plan shall include all investigations necessary to ensure compliance with 40 CFR §264.101(c).

II.E.4 The Permittee shall prepare and submit to the Regional Administrator a draft and final Corrective Measures Report for the study conducted pursuant to the Plan submitted under Conditions II.E.2. and II.E.3. The draft CMS Report shall be submitted to EPA for review in accordance with the schedule in the CMS Plan(s) approved under Condition II.E.3. The final CMS Report(s) shall summarize the results of the investigations for each remedy studied and of any bench-scale or pilot tests conducted. The CMS Report(s) must include an evaluation of each remedial alternative. The CMS Report shall present all information gathered under the approved CMS Plan. The Report must contain adequate information to support the Regional Administrator in the approval of the recommended remedy.
II.F  Remedy Approval

II.F.1 The Regional Administrator shall approve a remedy from the remedial alternatives evaluated in the CMS that will
(1) protect human health and the environment;
(2) meet the approved clean-up levels;
(3) control the source(s) of release(s) so as to reduce or eliminate to the maximum extent practicable, further releases that may pose a threat to human health and the environment; and
(4) meet all applicable waste management requirements.

II.F.2 A modification to this Permit will be initiated by the Regional Administrator after approval of a remedy under Condition II.F.1.

II.G  Imminent Hazards

II.G.1 The Permittee shall report to the Regional Administrator any imminent or existing hazard to public health or the environment from any release of hazardous waste or hazardous constituents from a solid waste management unit. Such information shall be reported orally within 24 hours from such time the Permittee becomes aware of the circumstances. This report shall include the information specified under Conditions I.D.14.a. and b.

II.G.2 A written report shall also be provided to the Regional Administrator within fifteen (15) days of the time the Permittee becomes aware of the circumstances. The written report shall contain the information specified under Conditions I.D.14.a. and b.; a description of the release and its cause; the period of the release; whether the release has been stopped; and if not, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the release.

II.H  Schedule of Compliance and Report Requirements

II.H.1 The Permittee shall submit the RFA Plan(s) for solid waste management units or releases discovered after the effective date of this permit required under Condition II.B.2. to the Regional Administrator within sixty (60) days of the notification required under Condition II.B.1.

II.H.2 The Permittee shall submit the RFA Report required under Condition II.B.4. within sixty (60) days after completion of all activities conducted under the approved RFA Plan.

II.H.3 The Permittee shall submit the RFT Plan required by Condition II.C.1. and the associated documentation to the Regional Administrator within 120 days of the effective date of this permit.
II.H.4. The Permittee shall submit the RFI Plan(s) required under Condition II.C.2. for solid waste management units or releases discovered after the effective date of this permit within ninety (90) days of submission of the RFA report required under Condition II.B.4.

II.H.5. The Permittee shall submit the Draft RFI Report required under Condition II.C.5. to EPA for review ninety (90) days after completion of the RFI. The Final RFI Report shall be submitted to EPA within thirty (30) days of receipt of EPA comments on the Draft RFI Report.

II.H.6. The Permittee shall submit the CMS Plan(s) required under Condition II.E.2. to the EPA for review within ninety (90) days of the notification from the Regional Administrator under Condition II.E.1.

II.H.7. All plans and schedules shall be subject to approval by the Regional Administrator prior to implementation. The Permittee shall revise all submittals and schedules as specified by the Regional Administrator. Upon approval the Permittee shall implement all plans and schedules as written.

II.H.8. The results of all plans and reports shall be submitted in accordance with the approved schedule. Extensions of the due date for submittals may be granted by the Regional Administrator based on the Permittee’s demonstration that sufficient justification for the extension exists.

II.H.9. If the Permittee at any time determines that the RFA or RFI plans required under Conditions II.B. or II.C. no longer satisfy the requirements of 40 CFR $264.101 or this permit for prior or continuing releases of hazardous waste or hazardous constituents from solid waste management units, he shall submit an amended plan(s) to the Regional Administrator within ninety (90) days of such determination.

II.H.10. All reports shall be signed and certified in accordance with 40 CFR $270.11.

II.H.11. Three (3) copies of all reports and plans shall be provided by the Permittee to U.S. EPA at the following address:

Mr. James B. Scarbrough, P.E.  
Chief, RCRA Branch  
Waste Management Division  

Environmental Protection Agency  
Region IV  
345 Courtland Street, N.E.  
Atlanta, Georgia 30365
PART III - WASTE MINIMIZATION

WASTE MINIMIZATION CERTIFICATION

Until certification of closure the Permittee shall certify no less often than annually that the Permittee has a program in place to reduce the volume and toxicity of hazardous waste that he generates to the degree determined by the Permittee to be economically practicable and the proposed method of treatment, storage or disposal is that practicable method currently available to the Permittee which minimizes the present and future threat to human health and the environment.

The Permittee shall maintain copies of the certification in the facility operating record as required under 40 CFR §264.73(b)(9).

PART IV - LAND DISPOSAL RESTRICTIONS

IV.A. 40 CFR Part §268 identifies hazardous wastes that are restricted from land disposal and defines those limited circumstances under which an otherwise prohibited waste may continue to be placed on or in a land treatment, storage or disposal unit. The Permittee shall maintain compliance with the requirements of 40 CFR §268. Where the Permittee has applied for an extension, waiver or variance under 40 CFR Part §268 the Permittee shall comply with all restrictions on land disposal under this Part once the effective date for the waste has been reached pending final approval of such application.

II.B. For the purposes of 40 CFR Part §268 "Land Disposal" means placement in or on the land and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, underground mine or cave, or concrete vault or bunker intended for disposal purposes.

IV.C. A restricted waste identified in 40 CFR Part §268 Subpart C may not be placed in a land disposal unit without further treatment unless the requirements of 40 CFR Part §268 Subparts C and/or D are met.

IV.D. The storage of hazardous wastes restricted from land disposal under 40 CFR Part §268 is prohibited unless the requirements of 40 CFR Part §268 Subpart E are met.
Appendix A

Solid Waste management Unit Summary

I. List of Solid Waste Management Units requiring an RPI:

1. West pond
2. Northeast site
3. Spray irrigation site
4. Trenches
5. Old drum storage site
6. Former pistol range
7. Closed fire department training tank
8. Current fire department training tank
9. Metallic anomaly site
10. Incinerator site
11. Incinerator ditch
12. Diesel fuel spill
13. Industrial drain leaks
14. Southwest ditch

II. List of Solid Waste Management Units with no known releases (no RPI required)

1. Acid and alkali spills
APPENDIX B

RCRA FACILITY INVESTIGATION (RFI) WORKPLAN OUTLINE

I. RFI WORKPLAN REQUIREMENTS

The Permittee shall prepare a RCRA Facility Investigation (RFI) Workplan that meets the requirements of Part II of this document and the RFI Guidance, EPA-530/SW-87-001. This Workplan shall also include the development of the following plans, which shall be prepared concurrently:

A. Project Management Plan

The Permittee shall prepare a Project Management Plan which will include a discussion of the technical approach, schedules, and personnel. The Project Management Plan will also include a description of qualifications of personnel performing or directing the RFI, including contractor personnel. This plan shall also document the overall management approach to the RCRA Facility Investigation.

B. Sampling and Analysis Plan(s)

The Permittee shall prepare a plan to document all monitoring procedures: field sampling, sampling procedures and sample analysis performed during the investigation to characterize the environmental setting, source, and releases of hazardous constituents, so as to ensure that all information and data are valid and properly documented. The Sampling Strategy and Procedures shall be in accordance with Characterization of Hazardous Waste Sites A Methods Manual: Volume II. Available Sampling Methods, EPA-600/4-84-076, or EPA Region IV Engineering Support Branch's Standard Operating Procedure and Quality Assurance Manual (SOP). Any deviations from these references must be requested by the applicant and approved by EPA. The Sampling and Analysis Plan must specifically discuss the following unless the EPA-600/4-84-076 or SOP procedures are specifically referenced.

1. Sampling Strategy

   a. Selecting appropriate sampling locations, depths, etc.;
   
   b. Obtaining all necessary ancillary data;
   
   c. Determining conditions under which sampling should be conducted;
   
   e. Determining which media are to be sampled (e.g., groundwater, air, soil, sediment, etc.);
   
   f. Determining which parameters are to be measured and where;
g. Selecting the frequency of sampling and length of sampling period;

h. Selecting the types of samples (e.g., composites vs. grabs) and number of samples to be collected.

2. **Sampling Procedures**

   a. Documenting field sampling operations and procedures, including:

      i) Documentation of procedures for preparation of reagents or supplies which become an integral part of the sample (e.g., filters, preservatives, and absorbing reagents);

      ii) Procedures and forms for recording the exact location and specific considerations associated with sample acquisition;

      iii) Documentation of specific sample preservation method;

      iv) Calibration of field instruments;

      v) Submission of field-biased blanks, where appropriate;

      vi) Potential interferences present at the facility;

      vii) Construction materials and techniques, associated with monitoring wells and piezometers;

      viii) Field equipment listing and sampling containers;

      ix) Sampling order; and

      x) Decontamination procedures.

   b. Selecting appropriate sample containers;

   c. Sampling preservation; and

   d. Chain-of-custody, including:

      i) Standardized field tracking reporting forms to establish sample custody in the field prior to shipment; and

      ii) Pre-prepared sample labels containing all information necessary for effective sample tracking.
3. **Sample Analysis**

Sample analysis shall be conducted in accordance with SW-846: "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods" (third edition). The sample analysis section of the Sampling and Analysis Plan shall specify the following:

a. Chain-of-custody procedures, including:

   i) Identification of a responsible party to act as sampling custodian at the laboratory facility authorized to sign for incoming field samples, obtain documents of shipment, and verify the data entered onto the sample custody records;

   ii) Provision for a laboratory sample custody log consisting of serially numbered standard lab-tracking report sheets; and

   iii) Specification of laboratory sample custody procedures for sample handling, storage, and dispensement for analysis.

b. Sample storage;

c. Sample preparation methods;

   i) Scope and application of the procedure;

   ii) Sample matrix;

   iii) Potential interferences;

   iv) Precision and accuracy of the methodology; and

   v) Method detection limits.

d. Analytical procedures, including:

   i) Scope and application of the procedure;

   ii) Sample matrix;

   iii) Potential interferences;

   iv) Precision and accuracy of the methodology; and

   v) Method detection limits.

e. Calibration procedures and frequency;

f. Data reduction, validation and reporting;
g. Internal quality control checks, laboratory performance and systems audits and frequency, including:

1) Method blank(s);

ii) Laboratory control sample(s);

iii) Calibration check samples(s);

iv) Replicate sample(s);

v) Matrix-spiked sample(s);

vii) Control charts;

viii) Surrogate samples;

ix) Zero and span gases; and

x) Reagent quality control checks.

h. Preventive maintenance procedures and schedules;

i. Corrective action (for laboratory problems); and

j. Turnaround time.

C. Data Management Plan

The Permittee shall develop and initiate a Data Management Plan to document and track investigation data and results. This plan shall identify and set up data documentation materials and procedures, project file requirements, and project-related progress reporting procedures and documents. The plan shall also provide the format to be used to present the raw data and conclusions of the investigation.

1. Data Record

The data record shall include the following:

a. Unique sample or field measurement code;

b. Sampling or field measurement location and sample or measurement type;

c. Sampling or field measurement raw data;

d. Laboratory analysis ID number;

e. Property or component measured; and

f. Result of analysis (e.g. concentration).
2. **Tabular Displays**

   The following data shall be presented in tabular displays:
   
   a. Unsorted (raw) data;
   
   b. Results for each medium, or for each constituent monitored;
   
   c. Data reduction for statistical analysis, as appropriate;
   
   d. Sorting of data by potential stratification factors (e.g., location, soil layer, topography); and
   
   e. Summary data

3. **Graphical Displays**

   The following data shall be presented in graphical formats (e.g., bar graphs, line graphs, area or plan maps, isopleth plots, cross-sectional plots or transects, three dimensional graphs, etc.):
   
   a. Display sampling location and sampling grid;
   
   b. Indicate boundaries of sampling area, and area where more data are required;
   
   c. Display geographical extent of contamination;
   
   d. Illustrate changes in concentration in relation to distances from the source, time, depth or other parameters; and
   
   e. Indicate features affecting intramedia transport and show potential receptors.

II. **RCRA Facility Investigation (RFI) Requirements**

**RCRA Facility Investigation:**

The Permittee shall conduct those investigations necessary to: characterize the facility (Environmental Setting); define the source (Source Characterization); define the degree and extent of release of hazardous constituents (Contamination Characterization); and identify actual or potential receptors.

The investigations should result in data of adequate technical content and quality to support the development and evaluation of the corrective action plan if necessary. The information contained in a RCRA Part B permit application and/or RCRA Section 3019 Exposure Information Report may be referenced as appropriate.
All sampling and analyses shall be conducted in accordance with the Sampling and Analysis Plan. All sampling locations shall be documented in a log and identified on a detailed site map.

A. **Environmental Setting**

The Permittee shall collect information to supplement and/or verify Part B information on the environmental setting at the facility. The Permittee shall characterize the following as they relate to identified sources, pathways and areas of releases of hazardous constituents from Solid Waste Management Units.

1. **Hydrogeology**

The Permittee shall conduct a program to evaluate hydrogeologic conditions at the facility. This program shall provide the following information:

   a. A description of the regional and facility specific geologic and hydrogeologic characteristics affecting ground-water flow beneath the facility, including:

      i) Regional and facility specific stratigraphy: description of strata including strike and dip, identification of stratigraphic contacts;

      ii) Structural geology: description of local and regional structural features (e.g., folding, faulting, tilting, jointing, etc.);

      iii) Depositional history;

      iv) Regional and facility specific ground-water flow patterns; and

      v) Identification and characterization of areas and amounts of recharge and discharge.

   b. An analysis of any topographic features that might influence the ground water flow system.

   c. Based on field data, tests, and cores, a representative and accurate classification and description of the hydrogeologic units which may be part of the migration pathways at the facility (i.e., the aquifers and any intervening saturated and unsaturated units), including:

      i) Hydraulic conductivity and porosity (total and effective);

      ii) Lithology, grain size, sorting, degree of cementation;
iii) An interpretation of hydraulic interconnections between saturated zones; and

iv) The attenuation capacity and mechanisms of the natural earth materials (e.g., ion exchange capacity, organic carbon content, mineral content etc.).

d. Based on data obtained from groundwater monitoring wells and piezometers installed upgradient and downgradient of the potential contaminant source, a representative description of water level or fluid pressure monitoring including:

i) Water-level contour and/or potentiometric maps;

ii) Hydrologic cross sections showing vertical gradients;

iii) The flow system, including the vertical and horizontal components of flow; and

iv) Any temporal changes in hydraulic gradients, for example, due to tidal or seasonal influences.

e. A description of manmade influences that may affect the hydrology of the site, identifying:

i) Local water-supply and production wells with an approximate schedule of pumping; and

ii) Manmade hydraulic structures (pipelines, french drains, ditches, etc.).

2. Soils

The Permittee shall conduct a program to characterize the soil and rock units above the water table in the vicinity of contaminant release(s). Such characterization may include, but not be limited to, the following types of information as appropriate:

a. Surface soil distribution;

b. Soil profile, including ASTM classification of soils;

c. Transects of soil stratigraphy;

d. Hydraulic conductivity (saturated and unsaturated);

e. Relative permeability;

f. Bulk density;

g. Porosity;

h. Soil sorptive capacity;

i. Cation exchange capacity (CEC);

j. Soil organic content;

k. Soil pH;

l. Particle size distribution;

m. Depth of water table;

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n. Moisture content;
o. Effect of stratification on unsaturated flow;
p. Infiltration;
q. Evapotranspiration;
r. Storage capacity;
s. Vertical flow rate; and
t. Mineral content.

3. Surface Water and Sediment

The Permittee shall conduct a program to characterize the surface water bodies in the vicinity of the facility. Such characterization may include, but not be limited to, the following activities and information:

a. Description of the temporal and permanent surface water bodies including:

i) For lakes and estuaries: location, elevation, surface area, inflow, outflow, depth, temperature stratification, and volume.

ii) For impoundments: location, elevation, surface area, depth, volume, freeboard, and construction and purpose.

iii) For streams, ditches, and channels: location, elevation, flow, velocity, depth, width, seasonal fluctuations, flooding tendencies (i.e., 100 year event), discharge point(s), and general contents.

iv) Drainage patterns; and

v) Evapotranspiration.

b. Description of the chemistry of the natural surface water and sediments. This includes determining the pH, total dissolved solids, total suspended solids, biological oxygen demand, alkalinity, conductivity, dissolved oxygen profiles, nutrients (\( \text{NH}_3, \text{NO}_3^-/\text{NO}_2^-, \text{PO}_4^{3-} \)), chemical oxygen demand, total organic carbon, specific contaminant concentrations, etc.

c. Description of sediment characteristics including:

i) Deposition area;

ii) Thickness profile; and

iii) Physical and chemical parameters (e.g., grain size, density, organic carbon content, ion exchange capacity, pH, etc.)
4. Air

The Permittee shall provide information characterizing the climate in the vicinity of the facility. Such information may include, but not be limited to:

a. A description of the following parameters:
   i) Annual and monthly rainfall averages;
   ii) Monthly temperature averages and extremes;
   iii) Wind speed and direction;
   iv) Relative humidity/dew point;
   v) Atmospheric pressure;
   vi) Evaporation data;
   vii) Development of inversions; and
   viii) Climate extremes that have been known to occur in the vicinity of the facility, including frequency of occurrence. (i.e. Hurricanes)

b. A description of topographic and manmade features which affect air flow and emission patterns, including:
   i) Ridges, hills or mountain areas;
   ii) Canyons or valleys;
   iii) Surface water bodies (e.g. rivers, lakes, bays, etc.);
   iv) Buildings.

B. Source Characterization

For those sources from which releases of hazardous constituents have been detected the Permittee shall collect analytic data to completely characterize the wastes and the areas where wastes have been placed, to the degree that is possible without undue safety risks, including: type, quantity; physical form; disposition (containment or nature of deposits); and facility characteristics affecting release (e.g., facility security, and engineering barriers). This shall include quantification of the following specific characteristics, at each source area:

1. Unit/Disposal Area Characteristics:
e. Period of operation;
f. Age of unit/disposal area;
g. General physical conditions; and
h. Method used to close the unit/disposal area.

2. Waste Characteristics:

a. Type of wastes placed in the unit;
   i) Hazardous classification (e.g., flammable, reactive, corrosive, oxidizing or reducing agent);
   ii) Quantity; and
   iii) Chemical composition.

b. Physical and chemical characteristics such as;
   i) Physical form (solid, liquid, gas);
   ii) Physical description (e.g., powder, oily sludge);
   iii) Temperature;
   iv) pH;
   v) General chemical class (e.g., acid, base, solvent);
   vi) Molecular weight;
   vii) Density;
   viii) Boiling point;
   ix) Viscosity;
   x) Solubility in water;
   xi) Cohesiveness of the waste; and
   xii) Vapor pressure.

c. Migration and dispersal characteristics of the waste such as;
   i) Sorption capability;
   ii) Biodegradability, bioconcentration, biotransformation;
   iii) Photodegradation rates;
iv) Hydrolysis rates; and

v) Chemical transformations.

The Permittee shall document the procedures used in making the above determinations.

C. Characterization of Releases of Hazardous Constituents

The Permittee shall collect analytical data on groundwater, soils, surface water, sediment, and subsurface gas contamination in the vicinity of the facility in accordance with the sampling and analysis plan as required above. These data shall be sufficient to define the extent, origin, direction, and rate of movement of contamination. Data shall include time and location of sampling, media sampled, concentrations found, conditions during sampling, and the identity of the individuals performing the sampling and analysis. The Permittee shall address the following types of contamination at the facility:

1. Groundwater Contamination

   The Permittee shall conduct a groundwater investigation to characterize any plumes of contamination detected at the facility. This investigation shall at a minimum provide the following information:

   a. A description of the horizontal and vertical extent of any plume(s) of hazardous constituents originating from the facility;

   b. The horizontal and vertical direction of contamination movement;

   c. The velocity of contaminant movement;

   d. The horizontal and vertical concentration profiles of hazardous constituents in the plume(s);

   e. An evaluation of factors influencing the plume movement; and

   f. An extrapolation of future contaminant movement.

   The Permittee shall document the procedures used in making the above determinations (e.g., well design, well construction, geophysics, modeling, etc.).
2. **Soil Contamination**

The Permittee shall conduct an investigation to characterize the contamination of the soil and rock units above the saturated zone in the vicinity of any contaminant release. The investigation may include the following information:

a. A description of the vertical and horizontal extent of contamination;

b. A description of appropriate contaminant and soil chemical properties within the contaminant source area and plume. This may include contaminant solubility, speciation, absorption, leachability, exchange capacity, biodegradability, hydrolysis, photolysis, oxidation and other factors that might affect contaminant migration and transformation;

c. Specific contaminant concentrations;

d. The velocity and direction of contamination movement; and

e. An extrapolation of future contaminant movement.

The Permittee shall document the procedures used in making the above determinations.

3. **Surface Water and Sediment Contamination**

The Permittee shall conduct a surface water investigation to characterize contamination in surface water bodies resulting from releases of hazardous constituents at the facility.

The investigation may include, but not be limited to, the following information:

a. A description of the horizontal and vertical extent of any plume(s) originating from the facility, and the extent of contamination in underlying sediments;

b. The horizontal and vertical direction of contaminant movement;

c. The contaminant velocity;

d. An evaluation of the physical, biological and chemical factors influencing contaminant movement;

e. An extrapolation of future contaminant movement; and
f. A description of the chemistry of the contaminated surface waters and sediments. This includes determining the pH, total dissolved solids, specific contaminant concentrations, etc.

4. Air Contamination

The Permittee shall conduct an investigation to characterize gaseous releases of hazardous constituents into the atmosphere or any structures or buildings. This investigation may provide the following information:

a. A description of the horizontal and vertical direction and velocity of contaminant movement;

b. The rate and amount of the release; and

c. The chemical and physical composition of the contaminants(s) released, including horizontal and vertical concentration profiles.

The Permittee shall document the procedures used in making the above determinations.

D. Potential Receptors

The Permittee shall collect data describing the human populations and environmental systems that are susceptible to contaminant exposure from the facility. Chemical analysis of biological samples and/or data on observable effects in ecosystems may also be obtained as appropriate. The following characteristics shall be identified:

1. Current local uses and planned future uses of groundwater:

   a. Type of use (e.g., drinking water source: municipal or residential, agricultural, domestic/non-potable, and industrial); and

   b. Location of groundwater users, to include withdrawal and discharge wells, within one mile of the impacted area.

The above information should also indicate the aquifer or hydrogeologic unit used and/or impacted for each item.

2. Current local uses and planned future uses of surface waters directly impacted by the facility:

   a. Domestic and municipal (e.g., potable and lawn/gardening watering);

   b. Recreational (e.g., swimming, fishing);
c. Agricultural;
d. Industrial; and
e. Environmental (e.g., fish and wildlife propagation).

3. Human use of or access to the facility and adjacent lands, including but not limited to:
   a. Recreation;
   b. Hunting;
   c. Residential;
   d. Commercial; and
   e. Relationship between population locations and prevailing wind direction.

4. A general description of the biota in surface water bodies on, adjacent to, or affected by the facility.

5. A general description of the ecology within and adjacent to the facility.

6. A general demographic profile of the people who use or have access to the facility and adjacent land, including, but not limited to: age; sex; and sensitive subgroups.

7. A description of any known or documented endangered or threatened species near the facility.
APPENDIX C

Corrective Measures Study (CMS) Plan Outline
CORRECTIVE MEASURE STUDY PLAN OUTLINE

SCOPE

The Corrective Measure Study consists of four tasks:

Task VIII: Identification and Development of the Corrective Measure Alternatives
   A. Description of Current Situation
   B. Establishment of Corrective Action Objectives
   C. Screening of Corrective Measures Technologies
   D. Identification of the Corrective Measure Alternatives

Task IX: Evaluation of the Corrective Measure Alternatives
   A. Technical/Environmental/Human Health/Institutional
   B. Cost Estimate

Task X: Justification and Recommendation of the Corrective Measure or Measures
   A. Technical
   B. Environmental
   C. Human Health

Task XI: Reports
   A. Progress
   B. Draft
   C. Final
   D. Public Review and Final Selection of Corrective Measure

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TASK VIII: IDENTIFICATION AND DEVELOPMENT OF THE CORRECTIVE ACTION ALTERNATIVES

Based on the results of the RCRA Facility Investigation and consideration of the identified potential corrective measure technologies (Task II), the Permittee shall identify, screen and develop the alternatives for removal, containment, treatment and/or other remediation of the contamination based on the objectives established for the corrective action.

A. Description of Current Situation

The Permittee shall submit an update to the information describing the current situation at the facility and the known nature and extent of the contamination as documented by the RCRA Facility Investigation Report. The Permittee shall provide an update to information presented in Task I of the RFI to the Agency regarding previous response activities and in interim measures which have or are being implemented at the facility. The Permittee shall also make a facility-specific statement of the purpose for the response, based on the results of the RCRA Facility Investigation. The statement of purpose should identify the actual or potential exposure pathways that should be addressed by corrective measures.

B. Establishment of Corrective Action Objectives

The Permittee shall propose for EPA review and approval facility-specific objectives for the corrective action. These objectives shall be based on public health and environmental criteria, information gathered during the RCRA Facility Investigation, EPA guidance, and the requirements of any applicable Federal statutes. At a minimum, all corrective actions concerning ground water releases from regulated units must be consistent with, and as stringent as, those required under 40 CFR 264.100.

C. Screening of Corrective Measure Technologies

The Permittee shall review the results of the RCRA Facility Investigation and reassess the technologies specified in Task II and to identify additional technologies which are applicable at the facility. The Respondent shall screen the preliminary corrective measure technologies identified in Task II of the RCRA Facility Investigation and, any supplemental technologies to eliminate those that may prove infeasible to implement, that rely on technologies unlikely to perform satisfactorily or reliably, or that do not achieve the corrective measure objective within a reasonable time period. This screening process focuses on eliminating those technologies which have severe limitations for a given set of waste and site-specific conditions. The screening step may also eliminate technologies based on inherent technology limitations.

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Site, waste, and technology characteristics which are used to screen inapplicable technologies are described in more detail below:

1. Site Characteristics

Site data should be reviewed to identify conditions that may limit or promote the use of certain technologies. Technologies whose use is clearly precluded by site characteristics should be eliminated from further consideration;

2. Waste Characteristics

Identification of waste characteristics that limit the effectiveness or feasibility of technologies is an important part of the screening process. Technologies clearly limited by these waste characteristics should be eliminated from consideration. Waste characteristics particularly affect the feasibility of in-situ methods, direct treatment methods, and land disposal (on/off-site); and

3. Technology Limitations

During the screening process, the level of technology development, performance record, and inherent construction, operation, and maintenance problems should be identified for each technology considered. Technologies that are unreliable, perform poorly, or are not fully demonstrated may be eliminated in the screening process. For example, certain treatment methods have been developed to a point where they can be implemented in the field without extensive technology transfer or development.

D. Identification of the Corrective Measure Alternatives

The Permittee shall develop the Corrective measure alternatives based on the corrective action objectives and analysis of potential corrective measure technologies, as presented in Task II of the RCRA Facility investigation and as supplemented following the preparation of the RFI Report. The Respondent shall rely on engineering practice to determine which of the previously identified technologies appear most suitable for the site. Technologies can be combined to form the overall corrective action alternatives. The alternatives developed should represent a workable number of option(s) that each appear to adequately address all site problems and corrective action objectives. Each alternative may consist of an individual technology or a combination of technologies. The Respondent shall document the reasons for excluding technologies, identified in Task II, as supplemented in the development of the alternatives.

**TASK IX: EVALUATION OF THE CORRECTIVE MEASURE ALTERNATIVES**

The Permittee shall describe each corrective measure alternative that passes through the Initial Screening in Task VIII and evaluate
Each corrective measure alternative and its components. The evaluation shall be based on technical, environmental, human health and institutional concerns. The Permittee shall also develop cost estimates of each corrective measure.

A. Technical/Environmental/Human Health/Institutional

The Permittee shall provide a description of each corrective measure alternative which includes but is not limited to the following: preliminary process flow sheets; preliminary sizing and type of construction for buildings and structures; and rough quantities of utilities required. The Permittee shall evaluate each alternative in the four following areas:

1. Technical;

The Permittee shall evaluate each corrective measure alternative based on performance, reliability, implementability and safety.

a. The Permittee shall evaluate performance based on the effectiveness and useful life of the corrective measure:

i) Effectiveness shall be evaluated in terms of the ability to perform intended functions, such as containment, diversion, removal, destruction, or treatment. The effectiveness of each corrective measure shall be determined either through design specifications or by performance evaluation. Any specific waste or site characteristics which could potentially impede effectiveness shall be considered. The evaluation should also consider the effectiveness of combinations of technologies; and

ii) Useful life is defined as the length of time the level of desired effectiveness can be maintained. Most corrective measure technologies, with the exception of destruction, deteriorate with time. Often, deterioration can be slowed through proper system operation and maintenance, but the technology eventually may require replacement. Each corrective measure shall be evaluated in terms of the projected service lives of its life of the project.

b. The Permittee shall provide information on the reliability of each corrective measure including their operation and maintenance requirements and their demonstrated reliability

i) Operation and maintenance requirements include the frequency and complexity of necessary operation and maintenance. Technologies requiring frequent or complex operation and maintenance activities should be regarded as less reliable than technologies requiring little or straightforward operation and maintenance. The availability of labor and materials to meet these requirements shall also be considered; and

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ii) Demonstrated and expected reliability is a way of measuring the risk and effect of failure. The Respondent should evaluate whether the technologies have been used effectively under analogous conditions whether the combination of technologies have been use-together effectively; whether failure of any one technology has an immediate impact on receptors; and whether the corrective measure has the flexibility to deal with uncontrollable changes at the site.

c. The Permittee shall describe the implementability of each corrective measure including the relative ease of installation (constructability) and the time required to achieve a given level of response:

i) Constructability is determined by conditions both internal and external to the facility conditions and include such items as location of underground utilities, depth to water table, heterogeneity of subsurface materials, and location of the facility (i.e., remote location vs. a congested urban area). The Permittee shall evaluate what measures can be take to facilitate construction under these conditions. External factors which affect implementation include the need for special permits or agreements, equipment availability, and the location of suitable off-site treatment or disposal facilities; and

ii) Time has two components that shall be addressed: the time it takes to implement a corrective measure and the time it takes to actually see beneficial results. Beneficial results are defined as the reduction of contaminants to some acceptable, pre-established level

d. The Permittee shall evaluate each corrective measure alternative with regard to safety. This evaluation shall include threats to the safety of nearby communities and environments as well as those to workers during implementation. Factors to consider are fire, explosion, and exposure to hazardous substances.

2. Environmental;

The Permittee shall perform an Environmental Assessment for each alternative. The Environmental Assessment shall focus on the facility conditions and pathways of contamination actually addressed by each alternative. The Environmental Assessment for each alternative will include, at a minimum, an evaluation of: the short- and long-term beneficial and adverse effects of the response alternative; and adverse effects on environmentally sensitive areas; and an analysis of measures to mitigate adverse effects.
3. Human Health; and

The Permittee shall assess each alternative in terms of the extent to which it mitigates short- and long-term potential exposure to any residual contamination and protects human health both during and after implementation the corrective measure. The assessment will describe the concentrations and characteristics of the contaminants on-site, potential exposure routes, and potentially affected population. Each alternative will be evaluated to determine the level of exposure to contaminants and the reduction over time. For management of mitigation measures, the relative reduction of impact will be determined by comparing residual levels of each alternative with existing criteria, standards, or guidelines acceptable to EPA.

4. Institutional.

The Permittee shall assess relevant institutional needs for each alternative. Specifically, the effects of Federal, state and local environmental and public health standards, regulations, guidance, advisories, ordinances, or community relations on the design, operation, and timing of each alternative.

B. Cost Estimate

The Permittee shall develop an estimate of the cost of each corrective measure alternative (and for each phase or segment of the alternative). The cost estimate shall include both capital and operation and maintenance costs.

1. Capital costs consist of direct (construction) and indirect (nonconstruction and overhead) costs.

   a. Direct capital costs include:

      i) Construction costs: Costs of materials, labor (including fringe benefits and worker's compensation), and equipment required to install the corrective measure.

      ii) Equipment costs: Costs of treatment, containment, disposal and/or service equipment necessary to implement the action; these materials remain until the corrective action is complete;

      iii) Land and site-development costs: Expenses associated with purchase of land and development of existing property; and

      iv) Buildings and services costs: Costs of process and nonprocess buildings, utility connections, purchased services, and disposal costs.
b. Indirect capital costs include:

i) Engineering expenses: Costs of administration, design, construction supervision, drafting, and testing of corrective measure alternatives;

ii) Legal fees and permit costs: Administrative and technical costs necessary to obtain licenses and permits for installation and operation;

iii) Startup and shakedown costs: Costs incurred during corrective measure startup; and

iv) Contingency allowances: Funds to cover costs resulting from unforeseen circumstances, such as adverse weather conditions, strikes, and inadequate facility characterization.

2. Operation and maintenance costs are post-construction costs necessary to ensure continued effectiveness of a corrective measure. The Permittee shall consider the following operation and maintenance cost components:

a. Operating labor costs: Wages, salaries, training, overhead, and fringe benefits associated with the labor needed for post-construction operations;

b. Maintenance materials and labor costs: Costs for labor, parts, and other resources required for routine maintenance of facilities and equipment;

c. Auxiliary materials and energy: Costs of such items as chemicals and electricity for treatment plant operations, water and sewer service, and fuel;

d. Purchased services: Sampling costs, laboratory fees, and professional fees for which the need can be predicted;

e. Disposal and treatment costs: Costs of transporting, treating, and disposing of waste materials, such as treatment plant residues, generated during operations;

f. Administrative costs: Costs associated with administration of corrective measure operation and maintenance not included under other categories;

g. Insurance, taxes, and licensing costs: Costs of such items as liability and sudden accident insurance; real estate taxes on purchased land or right-of-way; licensing fees for certain technologies; and permit renewal and reporting costs;

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h. Maintenance reserve and contingency funds: Annual payments into escrow funds to cover (1) costs of anticipated replacement or rebuilding of equipment and (2) any large unanticipated operation and maintenance costs; and

i. Other costs: Items that do not fit any of the above categories.

**TASK X: JUSTIFICATION AND RECOMMENDATION OF THE CORRECTIVE MEASURE OR MEASURES**

The Permittee shall justify and recommend a corrective measure alternative using technical, human health, and environmental criteria. This recommendation shall include summary tables which allow the alternative or alternatives to be understood easily. Tradeoffs among health risks, environmental effects, and other pertinent factors shall be highlighted. The U.S. EPA will select the corrective measure alternative or alternatives to be implemented based on the results of Task IX and X. At a minimum, the following criteria will be used to justify the final corrective measure or measures.

**A. Technical**

1. **Performance** - corrective measure or measures which are most effective at performing their intended functions and maintaining the performance over extended periods of time will be given preference;

2. **Reliability** - corrective measure or measures which do not require frequent or complex operation and maintenance activities and that have proved effective under waste and facility conditions similar to those anticipated will be given preference;

3. **Implementability** - corrective measure or measures which can be constructed and operating to reduce levels of contamination to attain or exceed applicable standards in the shortest period of time will be preferred; and

4. **Safety** - corrective measure or measures which pose the least threat to the safety of nearby residents and environments as well as workers during implementation will be preferred.

**B. Human Health**

The corrective measure or measures must comply with existing U.S. EPA criteria, standards, or guidelines for the protection of human health. Corrective measures which provide the minimum level of exposure to contaminants and the maximum reduction in exposure with time are preferred.
C. Environmental

The corrective measure or measures posing the least adverse impact (or greatest improvement) over the shortest period of time on the environment will be favored.

TASK XI: REPORTS

The Permittee shall prepare a Corrective Measure Study Report presenting the results of Task VIII through X and recommending a corrective measure alternative. Copies of the preliminary report shall be provided by the Permittee to EPA for review and EPA for approval.

A. Progress

The Permittee shall at a minimum provide the EPA with signed, monthly progress reports containing:

1. A description and estimate of the percentage of the CMS completed;

2. Summaries of all findings;

3. Summaries of all changes made in the CMS during the reporting period;

4. Summaries of all contacts with representative of the local community, public interest groups or State government during the reporting period;

5. Summaries of all problems or potential problems encountered during the reporting period;

6. Actions being taken to rectify problems;

7. Changes in the personnel involved with the CMS during reporting period;

8. Projected work for the next reporting period; and

9. Copies of daily reports, inspection reports, laboratory/monitoring data, etc.

B. Draft

The Report shall at a minimum include:

1. A description of the facility;

   a. Site topographic map & preliminary layouts.
2. A summary of the corrective measure or measures and rationale for selection;
   a. Description of the corrective measure or measures and rationale for selection;
   b. Performance expectations;
   c. Preliminary design criteria and rationale;
   d. General operation and maintenance requirements; and
   e. Long-term monitoring requirements.

3. A summary of the RCRA Facility Investigation and impact on the selected corrective measure or measures;
   a. Field studies (ground-water, surface water, soil, air);
   and
   b. Laboratory studies (bench scale, pick scale).

4. Design and Implementation Precautions;
   a. Special technical problems;
   b. Additional engineering data required;
   c. Permits and regulatory requirements;
   d. Access, easements, right-of-way;
   e. Health and safety requirements; and
   f. Community relations activities.

5. Cost Estimates and Schedules;
   a. Capital cost estimate;
   b. Operation and maintenance cost estimate; and
   c. Project schedule (design, construction, operation).

Copies of the draft shall be provided by the Permittee to EPA.

C. Final

The Permittee shall finalize the Corrective Measure Study Report incorporating comments received from EPA on the Draft Corrective Measure Study Report. The report shall become final upon EPA approval.
D. Public Review and Final Selection of Corrective Measures

Upon receipt of the Final Corrective Measure Study Report, EPA shall announce its availability to the public for review and comment. At the end of the comment period, EPA shall review the comments and then inform the Permittee of its final decision as to the approved Corrective Measures to be implemented.
Appendix D

Facility Submission Summary

A summary of the planned reporting requirements contained in the EPA RCRA Permit is presented below:

<table>
<thead>
<tr>
<th>Facility Submission Requirements</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>RFI Plan for SWMU(s) identified at time of permit issuance in Condition II.A.1.</td>
<td>120 days after effective date of permit</td>
</tr>
<tr>
<td>RFI Progress Reports Condition II.C.4.</td>
<td>Quarterly, beginning 90 days from implementation of RFI Plan*</td>
</tr>
<tr>
<td>Draft RFI Report Condition II.C.5.</td>
<td>90 days after RFI completion</td>
</tr>
<tr>
<td>Final RFI Report Condition II.C.5.</td>
<td>Thirty (30) days after receipt of EPA comments on Draft RFI Report</td>
</tr>
<tr>
<td>Interim Measures Notification Condition II.D.2.</td>
<td>30 days prior to implementation</td>
</tr>
<tr>
<td>Interim Measures Progress Reports Condition II.D.5.</td>
<td>Semi-annually, beginning 180 days from implementation of Interim measures *</td>
</tr>
<tr>
<td>Interim Measure Report Condition II.D.6.</td>
<td>Within 90 days of completion of Interim Measures</td>
</tr>
<tr>
<td>Corrective Measures Study Plan Condition II.E.2.</td>
<td>Within 90 days of notification by EPA</td>
</tr>
<tr>
<td>Imminent Hazard Report Conditions II.F.1. and II.F.2.</td>
<td>Orally within 24 hours written within 15 days</td>
</tr>
<tr>
<td>Notification of the discovery of additional SWMUs not already identified in Condition II.A.1.</td>
<td>Within 15 days of discovery</td>
</tr>
<tr>
<td>RFA Plan (SWMUs discovered after permit issuance) Condition II.B.1</td>
<td>Within 60 days of notification</td>
</tr>
<tr>
<td>RFA Progress Reports Condition II.B.3.</td>
<td>Quarterly, beginning 90 days from implementation of RFA Plan*</td>
</tr>
<tr>
<td>RFA Report Condition II.B.4.</td>
<td>Within 60 days of RFA Completion</td>
</tr>
<tr>
<td>RFI Plan (SWMUs discovered after permit issuance) Condition II.C.2.</td>
<td>Within 45 days of submitting the RFA Report Under II.B.4.</td>
</tr>
</tbody>
</table>

The above reports must be signed and certified in accordance with 40 CFR §270.11.

* This applies to RFI/RFA/Interim Measures execution that requires for more than 180 days.