Industrial Fuel Gas Demonstration Plant Program

DOE/ET/13046--T25

MASTER

ENVIRONMENTAL PERMIT COMPLIANCE PLAN

Prepared For
The Department of Energy
Under Contract ET-77-C-01-2582

MEMPHIS LIGHT, GAS AND WATER DIVISION
P.O. BOX 430, MEMPHIS, TENNESSEE 38145

In Association with
FOSTER WHEELER ENERGY CORPORATION
INSTITUTE OF GAS TECHNOLOGY
DELTA REFINING COMPANY

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MEMPHIS INDUSTRIAL FUEL GAS

DEMONSTRATION PLANT PROJECT

PLAN FOR OBTAINING APPROVAL, PERMITS,
AND LICENSES FROM AGENCIES
(Deliverable #31)

MEMPHIS LIGHT, GAS & WATER DIVISION
P.O. Box 430
MEMPHIS, TENNESSEE 38101

PREPARED FOR THE
U. S. DEPARTMENT OF ENERGY
ASSISTANT SECRETARY OF FOSSIL ENERGY

UNDER CONTRACT DE-AC02-77ET13406
(FORMERLY CONTRACT ET-77-C-01-2582)

MEMPHIS LIGHT, GAS AND WATER DIVISION

November 5, 1979
Letter No. ME-73F

U. S. Department of Energy
Projects Management Division
9800 South Cass Avenue
Argonne, Illinois 60439

Attention: Dr. P. Lui

Subject: MLGW Reference 8802
DOE Reference No. 2582
Deliverable No. 31
Permit Plan

Gentlemen:

Attached is an Environmental Permit Compliance Plan which constitutes the major portion of Deliverable No. 31

A separate document, Construction Permit Compliance Plan, will be forwarded separately to complete Deliverable No. 31.

We request your approval.

Very truly yours,

R. W. Gray
Program Manager

RWG:RJS:au
Attachment.
cc: P. Lui (10)
R. Swift (7)
R. Gray (6)
P. Vanderzee (2)
J. Patel (2)
J. Gannon (6)
MRC (4)

THE INDUSTRIAL FUEL GAS DEMONSTRATION PLANT
ENVIRONMENTAL PERMIT COMPLIANCE PLAN

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ABSTRACT

This Environmental Permit Compliance Plan is intended to assist The Memphis Light, Gas and Water Division in acquiring the necessary environmental permits for their proposed Industrial Fuel Gas Demonstration Plant in a time frame consistent with the construction schedule. Permits included are those required for installation and/or operation of gaseous, liquid and solid waste sources and disposal areas. Only those permits presently established by final regulations are described. The compliance plan describes procedures for obtaining each permit from identified federal, state and local agencies. The information needed for the permit application is presented, and the stepwise procedure to follow when filing the permit application is described. Information given in this plan was obtained by reviewing applicable laws and regulations and from telephone conversations with agency personnel on the federal, state and local levels.

This Plan also presents a recommended schedule for beginning the work necessary to obtain the required environmental permits in order to begin dredging operations in October, 1980 and construction of the plant in September, 1981. Activity for several key permits should begin as soon as possible.

ACKNOWLEDGEMENTS

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SECTION S.0
EXECUTIVE SUMMARY

The purpose of this Environmental Permit Compliance Plan is to assist the Memphis Light, Gas and Water Division (MLGW) in acquiring the necessary environmental permits in a time frame consistent with the current construction schedule for the Industrial Fuel Gas Demonstration Plant (IFGDP).

The contract awarded to MLGW by the U.S. Department of Energy (DOE) specifies that the overall program work be conducted in three phases. The phases are:

Phase I - Program Development and Conceptual Design

Phase II - Demonstration Plant Final Design, Procurement and Construction

Phase III - Demonstration Plant Operation

Phase I requires preparation of a conceptual design of the IFGDP and an economic and environmental evaluation of the proposed plant. This phase is to be completed in December, 1979. Energy Impact Associates (EIA) was contracted by Foster Wheeler Energy Corporation (FWEC) to prepare in this phase an Environmental Report (ER) for the IFGDP. The main objective of the ER is to provide a basis for development of an Environmental Impact Statement (EIS) as required by the National Environmental Policy Act (NEPA). However, much of the data collected and analyses performed for the ER can be used in the applications for many of the federal and state environmental permits. Certain of these permits are necessary before construction can begin while others are required for operation.

This report is not meant to define the legal responsibilities of the Memphis Light, Gas and Water Division under environmental laws and regulations. However, it is intended to identify important state and federal permit requirements and the kinds of environmental information needed to satisfy these requirements.

Phase II is scheduled to begin in March 1980. In the period between Phases I and II, the Draft EIS is expected to be issued. The Final EIS is expected to be issued in August 1980. Scheduled major construction activities include site preparation starting in October 1980, dredging and filling starting in December 1980 and plant construction starting in September 1981.

Information and conclusions contained in this compliance plan were obtained from meetings, correspondence and telephone conversations with appropriate individuals at the regulatory agencies. Final requirements for the IFGDP will be made by the regulatory agencies during the permitting process. This highlights the need to develop and maintain good agency contacts throughout the permitting process.

Summarized in this executive summary is the permit compliance program plan and key issues. Additional details on each permit are found in the corresponding sections of the text.

S.1 CURRENT REGULATORY ENVIRONMENT

This report is based on those final environmental regulations promulgated to date. Many important regulations have not yet been finalized and/or are currently being revised. Perhaps most important are the air regulations relating to Prevention of Significant Deterioration (PSD) and non-attainment area review under the Federal Clean Air Act that are being revised as a result of a recent suit brought against EPA. Solid and hazardous waste regulations have been proposed under the Resource Conservation and Recovery Act (RCRA) of 1976 but are not expected to be finalized until early 1980. Evolving situations also exist for the Toxic Substances Control Act (TSCA) and the National Pollutant Discharge Elimination System (NPDES).

U.S. EPA has also recently proposed (but not finalized) a new consolidated permit form to be used in applying for permits under the Clean Water Act, Clean Air Act, Safewater Drinking Act and Resource Conservation and Recovery Act.

As a result, many of the opinions and conclusions expressed herein may be modified in the near future upon promulgation of final regulations.

S.2 RECOMMENDED PERMITTING ACTION

Permitting activity for the Memphis IFGDP should begin immediately. No major coal gasification facility has yet gone through the complete permitting sequence, and it is possible that the special nature of the plants will cause unanticipated delays in review and receipt of permits. In view of this, permits should be received as soon as possible to avoid delaying scheduled construction dates. Early receipt of permits poses no problem because, in general, it is not difficult to receive a time extension for starting after a permit is granted.

The first step which must be taken is the scheduling of coordination meetings with the appropriate regulatory agencies. The purpose of these meetings is to exchange information with the agencies such that all future permitting activities are targeted toward the critical areas. The current regulatory environment increases the need for immediate action. As new regulations are promulgated, there is a greater likelihood that more rigid environmental analysis and/or treatment processes may be required. In addition, the uniqueness of the IFGDP project creates an environment where the reviewing agencies are subject to close scrutiny while processing the application. This situation will almost certainly extend the normal reviewing periods.

Figure 1 presents a recommended schedule for beginning the work necessary to obtain the required environmental permits and also indicates the four major milestones required for each permit. These milestones are:

- Agency coordination meetings
- Preparation of permit application or required report
- Recommended permit or report submittal date
- Anticipated permit approval date/report approval date

The permitting process as portrayed in this figure requires the active involvement of the three members of the IFGDP industrial team: MLGW submits the

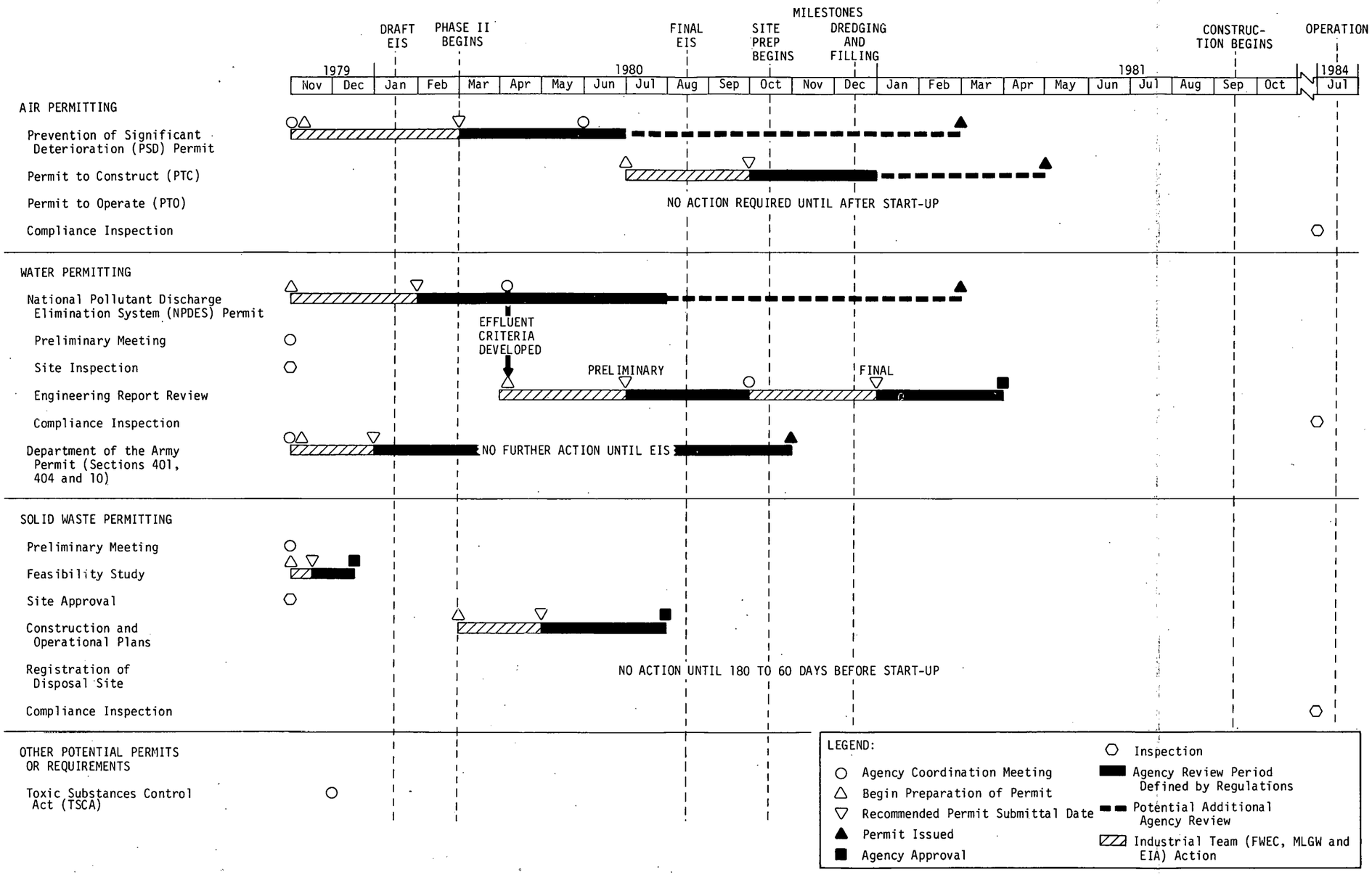

Figure 1. Recommended Permit Compliance Schedule.

permit applications and provides the background information on the overall project; FWEC provides the detailed information from the Phase II engineering designs as it is called for by the individual permit applications; and EIA provides the consulting support for all permitting procedures, agency coordination and environmental information required for the permits from either the Phase I Environmental Report or from further studies.

The recommended and anticipated dates in Figure 1 include delays in the approval process as suggested by responsible individuals at the appropriate reviewing agencies.

The early application for certain environmental permits creates an apparently long lead time between the permit approval and the scheduled construction dates. This lead time is likely to decrease due to unanticipated delays during the reviewing process. If the lead time after the actual approval is long enough to void the permit, extensions can be requested.

S.3 PERMIT SUMMARY

- Identified in Table 1 are the important environmental permits likely to be required for construction and/or operation of the Demonstration Plant and information relevant to these permits.

- A recommended compliance schedule for obtaining the important permits is summarized in Figure 1 assuming a site preparation start date of October, 1980 and a construction start date of September, 1981. This schedule includes additional time to allow for failure of agencies to meet their review schedules. This is considered prudent because of the lack of precedent in permitting large coal gasification plants.

- The proposed schedule is also contingent upon the date of promulgation of new or revised regulations and any new or modified requirement established therein.

TABLE 1

SUMMARY OF ENVIRONMENTAL PERMITS AND REQUIREMENTS

Environmental Permit	Basis for Authority	Reviewing Agency Issuing Agency	Information Requirements	Agency Review Period	Time Available to Begin Construction	Comments
AIR PERMITS						
1. Prevention of Significant Deterioration (PSD) Permit	Clean Air Act and Amendments	Memphis and Shelby County Health Department U.S. EPA Region IV on recommendation of Tennessee Department of Public Health	o Detailes of the nature, location, design capacity and operating schedule of the new source o Construction schedule o Emission reduction systems to be used including stack parameters, concentrations and emission calculations o Baseline air quality data o Air quality modeling analysis results and impacts o Assessment of anticipated impacts to visibility, soils, vegetation and air quality associated with new growth	120 days to 1 year	18 months	o All air permitting review (PSD, PTC, PTO and nonattainment review) will be handled through the MSCHD o All coordination with other state and federal regulatory agencies will be done by MSCHD o New PSD regulations must be monitored
2. Permit to Construct (PTC)	Construction and Operating Permits Tennessee Air Quality Act - Chapter 1200-3-9-.01	Memphis and Shelby County Health Department Same	o General Information on the new source o Forms requiring design information on process emission sources, stack emissions, nonstack emissions, fuel fuel burning sources, incinerator sources, storage tanks and spray booths.	120 days	18 months	o Serves New Source Review (NSR) requirements o Determines applicable New Source Performance Standards (NSPS); NSPS authority and review is with U.S. EPA, Region IV
3. Operating Certificate	Construction and Operating Permits Tennessee Air Quality Act - Chapter 1200-3-9-.02	Memphis and Shelby County Health Department Same	o General Information on the new source as given in the PTC	not applicable	not applicable	o Application made following initial startup of IFGDP o Compliance inspection o Possibility of stack sampling
WATER PERMITS						
1. National Pollutant Discharge Elimination System (NPDES) Permit	Federal Water Pollution Control Act and Amendments	Tennessee Department of Public Health U.S. EPA Region IV (approval only)	o Applicant and Facility Description o Detailed Description of Wastewater discharges o Waste Abatement Requirements and Implementation Schedule	180 days to 1 year	18 months	o Effluent criteria must be determined early in the compliance program o May be need for additional wastewater characterization

TABLE I (CONTINUED)

Environmental Permit	Basis for Authority	Reviewing Agency Issuing Agency	Information Requirements	Agency Review Period	Time Available to Begin Construction	Comments
WATER PERMITS (Continued)						
2. Engineering Report and Preliminary Plans Approval	Tennessee Regulations for Plans Submittal and Approval Chapter 1200-4-2	Tennessee Department of Public Health Same	o Results of waste and wastewater analyses o Detailed Plans of the proposed wastewater treatment facilities	180 days to 1 year	12 months	o Approval of the Engineering Report constitutes a permission to construct o Compliance inspection required (submittal dependent on development of effluent criteria by NPDES review)
3. Department of the Army Permit (Section 404 and 10 Permit and 401 Certification	River and Harbor Act of 1899 (Section 10) and the Federal Water Pollution Control Act and Amendments (Section 401 and 404)	U.S. Army Corps of Engineers Same	o Applicant and Facility Description o Maps of the area including vicinity, plan and elevation/section view maps	60 to 90 days	not applicable	o The same application form (Engineering Form 4345) is used for all permit requirements o 401 Certification reviewed by Tennessee Department of Public Health following application submitted by U.S. COE
SOLID WASTE PERMITS						
1. Construction and Operational Plans	Tennessee-Solid Waste Disposal Act Sections 53-4301; -4315; -4321 and DRAFT Resource Conservation and Recovery Act (RCRA)	Tennessee Department of Public Health Same	o Feasibility Study o Site Investigation o Detailed construction and operational plans for the solid waste processing or disposal facility	90 days	not applicable	o Official stamp of approval on the construction and operational plans constitutes permission to begin construction
2. Registration and Approval for Operating a Solid Waste Processing or Facility on Site	Tennessee-Solid Waste-Disposal Act Sections 53-4301; -4315; -4321 and DRAFT Resource Conservation and Recovery Act (RCRA)	Tennessee Department of Public Health Same	o General Information on the applicant, type of operation and construction schedule o Notification as to when construction is completed	Depends on time of compliance inspection	not applicable	o Compliance inspection required o Approval of a compliance inspection following construction constitutes permission to begin disposal o Registration only applicable when disposal begins; not necessary for storage of solid waste
OTHER POTENTIAL PERMITS OR REQUIREMENTS						
Toxic Substances Control Act (TSCA)	Toxic Substances Control Act (TSCA)	U.S. EPA Same	o Premanufacture Notice (PMN) with supportive information	not applicable	not applicable	o EIA feels no PMN is necessary based on current regulations o A meeting will be scheduled with EPA to discuss TSCA's impact on the IFGDP

- More detailed descriptions of permit requirements and the status of the IFGDP Project with respect to each required environmental permit are presented in appropriate sections of the text.

- In general, local, state and federal permits will be required in order to minimize air and water pollution due to construction, operation and/or waste disposal impacts.

S.3.1 AIR PERMITS

- The Permit to Construct (PTC), Prevention of Significant Deterioration (PSD) permit, Permit to Operate (PTO) and approval to construct in a nonattainment area are administered through the Memphis and Shelby County Health Department (MSCHD). Impacts on air quality will be the basis for denial or approval of these permits and reviews.

- MSCHD is responsible for issuing the PTC and PTO and conducting nonattainment review. New Source Review (NSR) requirements are handled through PTC processing.

  (Sections 2.1, 2.2 and 2.3)

- MSCHD is responsible for coordination of the PSD Program with the Tennessee Department of Public Health (TDPH) and the U.S. EPA, Region IV, who supervise the PSD program.

  (Sections 2.1 and 2.2)

- Since New Source Performance Standards (NSPS) will be applicable for the boilers of the IFGDP, no construction can begin until the PSD permit is issued. The schedule presented in Figure 1 has been developed such that the PSD permit can be secured prior to the beginning of construction.

- Recently proposed revisions to PSD regulations and nonattainment policy could affect the schedule and content of the PSD application.

Moreover, the PSD permit application may be required to be consolidated with permit applications required under the Clean Water Act and the Resource Conservation and Recovery Act.

S.3.2 WATER PERMITS

- Permitting regulations in the area of water are still evolving. This report addresses the current regulations and their requirements. As the new regulations are promulgated, care must be taken to ensure that the construction schedule is not adversely affected.

- A National Pollutant Discharge Elimination System (NPDES) permit and permit authorization from the U.S. Army Corps of Engineers (COE) are the two primary water permits that must be obtained.

- The NPDES Program has been delegated by U.S. EPA to the Tennessee Department of Public Health (TDPH). An NPDES permit application should be submitted early in the compliance program to better assure timely development and implementation of control technology needed to comply with applicable effluent limitations developed by TDPH. These effluent limitations are necessary for final design of the IFGDP wastewater treatment units. A meeting will be scheduled with TDPH in 1979 to discuss proposed effluent limitations and actions necessary to expedite the permitting process.

  (Section 3.1)

- Since New Source Performance Standards (NSPS) have not been promulgated for new source coal gasification plants, an applicable New Source Standard will be developed on a case-by-case basis considering pollutants present in wastewater discharges and state water quality standards applicable to receiving waters. The IFGDP will be subject to NSPS if promulgated before construction begins.

  (Section 3.1)

- The preparation of the Engineering Report outlining the final design of the IFGDP wastewater treatment system will depend to a large extent on effulent limitations imposed as a condition of the NPDES permit review. Approval of the Final Engineering Report constitutes TDPH permission to begin construction of the wastewater treatment facilities.

  (Section 3.2)

- A single application submitted to the Memphis District of the U.S. Army Corps of Engineers (COE) will serve to allow a review of all approvals required under Sections 401 (state certification) and 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act.

  (Section 3.3)

- The Department of the Army Permit under Sections 404 and 10 will be required for filling the IFGDP site to a tabletop as part of the site preparation. This permit can not be issued until a Final EIS has been completed. A meeting will be scheduled with the COE to make sure all necessary requirements of the COE are met in order to obtain the permit on time for site preparation.

  (Section 3.3)

S.3.3 SOLID WASTE

- Solid waste handling and disposal approvals are presently administered under state law by the TDPH. A meeting should be scheduled with the TDPH to discuss the feasibility of the IFGDP site for location of an industrial landfill. Storage versus disposal of solid wastes must also be addressed since TDPH solid waste regulations are not implemented until disposal begins.

  (Section 4.0)

- A Registration for Operation of a Solid Waste Processing or Disposal Facility is required by the TDPH. A Feasibility Study, Site Inspection

and Construction and Operational Plans are required by the TDPH for approval of construction and subsequent registration. Registration will be issued following a compliance inspection of the completed disposal site.

(Section 4.0)

- Final regulations have not yet been promulgated under RCRA. When promulgated, TDPH will probably obtain primacy and responsibility for permitting hazardous and non-hazardous solid waste disposal facilities. Presently, Tennessee has a hazardous solid waste program similar to the current draft federal RCRA regulations.

- Preliminary leaching tests have been run on the bottom ash from the pilot plant gasifier. The waste will probably be defined, based on current draft RCRA regulations, as non-hazardous. However, the potential hazardous properties of other solid wastes that will be produced by the IFGDP will need to be investigated.

(Section 4.0)

S.3.4 TOXIC SUBSTANCES CONTROL ACT

- EIA has conducted a preliminary review of the 1979 Toxic Substances Control Act (TSCA) Inventory with respect to the IFGDP commercial products. Review of the TSCA regulations indicates that no Premanufacture Notification will likely be required.

(Section 5.0)

- In view of the many uncertainties resulting from presently evolving state and federal regulations, and due to the complexity of the proposed facility, EIA strongly recommends the Industrial Team initiate direct contact and continuing discussions with appropriate regulators to confirm our preliminary conclusions, and to develop a more detailed account of applicable requirements under TSCA.

SECTION 1.0
INTRODUCTION

The Memphis Light, Gas and Water Division (MLGW), has entered a contract with the U.S. Department of Energy (DOE) to design, construct, and operate an Industrial Fuel Gas Demonstration Plant (IFGDP) capable of converting agglomerating, high-sulfur eastern bituminous coal into a clean-burning medium-Btu industrial fuel gas for use in a commercial application. Approximate quantities of major products of the IFGDP are 154 million standard cubic feet (scf) per day of Industrial Fuel Gas (300± 30 Btu/scf), 4 million scf per day of Synthetic Natural Gas (950 Btu/scf) and 100 tons/day of liquid elemental sulfur. These products are produced from plant inputs of approximately: 3158 tons/day of coal, 2.71 million gallons/day of water and 11,133 tons/day of air.

One major step in demonstrating the environmental acceptability of the IFGDP project is the successful acquisition of all environmental permits necessary for the construction and operation of the plant. The objective of this compliance plan is to:

- Identify major air, water and solid waste permits and approvals needed to construct and/or operate the IFGDP.
- Summarize and identify information needed to obtain permits and/or approvals.
- Propose a schedule for permit acquisition for further consideration by the Memphis Light, Gas and Water Division.
- Provide copies of the appropriate forms (Appendices A through H).

Each permit is introduced via a general discussion followed by the specific requirements to obtain each one. The following format is used to describe each permit:

- o Brief Introduction of Permit
- o Responsible Regulatory Agency
- o Other Potential Reviewing Agency(s)
- o Information Needed for Permit
- o Filing Procedures
- o Agency Review Period
- o Progress to Date
- o Permit Duration Period
- o Renewal Requirements/Procedures
- o Permit Fees

Copies of the actual application forms, guidelines for comleting the applications and statements on required information are presented in Appendices A through H. Appendix I is an alphabetical directory of all the agency contacts and Appendix J is a list of all the abbreviations used throughout this report.

Information for the permits was obtained through meetings with responsible regulatory agencies, telephone conversations and written correspondence. Since many of the regulations are evolving and subject to continuing interpretations, some of the information contained in this plan requires continued monitoring and updating. Final requirements for the permits will be determined by the agency authorized to issue the permit. A continuing agency coordination task is a prime requisite in the implementation of this compliance plan.

An overall permit submission plan is shown in Figure 1 based on the assumption that MLGW desires to obtain all the environmental permits necessary for construction on September 1, 1981. The plan gives recommended dates when work toward preparation of the permit application or report should begin, and agency recommended review periods are shown. In the event that MLGW desires to incorporate more lead time into the permitting process, the implementation can begin sooner with appropriate emphasis in the critical areas. EIA will revise the plan accordingly if such a decision is forthcoming.

SECTION 2.0
AIR PERMITS

Under the 1977 Amendments to the Federal Clean Air Act (42 U.S.C. 7401 et seq.) and Tennessee Air Quality Act (T.C.A. Section 53-3408 et seq.), the following permits are required by the U.S. EPA, Region IV, and the Tennessee Department of Public Health (TDPH) before construction can commence on the Industrial Fuel Gas Demonstration Plant (IFGDP):

- Prevention of Significant Deterioration (PSD) permit (40 CFR Parts 51.24 et seq., and 52.21 et seq.); permit application is sent to Memphis and Shelby County Health Department (MSCHD) for review with approvals by TDPH and U.S. EPA, Region IV.

- Permit to Construct (PTC) an air contaminant source, issued by Memphis and Shelby County Health Department (MSCHD) under authority of TDPH (Chapter 1200-3-9-.01).

- Permit to Operate (PTO) an air contaminant source, issued by MSCHD under authority of TDPH (Chapter 1200-3-9-.02).

PSD and PTC requirements will be determined during New Source Review (NSR) (See 40 CFR 51.24 and 52.21 generally). Final PSD permit granting authority resides with the U.S. EPA, Region IV, headquartered in Atlanta, Georgia. All review authority for permit applications, however, has been delegated to the Tennessee Department of Public Health (TDPH) in Nashville, Tennessee. After review, the TDPH recommends approval or denial of the application to the U.S. EPA, Region IV. The actual review of the PSD permit application is handled at the county level by the Memphis and Shelby County Health Department (MSCHD), which is also responsible for granting the PTC and PTO permits. This consolidation of permit review authority means that the PSD permit and PTC can be applied for in one submittal from MLGW. The PTO application is also made to MSCHD after initial start-up of the IFGDP.

While reviewing the PSD permit application, MSCHD will ensure that the IFGDP will not cause a violation of National Ambient Air Quality Standards (NAAQS) or exacerbate existing NAAQS violations in the area.* They will also determine whether Lowest Achievable Emission Rate (LAER) control technology is required, and if so, they will ensure that it is employed by MLGW.

In undertaking its PSD review, MSCHD will examine the allowable increments of air quality deterioration (PSD increments) to determine that they will not be exceeded as a result of emissions from the new source combined with all other new source emissions in the area. In addition, MSCHD may require that Best Available Control Technology (BACT) be employed.

Since NSR for PSD and PTC involve similar information requirements, a single MLGW submittal (designed to satisfy requirements of both applications) should contain:

- o General cover letter.
- o Those materials specific to the PTC.
- o Those materials specific to the PSD permit.
- o Technical support documents that are common to both (i.e. a discussion of regulatory applicability, a demonstration of major/minor source and an air quality analysis). Technical support material is discussed more fully in Section 2.1 on PSD.

Even though the PSD and PTC applications are submitted together, review of the PTC will not take place until review of the PSD is finished. This is reflected by the separate reviews shown in Figure 1.

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*Draft Permit Procedures of the Environmental Protection Agency, Region IV, Atlanta, Georgia, July 1, 1979. See also EPA "Emission Offset Interpretive Ruling," 40 CFR Part 51, 44 FR 3274, January 16, 1979, and Clean Air Act (CAA), Sections 129 et seq.

2.1 PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

The Clean Air Act (CAA) establishes minimum National Ambient Air Quality Standards (NAAQS) that must be attained or maintained for the following criteria pollutants (CAA, Sec. 109; 40 CFR Part 50):

- o Sulfur dioxide (SO_2)
- o Nitrogen dioxide (NO_2)
- o Total Suspended Particulates (TSP)
- o Carbon monoxide (CO)
- o Lead (Pb)
- o Hydrocarbons (HC)*
- o Ozone (O_3)

All regions of the United States meeting the above NAAQS are classified as "attainment" areas, and those not meeting NAAQS are designated "nonattainment" areas. Prevention of Significant Deterioration (PSD) is a permit program designed to keep the "clean areas (attainment areas) clean."

The time periods, units and permissible concentrations defined for the NAAQS are presented in Appendix A.

The attainment status of Shelby County for criteria pollutants is currently as follows (43 FR 40412, September 11, 1978):

- o Particulate matter (TSP) -- Those portions of Shelby County within two sections of downtown Memphis are nonattainment for TSP. Presidents Island is nonattainment for TSP, however, the proposed site is in an attainment area.

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*The hydrocarbon (HC) NAAQS refers to non-methane HC which is to be used as a guide in devising implementation plans to achieve the oxidant (O_3) standard.

- Carbon monoxide (CO) -- That portion of Shelby County located in metropolitan Memphis is nonattainment for CO.

- Ozone (O_3) -- All of Shelby County is nonattainment for ozone.

- Sulfur dioxide (SO_2) -- All of Shelby County is attainment for SO_2.

- Nitrogen dioxide (NO_2) -- All of Shelby County is attainment for NO_2.

The proposed IFGDP site is in a nonattainment area for O_3 and is adjacent to a nonattainment area for TSP. The site is clearly in an attainment area for all other pollutants. Therefore, the permit application will be reviewed, with respect to PSD, for all pollutants except O_3.

In addition, the application will be reviewed with respect to nonattainment for O_3 and TSP.

During NSR for both PSD and nonattainment pollutants, only those pollutants for which the source will be major will be addressed. A "major source" is defined on a pollutant-by-pollutant basis as having emissions of greater than 100 tons per year before controls and greater than 50 tons per year after controls.*

In general, the PSD review will include:

- A determination of whether the IFGDP is a major source for each pollutant

*The 50 ton per year criterion also includes 1000 pounds per day and 100 pounds per hour, where the most restrictive of the three is applicable in any given case. See CAA, Sec. 165 (a) and 40 CFR Parts 51.24 (b) (1) and 52.21 (b) (1).

- o An analysis of Best Available Control Technology (BACT) applicable to pollutant(s) for which the source is major (MSCHD will establish BACT on a case-by-case basis)

- o An air quality analysis for pollutant(s) for which the source is major

MSCHD will also review ambient air quality in Shelby County and the projected air quality impact of the IFGDP and other new sources in the area to ensure that NAAQS will be preserved and that PSD increments will not be exceeded. The maintenance of NAAQS must be demonstrated by MLGW. This may be accomplished by superimposing the projected air quality impact (as modeled) onto existing air quality as determined from monitoring. In addition, MLGW will be required to demonstrate that the PSD air quality increments are not exceeded for pollutants with defined increments (SO_2 and TSP).

The nonattainment review for O_3 will involve a demonstration that the proposed IFGDP will not be a major source of hydrocarbons (upon which the standard is based). If this cannot be shown, MLGW will be required to employ LAER emission controls for hydrocarbons and obtain offsetting emission reductions from other hydrocarbon sources in the area.

The nonattainment review for TSP will involve a demonstration that the proposed IFGDP will not be a major TSP source. If this cannot be shown, MLGW will be required to demonstrate that the air quality impact of TSP emissions upon the adjacent nonattainment area (Presidents Island) will not be "significant," as defined by EPA.* If this cannot be shown, MLGW will be required to employ LAER emission controls for TSP and obtain emission offsets from other TSP sources.

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*See 40 CFR Part 51, Appendix "S"-"Supplementary Information" at 44 FR 3277 where EPA states in general that impacts from an attainment area source (affecting a nonattainment area) will not be "significant" if less than CAA Section 163 PSD increments applicable to Class I areas.

2.1.1 RESPONSIBLE REGULATORY AGENCY(S)

Authority for PSD permit review and recommendation in the State of Tennessee has been delegated by the U.S. EPA, Region IV, to the Tennessee Department of Public Health. Actual processing of the PSD application occurs at the county level. Mr. Benjamin White is the responsible person at the following address:

Mr. Benjamin White
Manager of Pollution Control
Air Pollution Control Section
Memphis and Shelby County Health Department
814 Jefferson Avenue
Memphis, Tennessee 38105
901/528-3854

2.1.2 OTHER POTENTIAL REVIEWING AGENCY(S)

The Tennessee Department of Public Health is the delegated PSD permit review authority in the state and will review the PSD permit application processed at the county level. Mr. Harold E. Hodges is the responsible person at the following address:

Mr. Harold E. Hodges, Director
Division of Air Pollution Control
Tennessee Department of Public Health
256 Capitol Hill Building
Nashville, Tennessee 37219
615/741-3931

Ultimate approval of the PSD permit is still the responsiblity of U.S. EPA, Region IV. U.S. EPA, Region IV, will follow the decision reached by the Tennessee Department of Public Health in most circumstances, but Region IV must still issue the final letter of approval. Mr. Tommie Gibbs is the responsible person at the following address:

Mr. Tommie Gibbs
Air Facilities Branch
U.S. Environmental Protection Agency,
Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30308
404/881-4552

2.1.3 INFORMATION NEEDED FOR PERMIT

The following list summarizes the minimum requirements of a PSD application as required by U.S. EPA, Region IV, and the Tennessee Department of Public Health (see Appendix A for detailed PSD requirements):

- Cover letter requesting a preconstruction PSD review. The letter should also include the name and location of the new source and the name and title of the responsible person from MLGW submitting the application.

- Detailed description of the nature, location, design capacity and typical operating schedule of the source, including specifications and drawings needed for the review showing its design and plant layout.

- Detailed schedule for construction of the new source.

- Detailed description (design calculations and specifications) concerning what system of continuous emission reduction is planned for the source, emission estimates including all stack paramters and concentrations of all pollutants emitted, emission calculations and other information necessary to determine that best available control technology (BACT) is being applied where required.

- Air quality monitoring data as required.

- Results of air quality modeling of any pollutant emitted by the new source adequate to determine that the new source will not cause or contribute to a violation of PSD increments and ambient air quality standards (should include summary tables of results and comparison with all increments and standards). The demonstration of compliance with PSD requirements must include a consideration of all known emission expansions and reductions in the area since the PSD baseline date of April 7, 1977.

- Assessment of impacts to visibility, soils and vegetation that would occur as the result of the new source and associated commercial, residential, industrial and other growth. (Vegetation having no significant commercial or recreational value may be excluded from the analysis.)

- Assessment of air quality impacts projected for the area as a result of general commercial, residential, industrial and other growth associated with the new source.

The preceeding required information represents an application for a PSD permit.

2.1.4 INFORMATION PROVIDED BY EIA TO DATE

The Environmental Report (ER) and other related services to be performed by EIA will provide much of the background data, the meteorological and air quality information and some of the impact analyses required for a PSD application. However, there are additional informational requirements for the BACT analysis and air quality impact analysis which will have to be developed for the PSD application. This information is summarized below.

2.1.5 ADDITIONAL INFORMATION REQUIRED FOR PSD APPLICATION

Additional information and analyses needed by MLGW to expand the EIA study in the ER into a <u>complete</u> PSD application include the following:

- Demonstration of compliance with PSD increments by a model determination of the air quality impact of all other emission additions and reductions (including the IFGDP) that have occurred in the area since the PSD baseline date of April 7, 1977. (This should include all future changes that are presently known).

- Use of a more comprehensive meteorological data base in the modeling analysis (i.e. five years of data, as recommended by the U.S. EPA).

- Demonstration of BACT.

2.1.6 INFORMATIONAL REQUIREMENTS BEYOND PSD APPLICATION

In addition to the preceeding minimum PSD requirements, the Tennessee Department of Public Health may impose additional requirements on MLGW such as:

- Detailed discussion of air quality impacts and the nature and extent of any and all general commercial, residential, industrial or other growth which has occurred since August 7, 1977, in the area the new source would affect. (Such data in the possession of the MSCHD Division of Air Pollution Control shall be made available to MLGW.)

- Air quality monitoring, after the new source is constructed, to establish the effect that emissions from the new source will have on air quality in any area which such emissions would affect.

2.1.7 FILING PROCEDURE

Based on communications with the U.S. EPA, Region IV, and the Memphis and Shelby County Health Department (MSCHD), a step-wise procedure will be followed to request PSD review and obtain the PSD permit:

1. Submit PSD Application. The PSD application with all the required information along with a cover letter requesting a preconstruction review and approval to construct the IFGDP will be submitted to the MSCHD. MSCHD will determine if the application is complete. Time for an additional information request from MSCHD should be built into this first step.

2. Preliminary Determination. Once the application is considered complete, the preliminary review will last approximately 30 days; and at the end of this 30-day period, a Preliminary Determination will be made by MSCHD. The Preliminary Determination from MSCHD will include:

   - Explanation of action being taken
   - Control technology review, including an engineering review of control equipment
   - Impact analysis including a review of the monitoring data and modeling
   - Copy of the public notice which includes an opportunity for public comment and public hearing and the degree of increment consumption of the proposed new source
   - Copy of the letter to all interested parties

3. Public Notice. The Preliminary Determination will be published in area newspapers and will also be available in nearby libraries. This marks the beginning of a 30-day public comment period, the only rigid time period for the entire PSD review.

4. Public Hearing. Any interested parties may then respond with comments and/or request a public hearing. A 30-day notice is required before the public hearing, which would follow the 30-day public comment period.

5. Final PSD Review. Comments from the public including results of the public hearing, if requested, will be reviewed and incorporated into the final PSD review by MSCHD.

6. Final Determination. The Final Determination will be published, and a letter of approval for construction to begin will be sent to MLGW from U.S. EPA, Region IV. This represents issuance of an approved PSD permit. Since the new source is subject to nonattainment review, the new source must receive a state permit (PTC) before receiving PSD Final Determination.

2.1.8 NORMAL REVIEW PERIOD

The normal period for a PSD review lasts from 120 to 180 days. Critical steps in the above procedure are the determination by MSCHD of a complete application in Step 1 and the need for a public hearing in Step 4. These two steps can extend the PSD review process. However, since PSD regulations are still subject to interpretation, and based on previous EIA projects involving PSD reviews, EIA recommends that a full year be allowed for review by the Memphis and Shelby County Health Department. This has been factored into the overall permit schedule presented in Figure 1.

2.1.9 PROGRESS TO DATE

EIA has completed and submitted to MLGW the Environmental Report (ER) and FWEC has completed a conceptual design of the IFGDP. The ER includes a new source description, proposed and alternative emission control systems, a description of the existing environment and an air quality impact assessment. The purpose of the impact assessment was to demonstrate through diffusion modeling that the proposed IFGDP will not impact the air quality of Shelby County in violation of NAAQS or exacerbate existing violations. The ER alone, however, is not sufficient for completing a PSD permit and further information required is discussed in Section 2.1.5.

Several preliminary meetings have been held between the IFGDP industrial team (MLGW, FWEC and EIA) and the local, state and federal regulatory authorities, to discuss the proposed project and its potential impact on air quality.

2.1.10 PERMIT DURATION PERIOD

PSD approval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval, if construction is discontinued for a period of 18 months or more or if construction is not completed within a reasonable time. MSCHD may extend the 18-month period upon a satisfactory showing that an extension is justified. The provision does not apply to the time period between construction of the approved phases of a phased construction project; each phase must commence construction within 18 months of the projected and approved commencement date.

2.1.11 RENEWAL REQUIREMENTS/PROCEDURE

Once the PSD permit is issued and emission limitations have been set, no renewal procedure is necessary. Prior to start-up of the IFGDP, MSCHD must be notified in order to schedule a compliance inspection to make sure the requirements set forth in the PSD permit are being met.

Post-construction monitoring may be required by MSCHD as part of the PSD approval to establish the effect of emissions from the IFGDP on the local air quality.

2.2 PERMIT TO CONSTRUCT (PTC)

Air pollution control laws* applicable in Shelby County and its municipalities require that no person shall construct or install equipment capable of causing the emission of air contaminants into the open air or install control apparatus

*Construction and Operating Permits, Chapter 1200-3-9 of the Tennessee Air Quality Act (T.C.A. Section 53-3412).

which prevents or controls the emission of air contaminants until an application including plans and specifications has been filed with the Memphis and Shelby County Health Department (MSCHD). This application will be reveiwed by the MSCHD who will approve construction or installation through the issuance of a Permit to Construct (PTC). In Tennessee, the PTC series of applications and review process serve as the New Source Review (NSR) or preconstruction review that is required for major new sources of air pollution under the Clean Air Act. As part of the NSR program resulting in permission to construct through issuance of a PTC, no defined* major source may begin construction until the requirements of Prevention of Significant Deterioration (PSD) are met.

As part of the NSR, MSCHD must ensure that the proposed emission controls conform with New Source Performance Standards (NSPS). NSPS are air pollution emission limits established for selected new, modified or reconstructed stationary sources. While no NSPS currently exist for coal gasification plants, applicable NSPS do exist for installations within the IFGDP. The State of Tennessee has issued regulations** for fossil-fuel-fired boilers with heat input greater than 250 x 10^6 Btu per hour. The two IFGDP boilers will require a total heat input of approximately 326.6 x 10^6 Btu per hour, so the NSPS regulations are applicable.

There are no preconstruction permits required by NSPS regulations. The applicant must notify the U.S. EPA or delegated authority of the start of construction and the start-up date for an affected facility. After start-up of the new source, a compliance test is required in most cases.

2.2.1 RESPONSIBLE REGULATORY AGENCY(S)

The Memphis and Shelby County Health Department (MSCHD) is responsible for New Source Review (NSR) and review and issuance of the Permit to Construct

*The IFGDP falls under the definition of a "Major Stationary Source" according to Chapter 1200-3-9.01(4b) of the Tennessee Air Quality Act (T.C.A. Section 53-3412 et seq.).

**Tennessee Department of Public Health, "Tennessee Air Pollution Control Regulations," Chapters 1200-3-1 through 1200-3-7, Environment Reporter, March 23, 1979, pp. 121:0101-0131.

(PTC). The application forms for the PTC should be submitted to the responsible person at the following address:

Mr. Benjamin White
Manager of Pollution Control
Air Pollution Control Section
Memphis and Shelby County Health Department
814 Jefferson Avenue
Memphis, Tennessee 38105
901/528-3853

As part of the NSR and PTC review, MSCHD will establish whether the IFGDP is subject to New Source Performance Standards (NSPS). At this time, however, the U.S. EPA, Region IV, has only delegated this authority to Davidson and Knox Counties in Tennessee. Therefore, NSPS review for the IFGDP will be officially handled by U.S. EPA, Region IV, by the responsible person at the following address:

Mr. Tom Little
Air Engineers Division
U.S. Environmental Protection Agency, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30308
404/881-2786

EIA has already established that NSPS do apply as part of the environmental assessment. Nevertheless, the determination will be formally made by the U.S. EPA, Region IV. MSCHD will coordinate NSPS review with Region IV.

2.2.2 OTHER POTENTIAL REVIEWING AGENCY(S)

Processing of the PTC applications occurs at the county level, but review may also occur at the state level by the responsible person at the following address:

Mr. Harold Hodges, Director
Division of Air Pollution Control
Tennessee Department of Public Health
256 Capital Hill Building
Nashville, Tennessee 37219
615/741-3931

2.2.3 INFORMATION NEEDED FOR PERMIT

A series of application forms must be filled out by a new source in order to obtain permisssion to construct the IFGDP. A copy of all the application forms is presented in Appendix B and a brief description of those forms applicable to the IFGDP follows:

- APC-1: GENERAL INFORMATION. This form requests general information on the new source including a brief description, estimated costs of the activity and the type of permit being sought (permission to construct, operate, transfer, etc.).

- APC-2: PROCESS EMISSION SOURCE COVER SHEET. One copy of this form must be submitted for each process emission source. A process emission source is defined as any property, real or personal, which emits or may emit any air pollutant from an operation not dependent on the simultaneous operation of another facility. This form requires a simple block flow diagram showing emission points and a summary of the total emissions. Total material inputs and outputs are also required. EIA has identified all IFGDP process emission sources as part of the environmental assessment.

- APC-3: STACK PROCESS EMISSION POINT DATA. One copy of this form must be submitted for each stack emission point. A stack emission is defined as any pollutant emitted to the atmosphere by means of a chimney, flue, conduit or duct. The average particulate emissions should be listed on Form APC-2 in the appropriate space (Item 9). Each stack emission point should be assigned a number corresponding to the emission point number shown on the flow diagram.

- APC-4: NONSTACK PROCESS EMISSION POINT DATA. One copy of this form must be submitted for each nonstack emission. A nonstack emission is described as any emission where material is emitted to the atmosphere by means other than the usage of ducts, flues, chimneys or conduits. An example would be emissions occurring from

the usage of ventilating fans or fugitive dust from coal and solid waste piles. The average particulate emissions in pounds per hour should be listed on Form APC-2 in the appropriate space (Item 9).

- o APC-5: FUEL BURNING SOURCE EMISSION DATA. One copy of this form should be submitted for each boiler stack. This form requires boiler data (capacity, fuel, quantity, etc.), control equipment and other design specifications. Permits are not required on boilers having a rating less than 500,000 Btu per hour.

- o APC-6: INCINERATION SOURCE EMISSION DATA. One copy of this form should be submitted for each stack or emission point. This form requests a description of the incineration process, amount and type of waste burned, incinerator design specifications, operational schedules and air containment data. A classification of wastes is provided.

- o APC-8: STORAGE TANK SUMMARY. One copy of this form must be submitted for each storage tank. This form requires tank design specifications, vent valve data, types of materials being stored and operational data.

- o APC-7: HAZARDOUS MATERIALS SOURCE EMISSION DATA, APC-9: SPRAY BOOTH SUMMARY, APC-10: OVEN SUMMARY and APC-11: DEGREASER SUMMARY. These forms are not applicable to the IFGDP.

- o APC-12: PROPOSED SCHEDULE OF CORRECTIVE ACTION. This form would be submitted to explain or describe action which would be taken to control emissions if the emissions were not in compliance with the applicable regulations or requirements of the MSCHD Air Pollution Control Codes.

Review and approval of the preceding forms constitutes a Permit to Construct. Copies of the actual forms are presented in Appendix B.

2.2.4 FILING PROCEDURE

The applicable permission to construct forms (APC-1 through APC-6, and APC-8) should be submitted as soon as final design data is available for the IFGDP. A cover letter requesting NSPS review should also be included and MSCHD will coordinate NSPS review with the U.S. EPA, Region IV, who have reviewing authority.

2.2.5 NORMAL REVIEW PERIOD

The normal review period for permission to construct is approximately 120 days when new sources are also subject to PSD review. However, this time period is for a completed application, thus, additional time will be required if further information is needed. This has been factored into the overall permit schedule presented in Figure 1.

2.2.6 PROGRESS TO DATE

EIA has completed the Environmental Report (ER) which contains general background information and FWEC has completed the conceptual design of the IFGDP. However, the permission to construct forms require detailed design information that will not be finalized by FWEC until Phase II begins in March 1980.

2.2.7 PERMIT DURATION PERIOD

Approval to construct shall become invalid if construction is not commenced within 18 months after receipt of such approval, if construction is discontinued for a period of 18 months or more or if construction is not completed within a reasonable time. MSCHD may extend the 18-month period upon a satisfactory showing that an extension is justified. The provision does not apply to the time period between construction of the approved phases of a phased construction project; each phase must commence construction within 18 months of the projected and approved commencement date.

2.2.8 RENEWAL REQUIREMENTS/PROCEDURE

There are no renewal requirements for a Permit to Construct (PTC). However, a new PTC will be required if any air contaminant source is modified or added to the IFGDP.

2.2.9 PERMIT FEES

Currently, there are no permitting fees required when submitting a PTC. However, federal regulations require that a fee schedule be established for air contaminant sources. This requirement has been temporarily waived for Tennessee until it gains more experience in the air permitting procedure. MLGW will be notified as to when this fee schedule becomes effective.

2.3 PERMIT TO OPERATE

Any person planning to operate an air contaminant source constructed in accordance with the Permit to Construct (PTC) issued under Chapter 1200-3-9-.01 of the Tennessee Air Pollution Regulations must apply for and receive a Permit to Operate (PTO) after initial start-up of the new source.

2.3.1 RESPONSIBLE REGULATORY AGENCY(S)

The PTO form is filed with Benjamin White of the Memphis and Shelby County Health Department (MSCHD) at the following address:

Mr. Benjamin White
Manager of Pollution Control
Air Pollution Control Section
Memphis and Shelby County Health Department
814 Jefferson Avenue
Memphis, Tennessee 38105
901/528-3854

2.3.2 INFORMATION NEEDED FOR PERMIT

The PTO application is the same "APC-1: GENERAL INFORMATION" form described in Section 2.2.3. The same general information is required as for a Permit to

Construct (PTC) except the block corresponding to "Permit to Operate Requested" is checked. A copy of the APC-1 form is presented in Appendix B.

2.3.3 FILING PROCEDURE

The PTO is applied for after initial start-up of the air contaminant source. New sources operating with a valid construction permit (PTC) may apply for the PTO according to the following filing schedule:

1. The PTO application form must be filed within 90 days after initial start-up of the new source.

2. This 90 days is extended to 120 days if stack sampling is required as a condition to the PTC.

3. The 120 days can be further extended to 60 additional days if a stack sampling report is required by the PTC contingent upon:

   - A required time specified on the PTC for submittal of a stack sampling report

   - The stack sampling report being submitted within 60 days of initial start-up of the new source

The PTO will then only be issued by MSCHD if the operation of the new source is in compliance with all standards, rules and chapters of the Tennessee Air Pollution Regulations and if operation of the new source will be compatible with the attainment or maintenance of any air quality standard. The new source may be required to conduct tests as necessary to determine the kind and/or amount of air contaminants being emitted from the new source.

Other provisions of the PTO include the following:

- All operating permits must be readily available for inspection (prominently displayed on the site).

- Operation of the new source must be in accordance with all provisions and stipulations set forth in the PTO and all applicable state and federal regulations.

- MLGW must notify MSCHD 30 days prior to a change in air pollution control equipment, a change in stack height or diameter or a change in exit velocity (of more than 25 percent) or exit temperature (of more than 15 percent).

- If a new source is subject to a compliance schedule and fails to comply with the specified schedule, the PTO is revoked.

2.3.4 NORMAL REVIEW PERIOD

There is no specified review period as long as the filing schedule is followed as outlined in Section 2.3.3 after start-up of the new source.

2.3.5 PERMIT DURATION PERIOD

Standard operating permits are valid for a period of 1 year or for such time as deemed appropriate by the MSCHD review. A PTO issued for less than 1 year is designated as a temporary permit.

2.3.6 RENEWAL REQUIREMENTS/PROCEDURE

The PTO is renewed prior to the expiration date specified on the original PTO, using the application form supplied by MSCHD. The renewed PTO will be issued pending compliance with all provisions and stipulations of the original PTO. Any stack sampling report required on the original PTO becomes part of the application for renewal of that operating permit.

2.3.7 PERMIT FEES

A fee schedule will be established by MSCHD in the future. MLGW will be notified by MSCHD when the fee schedule becomes effective.

SECTION 3.0
WATER PERMITS

The Federal Water Pollution Control Act, 33 U.S.C. 1344 et seq., (Clean Water Act) River and Harbor Act of 1899, 33 U.S.C. 401 et seq., and the Tennessee Water Quality Control Act, T.C.A. Sections 70-324 et seq., are the primary governmental regulations requiring the following permits and important information to discharge effluents into surface waters and for construction activities in waters of the United States:

- National Pollutant Discharge Elimination System (NPDES) Permit - Tennessee Department of Public Health (required for the discharge of point source effluents into surface waters) (40 CFR Parts 122 through 125)

- Engineering Report and Preliminary Plans - Tennessee Department of Public Health (approval of report gives permission to begin construction of treatment facilities) (Chapter 1200-4-2)

- Department of the Army Permit (Section 10 of the River and Harbor Act and Section 404 of the Clean Water Act and 401 Certification) - U.S. Army Corps of Engineers (required for construction in navigable waters and the discharge or placement of fill in waters of the United States) (40 CFR Parts 230 and 231; 33 CFR Part 323).

Specific permits required by the Clean Water Act are the NPDES permit and Department of the Army Permit. The NPDES permitting procedure will serve as a "new source review" for identifying any applicable New Source Performance Standards (NSPS). NPDES permitting has been delegated to the Tennessee Department of Public Health, while the U.S. Army Corps of Engineers issues the Department of the Army Permit.

Also on the state level, permission to construct a wastewater treatment facility must be obtained from the regional office of the Tennessee Department of Public Health (TDPH). This is accomplished through submittal of an Engineering Report which includes preliminary design plans.

3.1 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT

The Clean Water Act prohibits the discharge of pollutants into navigable waters of the United States from a point source without a permit and impose pollution control requirements on discharges. The permit program is designated the National Pollutant Discharge Elimination System (NPDES) with implementing authority vested in the U.S. EPA.* The Act provides for transfer of this authority to state agencies meeting specified federal criteria. The Tennessee Department of Public Health (TDPH) has met these criteria and has been granted NPDES permitting authority in Tennessee by the U.S. EPA, Region IV. Ultimate approval of the permit, however, still resides with the U.S. EPA, Region IV.

EPA has also issued New Source Performance Standards (NSPS) for numerous industrial categories. These standards define the maximum amount of a pollutant that may be discharged and the level of pollution control required for new plants. The NSPS have not yet been determined for coal gasification facilities, thus, effluent limitations for these facilities will be set on a case-by-case basis by the TDPH.

New sources built in compliance with NSPS will be entitled to ten years' protection against tightening of requirements specified in its permit. The IFGDP qualifies as a "new source" under EPA guidelines and must therefore undergo a new source review and meet any applicable NSPS if NSPS are established for the IFGDP category before construction is commenced. The NPDES permitting procedure will serve as a "new source review" and will identify any applicable NSPS.

NPDES permits contain the following general elements:

- Effluent limitations -- numerical limits on the quantity or volumes of specific pollutants to be allowed in the discharge

- Self-monitoring and reporting requirements

*See 40 CFR Parts 122 through 125 generally.

- o Standard information governing emergencies, plant modifications, etc.

- o Provisions for field inspections by the permitting agency

- o A general requirement to comply with applicable state water quality criteria.

A complete NPDES permit application and requirements is presented in Appendix C.

Effluent limitations will be developed by the TDPH on a case-by-case basis to meet the pollution abatement requirements established by the Clean Water Act and state water quality criteria. When reviewing the application, the TDPH will consider the existing water quality of the receiving stream and the technology employed to control the quality of the discharge.

The approved effluent limitations proposed by the TDPH for the IFGDP and indicated in the NPDES permit are the effluent limitations which will be used in the design of the wastewater treatment facility. Normally, the Engineering Report, which is discussed in detail in Section 3.2, is submitted prior to the NPDES permit application. However, since the IFGDP is a new source for which no NSPS exist and there has been very little development of an effluent data base for coal gasification processes, the TDPH proposes to reverse the process. This reversal will allow TDPH to develop effluent criteria that can be used to develop the necessary treatment units that will be described in the Engineering Report. The proposed approach will prevent any conflicts or delays in obtaining permission to begin construction of the wastewater treatment facilities by expediting the review process.

Since no New Source Performance Standards (NSPS) exist for coal gasification facilities in Tennessee, the IFGDP will be treated as a "new discharger", not a "new source." In addition, the IFGDP will <u>not</u> be discharging into a water quality limited segment of the Mississippi River. Because of these two characteristics, the IFGDP treatment units will be required to achieve as a <u>minimum</u>

the maximum industrial effluent limitations presented in Chapter 1200-4-5 of the Tennessee Water Quality Control Act which are presented in Appendix D. These are the minimum standards which must be met -- additional effluent limitations may be determined during review of the NPDES permit application.

3.1.1 RESPONSIBLE REGULATORY AGENCY(S)

U.S. EPA, Region IV, has delegated responsibility for administering the NPDES program for Tennessee to the Tennessee Department of Public Health (TDPH). Processing of the NPDES permit application is the responsibility of Steve Anderson at the following address:

Mr. Steve Anderson, Assistant Director
Permits Section
Division of Water Quality Control
Tennessee Department of Public Health
490 Capitol Building
Nashville, Tennessee 37219
615/741-7883

3.1.2 OTHER POTENTIAL REVIEWING AGENCY(S)

The NPDES permit application should be submitted to Mike Robinson of the TDPH regional office at the following address:

Mr. Mike Robinson, Chief
Division of Water Quality Control
Tennessee Department of Public Health
Watkins Towers, Suite 201
646 Old Hickory Boulevard
Jackson, Tennessee 38301
901/668-1315

The regional office will check the NPDES permit application for its completeness and accuracy, and then forward the application to Nashville for processing.

Once the application has been processed by the TDPH at Nashville, a copy of the draft NPDES permit will be sent to U.S. EPA, Region IV, for review and ultimate approval by the responsible person at the following address:

Mr. William Cloward, Chief
Permits Section
Water Enforcement Branch
Enforcement Division
U.S. Environmental Protection Agency, Region IV
345 Courtland Street, NE
Atlanta, Georgia 30308
404/881-2017

3.1.3 INFORMATION NEEDED FOR PERMIT

MLGW will be required to submit Standard Form C - Manufacturing and Commercial (including mining and vessel discharges). The Standard Form C requires specific information on the activity, the wastewater facility and each discharge. A copy of the NPDES Standard Form C is presented in Appendix C along with instructions for answering all the individual items.

NPDES Standard Form C - Manufacturing and Commercial is divided into three sections. Informational requirements in these three sections are summarized as follows:

- Section I: APPLICANT AND FACILITY DESCRIPTION

  This section begins by requesting general information on the applicant (name of responsible personnel, address, etc.). This is followed by an accounting of all water uses by the IFGDP including the source of intake waters (municipal or private, surface and groundwater), the use of this water (noncontact cooling, boiler, process, etc.) and the ultimate discharge location of these waters (surface water, sanitary and stormwater transport system, surface impoundment, percolation, well injection, etc.). Other permits for which MLGW has applied must be listed. Drawings must show the schematic

of water flow (including rates) throughout the facility producing the discharges. A location map should indicate all discharge structures (including outfall devices, dispersive devices and nonstructural points of discharge). The location map should be drawn to the proper indicated scale (maps may be traced from United States Geological Survey, Coast Guard Survey, road maps, etc., but should reference the map used) and show all surface waters, towns and prominent points.

- Section II: BASIC DISCHARGE DESCRIPTION

This section requests extensive information on the discharge(s) including a report that provides a technical basis for detailed design and preparation of construction plans and specifications, name of waterway receiving the discharge, type of discharge (continuous, intermittent, etc.) and the appropriate SIC (standard industrial classification) code which identifies the activity actually causing the discharge. For each SIC code, the average quantity per day of raw material consumed and product produced must be specified. Shared discharges and waste abatement practices for each SIC code must also be presented.

Wastewater must be characterized, including the presence or absence of specified constituents (based on previous analyses or knowledge of the processes causing the discharge). For specified constituents plus additional constituents not listed but determined by MLGW to be in the discharge, a description must be supplied showing concentrations and flows of these constituents plus the frequency and method of analysis used to determine this description.

This section ends with a request for information on all thermal discharges including temperature differences between the discharge and receiving waters, rate of discharge temperature change per hour and retention times prior to discharge.

- Section III: WASTE ABATEMENT REQUIREMENTS AND IMPLEMENTATION (CONSTRUCTION) SCHEDULE

  This section requires information on any uncompleted implementation schedule (locally developed plan, areawide plan, basin plan, state approved implementation schedule, federal approved water quality standards implementation plan, federal enforcement procedure or action and state and/or federal court orders) which may have been imposed for construction of waste abatement facilities. A copy of the applicable official implementation schedule(s) must be submitted with the application.

3.1.4 NPDES PERMIT FILING PROCEDURE

The following steps should be followed when making application for an NPDES permit. Many of these steps overlap those required for filing an Engineering Report. These steps are identified and their significance discussed below:

1. Preliminary Meeting Concerning Project. A letter should be sent as soon as possible to the regional office of the TDPH requesting a meeting with applicable TDPH personnel for an informal discussion of the proposed project with relation to its scope and purpose. MLGW should make available:

   - General information regarding the proposed point of discharge
   - Quantity and quality of discharge
   - Land and water use in the vicinity of the proposed IFGDP site
   - General information regarding the anticipated effect which the IFGDP will have on the surrounding area.

   The Environmental Report (ER) prepared by EIA will supply much of this general information. General requirements, including those for the

Engineering Report, will be outlined by the regulatory agency in order to obtain ultimate approval for construction and discharge.

2. Site Approval. A site inspection will be made by representatives from the TDPH, and a letter of approval to proceed with permit processing will be issued to MLGW. No permit processing will occur until MLGW receives the official site approval letter. The site inspection could possibly be waived if the TDPH feels adequate information has been submitted during the meeting in Step 1.

3. Submittal of the NPDES Permit Application (Standard Form C) Including Wastewater Characterization. The application will be submitted to the TDPH regional office in Jackson for a determination on completeness and accuracy. At this point, additional information may be required if the application is not considered complete. Once the application is complete, it will be forwarded to the TDPH main office at Nashville for processing.

4. Draft NPDES Permit Issued. A formalized "Draft" NPDES permit (3 copies) will then be sent to the following:

   - The discharger (MLGW)
   - EPA, Region IV
   - Regional office of the TDPH in Jackson

   MLGW will have 15 days to review and comment. The U.S. EPA, Region IV, will have 20 to 90 days to review and comment.

5. Public Notice Issued. The regional office of the TDPH, upon receipt of their Draft NPDES permit, will publish in the local newspapers a Public Notice of a 30-day comment period. During this public comment period, any interested party may request a public hearing. This request, if required, will lengthen the review period since a 30-day notice of a hearing is required before the hearing date.

6. Public Comment and Hearing (if needed) Review. All comments from the public and any public hearing will be incorporated into the Draft NPDES permit for approval by U.S. EPA, Region IV. The main office of TDPH in Nashville will then issue the Final NPDES Permit to MLGW.

The Draft NPDES permit described previously will contain the effluent criteria necessary for the engineering design of the waste treatment facilities. Therefore, once MLGW receives the Draft NPDES permit in Step 4, and should MLGW not anticipate problems with the public comment period, the Engineering Report can be prepared and submitted before the NPDES permit is finalized.

3.1.5 NORMAL REVIEW PERIOD

The normal review period for an NPDES permit application is 180 days, which includes the 30-day public comment period. However, due to TDPH inexperience, shortage of staff responsible for review and uniqueness of the IFGDP project, the NPDES review could take up to one (1) year.

3.1.6 PROGRESS TO DATE

Following is the progress to date:

- FWEC has completed the conceptual design of the IFGDP including engineering design data applicable to wastewater characterization
- EIA has prepared the ER for the IFGDP which includes background data that can be used in filling out an NPDES permit
- EIA has conducted a wastewater sampling program at the IGT Pilot Plant employing the proposed process to be used at the IFGDP
- Initial contacts have been made by the Industrial Team (MLGW, FWEC and EIA) with the TDPH and U.S. EPA, Region IV, concerning the proposed IFGDP project

Additional information may be required for wastewater characterization and wastewater treatability. This additional data would be identified during the initial meeting in Step 1 described in Section 3.1.5 and could be acquired during ongoing investigations at the IGT Pilot Plant. Due to the importance of the NPDES and the Engineering Report interrelationship, any new work must be identified soon, so as not to impact the proposed construction schedule.

3.1.7 PERMIT DURATION PERIOD

NPDES permits issued by the TDPH are valid for a period of five (5) years. The IFGDP must begin construction with 18 months of the issuance of a Final NPDES Permit or the permit becomes invalid. Since the normal filing procedure has been reversed, however, the change could result in issuance of an NPDES permit more than 18 months before construction would actually begin. To avoid this possibility, the TDPH will delay the issuance of the Final NPDES Permit until such time that construction will begin within 18 months.

3.1.8 RENEWAL REQUIREMENTS/PROCEDURE

MLGW must file for reissuance of the NPDES permit at least 180 days prior to its expiration. Tennessee NPDES permits are renewed in accordance with the original provisions for issuance. The permit will not be renewed unless it is shown that the Applicant has made satisfactory progress toward achievement of any applicable limitations and has complied with the terms and conditions of the existing permit.

Any process modification which results in construction of a new point source after issuance of the original permit and which is constructed to meet all applicable standards of performance (NSPS) shall not be subject to standards of performance any more stringent than original NSPS for a period of 10 years. A modification to the original NPDES permit would, however, be made to reflect any new point sources from the IFGDP.

3.1.9 PERMIT FEES

No permit fees are currently required for processing an NPDES permit application or for any of the resultant point sources. However, a fee schedule will be established in the future by the TDPH, and MLGW will be notified as to any applicable fee requirements.

3.2 ENGINEERING REPORT AND PRELIMINARY PLANS

As required by the Tennessee Department of Public Health (TDPH),* an Engineering Report and Preliminary Plans must be prepared and presented in accordance with guidelines developed by the applicable regional office of the TDPH. The current requirements for an Engineering Report, which are presented in Appendix E, are being revised by the TDPH in Jackson to take into consideration the requirements of the NPDES permit program. The current procedure upon receipt of an Engineering Report is to investigate the proposed point of discharge and establish preliminary appropriate effluent standards to be used in designing the treatment facility. No overlap was provided with the NPDES permit program. This current procedure could cause delay problems for a new source such as the IFGDP, and, therefore, the TDPH has proposed to reverse the procedure as previously mentioned in Section 3.1. This will allow effluent criteria to be developed that are consistent with the NPDES permitting program.

In accordance with requirements of the TDPH, the submission of letters, reports, plans and specifications relating to the Engineering Report review and the ultimate approval of this report constitutes permission to begin construction of a new wastewater treatment facility. The official letter issued by the TDPH approving a project for construction in accordance with the submitted plans and specifications bearing the TDPH official "Approved for Construction" stamp constitutes valid permission to construct the treatment facility.

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*T.C.A. Section 70-330, Chapter 1200-4-2, Regulations for Plans Submittal, and Approval: Control of Construction: Control of Operation. See also Chapter 1 - Outline of Engineering Requirements.

3.2.1 RESPONSIBLE REGULATORY AGENCY(S)

The regional office of the TDPH at Jackson has responsibility for reviewing and approving the Engineering Report. Mike Robinson is the responsible person at the following address:

Mike Robinson
Division of Water Quality Control
Tennessee Department of Public Health
Watkins Towers, Suite 201
646 Old Hickory
Jackson, Tennessee 38301
901/668-1315

3.2.2 OTHER POTENTIAL REVIEWING AGENCY(S)

NPDES permit processing, which was discussed in Section 3.2, is done at the state office of TDPH. Since there is information common to both the Engineering Report and NPDES permit, sharing of this information may occur between the state and regional offices. Therefore, the state main office at Nashville will be a potential reviewing agency. The responsible person and state main office address is:

Steve Anderson, Assistant Director
Division of Water Quality Control
Permits Section Division
Tennessee Department of Public Health
490 Capitol Hill Building
Nashville, Tennessee 37219
615/741-7883

3.2.3 INFORMATION NEEDED FOR ENGINEERING REPORT

The Engineering Report should contain information required for adequate design evaluation of the proposed waste treatment facilities plus results of waste and wastewater analyses, treatability or pilot treatment studies and any other investigations that may be required by the TDPH. Basically, the purpose of the Engineering Report is to identify what constituents will be in the discharge

and how these constituents will be treated. Emphasis should be placed on the identification of toxic substances in the effluents. Review of the report will take into consideration regional plans for water quality control.

Generally, the Engineering Report should include:

- Discussion of both the waste producing system and waste treatment system. Material balances, flow diagrams, preliminary drawings, results of analytical studies and any other information felt necessary should all be employed to explain the decisions reached in designing the treatment system.

- In special or unique cases, the report should present alternatives and cost estimates. MLGW may have to present viable alternatives to meeting the established effluent criteria and/or NPDES permit requirements. If this is required, an economic and feasibility evaluation should be inclusive of all alternatives.

- The recommended minimum data requests on waste characterization must be addressed by MLGW. Pilot treatability studies (bench or production size) are encouraged by the TDPH and a recommended list of physical and chemical analyses that should be used by MLGW are presented in the guidelines.

Specific guidelines for the Engineering Report and Preliminary Plans are presented in Appendix E.

3.2.4 FILING PROCEDURE

Integral to approval of the Engineering Report is the NPDES permitting procedure discussed in the preceding section (Section 3.1). The NPDES permit will establish effluent criteria which will be used to design the wastewater treatment facilities described in the Engineering Report.

The following steps should be followed in order to secure permission to construct treatment facilities through approval of the Engineering Report (Some overlap occurs between the NPDES permit filing procedures given in Section 3.1.5 and those of the Engineering Report.):

1. Initial Meeting with Regulatory Agency. This is the same meeting described in Section 3.1.5 where scope and purpose of the proposed IFGDP is discussed.

2. Site Inspection. This is the same site inspection described in Section 3.1.5 where approval of the site is determined. Approval is required before beginning the Engineering Report.

3. Effluent Criteria Determined. The Draft NPDES permit will provide effluent criteria upon which design of the wastewater treatment facilities will be based.

4. Engineering Report and Preliminary Plans Submitted. The Engineering Report and preliminary plans should be prepared according to the guidelines presented in Appendix E and submitted to the regional office of the TDPH in Jackson. The main purpose of the report is to identify constituents in the wastewater and how the constituents will be treated. Emphasis should be placed on any "problem" constituents and the approach to their treatment. All construction plans required at this point should only be "sketches."

5. Review of the Engineering Report and Preliminary Plans. The regional office of the TDPH will review the Engineering Report, make comments and send the report back to MLGW if approved. Approval of the Engineering Report and Preliminary Plans constitutes approval to proceed with Final Construction Plans. These final construction plans should be more detailed and be of "draftsman quality." At this point there may also be a need for a meeting to discuss the Engineering Report and Preliminary Plans before beginning the final plans.

6. Review of Revised Engineering Report and Final Construction Plans. The Revised Engineering Report and Final Construction Plans are then re-submitted to the regional office of the TDPH for review. The final plans and specifications must be submitted within one (1) year from the date of approval of the original Engineering Report or the approval will be subject to re-evaluation and may be declared null and void.* If the finalized report and construction plans are approved, they will be stamped "approval" for construction.

7. Letter of Approval. The letter of approval sent to MLGW will include:

   - Permission to begin construction of the wastewater treatment system
   - The procedure that should be followed to apply for the discharge permit (this will have already been done)
   - The procedure to be followed for requesting a final complaince inspection

   The TDPH's official stamp of approval on the construction plans gives MLGW the permission to begin construction of the treatment facilities. If construction has not commenced in accordance with the finalized approved plans and specifications with one (1) year from the date of approval of said plans and specifications, the final approval will be subject to re-evaluation and may be declared null and void.**

8. Request for Compliance Inspection. The TDPH must receive a written request for final inspection approval 2 weeks prior to the requested date. Approval following the inspection authorizes the TDPH Enforcement Division to issue a full NPDES permit to discharge (MLGW can discharge once this

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*Chapter 1200-4-2-.03, Engineering Report and Preliminary Plans, Tennessee Water Quality Control Regulations.

**Chapter 1200-4-2-.05, Final Plans, Construct Drawing and Specifications, Tennessee Water Quality Control Regulations.

inspection approval is given even though they may not have the NPDES permit in hand).

3.2.5 NORMAL REVIEW PERIOD

The normal review period for the stepwise procedure presented in the previous section is 180 days. However, due to TDPH inexperience, a shortage of the review personnel and the uniqueness of the IFGDP, the review period could last up to one (1) year.

3.2.6 PROGRESS TO DATE

Following is the progress to date:

- o FWEC has completed the conceptual design of the IFGDP including preliminary wastewater characterization.

- o EIA has prepared the ER which includes the IFGDP project description and other background information relating to the project and existing environment near the IFGDP site.

- o Initial contacts have been made by the Industrial Team (MLGW, FWEC and EIA) with the regulatory agencies concerning the proposed IFGDP project.

3.2.7 PERMIT DURATION PERIOD

The Engineering Report is not a permit, rather its approval provides MLGW with the permission to begin construction of the wastewater treatment facilities for the IFGDP. However, as mentioned in Section 3.2.5, Filing Procedures, the following deadlines must be met during the Engineering Report review period:

- o Once the preliminary report and plans are approved and returned to MLGW for finalizing, the final report and plans must be submitted within one (1) year or the preliminary approval will be subject to re-evaluation and may be declared null and void.

- Once the final report and plans are approved and returned to MLGW stamped "approval," construction must begin within one (1) year or the final approval will be subject to re-evaluation and may be declared null and void.

3.2.8 RENEWAL REQUIREMENTS/PROCEDURE

Renewal requirements are not applicable to the Engineering Report unless the preceding deadlines are not met. However, the TDPH may require, as part of the final approval of the Engineering Report and Final Construction Plans, that status reports be filed during construction to indicate that work is being done in conformance with the approved plans. The TDPH will also require that:

- Plans and specifications be available at the construction site
- Construction area be available for periodic inspection
- Final compliance inspection be made of the wastewater treatment facilities
- TDPH representative be present at start-up of the facility to instruct MLGW in the proper operation, sampling procedures and record keeping

Acceptability of the treatment facilities will be acknowledged by a letter from the TDPH.

3.2.9 PERMIT FEES

No permit fees are required as part of the Engineering Report review process.

3.3 DEPARTMENT OF THE ARMY PERMIT

The U.S. Army Corps of Engineers (COE) is responsible for the protection and preservation of the navigable waters of the United States. This protection is provided through the administration of a permit program. The COE permit program is authorized under Section 10 of the River and Harbor Act of 1899 and Section 404 of the Clean Water Act. Under Section 10, all work (other than the construction of bridges or causeways) performed on, over or under the navigable waters of the U.S. must be reviewed and authorized by the COE. Under Section 404, a COE permit must be obtained before fill can be placed in or removed from any stream, lake or wetland. Section 404 provides the principal federal control over physical modifications to U.S. waters, thus protecting shorelines, current patterns, flows, wetlands, etc.

The result is the requirement for a general "Department of the Army Permit" which specifically addresses those portions of Section 404 of the Clean Water Act and Section 10 of the River and Harbor Act applicable to the IFGDP.

The IFGDP will be subject to Section 404 and Section 10 and will need to obtain approval from COE for the following specific actions:

- Construction of discharge facilities
- Construction of pipelines
- Construction of barge facilities
- Removal and discharge of dredge or fill material
- Construction of a road, including placement of fill

- o Construction of water, sewage, power and telephone connections (depending on location of installation)

- o Construction in wetlands

- o Construction on a floodplain

MLGW will be required to submit an application for both a Section 404 and Section 10 permit. The COE reviews applications on a case-by-case basis to determine what should be listed on the Department of the Army Permit. The above actions are believed to be applicable to the IFGDP.

Also, since the placement of fill or the discharge of dredged material during construction may affect water quality of the Mississippi River and Lake McKellar, a Section 401 Certification will be required by the Tennessee Department of Public Health (TDPH). This Certification authorizes that the project approved by the COE will not cause water quality degredation. Application for the Section 401 Certification is handled by the COE as part of the overall Department of the Army Permit review process.

3.3.1 RESPONSIBLE REGULATORY AGENCY(S)

Jerry Rodery of the Memphis District of the COE is responsible for processing the Department of the Army Permit application (Engineering Form 4345) at the following address:

Mr. Jerry Rodery
Regulation Functions Branch
Department of the Army
Memphis District
Corps of Engineers
668 Clifford Davis Federal Building
Memphis, Tennessee 38103
901/521-3471

3.3.2 OTHER POTENTIAL REVIEWING AGENCY(S)

The Tennessee Department of Public Health (TDPH) will review the application for the Section 401 Certification. The responsible person at the following address is:

Mr. Richard Martin
Division of Water Quality Control
Tennessee Department of Public Health
490 Capitol Building
Nashville, Tennessee 37219
615/741-7883

3.3.3 INFORMATION REQUIRED FOR PERMIT

Initial application for a Department of the Army Permit is made using Engineering Form 4345. A copy of this application form is included in Appendix F. The application requests general information on the applicant; a detailed description of the proposed activity; indications of the type, composition and quantities of materials to be discharged or dumped, including the fill material's source and means of conveyance. Additional information required includes adjoining property owners, lessees, waterways where activity will occur, construction dates and other permits for which MLGW will make application.

The following maps must also be submitted with the above application form:

- Vicinity Map. This map should include latitude/longitude, waterways, political boundaries, cities and towns, roads and appropriate scales.

- Plan View. This drawing should include shorelines, tidal waters, high and low water lines, plant dimensions, waterward dimensions, type and amount of fill and locations of wetlands.

- Elevation and/or Section View. This drawing is specific to the intake structures (if applicable) area and includes dimensions, cross sections, elevations and spoil areas.

More specific requirements for these maps and drawings are presented in Appendix F in the form of a checklist.

The Environmental Report (ER) contains information that will assist in the preparation of the Department of the Army Permit application. Due to the nature of the work to be performed in the Mississippi River and Lake McKeller, however, further design information and environmental analyses are likely to be required.

3.3.4 FILING PROCEDURE

As mentioned in Section 3.3.3, the Environmental Report (ER) completed by EIA will provide information necessary for evaluation of the permit application. The stepwise procedure that follows can currently be used by MLGW. It should be understood, however, that no final action will be taken by the COE until a satisfactory Environmental Impact Statement (EIS) is issued.

1. Coordination Meeting with COE. Request a coordination meeting with the COE to determine what further information, if any, will be required for the approval of the Department of the Army Permit.

2. Submit Engineering Form 4345 (Department of the Army Permit), Required Maps and Drawings and the ER (Volumes I, II and III). All potential actions believed to require COE approval should be listed on Engineering Form 4345.

3. Preliminary Review. The COE will begin a preliminary review of the application and supporting information (ER) to determine completeness and any other actions not listed that will require COE approval. No further action following preliminary review will be taken until the final EIS is issued.

4. Public Notice of Action. Upon issuance of the final EIS, the COE will publish a public notice of the proposed activity which will be followed by a 30-day public comment period. The COE will also send the public

notice to Mr. Richard Martin of the Tennessee Department of Public Health (TDPH). This action constitutes the application for a Section 401 Certification. Other divisions of the TDPH may review the application and make recommendations to the COE and/or request a public hearing.

5. Section 401 Certification. The TDPH Division of Water Quality will review the proposed action or waive the right to review if the action is small. If review is warranted, the TDPH will initially determine if additional information is needed from MLGW and/or if a site inspection is necessary. Following review of the project, the TDPH will send a preliminary notification of their intended action to MLGW. MLGW will have 30 days to review and/or appeal the TDPH notification. If no problems result from the MLGW review, then the TDPH will send a formal notification to the COE stating that the project will not cause degradation of the water quality of the surface waters in the vicinity of the IFGDP and thus give COE the authorization to issue the Department of the Army Permit to MLGW. The formal notification to COE may contain conditions that must be met by MLGW before the COE can issue the permit. The TDPH Division of Water Quality has the authority through Section 401 to stop or modify the proposed activity. All other reviewing divisions of TDPH or agencies may only make recommendations and/or request a public hearing.

6. Public Hearing Request. During the public comment period, a public hearing can be requested by any interested party that can justify the need for a hearing. This potential step in the review process can delay the permit processing.

7. COE Issuance of Permit. Following review of public comments and the results of any public hearing, the COE will make a final evaluation and the permit will be approved or denied. Denial usually means that some additional conditions will need to be incorporated into the permit and thus, additional information will be needed from MLGW. When the permit is approved, MLGW will sign the application and return it to the COE

with the proper fees. The permit is then issued by the COE. A copy of the Department of the Army Permit (Engineering Form 1721) is presented in Appendix E. All conditions which must be met by MLGW will be listed on the permit.

3.3.5 NORMAL REVIEW PERIOD

The normal review period, pending issuance of a Final EIS and negating the need for a public hearing, is approximately 60 to 90 days.

3.3.6 PROGRESS TO DATE

The ER will provide information on the project necessary for determining actions requiring COE approval and will also provide much of the information necessary for COE impact evaluation.

The ER and preliminary design have been completed by EIA and FWEC, respectively. Additional information regarding the final design will be developed during Phase II. Initial meetings have been held with the COE to determine those construction activities requiring COE approval.

The Engineering Form 4345 can be filled out and the required maps and drawings can be prepared now for submittal to COE for preliminary review.

3.3.7 RENEWAL REQUIREMENTS/PROCEDURE

The Department of the Army Permit is valid for a period of 1-year from the date of issuance. However, the COE have issued permits valid for 2 to 3 years, but this extension request must be indicated in the original application form (Engineering Form 4345).

3.3.8 PERMIT FEES

A processing fee of $100 is assessed for commercial or industrial uses. This includes all projects whose planned or ultimate purpose is commercial or industrial in nature and is in support of operations that charge for the

production, distribution or sales of goods or services, as will the IFGDP. This processing fee is submitted once the Department of the Army Permit application is approved by the COE.

SECTION 4.0
SOLID WASTE PERMITTING

Solid wastes produced by the IFGDP must be stored, transported and disposed of in an environmentally acceptable manner according to State of Tennessee Solid Waste Regulations, T.C.A. 53-4301 et seq.*, and federal regulations proposed under the Resource Conservation and Recovery Act (RCRA) of 1976, 42 U.S.C. 3251 et seq.** The following requirements must be addressed to obtain necessary waste disposal permits consistent with the above applicable state and federal law:

- o State Waste Handling Feasibility Study
- o State Disposal Site Plan Approval
- o State Construction and Operational Plan Approval
- o State Registration for a Solid Waste Disposal Facility, and
- o Soon to be Finalized Standards under RCRA

The authority for registration of a solid waste processing or disposal facility and the requirements preceding registration are presently the responsibility of the Division of Solid Waste Management of the Tennessee Department of Public Health (TDPH).

In general, RCRA establishes a program for control of hazardous and non-hazardous wastes. Either the State of Tennessee (if delegated authority) or EPA will implement a hazardous waste permitting program. The state may operate a

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*See "Regulations Governing Solid Waste Processing and Disposal in Tennessee," promulgated under the Solid Waste Disposal Act, T.C.A. Sections 53-4301-53-4315, 53-4321.

**See "EPA Proposed Hazardous Waste Regulations under the Resource Conservation and Recovery Act" 40 CFR Part 250, 43 FR 58946, December 18, 1978.

non-hazardous solid waste permitting program consistent with applicable EPA regulations.

Regulations implementing RCRA have not yet been finalized and probably will not be promulgated until early 1980. The proposed regulations now in existence have been used to describe federal requirements applicable to the IFGDP.

In general the proposed RCRA regulations require:

- The identification of wastes to be considered "hazardous" based on ignitability, corrosivity, reactivity and toxicity (40 CFR 250.13) and/or process type origin (40 CFR 250.14)

- Compliance with labeling, shipping and reporting provisions applicable to generators of hazardous wastes (40 CFR 250.20 et. seq., and

- Compliance with design and operating standards applicable to owners and operators of hazardous waste treatment, storage and disposal facilities (40 CFR 250.40 et. seq.)

The proposed RCRA regulations do promote some uncertainty as to their final interpretation, however, it is apparent that MLGW will be responsible for determining the hazardous or non-hazardous nature of solid wastes produced by the IFGDP based on defined tests.

4.1 RESPONSIBLE REGULATORY AGENCY(S)

The regional office of the TDPH located in Jackson is presently responsible for permitting all solid waste disposal sites in Tennessee. The responsible person at the following address is:

Mr. Randal B. Harris
Division of Solid Waste Management
Tennessee Department of Public Health
Watkins Towers, Suite 201
646 Old Hickory and U.S. 45 Bypass
Jackson, Tennessee 38301
901/668-1315

The required feasibility study (if needed), construction and operational plans and the registration application should be sent directly to the above office. This office issues the disposal site approval and registration.

4.2 OTHER POTENTIAL REVIEWING AGENCY(S)

Mr. Tom Tiesler, Director of the main office of the TDPH located in Nashville may become involved in the review of the site and plans depending on characterization of the solid wastes produced and complexity of the site approval review. Mr. Tiesler may be contacted at the following address:

Mr. Tom Tiesler, Director
Division of Solid Waste Management
Bureau of Environmental Services
Tennessee Department of Public Health
Capitol Hill Building
Nashville, Tennessee 37219
615/741-3424

In addition, depending on final regulations promulgated under RCRA, the U.S. EPA, Region IV, may become involved and the responsible person at the following address is:

Mr. John Dickinson
Residuals Management Branch
Air and Hazardous Materials Division
U.S. Environmental Protection Agency, Region IV
345 Courtland Street, NE
Atlanta, Georgia 30308
404/881-3004

4.3 INFORMATION REQUIRED FOR PERMIT

Reports required before obtaining permission to construct and the permit requirements are discussed in the following subsections.

4.3.1 FEASIBILITY STUDY

When new construction of a solid waste disposal or processing facility is proposed, a feasibility study is required. Location of the site, type of waste being disposed of and ownership are the factors determining the need for the feasibility study. The informational requirements are more oriented toward the need for siting a municipal landfill serving a wide geographic area and handling more than one type of solid waste. Most of these informational requirements are not applicable to an industrial fill such as the one that will be operated at the IFGDP. Studies done by EIA in support of the Environmental Report may be sufficient to meet the requirements of a feasibility study.

4.3.2 SITE APPROVAL BASED ON SITE INSPECTION

The proposed site location will be evaluated by the TDPH and must be approved before MLGW begins disposal site construction plans. Evaluation for an industrial fill such as the one that will be operated at the IFGDP will be based on an on-site subsurface investigation. This preliminary survey will review the geology of of the disposal site. The subsurface investigation performed as part of the FWEC foundation study done by Law Engineering may provide the necessary geologic data. Mr. George Mayo, geologist for the regional office of the TDPH, was present during part of the subsurface investigation as recommended by TDPH for the solid waste permitting process.

4.3.3 CONSTRUCTION AND OPERATIONAL PLANS

Plans must be submitted to the TDPH showing the proposed construction and operation of the processing facilities and the industrial fill. Detailed

informational requirements for the plans are presented in Appendix G and will be briefly discussed below.

The following construction information is required for the processing facilities:

- Master plan showing the area lying within a 1-mile radius of the facility and showing transportation lines, water impoundments, zoning, topography, water and wastewater treatment facilities, water supplies, utilities and drainage patterns

- Site plan of facilities utilized in solid waste processing

- Drawings and specifications for equipment and buildings plus other drawings that may be required by the TDPH

- Manual containing operational procedures including operating hours, personnel duties, odor and vector control, processing sequence, safety measures and maintenance procedures

- Emergency plans

- Proposal for the disposal or use of processed solid wastes

The following construction information is required for the disposal facility:

- Method of disposal for industrial solid wastes. This must be approved by the TDPH for each individual industrial situation.

- Master plan showing same items listed above for the processing facilities master plan

- Detailed construction plans showing <u>existing</u> contours, structures, drainage area, utilities, fencings and property lines; <u>proposed</u> structures and drainage appurtenances. The <u>finished</u> plan should

indicate contours, method of developing fill areas, access roads, fencing, sign location, screening, utilities, cross section of typical lift and land use. A conservation plan should also be included.

- Basic design considerations for site selection, access roads, site drainage, site fencing, on-site structures, fire protection, signs and equipment.

Many of the previous requirements for the construction plans for process facilities and the disposal site are more oriented to a municipal landfill and not an industrial fill located within an industrial site. Requirements applicable to the IFGDP fill will be determined during a preliminary meeting with the TDPH. The detailed topographic survey done for the ER should furnish existing contours.

Operational plans for the processing and disposal facilities must also be submitted and require the following information:

- Operation of processing facilities including requirements set forth for incinerators, composting plants, transfer stations, hazardous waste processing and other processing methods

- Operation of disposal facilities including conformance with specifications set forth for access to site, unloading of waste, spreading and compacting of waste, daily cover, intermediate cover, final cover, vector and dust control, drainage and grading, closure and future planning (must estimate the remaining life on a yearly basis), etc.

- Conversion (or abandonment) of the storage area to an industrial landfill

Operational plan requirements are presented in more detail in Appendix G.

4.3.4 REGISTRATION FORM

The application for registration of a solid waste disposal or processing operation is very general in its informational requests. General information is required concerning the applicant, type of operation and construction schedule. A copy of this form is included in Appendix G.

4.4 FILING PROCEDURE

The following steps should be followed to obtain a "Registration and Approval for Operating a Solid Waste Processing or Disposal Facility On Site":

1. Initial Meeting with TDPH. The purpose of the meeting is to:

   - o Discuss the overall project and present the TDPH with the proposed program for disposal of solid wastes from the IFGDP.
   - o Discuss feasibility of the site for location of an industrial landfill.
   - o Define the requirements for the feasibility study, site evaluation and construction and operational plans.
   - o Determine at what point MLGW will be required to register the solid waste disposal site. As long as solid waste is being stored on-site, no registration is required, and the TDPH does not become involved.

2. Submit Feasibility Study. This will be an abbreviated study for an industrial fill. Exact requirements will be outlined in the meeting mentioned previously.

3. Preliminary Survey of IFGDP Site. The subsurface investigation conducted by Law Engineering for the FWEC foundation study should provide most of the necessary geologic data.

4. Site Approval. A letter will be sent to MLGW approving or denying the site for disposal of solid waste. Approval authorizes MLGW to proceed with construction and operational plans.

5. Submit Construction and Operational Plans. The construction and operational plans for solid waste disposal will be reviewed by the TDPH. Approval of the plans will be indicated in a letter to MLGW. The application form for registration of the facility will accompany the approval letter. The letter approving the plans represents permission for MLGW to begin construction of the disposal facility. Review of the construction and operation plans should last no more than 90 days from the date the application is received. In granting approval, the TDPH may specify modification, conditions or regulation they feel may be required.

6. Submit Application for Registration to Operate and Maintain a Solid Waste Processing and Disposal Facility. The application will be submitted to the TDPH at least 60 days, but no more than 180 days, prior to the beginning of operation. Written acknowledgement of registration will be sent to MLGW.

7. Site Inspection. The TDPH should be notified when the disposal facility is completed so that a compliance inspection can be scheduled by the TDPH. A letter will be sent to MLGW indicating approval of the disposal facility. This letter also represents permission to begin operation.

8. Operational Compliance. Quarterly site inspections will be made by the TDPH to determine whether operational complaince is being maintained by MLGW. More frequent inspections will be made by the Memphis and Shelby County Health Department's Division of Solid Waste.

4.5 NORMAL REVIEW PERIOD

The review periods are indicated in the steps of the filing procedure.

4.6 PROGRESS TO DATE

The following progress has been made to date:

- o EIA has conducted leaching tests to characterize the bottom ash expected from the IFGDP.
- o EIA has prepared the ER which provides much of the background information on the IFGDP site and the conceptual design of the solid waste disposal facility done by FWEC.
- o Law Engineering has done a subsurface investigation for the FWEC foundation study.
- o MLGW and EIA have made initial contacts with the TDPH Division of Solid Waste Management to discuss the proposed IFGDP.

4.7 PERMIT DURATION PERIOD

Registration for a solid waste facility need not be renewed. Re-registration is only necessary if ownership of the disposal facility changes hands or a modification is made to the operation of the processing or disposal facility.

4.8 RENEWAL REQUIREMENTS/PROCEDURE

No renewal of the processing or disposal facility registration is necessary as long as MLGW maintains operational compliance. This is determined through compliance inspections previously discussed.

4.9 PERMIT FEES

No permit fees are required for registration of a nonhazardous solid waste processing or disposal facility.

4.10 MONITORING WELLS

Under the current draft RCRA regulations, solid waste disposal sites must be monitored to prevent the contamination of groundwater. As part of the operational monitoring program that will need to be implemented when the IFGDP becomes operational, wells will be used to monitor leachates from the solid waste disposal site. The drilling of any shallow water wells, whether for drinking water or monitoring, will require the filing of a Water Well Application.

Application for a Water Well permit is made to the Memphis and Shelby County Health Department (MSCHD). The responsible person at the following address is:

Mr. Chuck Nance
Sanitary Engineering and Water Quality
Memphis and Shelby County Health Department
814 Jefferson Avenue
Memphis, Tennessee 38105
901/528-3966

The application should be filed with MSCHD about two weeks before the well(s) will be drilled. General information is required including the owner of the well, the well-drilling company and the reason for drilling. More specific information on the size and depth of the well (to what water-bearing strata), well site, proposed use, type and size of pumping equipment and approximate flow in gallons per minute is also requested. A sketch of the area showing location of the well should accompany the application. A copy of the water well application is included in Appendix H along with information on location of well sites, protection of wells and pumping facilities and other general information concerning wells. During drilling of the well, a member of MSCHD will be present.

SECTION 5.0
TOXIC SUBSTANCES CONTROL ACT

The purpose of the Toxic Substances Control Act (TSCA), 15 U.S.C. 2601, et seq., is to regulate the commerce of chemical substances that can pose a threat to health and/or the environment. TSCA requires:

- Testing for those chemicals having an inadequate information base on their effects
- Premanufacturing Notification (PMN) for all new substances or old substances being produced for a new use
- Regulation of the manufacture, distribution and utilization of all substances deemed hazardous
- Record keeping of significant adverse reactions which impact health and the environment.

TSCA is complimentary to at least 20 federal statutes that apply to the control of toxic substances including the Occupational Health and Safety Act, Clean Air Act, Federal Water Pollution Control Act and RCRA. Under TSCA, EPA can determine that there is an inadequate base of information to assess the health and environmental effects of a manufactured chemical and require testing that can potentially be both costly and time consuming. TSCA also requires that EPA be notified, through the use of the Premanufacturing Notification (PMN), prior to manufacture of any new chemical substance or old substance for a significant new use (as determined by EPA). EPA regulates the manufacturing, processing, distribution and use of the chemical substance deemed hazardous by requiring appropriate testing.

Any company planning, for commercial purposes, to manufacture, process or import a chemical substance not contained in the published 1979 TSCA inventory list must submit standard PMN forms to EPA 90 days in advance of manufacture.

The PMN form requires the necessary data for risk assessment; however, the amount of data needed (number and character of people exposed, amounts and pathways of product released to environment, bioassays, toxicological testing, etc.) is not specified by TSCA. It is expected that the PMN review process will define the amount of data the manufacturer must acquire.

The IFGDP will produce the following commercial products:

Product	Units	Quantity
Industrial Fuel Gas (IFG) Product (medium-Btu fuel)	Standard cubic feet (scf) per day	154 million
Synthetic Natural Gas (SNG) Product (high-Btu Fuel)	Standard cubic feet (scf) per day	4 million
Liquid Sulfur	Tons per day	100

EIA has reviewed product composition information for applicability of TSCA to the IFGDP and has determined the following:

- Liquid Sulfur is currently on the inventory, and no PMN is required.
- All chemical components of the IFG and SNG product are currently on the inventory, and no PMN is required.

Additionally, the toxic/nontoxic effects of these materials are generally well documented.

In summary, it appears that the IFGDP will not be required to submit a PMN based upon information available at this time. However, future developments in the regulatory climate must be monitored to ensure that a PMN will not be required prior to operation. Since apparently no PMN is required, there is no

further discussion on the procedure which must be followed to obtain a PMN, but a meeting with U.S. EPA is recommended to discuss the potential future impact of TSCA on the IFGDP products.

Memphis Light, Gas and Water Division
Industrial Fuel Gas Demonstration Plant

APPENDICES TO
ENVIRONMENTAL PERMIT COMPLIANCE PLAN

Prepared by
Energy Impact Associates

Prepared for
Foster Wheeler Energy Corporation
Livingston, New Jersey

October 1979

APPENDIX A

PREVENTION OF SIGNIFICANT DETERIORATION (PSD) APPLICATION GUIDELINES AND APPLICABLE AIR QUALITY STANDARDS

A-1 PREVENTION OF SIGNIFICANT DETERIORATION (PSD) APPLICATION GUIDELINES

U.S. EPA, Region IV, has prepared the following checklist for the Tennessee Department of Public Health (TDPH) delineating the minimum requirements of a PSD application and the minimum information to be contained in a Preliminary Determination and the public notice.

The PSD application submitted by MLGW should include:

- Cover letter requesting preconstruction review. Name and location of source, and name and title of person making the application.
- Detailed description of new source or modifications. What is to be done, in words.
- Emission data, including all stack parameters and concentrations of all pollutants emitted (or state permit application). Also, all emission calculations.
- Detailed description, including pertinent design calculations and specifications, of all air pollution control equipment.
- All necessary modelling, including summary tables and comparison with all increments and standards.
- Monitoring data, if required.
- Assessment of secondary impacts, if required.
- Assessment of impacts on visibility, soils and vegetation, if required.
- Air quality impact of growth caused as a result of proposed source.

The Preliminary Determination and public notice prepared by the TDPH should include:

- Explanation of action being taken, including
  a. Short description of PSD regulations.
  b. Name and location of source.
  c. Source category.
  d. Whether it is a new source or modification.
  e. Increase in annual potential emissions.
  f. Pollutants for which construction is "major."
  g. Date of initial application and date application was complete.
  h. Whether it is subject to offset policy, and if so, whether it also impacts on attainment area, and for which pollutants.
  i. Whether it is a relocation of a previously permitted portable facility with no impact on Class I area or area where increment is exceeded.

- Control technology review, including
  a. Statement of any pollutants which have allowable emission less than 50 ton/year, 1000 lb/day or 100 lb/hr, as appropriate.
  b. Engineering review of control equipment.

- Impact analysis, including
  a. Statement of any pollutants with allowable emissions of less than 50 ton/year, etc., as appropriate, which impact no Class I area or area where increment is exceeded.
  b. Pollutants which are temporary emissions and impact no Class I area or area where increment is exceeded.
  c. For modifications, pollutants which fall under "bubble concept," and full documentation of decreases.
  d. Whether source impacts a Class I area, and why or why not.
  e. Review of monitoring data.
  f. Review of modelling.

- o Copy of public notice. Public notice should include opportunity for public comment and public hearing and the degree of increment consumption of the proposed source.

- o Copy of letters to interested parties in 40 CFR 52.21(r)(2)(iv).

A-2 NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

Presented in Table A-2 are the National Ambient Air Quality Standards (NAAQS) promulgated under the Clean Air Act Amendments of 1977. The table is divided into three parts as follows:

- o National Ambient Air Quality Standards. These are the maximum concentrations of the criteria pollutants which should be found in ambient air.

- o Maximum Allowable PSD Increments. These are the allowable PSD increments for SO_2 and TSP. The increment consumption by a new source upon start-up must not cause a violation of the above NAAQS.

- o Significant Increments Averaging Time. The minimum extent of the zone of influence is the model-predicted distance to the significant increment. The zone of influence are those areas which are currently nonattaining for the NAAQS.

TABLE A-2

NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS)

a. NAAQS

Pollutants	Units	Time Period	Primary Standard	Secondary Standard
Sulfur Dioxide (SO_2)	$\mu g/m^3$	3-hour*	Δ	1300
	$\mu g/m^3$	24-hour*	365	Δ
	$\mu g/m^3$	Annual**	80	**
Nitrogen Dioxide (NO_2)	$\mu g/m^3$	Annual**	100	100
Total Suspended Particulates (TSP)	$\mu g/m^3$	24-hour*	260	150
	$\mu g/m^3$	Annual	75	60
Carbon Monoxide (CO)	mg/m^3	1 hour*	40	40
	mg/m^3	8 hour	10	10
Lead (Pb)	$\mu g/m^3$	3 month average	1.5	1.5
Hydrocarbons (HC)†	$\mu g/m^3$	3 hour*	160	160
Ozone (O_3)	ppm	1 hour*	0.12	0.12

b. Maximum Allowable PSD Increment

	Units	Time Period	Class I	Class II	Class III
Total Suspended Particulates (TSP)	$\mu g/m^3$	Annual mean	5	19	37
	$\mu g/m^3$	24-hour maximum	10	37	75
Sulfur Dioxide (SO_2)	$\mu g/m^3$	Annual mean	2	20	40
	$\mu g/m^3$	24-hour maximum	5	91	182
	$\mu g/m^3$	3-hour maximum	25	512	700

c. Significant Increments Averaging Time

	Units	Annual	24-hour Maximum	8-hour Maximum	3-hour Maximum	1-hour Maximum
Sulfur Dioxide (SO_2)	$\mu g/m^3$	1	5	Δ	25	Δ
Total Suspended Particulates (TSP)	$\mu g/m^3$	1	5	Δ	Δ	Δ
Nitrogen Dioxide	$\mu g/m^3$	1	Δ	Δ	Δ	Δ
Carbon Monoxide	mg/m^3	Δ	Δ	0.5	Δ	2

* Levels not to be exceeded more than once per year.

** Levels not to be exceeded.

Δ At the present time, no standards or increments have been promulgated for these pollutants.

† Non-methane hydrocarbons for use as a guide in devising implementation plans to achieve the oxidant standard.

APPENDIX B

PERMIT APPLICATION FORMS REQUIRED FOR CONSTRUCTION, INSTALLATION OR ALTERATION OF EQUIPMENT CAUSING AIR CONTAMINANT EMISSIONS

B-1 PERMIT TO CONSTRUCT AN AIR CONTAMINANT SOURCE

Tennessee Air Pollution Control laws (T.C.A. Section 53-3412 et seq.) applicable in Shelby County and its municipalities require that no person shall construct, install or alter any equipment capable of causing the emission of air contaminents into the open air or control apparatus which prevents or controls the emission of air contaminants until an application, including plans and specifications has been filed with the health officer and a construction, installation or alteration permit has been issued by the Tennessee Department of Public Health (TDPH).

Following are copies of all the Permit Application forms (APC-1 to APC-11) provided by MSCHD for construction of an air contaminant source. Forms APC-1 to APC-6, and APC-8 are applicable to the IFGDP. A copy of APC-2 must be submitted for each process emission source. All IFGDP process emission sources have been identified in the Environmental Report.

Also included is APC-12, Proposed Schedule of Corrective Action, which is used for those process emission sources not in compliance with any applicable regulations and a list of pollution reduction devices or methods with their corresponding number code.

Form APC-1, General Information, is also used when making application for permission to operate upon completion of construction.

FORM APC-1

Permit Application General Information

MAIL TO: MEMPHIS AND SHELBY COUNTY HEALTH DEPARTMENT
AIR POLLUTION CONTROL
814 JEFFERSON AVENUE
MEMPHIS, TENNESSEE 38105

DO NOT WRITE IN THIS SPACE

AGENCY CODE
COUNTY CODE
SOURCE NUMBER
UTM ZONE
EW COORDINATE
NS COORDINATE
AIR QUALITY REGION
REVIEWER
DATE

1. PERMIT TO BE ISSUED TO: (NAME OF CORPORATION, COMPANY, INDIVIDUAL OWNER OR GOVERNMENTAL AGENCY THAT IS TO OPERATE THE EQUIPMENT)

2. MAILING ADDRESS

CITY ZIP CODE

3. ADDRESS AT WHICH SOURCE IS TO BE OPERATED:

ADDRESS CITY ZIP CODE

4. TYPE OF ORGANIZATION: CORPORATION ☐ INDIVIDUAL OWNER ☐
PARTNERSHIP ☐ GOVERNMENTAL AGENCY ☐

5. BRIEF DESCRIPTION OF OPERATION AT THIS ADDRESS:

6. ESTIMATED VALUE OF INSTALLATION $
COST OF PROPOSED ALTERATION $
COST OF AIR POLLUTION CONTROL EQUIPMENT $

7. PRESENT STATUS OF AIR CONTAMINANT SOURCE (CHECK AND COMPLETE APPLICABLE ITEMS)

	EST. STARTING DATE	EST. COMPLETION DATE
☐ PERMIT TO CONSTRUCT REQUESTED		
☐ CONSTRUCTION COMPLETED	DATE	
☐ PERMIT TO OPERATE REQUESTED		
☐ TRANSFER OF LOCATION	EST. DATE	
☐ AIR CONTAMINANT SOURCE HAS NOT BEEN ALTERED		

8. SIGNATURE OF RESPONSIBLE MEMBER OF FIRM — DATE OF APPLICATION

9. TYPE OR PRINT NAME AND OFFICIAL TITLE OF PERSON SIGNING THIS APPLICATION

NAME
TITLE
PHONE

HD-APC-1-72

FORM APC-2

Permit Application Process Emission Source Cover Sheet

MAIL TO: MEMPHIS & SHELBY COUNTY HEALTH DEPT.
AIR POLLUTION CONTROL
814 JEFFERSON AVENUE
MEMPHIS, TENNESSEE 38105

ONE COPY OF THIS FORM MUST BE FILLED OUT COMPLETELY FOR EACH PROCESS EMISSION SOURCE CLAIMED AND THE APPROPIATE SHEET(S), APC-3, AND/OR APC-4, ATTACHED FOR EACH EMISSION SOURCE COVER SHEET MUST BE ACCOMPANIED BY THE PERMIT APPLICATION, APC-1.

1. COMPANY NAME _____

2. PROCESS EMISSION SOURCE _____ 3. SIC CODE _____

DO NOT WRITE IN THIS SPACE

AGENCY CODE
COUNTY CODE
SOURCE NUMBER
POINT NUMBER
EW COORD.
NS COORD.
EMISSION TYPE
REVIEWER
DATE

4. GIVE A BRIEF DESCRIPTION OF THE PROCESS ALONG WITH A FLOW DIAGRAM. OPERATION CENTERS, STORAGE POINTS, MATERIAL INPUTS, MATERIAL OUTPUTS AND EMISSION POINTS SHOULD BE NOTED IN POUNDS PER OPERATION HOUR.

_____

_____

_____

_____

NOTE: ATTACH FLOW DIAGRAM FOR THIS PROCESS.

5. TYPE OF PROCESS: CONTINUOUS ☐ COMBINED ☐ BATCH ☐

6. OPERATION SCHEDULE OF PROCESS EMISSION SOURCE:

	NORMAL	MAXIMUM
HOURS PER DAY		
DAYS PER WEEK		
WKS. PER YEAR		

d. INDICATE IF OPERATION VARIES BY SEASON AND TELL HOW.

_____

_____

7. LIST MATERIAL INPUTS TO PROCESS EMISSION SOURCE:

NAME OF INPUT	NEW MATERIAL OR FORM OTHER PROCESS EMISSION SOURCE(GIVE PROCESS #)	LBS./OPERATING HOUR NORMAL	LBS./OPERATING HOUR MAXIMUM	FLOW DIAGRAM REFERENCE
a.				
b.				
c.				
d.				
e.				
f.				
g.				
h.				
i.				
TOTAL LBS/OPERATING HOUR INPUT TO PROCESS EMISSION SOURCE				

(OVER)

8. LIST MATERIAL OUTPUTS FROM THIS PROCESS EMISSION SOURCE:

NAME OF OUTPUT	INDICATE NO. OF PROCESS IF THIS IS AN INPUT TO ANOTHER PROCESS EMISSION SOURCE	LBS/OPERATING HOUR NORMAL	LBS/OPERATING HOUR MAXIMUM	FLOW DIAGRAM REFRCE.
a.				
b.				
c.				
d.				
e.				
f.				
g.				
h.				
i.				
TOTAL LBS/OPERATING HOUR OUTPUT FROM PROCESS EMISSION SOURCE.				

9. LIST AIR POLLUTION EMISSION POINTS FOR THIS PROCESS EMISSION SOURCE. ATTACH A SEPARATE "EMISSION POINT DATA" SHEET APC-3, FOR EACH SOURCE.

EMISSION POINT NO. OR CODE	LBS/OPERATING HOUR						FLOW DIAGRAM REF.
	PARTICULATE		SO_2		HYDROCARBON		
	NORMAL	MAXIMUM	NORMAL	MAXIMUM	NORMAL	MAXIMUM	
a.							
b.							
c.							
d.							
e.							
f.							
g.							
h.							
i.							
TOTAL LBS. POLLUTANT EMITTED							

NOTE: ATTACH ADDITIONAL SHEETS AS REQUIRED FOR ITEMS 7,8, and 9.

10.	SIGNATURE OF RESPONSIBLE MEMBER OF FIRM	DATE
11.	TYPE OR PRINT NAME AND OFFICIAL TITLE OF PERSON SIGNING THIS FORM.	NAME TITLE PHONE

FORM APC-3

Permit Application Stack Process Emission Point Data

MAIL TO: MEMPHIS AND SHELBY COUNTY HEALTH DEPARTMENT
AIR POLLUTION CONTROL
814 JEFFERSON AVENUE
MEMPHIS, TENNESSEE 38105

ONE COPY OF THIS FORM MUST BE FILLED OUT COMPLETELY FOR EACH STACK EMISSION POINT IN THE PROCESS. THE PROCESS EMISSION SOURCE COVER SHEET, APC-2, MUST BE ATTACHED FOR PARTICULATE EMISSIONS ONLY.

DO NOT WRITE IN THIS SPACE

AGENCY CODE
COUNTY CODE
SOURCE NUMBER
POINT NUMBER
EW COORD.
NS COORD.
EMISSION TYPE
REVIEWER
DATE

1. COMPANY NAME _____

2. PROCESS EMISSION SOURCE NUMBER _____

3. EMISSION POINT NUMBER OR CODE *(AS SHOWN ON PROCESS EMISSION SOURCE COVER SHEET)* _____

4. INDICATE STACK OR RELEASE POINT HEIGHT ABOVE GROUND _____ FT.

5. SHOW DIAMETER OF STACK OR RELEASE MECHANISM AT TOP _____ FT.

6. SHOW NORMAL GAS TEMPERATURE _____ °F.

7. INDICATE PERCENT OF TIME OVER 125 °F _____ %.

8. SHOW EXIT GAS VELOCITY _____ FT/SEC.

9. SHOW GAS VOLUME FLOW RATE _____ CU. FT./SEC @ 70 °F AND ONE ATMOSPHERE.

10. SHOW MOISTURE CONTENT _____ GRAINS/CU. FT. DRY GAS @ 70 °F.

11. SHOW DISTANCE FROM RELEASE POINT TO NEAREST PROPERTY LINE _____ FT.

12. AIR POLLUTION CONTROL EQUIPMENT

AIR CONTAMINANT CONTROLLED	YEAR INSTALLED	TYPE [1]	EFFICIENCY
Particulate			
Sulfur Dioxide			

[1] USE THE CODE NUMBERS SHOWN IN THE INSTRUCTIONS FOR INDICATING TYPE OF CONTROL EQUIPMENT

IF THIS EMISSION POINT HAS SEVERAL PIECES OF CONTROL EQUIPMENT, INDICATE THE SEQUENCE, AS FOR EXAMPLE: 008/010: 80%/98%

13. IS AN EMISSION MONITORING AND RECORDING INSTRUMENT ATTACHED TO THIS EMISSION POINT? YES ☐ NO ☐

IF YES, DESCRIBE _____

(over)

14. ADDITIONAL COMMENTS: _____

15. SHOW AIR CONTAMINANT DATA FOR THIS EMISSION POINT:

POLLUTANT	ABSENT	PRESENT	CONCENTRATION		AVERAGE EMISSIONS		METHOD OF MEASUREMENT [2]
			QUANTITY	UNITS	POUNDS PER	POUNDS/YEAR	
Particulates				grains/scf @ 70°F			
Sulfur Dioxide				ppm			
Nitrogen Dioxide				ppm			
Hydrocarbons				ppm			
Carbon Monoxide				ppm			
Others							

[2] ATTACH A COPY OF THE TEST PROCEDURE, PROCESS MATERIAL BALANCE STUDY OR OTHER BASIS USED AS METHOD OF MEASUREMENT

FOR OFFICE USE ONLY

☐ Process Weight Table Applies to This Emission Point.

☐ Emission Point is Not in Compliance With Applicable Regulation.

☐ Emission Point is Not in Compliance With Sulfur Dioxide Emission Standard of 2000 ppm.

☐ Emission Point is Not in Compliance With Sulfur Dioxide Emission Standard of 500 ppm.

☐ Emission Point is Not in Compliance With Gaseous Emission Standard. Identify Gas

☐ Emission Point is Not in Compliance With Gaseous Emission Standard. Identify Gas

☐ Continuous Monitor(s) for (1)_____; (2)_____;

(3)_____ Recommended.

ND-APC-3-7?

FORM APC-4

Permit Application Non-Stack Process Emission Point Data

MAIL TO: MEMPHIS AND SHELBY COUNTY HEALTH DEPARTMENT
AIR POLLUTION CONTROL
814 JEFFERSON AVENUE
MEMPHIS, TENNESSEE 38105

ONE COPY OF THIS FORM MUST BE FILLED OUT COMPLETELY FOR EACH NON-STACK PROCESS EMISSION POINT IN THE PROCESS. THE PROCESS EMISSION SOURCE COVER SHEET, APC-2, MUST BE ATTACHED FOR PARTICULATE EMISSIONS ONLY.

DO NOT WRITE IN THIS SPACE

AGENCY CODE
COUNTY CODE
SOURCE NO.
NO. EMISSION PTS.
EW COORDINATE
NS COORDINATE
EMISSION TYPE
REVIEWER
DATE

1. POINT SOURCE IDENTIFICATION ON PROCESS FLOW DIAGRAM.

2. GIVE A BRIEF DESCRIPTION OF THE PROCESS EMISSION POINT PLUS A SKETCH IF APPROPRIATE.

3. FILL IN TABLE BELOW:

POLLUTANT	ABSENT	PRESENT	MAX. AND MIN. EMISSIONS FOR ANY 30 MIN. PERIOD OF NORMAL OPERATION		AVERAGE EMISSIONS		METHOD OF MEASUREMENT*
			LBS MAX	LBS MIN	LBS/HR	LBS/YR	
PARTICULATES							
SULFUR DIOXIDE							
CARBON MONOXIDE							
HYDROCARBONS							
OXIDES OF NITROGEN							
FLUORIDES							
SHOW OTHERS:							

*PLEASE ATTACH A COPY OF THE TEST PROCEDURE, PROCESS MATERIAL BALANCE STUDY OR OTHER BASIS USED AS A METHOD OF MEASUREMENT.

FOR OFFICE USE ONLY

- ☐ REGULATED BY FUGITIVE DUST LAW.
- ☐ REGULATED BY PROCESS WEIGHT.
- ☐ AMBIENT AIR MONITORING USED FOR SO_2 AT THIS PLANT.
- ☐ IN COMPLIANCE.
- ☐ NOT IN COMPLIANCE.

MD-APC-4-77

FORM APC-5

Permit Application Fuel Burning Source Emission Data

MAIL TO: MEMPHIS AND SHELBY COUNTY HEALTH DEPARTMENT
AIR POLLUTION CONTROL
814 JEFFERSON AVENUE
MEMPHIS, TENNESSEE 38105

FILL OUT A SEPARATE SHEET FOR EACH STACK OR EMISSION POINT. THIS FORM MUST BE ACCOMPANIED BY THE PERMIT APPLICATION APC-1.

DO NOT WRITE IN THIS SPACE

AGENCY CODE |_|_|_|
COUNTY CODE |_|_|_|_|
SOURCE NUMBER |_|_|_|_|_|
POINT NUMBER |_|_|_|_|
EW COORD |_|_|_|_|_|_|
NS COORD |_|_|_|_|_|_|
EMISSION TYPE |_|_|
REVIEWER |_|_|_|
DATE |_|_|_|_|_|_|

1. COMPANY NAME _____

2. STACK NUMBER _____

3. GIVE BOILER DATA BELOW. USE A SEPARATE LINE FOR EACH BOILER DISCHARGING FLUE GAS TO THIS STACK.

BOILER NO.	TYPE FIRING*	RATED CAPACITY 10^6 BTU/HR.	TYPE FUEL	ANNUAL QUANTITY	UNITS	SULFUR[1] CONTENT (PERCENT)	ASH[1] CONTENT (PERCENT)

* CYCLONE, SPREADER (WITH OR WITHOUT REINJECTION), PULVERIZER (WET OR DRY BOTTOM, WITH OR WITHOUT REINJECTION), OTHER STOKER, SPECIFY TYPE, HAND FIRED, OR OTHER TYPE. DESCRIBE.

[1] IF NOT AVAILABLE, GIVE NAME AND ADDRESS OF YOUR FUEL SUPPLIER.

4. IF A STANDBY OR INTERRUPTIBLE FUEL IS USED, GIVE TYPE OF FUEL, ANNUAL QUANTITY USED, AND THE SCHEDULE OR PROGRAM FOR USE _____

SULFUR CONTENT OF STANDBY FUEL _____ % IF COAL, SHOW ASH CONTENT _____ %

5. AIR POLLUTION CONTROL EQUIPMENT

Air Contaminant Controlled	Year Installed	Type [2]	Efficiency
Particulate			
Sulfur Dioxide			

[2] USE THE CODE NUMBERS SHOWN IN THE INSTRUCTIONS FOR INDICATING TYPE OF CONTROL EQUIPMENT.

__(over)

HD-APC-5-72

FUEL BURNING SOURCE EMISSION DATA (CONTINUED)

6. IS AN EMISSION MONITORING AND RECORDING INSTRUMENT ATTACHED TO THIS STACK OR EMISSION POINT? YES ☐ NO ☐
   SMOKE DETECTOR? YES ☐ NO ☐ SO_2 MONITOR? YES ☐ NO ☐ NO_x YES ☐ NO ☐
   OTHER? (DESCRIBE) _____

7. INDICATE STACK HEIGHT ABOVE GRADE _____ FT.

8. INSIDE DIAMETER OF STACK AT TOP _____ FT.

9. NORMAL DESIGN EXIT GAS TEMPERATURE _____ °F

10. EXIT DESIGN GAS VELOCITY _____ FT/SEC.

11. EXIT DESIGN GAS VOLUME _____ CFM @ 70 °F AND ONE ATMOSPHERE.

12. SHOW MOISTURE CONTENT _____ GRAINS/CU. FT. DRY GAS AT 70 °F.

13. SHOW DISTANCE FROM RELEASE POINT TO NEAREST PROPERTY LINE _____ FT.

14. PERCENT OF HEAT USED FOR SPACE HEATING _____ %.

15. OPERATIONAL SCHEDULE OF FUEL BURNING EMISSION SOURCE:

    a. HOURS PER DAY _____

    b. DAYS PER WEEK _____

    c. WEEKS PER YEAR _____

    d. INDICATE IF OPERATION VARIES BY SEASON AND TELL HOW (ATTACH ADDITIONAL SHEET IF NECESSARY) _____

16. PEAK PERIOD OF OPERATION

Dec-Feb	Mar-May	June-Aug	Sept-Nov

ZERO PERIOD OF OPERATION

Dec-Feb	Mar-May	June-Aug	Sept-Nov

17. SHOW AIR CONTAMINANT DATA FOR THIS EMISSION POINT:

POLLUTANT	ABSENT	PRESENT	CONCENTRATION			AVERAGE EMISSIONS		BASIS OF ESTIMATE * (SPECIFY)
			QUANTITY	UNITS	PERCENT EXCESS AIR	POUNDS/HOUR	TONS/YEAR	

* PLEASE ATTACH A COPY OF THE TEST PROCEDURE, PROCESS MATERIAL BALANCE STUDY OR BASIS USED AS METHOD OF MEASUREMENT

Form APC 6

Permit Application Incineration-Source Emission Data

MAIL TO: MEMPHIS AND SHELBY COUNTY HEALTH DEPARTMENT
AIR POLLUTION CONTROL
814 JEFFERSON AVENUE
MEMPHIS, TENNESSEE 38105

DO NOT WRITE IN THIS SPACE

AGENCY CODE
COUNTY CODE
SOURCE NUMBER
POINT NUMBER
EW COORD.
NS COORD.
EMISSION TYPE
REVIEWER
DATE

FILL OUT A SEPARATE SHEET FOR EACH STACK OR EMISSION POINT. THIS FORM MUST BE ACCOMPANIED BY THE PERMIT APPLICATION APC-1.

1. NAME OF COMPANY _____
2. DESCRIBE INCINERATION PROCESS INDICATING IF EQUIPMENT IS MULTI-CHAMBER, REFRACTORY LINED, AND USES GAS OR OIL BURNERS.

_____

_____

_____

3. SHOW TOTAL WASTE BURNED PER YEAR _____ TONS.
4. SHOW DESIGN CHARGING RATE _____ POUNDS/HOUR.
5. SHOW TYPE OF WASTE (SHOW CLASS FROM LIST ON BACK) _____.
6. INDICATE MAKE OF EQUIPMENT _____ *MANUFACTURER* _____ *MODEL NO.*
7. IS GAS CLEANING DEVICE INCLUDED IN THE FLUE GAS STREAM FROM THIS INCINERATOR? YES ☐ NO ☐

   IF YES, DESCRIBE _____ SHOW CONDITION _____
8. SHOW GAS CLEANING DEVICE EFFICIENCY FOR PARTICULATES _____ %.
9. INDICATE STACK HEIGHT ABOVE GRADE _____ FT.
10. INSIDE DIAMETER OF STACK AT TOP _____ FT.
11. NORMAL EXIT GAS TEMPERATURE _____ °F.
12. EXIT GAS VELOCITY _____ FPS.
13. EXIT GAS VOLUME FLOW RATE _____ CU. FT./SEC @ 70 °F AND ONE ATMOSPHERE
14. SHOW MOISTURE CONTENT _____ GRAINS/CU. FT. DRY GAS @ 70 °F.
15. SHOW DISTANCE FROM RELEASE POINT TO NEAREST PROPERTY LINE _____ FT.
16. OPERATIONAL SCHEDULE OF INCINERATOR

    a. HOURS PER DAY _____

    b. DAYS PER WEEK _____

    c. WEEKS PER YEAR _____

    d. INDICATE IF OPERATION VARIES BY SEASON AND TELL HOW

    _____

    _____
17. SHOW AIR CONTAMINANT DATA FOR THIS EMISSION POINT:

POLLUTANT	ESTIMATE	MEASURE	CONCENTRATION		AVERAGE EMISSIONS		METHOD OF MEASUREMENT *
			QUANTITY	UNITS	POUNDS/HOUR	POUNDS/YEAR	
Particulate							
Other							

* FIELD TESTS BY PLANT OR BY MANUFACTURER OR OTHER FACTS

MD-APC-6-72

CLASSIFICATION OF WASTES

Type 0 - Trash, a mixture of highly combustible waste such as paper, cardboard, cartons, wood boxes, and combustible floor sweepings, from commercial and industrial activities. The mixtures contain up to 10% by weight of plastic bags, coated paper, laminated paper, treated corrugated carboard, oily rags and plastic or rubber scraps.

This type of waste contains 10% moisture, 5% incombustible solids and has a heating value of 8500 B.T.U. per pound as fired.

Type 1 - Rubbish, a mixture of combustible waste such as paper, cardboard cartons, wood scrap, foliage and combustible floor sweepings, from domestic, commercial and industrial activities. The mixture contains up to 20% by weight of restaurant or cafeteria waste, but contains little or no treated papers, plastic or rubber wastes.

This type of waste contains 25% moisture, 10% incombustible solids and has a heating value of 6500 B.T.U. per pound as fired.

Type 2 - Refuse, consisting of an approximately even mixture of rubbish and garbage by weight.

This type of waste is common to apartment and residential occupancy, consisting of up to 50% moisture, 7% incombustible solids, and has a heating value of 4300 B.T.U. per pund as fired.

Type 3 - Garbage, consisting of animal and vegetable wastes from restaurants, cafeterias, hotels, hospitals, markets, and like installations.

This type of waste contains up to 70% moisture, up to 5% incombustible solids, and has a heating value of 2500 B.T.U. per pound as fired.

Type 4 - Human and animal remains, consisting of carcasses, organs and solid organic wastes from hospitals, laboratories, abattoris, animal pounds, and similar sources, consisting of up to 85% moisture, 5% incombustible solids, and having a heating value of 1000 B.T.U. per pound as fired.

Type 5 - By product waste, gaseous, liquid or semi-liquid, such as tar, paints, solvents, sludge, fumes, etc., from industrial operations. B.T.U. values must be determined by the individual materials to be destroyed.

Type 6 - Solid by-product waste, such as rubber, plastics, wood waste, etc., from industrial operations. B.T.U. values must be determined by the individual materials to be destroyed.

HD-APC-6-72

Form APC-7

Hazardous Materials Source Emission Data

MAIL TO: MEMPHIS AND SHELBY COUNTY HEALTH DEPARTMENT
AIR POLLUTION CONTROL
814 JEFFERSON AVENUE
MEMPHIS, TENNESSEE 38105

DO NOT WRITE IN THIS SPACE

AGENCY CODE
COUNTY CODE
SOURCE NUMBER
EW COORD
NS COORD
HAZARDOUS MATERIAL
REVIEWER
DATE

Date Out:
Date Due:

1. NAME OF CORPORATION, COMPANY, INDIVIDUAL OWNER OR GOVERNMENTAL AGENCY OPERATING SOURCE

2. MAILING ADDRESS

CITY *STATE* *ZIP CODE*

3. ADDRESS AT WHICH SOURCE IS OPERATED

CITY *ZIP CODE*

4. TYPE OF ORGANIZATION: CORPORATION ☐ PARTNERSHIP ☐ INDIVIDUAL OWNER ☐ GOVERNMENTAL AGENCY ☐

5. BRIEF DESCRIPTION OF OPERATION AT THIS ADDRESS:

6. HAZARDOUS MATERIAL EMITTED: MERCURY ☐ ASBESTOS ☐ BERYLLIUM ☐

NOTE: FILL OUT ONE SHEET FOR EACH HAZARDOUS MATERIAL EMITTED.

7. WHAT IS THE TOTAL QUANTITY OF HAZARDOUS MATERIAL DISCHARGED FROM THIS AIR CONTAMINANT SOURCE?

8. IF HAZARDOUS MATERIAL IS ASBESTOS, ARE THERE ANY VISIBLE EMISSIONS? YES ☐ NO ☐

9. FOR EACH POINT OF RELEASE OTHER THAN THROUGH A STACK, GIVE AT LEAST A QUALITATIVE DESCRIPTION BELOW:

(over)

HD-APC-7-72

10.	SOURCE IDENTIFICATION				
11.	STACK HEIGHT (FT.)				
12.	INSIDE STACK DIAMETER (FT.)				
13.	STACK GAS TEMPERATURE AT EXIT (^{o}F)				
14.	VELOCITY OF STACK GAS (FT/SEC)				
15.	MOISTURE CONTENT OF STACK GAS (GRAINS/CU. FT. DRY GAS @ 70 ^{o}F)				
16.	HAZARDOUS PARTICULATE MATERIAL (POUNDS/OPERATING HOUR)				
17.	HAZARDOUS GASEOUS MATERIAL (POUNDS/OPERATING HOUR)				
18.	DIRECTION OF GAS STREAM AS IT LEAVES STACK U-UP D-DOWN H-HORIZONTAL				
19.	VOLUME FLOW RATE CFM @ 70 ^{o}F AND 1 ATMOS.				

FILL OUT ADDITIONAL SHEETS FOR AIR CONTAMINANT SOURCES IF NECESSARY.

NOTE: THE ABOVE COMUMNS OF INFORMATION SHOULD BE IDENTIFIED SO THAT DATA ON DIRRERENT FORMS, PERTAINING TO THE SAME STACK CAN BE RECOGNIZED. FOR EXAMPLE, STACK NUMBER ONE (1) ON ONE FORM SHOULD BE LABELLED AS STACK NUMBER ONE (1) ON ALL FORMS.

20. PROVIDE A BRIEF DESCRIPTION OF THE SOURCE SAMPLING PROCEDURE AND THE ANALYTICAL METHOD USED IN PROVIDING THIS EMISSION INFORMATION _____

21. IF A COLLECTION DEVICE IS USED, WHAT METHOD IS USED IN DISPOSING OF THE HAZARDOUS MATERIAL?

22. SIGNATURE OF RESPONSIBLE MEMBER OF FIRM | DATE

23. TYPE OR PRINT NAME AND OFFICIAL TITLE OF PERSON SIGNING THIS FORM

NAME:

TITLE:

PHONE NUMBER:

FOR OFFICE USE ONLY

- ☐ HAZARDOUS MATERIALS DISCHARGED IN EXCESS OF RECOMMENDED LIMITS.
- ☐ REEVALUATION REQUIRED IN
- ☐ EMISSION DATA SUBMITTED INDICATES THAT THERE IS NO PROBLEM.
- ☐ AMBIENT AIR MONITORING RECOMMENDED.
- ☐ OTHER: _____

CHECKED BY _____ DATE _____

HD-APC-7-72

Form APC 8

Storage Tank Summary

MAIL TO: MEMPHIS AND SHELBY COUNTY HEALTH DEPARTMENT
AIR POLLUTION CONTROL
814 JEFFERSON AVENUE
MEMPHIS, TENNESSEE 38105

ONE COPY OF THIS FORM MUST BE FILLED OUT COMPLETELY FOR EACH TANK AND MUST ACCOMPANY THE APPLICATION FOR PERMIT, APC-1

1. COMPANY NAME: _____
2. TANK LOCATION: _____
3. TANK IDENTIFICATION: _____
4. TANK CAPACITY: _____ BARRELS _____ GALLONS
5. TANK DIMENSIONS: DIAMETER _____ HEIGHT _____ LENGTH _____ WIDTH _____
6. TANK SHAPE: CYLINDRICAL ☐ SPHERICAL ☐ OTHER ☐ DESCRIBE _____
7. TANK MATERIALS OF CONSTRUCTION: STEEL ☐ OTHER ☐ SPECIFY _____
8. TANK PAINT: WHITE ☐ LIGHT GREY OR BLUE ☐ ALUMINUM ☐ DARK PAINT OR NONE ☐
9. TANK CONDITION: GOOD ☐ FAIR ☐ POOR ☐
10. TANK STATUS: NEW CONSTRUCTION ☐ ALTERATION ☐ NEITHER ☐
11. TYPE OF TANK: FIXED ROOF ☐ FLOATING ROOF ☐ UNDERGROUND ☐ PRESSURE ☐
    OPEN TOP ☐ INTERNALLY HEATED ☐ INSULATED ☐ OTHER ☐
12. IF TYPE IS TO HAVE FLOATING ROOF, SUPPLY THE FOLLOWING INFORMATION:
    TYPE OF ROOF: DOUBLE DECK ☐ PONTOON ☐ OTHER ☐ DESCRIBE _____
    TYPE OF SEAL: SINGLE ☐ DOUBLE ☐ OTHER ☐ DESCRIBE _____
    TYPE OF SHELL CONSTRUCTION: RIVETED ☐ WELDED ☐ OTHER ☐ DESCRIBE _____
13. IF TANK IS TO HAVE ANY OTHER TYPE OF ROOF OR COVER, DESCRIBE: _____
14. VENT VALVE DATA: INDICATE TYPE, NUMBER, SETTINGS AND VAPOR DISPOSAL

TYPE	NUMBER	PRESSURE SETTING	VACUUM SETTING	DISCHARGING TO: (CHECK)		
				ATMOSPHERE	VAPOR CONTROL	FLARE
COMBINATION						
PRESSURE						
VACUUM						
OPEN						

15. NAME ALL LIQUIDS, VAPORS, GASES OR MIXTURES OF SUCH MATERIALS TO BE STORED IN THIS TANK: _____
    _____ DENSITY _____ LBS/GAL _____ °API
16. TEMPERATURES AT WHICH THE ABOVE LISTED MATERIALS ARE TO BE STORED IN THIS TANK: MIN _____ °F, MAX _____ °F

(over)

HD-APC-8-72

17. IF MATERIAL STORED IS A PETROLEUM PRODUCT OR ANY OTHER TYPE OF ORGANIC MATERIAL, SUPPLY THE FOLLOWING INFORMATION FOR EACH MATERIAL: ATTACH ADDITIONAL SHEETS, IF NECESSARY.

VAPOR PRESSURE _____ LBS. REID (OR) _____ LBS/SQ. IN. ABSOLUTE AT _____ °F

INITIAL BOILING POINT _____ °F

FLASH POINT (FOR HEAVY PETROLEUM PRODUCTS ONLY) _____ °F.

18. OPERATIONAL DATA:

MAXIMUM FILLING RATE: _____ BARRELS/HOUR (OR) _____ GALLONS/HOUR

AVERAGE OUTAGE: (AVERAGE DISTANCE FROM TOP OF TANK TO LIQUID SURFACE) _____ FEET

AVERAGE THROUGHPUT: _____ BARRELS/HOUR (OR) _____ GALLONS/DAY

TANK TURNOVERS PER YEAR: _____

19. IF MATERIAL STORED IS A SOLUTION, SUPPLY THE FOLLOWING INFORMATION: NAME OF SOLVENT _____

NAME OF MATERIAL DISSOLVED:

CONCENTRATION OF MATERIAL DISSOLVED: _____ PERCENT BY WEIGHT (OR) _____ PERCENT BY VOLUME (OR)

_____ LBS/GALLON

20. IF MATERIAL STORED IS A GAS OR A LIQUIFIED GAS WHICH IS NOT A PETROLEUM PRODUCT, SUPPLY THE FOLLOWING INFORMATION:

IDENTIFY THE MATERIAL: _____

PRESSURE AT WHICH THE MATERIAL IS STORED: _____ LBS/SQ. IN. GAGE AT _____ °F.

THE ABOVE INFORMATION IS SUBMITTED TO DESCRIBE THE USE OF THE TANK FOR WHICH APPLICATION FOR PERMIT IS BEING MADE ON THE ACCOMPANYING FORM.

21. SIGNATURE OF RESPONSIBLE MEMBER OF FIRM	DATE

22. TYPE OR PRINT NAME AND OFFICIAL TITLE OF PERSON SIGNING THIS FORM	NAME:
	TITLE:
	PHONE NUMBER:

FOR OFFICE USE ONLY

AVERAGE DAILY LOSS TO ATMOSPHERE	AGENCY CODE	REVIEWER
COMMENTS:	COUNTY CODE	DATE
	SOURCE NUMBER	

HD-APC-8-72

Form APC 9

Spray Booth Summary

MAIL TO: MEMPHIS AND SHELBY COUNTY HEALTH DEPARTMENT
AIR POLLUTION CONTROL
814 JEFFERSON AVENUE
MEMPHIS, TENNESSEE 38105

1. NAME OF COMPANY _____

2. _____
BOOTH MANUFACTURER, MODEL NUMBER AND SERIAL NUMBER

3. BOOTH TYPE: AUTOMOTIVE ☐ FLOOR ☐ BENCH ☐

4. BOOTH DIMENSIONS: _____ WIDE X _____ HIGH X _____ DEEP

5. EXHAUST FAN DATA: NUMBER OF FANS: _____ MANUFACTURER: _____ MODEL NO. _____
FAN SPEED (RPM) _____ HORSEPOWER _____ VOLUME (CFM) _____

6. OPERATIONAL DATA: USUAL OPERATING SCHEDULE: _____ HOURS/DAY _____ DAYS/WEEK
ARTICLES SPRAYED: _____

7. EXHAUST CONTROL: WATERWASH ☐ EXHAUST FILTERS ☐ NONE ☐
IF WATERWASH, GIVE PUMP CAPACITY IN GALLONS/MIN. _____ MOTOR HP _____
IF FILTERED, GIVE NUMBER AND SIZE OF EXHAUST FILTERS _____

8. NAME ALL TYPES OF COATINGS SPRAYED: ENAMEL: _____ GALS/DAY ADDED THINNER _____ GALS/DAY
LACQUER: _____ GALS/DAY ADDED THINNER _____ GALS/DAY
OTHER: _____ GALS/DAY ADDED THINNER _____ GALS/DAY
DESCRIBE _____

THE ABOVE INFORMATION IS SUBMITTED TO DESCRIBE THE USE OF THE BOOTH FOR WHICH THE APPLICATION FOR PERMIT IS BEING MADE ON THE ACCOMPANY FORM APC-1

9. SIGNATURE OF RESPONSIBLE MEMBER | DATE

10. TYPE OR PRINT NAME AND OFFICIAL TITLE OF PERSON SIGNING THIS FORM
NAME:
TITLE:
PHONE:

DO NOT WRITE BELOW THIS LINE

BOOTH CROSSDRAFT VELOCITY: _____ BOOTH FACE INDRAFT VELOCITY: _____

SCRUBBING OR FILTERING RATIO: _____ AVERAGE DAILY SOLVENT LOSS TO ATMOSPHERE: _____

AGENCY CODE | | | | COUNTY CODE | | | | | | SOURCE NUMBER | | | | | |

REVIEWER | | | | DATE | | | | | |

COMMENTS:

HD-APC-9-72

APC-10

Oven Summary

MAIL TO: MEMPHIS AND SHELBY COUNTY HEALTH DEPARTMENT
AIR POLLUTION CONTROL
814 JEFFERSON AVENUE
MEMPHIS, TENNESSEE 38105

1. NAME OF COMPANY _____

2. _____
OVEN MANUFACTURER, MODEL NUMBER & SERIAL NUMBER:

3. OVEN DIMENSIONS: _____ WIDTH X _____ LENGTH X _____ HEIGHT

4. FUEL (DESIGN RATING):

GAS ☐ TYPE _____ CFH _____

OIL ☐ GRADE _____ GPH _____

ELECTRIC ☐ ELEMENTS ☐ INFRA-RED ☐

NUMBER OF LAMPS _____ WATTS _____ RATED KVA OR KW _____

OTHER ☐ TYPE _____ RATE _____

STANDBY FUEL: YES ☐ TYPE _____ NO ☐

5. FAN DATA

	MAKE	MODEL	SIZE	CFM	HP
EXHAUST FAN					
CIRCULATING FAN					
COMBUSTION AIR BLOWER					
OTHER					

6. OVEN OPERATIONAL DATA:

USUAL OPERATING SCHEDULE: _____ HRS/DAY _____ DAYS/WEEK

ARTICLES PROCESSED: _____

OPERATING TEMPERATURE: NORMAL _____ °F MAXIMUM _____ °F

OPERATION: CONTINUOUS ☐ BATCH ☐ _____ HRS/BATCH

METHOD OF HEATING:

DIRECT FIRED ☐ INDIRECT FIRED ☐ ELECTRIC ☐ STEAM ☐

(over)

HD-APC-10-72

7. NAME ALL TYPES OF COATINGS APPLIED TO ARTICLES BEFORE DRYING IN OVEN:

ENAMEL: _____ GALS/DAY THINNER ADDED: _____ GALS/DAY

LACQUER: _____ GALS/DAY THINNER ADDED: _____ GALS/DAY

OTHER: _____ GALS/DAY THINNER ADDED: _____ GALS/DAY

DESCRIBE _____

AVERAGE TIME BETWEEN COATING & BAKING OPERATIONS: _____ MINS. _____ HRS.

THE ABOVE INFORMATION IS SUBMITTED TO DESCRIBE THE USE OF THE OVEN FOR WHICH APPLICATION FOR PERMIT IS BEING MADE ON THE ACCOMPANYING FORM APC-1

8. SIGNATURE OF RESPONSIBLE MEMBER | DATE

9. TYPE OR PRINT NAME AND OFFICIAL TITLE OF PERSON SIGNING THIS FORM

NAME:

TITLE:

PHONE:

DO NOT WRITE BELOW THIS LINE

AGENCY CODE | | | | | COUNTY CODE | | | | | | SOURCE NUMBER | | | | | | |

REVIEWER | | | | | DATE | | | | | | | |

COMMENTS:

HD-APC-10-72

APC-11

Degreaser Summary

MAIL TO: MEMPHIS AND SHELBY COUNTY HEALTH DEPARTMENT
AIR POLLUTION CONTROL
814 JEFFERSON AVENUE
MEMPHIS, TENNESSEE 38105

1. NAME OF COMPANY _____

2. _____
DEGREASER MANUFACTURER, MODEL NUMBER AND SERIAL NUMBER

3. OUTSIDE DIMENSIONS OF TANK: _____ WIDE X _____ HIGH X _____ LONG

4. TYPE OF VAPOR LEVEL CONTROLS: THERMOSTATIC ☐ WATER RING ☐ OTHER ☐ NONE ☐

5. DEPTH FROM RIM OF TANK TO VAPOR LEVEL CONTROL DEVICE: _____ INCHES.

6. METHOD OF HEATING: GAS ☐ ELECTRIC ☐ STEAM ☐ NONE ☐

7. LIST ALL TYPES AND QUANTITY OF DEGREASER SOLVENT USED:

TRICHLOROETHYLENE _____ 55 GALLON DRUMS PER MONTH

PERCHLOROETHYLENE _____ 55 GALLON DRUMS PER MONTH

(ANY OTHER CONVENIENT MEASURE SUCH AS POUNDS PER DAY OR GALLONS PER DAY MAY BE USED IF DESIRED)

OTHER *(DESCRIBE)* _____

8. OPERATIONAL DATA: USUAL OPERATING SCHEDULE: _____ HRS/DAY _____ DAYS/WEEK

ARTICLES DEGREASED: _____

THE ABOVE DATA IS SUBMITTED TO DESCRIBE THE USE OF THE DEGREASER FOR WHICH THE APPLICATION FOR PERMIT IS BEING MADE ON THE ACCOMPANYING FORM APC-1

9. SIGNATURE OF RESPONSIBLE MEMBER OF FIRM | DATE

10. TYPE OR PRINT NAME AND OFFICIAL TITLE OF PERSON SIGNING THIS FORM

NAME:

TITLE:

PHONE:

DO NOT WRITE BELOW THIS LINE

AVERAGE DAILY SOLVENT LOSS TO ATMOSPHERE

COMMENTS:

AGENCY CODE | REVIEWER

COUNTY CODE | DATE

SOURCE NUMBER

HD-APC-11-78

APC-12

Proposed Schedule Of Corrective Action

TO: MEMPHIS AND SHELBY COUNTY HEALTH DEPARTMENT
AIR POLLUTION CONTROL
814 JEFFERSON AVENUE
MEMPHIS, TENNESSEE 38105

DO NOT WRITE IN THIS SPACE

AGENCY CODE
COUNTY CODE
SOURCE NUMBER
UTM ZONE
EW COORDINATE
NS COORDINATE
AIR QUALITY REGION
REVIEWER
DATE

INSTRUCTIONS:

1. RETURN ONE COPY OF COMPLETED FORM FOR EACH SOURCE TO THE ABOVE ADDRESS ON OR BEFORE
2. COMPLETE BOTH SIDES OF THIS FORM AND SIGN AT THE BOTTOM OF THE REVERSE SIDE.
3. FOR TECHNICAL ASSISTANCE TO COMPLETE THIS FORM CALL

_____ PHONE: _____

CC: MEMPHIS AND SHELBY COUNTY HEALTH DEPARTMENT - AIR POLLUTION CONTROL

THE FOLLOWING STATEMENT OF CORRECTIVE ACTION IS SUBMITTED TO EXPLAIN AND DESCRIBE ACTION WHICH WILL BE TAKEN TO CONTROL EMISSIONS THAT ARE NOT NOW IN COMPLIANCE WITH THE REGULATIONS OR OTHER APPLICABLE REQUIREMENTS OF THE MEMPHIS AND SHELBY COUNTY AIR POLLUTION CONTROL CODES. THE DIVISION DIRECTOR IS REQUESTED TO CONSIDER THIS SCHEDULE IN DETERMINING ACTION WITH REGARD TO SUCH EMISSIONS.

A. IDENTIFICATION

BUSINESS NAME _____

MAILING ADDRESS _____

CITY _____ TEL. _____
Zip Code

ADDRESS OF OPERATION _____ SAME ☐

CITY _____ TEL: _____
Zip Code

NATURE OF BUSINESS _____ SIC CODE _____

B. SOURCE INFORMATION

DESCRIPTION AND DETAILS OF OPERATION AND EMISSIONS _____

(over)

MD-APC-12-72

C. MATERIAL OR FUEL BURNED

☐ WOODWASTE	☐ PAPER	☐ OTHER
☐ COAL	☐ PLASTICS	
☐ NATURAL GAS	☐ OIL	

D. METHODS

DESCRIBE THE EMISSION AND PROPOSED METHOD FOR CONTROLLING IT. THE DESCRIPTION SHOULD BE SUFFICIENT IN DETAIL TO ENABLE THE CONTROL AGENCY TO EVALUATE THE SITUATION.

E. STATUS

DESCRIBE WHAT ACTION YOU HAVE ALREADY TAKEN, IF ANY, TO CORRECT THIS SITUATION. (INCLUDE NAMES OF SERVICES AND EQUIPMENT).

F. COMPLIANCE SCHEDULE

NOTE:
THIS SCHEDULE WILL NOT BE CONSIDERED FOR APPROVAL UNLESS THE INFORMATION REQUESTED IN THIS SECTION IS SUPPLIED.

	START	COMPLETE
(1) ENGINEERING		
(2) PROCUREMENT		
(3) FABRICATION		
(4) INSTALLATION		
(5) ADJUSTMENT		

REMARKS:

SIGNATURE:

DATE SIGNED:

BD-APC-12-72

POLLUTION REDUCTION DEVICES OR METHODS

001	Wet Scrubber - High Efficiency
002	Wet Scrubber - Medium Efficiency
003	Wet Scrubber - Low Efficiency
004	Gravity Collector - High Efficiency
005	Gravity Collector - Medium Efficiency
006	Gravity Collector - Low Efficiency
007	Centrifugal Collector - High Efficiency
008	Centrifugal Collector - Medium Efficiency
009	Centrifugal Collector - Low Efficiency
010	Electrostatic Precipitator - High Efficiency
011	Electrostatic Precipitator - Medium Efficiency
012	Electrostatic Precipitator - Low Efficiency
013	Gas Scrubber
014	Mist Eliminator - High Velocity
015	Mist Eliminator - Low Velocity
016	Fabric Filter - High Temperature
017	Fabric Filter - Medium Temperature
018	Fabric Filter - Low Temperature
019	Catalytic Afterburner
020	Catalytic Afterburner with Health Exchanger
021	Direct Flame Afterburner
022	Direct Flame Afterburner with Heat Exchanger
027	Eliminate Coal Combustion
028	Eliminate Coal and Residual Fuel Oil Combustion
029	Change all Fuel Use to Natural Gas
039	Catalytic Oxidation - Flue Gas Desulfurization
041	Dry Limestone Injection
042	Wet Limestone Injection
043	Sulfuric Acid Plant - Contact Process
044	Sulfuric Acid Plant - Double Contact Process
045	Sulfur Plant

IF THIS EMISSION POINT HAS SEVERAL PIECES OF CONTROL EQUIPMENT, INDICATE THE SEQUENCE, AS FOR EXAMPLE:

008/010: 80%/98%

APPENDIX C

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT APPLICATION

C-1 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT

The following application is for a permit to discharge wastewater under the National Pollutant Discharge Elimination System (NPDES). This application includes:

- Instructions for filling out each section.
- Units of measure by SIC (Standard Industrial Code) code.
- Wastewater treatment process codes.
- Chemical parameters and their recommended method of analysis.
- The actual forms that are filed (Sections I, II and III).

FORM APPROVED
OMB No. 158-R0100

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

Application for Permit to Discharge Wastewater

Supplementary Instructions for STANDARD FORM C – MANUFACTURING AND COMMERCIAL

EPA Form 7550-23A (7-73)

STANDARD FORM C – MANUFACTURING AND COMMERCIAL
SUPPLEMENTARY INSTRUCTIONS

TABLE OF CONTENTS

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
APPLICATION FOR PERMIT TO DISCHARGE
GENERAL INSTRUCTIONS
STANDARD FORMS

The Federal Water Pollution Control Act, as amended by Public Law 92-500 enacted October 18, 1972, prohibits any person from discharging pollutants into a waterway from a point source unless his discharge is authorized by a permit issued either by the U.S. Environmental Protection Agency or by an approved State agency. Regulations for the operation of this program are published in the FEDERAL REGISTER as 40 CFR part 125 (38 F.R. 13528, May 22, 1973), available from the Government Printing Office, Washington, D.C. 20402. Applicants wishing detailed information regarding this form or the permit should refer to this publication. It is expected, however, that for most applicants, the attached cover letter and the general instructions below will provide the information necessary to complete the form.

Who must apply.—The owner and operator of any activity or wastewater system, publicly or privately owned, which discharges wastes from one or more point sources into a waterway, must obtain a permit for such discharge(s). Where the system is owned by one person but leased to another person for operation, it is the responsibility of the operator to obtain the permit. A separate application is to be submitted for each facility discharging separately which is owned and/or operated by the applicant. Federal departments, agencies, and instrumentalities are also subject to these requirements. Discharges into publicly owned treatment works are not subject to permit requirements. However, discharges to publicly owned collection systems not connected to a treatment works are subject to these requirements. For a municipality, a facility is defined as a distinct activity or installation, including connected wastewater transport systems, which operates under the control or jurisdiction of a single responsible organization and discharges pollutants from one or more discharge points.

Application form to be used.—There are two sets of National Pollutant Discharge Elimination System (NPDES) Forms which are to be used, short forms (A-D) and standard forms (A and C). These instructions are for the standard forms A and C. The standard form requires specific information on the activity or wastewater facility and on each discharge. Depending on the adequacy of the data submitted for determining the issuance of a permit, additional information and analyses may be required from an applicant. Standard forms are designed for different sources of discharge as follows:

Form A Municipal Wastewater Systems.

Form C -Manufacturing and Commercial (including mining and vessel discharges).

If the discharge is from a Federal facility's treatment plant receiving more than 50 percent domestic waste (based on the dry weather flow rate), complete standard form A. All other dischargers (including dischargers of domestic waste), with the exception of municipalities, municipal-type activities (e.g., subdivisions, shopping centers, etc.) and Federal facilities described above, must complete standard form C.

Signature on application.—The person who signs the application form will often be the applicant himself; when another person signs on behalf of the applicant, his title or relationship to the applicant should be shown in the space provided. In all cases the person signing the form should be authorized to do so by the applicant. An application submitted by a corporation must be signed by a principal executive officer of at least the level of vice president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge(s) described in the form originate. In the case of a partnership or a sole proprietorship, the application must be signed by a general partner or the proprietor, respectively. In the case of a municipal, State, Federal, or other public facility, the application must be signed by either a principal executive officer, ranking elected official or other duly authorized employee.

Attachments and supplemental information.—Some items in this form may require narrative explanation; for this purpose, use the item labeled "Additional Information" at the end of sections I and II, or attach a separate sheet entitled "Additional Information." Where a separate sheet is used, be sure it is identified by the name of the applicant, the activity, and the discharge number to which it applies. Also, identify each separate remark by the item number and section of the form to which it refers.

Drawings required in section I should be attached to this application and identified by the name of the applicant and the activity. All other papers and attachments to the application must be similarly identified.

Use of information.—Except as specified below, all information contained in this application will, upon request, be made available to the public for inspection and copying. A separate sheet entitled "Confidential Answers" must be used to set out information which the applicant believes if disclosed to the general public would divulge methods and processes entitled to protection as trade secrets. The information must clearly indicate the item number to which it applies. Confidential treatment can be considered only for the information for which a specific written request for confidential treatment has been made on the attached sheet. However, in no event will identification of the contents, volume, and frequency of a discharge be recognized as confidential or privileged information.

Completion of forms.—Unless otherwise specified in the detailed instructions, each item in the forms must be answered. To indicate that each item has been considered, enter "NA," for not applicable, where a particular item does not fit the circumstances or characteristics of your operation or activity.

Assistance and advice regarding requirements for filing permit applications can be obtained through contact with your EPA Regional Office or approved State agency.

Addresses of EPA Regional Offices and States Within Their Jurisdiction

Region	Address and Phone	State
I	Regional Administrator, Region I, Environmental Protection Agency, John F. Kennedy Federal Bldg., room 2303, Boston, Mass. 02203; attention: Permits Branch. 617-223-7210.	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont.
II	Regional Administrator, Region II, Environmental Protection Agency, 26 Federal Plaza, room 908, New York, N.Y. 10007; attention: Permits Branch. 212-264-9895.	New Jersey, New York, Virgin Islands, Puerto Rico.
III	Regional Administrator, Region III, Environmental Protection Agency, Curtis Bldg., Sixth and Walnut Sts., Philadelphia, Pa. 19106; attention: Permits Branch. 215-597-9966.	Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, West Virginia.
IV	Regional Administrator, Region IV, Environmental Protection Agency, 1421 Peachtree St. NE., Atlanta, Ga. 30309; attention: Permits Branch. 404-526-3971.	Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee.
V	Regional Administrator, Region V, Environmental Protection Agency, 1 North Wacker Dr., Chicago, Ill. 60606; attention: Permits Branch. 312-353-1472.	Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin.
VI	Regional Administrator, Region VI, Environmental Protection Agency, 1600 Patterson St., suite 1100, Dallas, Tex. 75201; attention: Permits Branch. 214-749-1983.	Arkansas, Louisiana, New Mexico, Oklahoma, Texas.
VII	Regional Administrator, Region VII, Environmental Protection Agency, 1735 Baltimore Ave., Kansas City, Mo. 64108; attention: Permits Branch. 816-374-5955.	Iowa, Kansas, Missouri, Nebraska.
VIII	Regional Administrator, Region VIII, Environmental Protection Agency, 1860 Lincoln St., suite 900, Denver, Colo. 80203; attention: Permits Branch. 303-837-4901.	Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming.
IX	Regional Administrator, Region IX, Environmental Protection Agency, 100 California St., San Francisco, Calif. 94111; attention: Permits Branch. 415-556-3450.	Arizona, California, Hawaii, Nevada, Guam, American Samoa, Trust Territories.
X	Regional Administrator, Region X, Environmental Protection Agency, 1200 Sixth Ave., Seattle, Wash. 98101, attention: Permits Branch. 206-442-1213.	Alaska, Idaho, Oregon, Washington.

SECTION I. APPLICANT AND FACILITY DESCRIPTION: MANUFACTURING AND COMMERCIAL

1. *Legal name of applicant.*—This term applies to the person, agency, firm, municipality, or any other entity which owns or is responsible for any waste treatment works, interceptor system or any facility/activity conducting operations that result or may result in a discharge of pollutants to a navigable water. This may or may not be the same name as the facility or activity producing the discharge. Enter the name of the applicant as it is officially or legally referred to, e.g., Wire Steel Corp., Johnson Photo Processing Co. Do not use colloquial names as a substitute for the official name.

2. *Mailing address of applicant.*—Use the complete mailing address of the applicant's main office. This often will not be the same address used to designate the location of the work or activity.

3. *Applicant's authorized agent.*—Give the name of a person who is thoroughly familiar with the facts reported on the forms and who can be contacted by the Environmental Protection Agency, State offices, and other agencies involved in permit application processing and review.

The person named, although not necessarily the same as the signing official, is also subject to the provisions of the law quoted below the signature line on the first page of the form.

Give the mailing address and telephone number where the agent can be reached.

5. *Discharge facility/activity.*—A facility is a distinct activity or installation, including connected transport systems, which operates under the control or jurisdiction of a single responsible organization and produces or may produce one or more sources of pollution. Name the facility/activity as it is officially or legally referred to in order to distinguish it from similar entities, if any, in the same geographical area. Do not use colloquial names as a substitute for the official name.

Items 7-9—An accounting of all water associated with this facility is required. Values for the major categories of water intake, use, and discharges and losses are to be specified. All remaining categories are to be entered as "other" with the type specified in the appropriate space. If there are numerous categories for "other," specify them with the appropriate item number in "Additional Information" (item 12). Solely storm water discharges need not be reported in item 7-9. However, if storm water is combined with other flows, it is to be included as part of the totals. For example, if storm water enters the collection system of the facility, is passed around the main facility processes and then combined with other flows before being discharged to a surface water, it should appear as "other" in items 7 and 8, and as part of "surface water" discharge in item 9.

7. *Facility intake water. (Mining activities may omit this item)*—The volume per day of intake water may be estimated from water supply meter readings or from billing statements from a water supply utility. If water is not metered, estimate from pump capacity (in gallons per minute) times 60 times average number of hours the pump operates per day, dividing the product by 1,000 to obtain thousands of gallons per day to the nearest thousand of gallons.

Municipal or private water systems.—Any publicly or privately owned system that is a source of water for domestic, commercial, industrial, and public services.

Surface water.—Water other than subterranean water (e.g., ocean, lakes, and streams).

Ground water.—All subsurface or subterranean water.

8. *Facility water use.*—Estimate the net volume per day used at the facility for each type of use listed. Do not count twice water which is reused.

Noncontact cooling water.—Water used to reduce temperature which does not come in contact with any raw material, intermediate, or end product.

Boiler feed water.—Water forced into a boiler to replace water that evaporated in the generation of stream.

Process water.—Water that comes in contact with any raw material, intermediate material, or end product.

Sanitary water.—Wastewater discharged from the sanitary conveniences (e.g., toilets, sinks, showers) of dwellings, office buildings, industrial plants, or institutions.

If water is first used for one purpose and the same water is subsequently used for one or more other purposes, indicate the volume per day of the last designated use before treatment and/or discharge.

For example, if water is initially used as noncontact cooling water and then as process water (before being treated and discharged) the quantity of water given should be indicated as process water.

The total of item 8 should equal the total of item 7. Any difference in these totals should be explained in item 12, "Additional Information."

9. *Facility discharges, number and facility discharge volume.*—The total volume per day of discharges or losses (e.g., evaporation and water consumed by process) should equal the total intake volume per day (item 7). Any difference in the sum of items 7 and 9 should be explained in item 12, "Additional Information." If discharge is directly to land, use category "Surface impoundment with no effluent," or "Underground Percolation," or if to a surface which drains into a waterway, "Surface Water." If discharge is intermittent and less than once per day, divide average gallons per discharge by average number of days between discharges.

Surface water.—All water on the surface, as distinguished from subterranean water.

Sanitary wastewater transport system.—Conveys through a system of pipes:

(1) Domestic wastewater with storm and runoff water excluded.

(2) Wastewater discharging from the sanitary conveniences of dwellings (including apartment houses and hotels), office buildings, industrial plants, or institutions.

(3) The water supply of a community after it has been

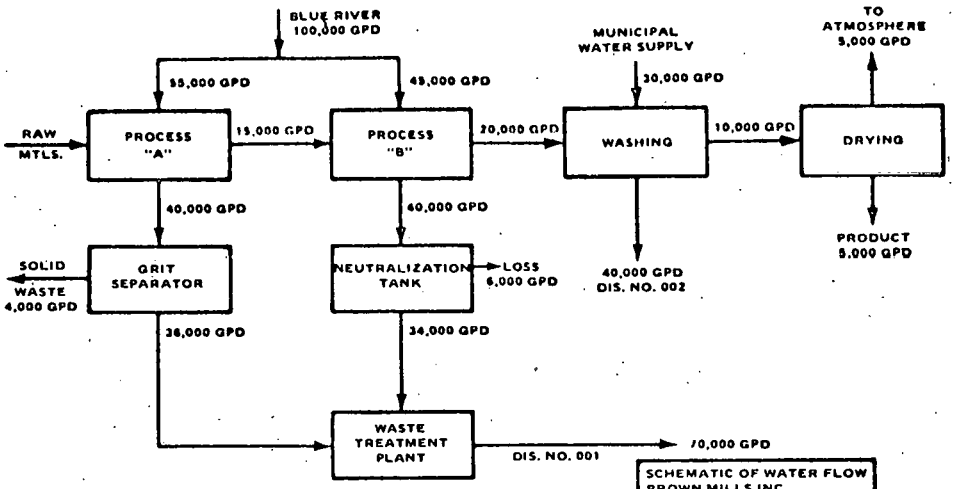


FIGURE A

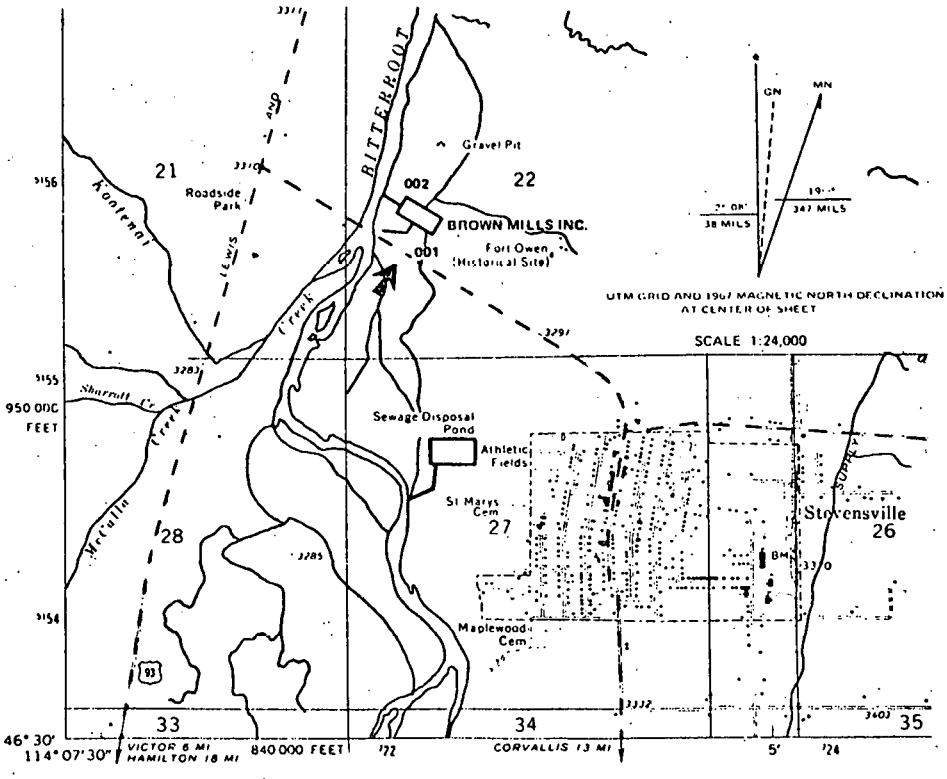


FIGURE B

used and discharged into a sewer.

Storm water transport system.—A separate collection system of pipes that convey runoffs from buildings and land caused by precipitation.

A system of drains and appurtenances for conveying the runoff from street surfaces caused by precipitation.

Combined sanitary and storm water transport system.—A system of pipes which carries a mixture of storm water runoff, surface water runoff, and other wastewater such as domestic or industrial wastewater.

Surface impoundment with no effluent.—A manmade holding pond or basin large enough to contain all wastes discharged which allows evaporation with no or an insignificant amount of percolation into the ground and has no overflow.

Underground percolation.—The movement or flow of water through the interstices or the pores of the soil or other porous medium.

Well injection.—This code is to be used for injection of wastes into a well.

Waste acceptance firm.—A company which collects stored wastes and conveys them to a central location for treatment or disposal.

Evaporation.—The volume of water that is being changed into vapor and lost to the atmosphere.

Consumption.—Water that is incorporated into the product or its byproduct during a production process.

10. *Permits, licenses, and applications.*—List all existing permits and licenses or permit and license applications granted by or requested from Federal, interstate, State, or local agencies associated with any discharge described in this application. Examples: A license to operate a powerplant issued by the Atomic Energy Commission or the Federal Power Commission; a permit to construct issued by the Army Corps of Engineers; a permit to discharge issued by a State water control office.

11. *Required maps and drawings.*—A "schematic of water flow" and a "location map" are required with this application. All maps and drawings should be either on paper or other material suitable for reproduction. If possible, all sheets should be approximately letter size with margins suitable for binding. As few sheets should be used as necessary to show clearly what is involved. All discharge points should be identified with the discharge serial numbers used in section II of this application. Titles are to be located in the lower right-hand corner. Titles must include applicant's name, facility location, date of drawing, and designation of number of sheets as "page ___ of ___."

(a) *Schematic of water flow.*—A line drawing of water flow through the facility producing the discharges must be attached to this application. Clearly indicate all intake points and sources. Average flow rates should be shown for various streams if possible. Specific plant processes are to be indicated by blocks of at least 1-inch square. The title is to be headed by the statement "Schematic of Water Flow." An example of the drawing required is shown in figure A.

(b) *Location map.*—A map showing the location of each discharge structure, including any and all outfall devices, dispersive devices, and nonstructural points of discharge, must be attached to this application. All maps must be drawn to scale and the scale shown. The usual meridian arrow showing north must be shown at the top of each sheet. The direction of river flow is to be indicated by a suitable arrow. Maps may be traced from a Coast Survey, Lake Survey, or Geological Survey chart, road map, or other general map and must bear a note showing the number and title of such map or chart (e.g., "Traced from U.S. Coast Survey Chart 273."). The name of the waterway and the names of the towns and prominent points are to be placed on this map and identified. The location of each existing and proposed discharge structure must be clearly identified using the discharge serial number specified in section II of this application. The title is to be headed by the statement "Location Map." An example of the location map is shown in figure B.

SECTION II—BASIC DISCHARGE DESCRIPTION: MANUFACTURING AND COMMERCIAL

1.a. *Discharge serial number.*—Assign a three-digit number beginning with 001 for the point of discharge covered by the first description. Discharge serial numbers must be consecutive for each additional discharge described; hence, the second serial number should be 002, the third 003, etc. Enter this number at the top of each page of section II in the space provided.

b. *Discharge point name.*—Give the name, if any, of the discharge point which distinguishes it from all other discharge points from the facility, e.g., Main Street Outfall; Mill Creek Pipe.

c. *Previous discharge serial number.*—If application for a National or Federal permit was made previously for this discharge (see item 4, section I), supply the serial number assigned for this discharge.

3. *Engineering report.*—An engineering report assembles basic information, presents design criteria and assumptions, examines alternate project with preliminary layouts and cost estimates and offers a conclusion with a proposed project for client consideration. This document provides a technical basis for detailed design and preparation of construction plans and specifications.

If an engineering report was prepared on the facility producing this discharge, check the box provided and list in item 26 all such reports and indicate where they are available for inspection by the reviewing office.

5. *Discharge point description.*—See instructions for section I, item 9 for definitions of terms.

7. *Name of waterway.*—Use the name of the waterway by which it is usually designated on published maps of the area; if possible, refer to one of the map series published by the U.S. Geological Survey. When the discharge is to an unnamed tributary, please so state and give the name of the first body of water fed by that tributary which is named on the map, e.g., unnamed ditch to Vaughan Creek; unnamed arroyo to Serpent River, where Serpent River is the first

body of water that is named on the map and is reached by the discharge.

9.a. *Type of discharge.*–A continuous discharge is one which occurs without interruption throughout the operating hours of the facility. An intermittent discharge is a discharge that occurs and ceases at regular or irregular intervals, either during or outside of the operating hours of the facility.

c. *Discharge occurrence.*–This item refers to a discharge occurring at intervals and lasting for periods of weeks or months. During this period, the discharge may be continuous or intermittent. Example of such a discharge is a cannery that operates only during the summer months.

13. *Description of activity.*–Provide a separate narrative description of each specific activity or process causing this discharge. Descriptions should be as concise as possible. Example: "Manufacture of sulfuric acid by contact process."

14. *SIC code.*–Report the standard industrial classification (SIC) code(s) which identifies the activity actually causing the discharge. These may differ from the SIC code describing the overall activity of the facility. For example, if an aircraft manufacturer (SIC 3721) is discharging wastes from an electroplating process (SIC 3471), SIC Code 3471 should be entered.

If discharge is from a separate cooling water and/or steam generation system, use SIC 4930.

Standard industrial classification (SIC) code numbers and descriptions may be found in the 1972 edition of the "Standard Industrial Classification Manual" prepared by the Executive Office of the President, Office of Management and Budget, which is available from the Government Printing Office, Washington, D.C. Do not use previous editions of the manual.

Copies are also available for reference at your State Water Pollution Control Office, Regional Offices of the Environmental Protection Agency, and at most public libraries.

Raw material/product produced.–For each SIC number listed, specify either the principal product or the principal raw material and the average quantity per day produced or consumed at heaviest product mix during a month of maximum production which is representative of the expected level of activity contributing to this discharge. Levels of production may be obtained from actual operating records or expected production levels based on market projections.

Figures are to be reported in the units of measurement given in table I for the particular SIC categories that are listed. Enter the letter-number code from the "Code" column in table I for the units selected in the appropriate "Units" box of item 14. Other SIC categories should use the units of measurement normally used by that industry.

For discharges which are composed solely of domestic waste, use SIC 4952 and report under 14a. Raw material. Under column labeled "Maximum amount/day" enter the estimated number of people contributing to this discharge.

Shared discharges.–If the wastewater from this process contributes to other discharges, indicate the other discharge points by their discharge serial numbers under the column labeled "Shared discharges." If none, enter "None." Separate each serial number by a comma. If part of the waste stream goes to a municipal treatment facility, indicate by entering "MUN" in place of the discharge serial number.

Example:

a. RAW MATERIALS

SIC Code	Name	Amount/ Day Maximum	Units (See Table I)	Shared Discharges (serial number)
2911	Crude Oil	10,000	S-1	004, 006

15. *Waste abatement practices.*–a. Provide in this space a brief narrative description of the waste abatement practices currently in use which affect this discharge. Describe those process changes in raw materials, recycling methods, wastewater treatment equipment, and other techniques employed that result in waste abatement for this discharge.

b. Describe the wastewater abatement procedures for this discharge using the alphabetic codes for abatement practices listed in table II. List the codes in the sequence in which the wastewater abatement procedures are applied for this discharge.

16. *Wastewater characteristics.*–Presence or absence of a wastewater constituent should be based on any previous analysis performed or based on knowledge of the constituents associated with the activities and/or processes causing this discharge (e.g., raw materials, catalysts, intermediates, etc.). For example, if zinc is used in a process from which there is a discharge, the box next to zinc should be checked unless it is known from actual analysis conducted previously that zinc is not present in the effluent. Constituents present solely in the intake water (i.e. not part of any process) for which no previous analysis has been performed do not require additional analyses to determine their presence in the effluent.

17. *Description of intake and discharge.*–For each of the parameters listed, enter in the appropriate box the value or code letter answer required. Values must be representative of the discharge during the previous 12 months of operation or represent best engineering estimates for proposed discharges. Detailed instructions for completing particular columns are provided below.

Each parameter has been assigned units as specified on the form. If you choose to use different units, follow the directions below:

(a) To report flow in million gallons per day (MGD) line out number 00056 and insert 50050 below the printed number.

(b) To report temperature in degrees centigrade, line out the printed numbers and insert 74026 below the printed numbers for winter and 74025 for summer.

Column 1. Untreated intake water. Give the daily average value of the intake water at the point it enters the facility. If intake water for this discharge is from more than one source, and enters the facility at separate entry points,

supply the total average daily flow from all sources. Also, supply type and flow for each source in item 26. Daily average intake values for the remaining parameters should be the weighted average proportional to the quantity of flow contributed from each source.

If intake water is from a navigable water, its tributary, private well, or other source of ground water, the value for the incoming water before treatment must be entered. If intake water is from a different body of water than the receiving water, give the type (tributary, well, etc.) of this intake source in "Additional Information" (item 26). If water is treated prior to use, completion of column 1 is not required (see instructions for column 2). Values of intake water are not required for mining activities.

Column 2. In-plant treated intake water.—If all or part of intake water is treated before use, provide values for total intake here instead of in column 1. Also describe briefly in item 26 "Additional Information," the type of treatment performed on intake water (e.g., rapid sand filtration, coagulation, flocculation, ion exchange, etc.) and the percent of intake water contributing to this discharge that has been treated.

NOTE: The quantity of intake flow should only reflect the amount contributing to this discharge. If this is impossible to determine and the influent contributes to more than one discharge, specify in the space provided the serial number(s) (separated by commas) of discharge(s) to which this influent contributes.

Column 3. Daily average.—Supply daily average value for the days when discharge is actually operating or is expected to be operating (for a new discharge). Daily average values are to be computed by weighting the daily value in proportion to the daily flow. If a discharge occurs irregularly, the value supplied in the column marked "Daily Average" should represent an average for the days the discharge actually occurs. Average values are not to be supplied for pH, specific conductance, and bacteriological parameters (e.g., coliform bacteria).

Columns 4 and 5. Minimum values, maximum values.—Supply minimum and maximum values observed (or expected for new discharges) over any one day when the discharge is operating.

Column 6. Frequency of analysis.—Specify the average frequency of analysis for each parameter as number of analyses per number of days (e.g., "3/7" is equivalent to three analyses performed every 7 days). If continuous, enter "CONT." When analyses are conducted on more than one individual grab sample collected during the same day, the analysis frequency should reflect one analysis whose value is the average of the individual grab sample measurements. Average frequency should be based on an operating month.

Column 7. Number of analyses.—Specify the number of analyses performed during the previous 12 months of operation at the average frequency specified in column 6 up to 365.

Column 8. Sample type. Specify sample type as follows:

G For grab sample (individual sample collected in less than 15 minutes).

For composite sample "#" is to be replaced by the average number of hours over which the composite sample was collected. Composite samples are combinations of individual samples obtained at intervals over a time period. Either the volume of each individual sample is directly proportional to discharge flow rates or the sampling interval (for constant-volume samples) is inversely proportional to the flow rates over the time period used to produce the composite.

NA If "CONT" was entered in column 6.

Analytical methods.—Appendix A contains all parameters with their reporting levels, test descriptions and references. The parameter values can be determined either by use of one of the standard analytical methods as described in table A or by methods previously approved by the EPA Regional Administrator or Director of a federally approved State program (or their authorized representatives) which has jurisdiction over the State in which the discharge occurs. If the test used is not one shown in table A, the test procedure should be referenced in item 26 or on a separate sheet. If values are determined to be less than the detectable limit (as determined by referenced standard analytical techniques and/or instrument manufacturer's literature), specify "LT (value of detectable limit)" in the appropriate space. For example, if the detectable limit is .005 mg/l and quantities of less than this are determined, specify "LT .005." Do not enter descriptors such as "NIL," "TRACE," "NEG ," etc., for this purpose. If it is your reasoned judgment that one or more of the required parameters is not present in the initial untreated or treated process water and/or the discharge, enter "A" (meaning "absent") in the appropriate space.

In order for values reported to be representative, it is recommended that they be based on at least five to seven analyses of daily composite samples (if applicable). Samples should be taken during period of maximum production, if possible. If samples are taken at period of less than maximum production, state in item 26 (except for mining activities) the percent of maximum production that was obtained during the sampling period.

19. *Water treatment. d. chemical composition.*—The chemical composition may be taken from the manufacturer's label or literature. If this is done, so state. If not available, specify "NOT AVAILABLE."

20. *Thermal discharge source.*—If several of the sources listed are present in an installation and result in discharges from more than one point, a separate copy of section II must be completed for each discharge point. If several discharge sources are combined to result in a discharge from one point, only one copy of section II need be completed.

21. *Discharge/receiving water temperature difference.*—Value should represent temperature difference between discharge point and ambient temperature of receiving water.

22. *Discharge temperature, rate of change per hour.*—If the temperature of this discharge is subject to abrupt change, give the maximum rate at which change occurs.

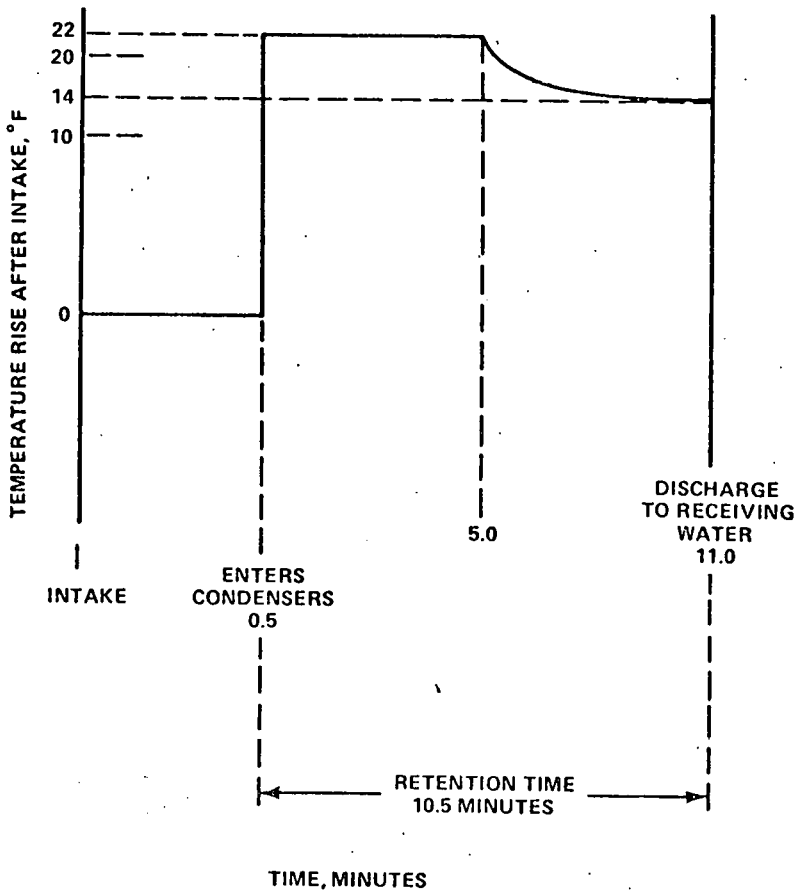
Compute the change rate by dividing the discharge temperature change by the time, in hours, over which the change occurs. For example, if the discharge temperature drops from 80° to 70° F over a 5-hour period, the rate is

$$\frac{80° \text{ F} - 70° \text{ F}}{5 \text{ hours}} = 2° \text{ F/hour.}$$

23. *Water temperature, percentile report.*—Values given should represent temperatures at point of intake and point of discharge.

24. *Water intake velocity.*—The intake velocity is defined as the critical or highest approach velocity measured at any point prior to intake screening. (This includes any point prior to the trash racks, log screens, etc.)

25. *Retention time.*—This item pertains primarily to cooling water discharges. Give the average length of time during which the temperature rise occurs prior to discharge. If the discharge temperature is significantly less than the maximum temperature of the water, a diagram indicating time-temperature relationships during the retention time should be supplied. For example, if under average conditions the condenser rise is 22° F and the cooling water passes through a canal and is finally discharged at 14° rise, a diagram of the following type should be provided:



SECTION III--WASTE ABATEMENT REQUIREMENTS AND IMPLEMENTATION (CONSTRUCTION) SCHEDULE: MANUFACTURING AND COMMERCIAL

1.b. *Improvements-authority imposing requirements.*-

Locally developed plan.-A schedule developed at the county or municipal or Federal facility level.

Areawide plan.--A schedule developed by a metropolitan authority or other agency formed by local or municipal governments, e.g., Greater Washington area.

Basin plan.--A schedule developed by a river basin commission, or other body having authority over a watershed area, e.g., Delaware River Basin, Potomac River Basin.

State approved implementation schedule.-A schedule imposed to achieve compliance with water quality standards approved by the Environmental Protection Agency or by its predecessors, the Federal Water Quality Administration and the Federal Water Pollution Control Administration.

State approved implementation schedule.-A plan imposed to achieve compliance with State water quality standards for intrastate waters or by a permit or equivalent document issued by a State water pollution control agency.

Federal approved water quality standards implementation plan.-A schedule imposed to achieve compliance with water quality standards approved by the Environmental Protection Agency or by its predecessors, the Federal Water Quality Administration, and the Federal Water Pollution Control Administration.

Federal enforcement procedure or action.-A schedule imposed by an enforcement conference held under section 10(a) of the Federal Water Pollution Control Act prior to the date of enactment of the FWPCA amendments of 1972.

State court order.-A schedule imposed in an order or settlement issued or approved by a State court of law.

Federal court order.-A schedule imposed in an order or settlement issued or approved by a court of the United States.

2. *Implementation schedule.*-Supply the following dates as they are applicable to the implementation schedule (plan) being described:

a. *Preliminary plan approval.*-The date the preliminary engineering plans are to be submitted.

b. *Final plan submission.*-The date the final engineering plans are to be submitted.

c. *Final plan approval.*-The date the final engineering plans are to be approved.

d. *Financing complete.*-The date all financing arrangements are to be completed.

e. *Site acquired.*-The date the land to be used for the treatment works is to be acquired.

f. *Begin action (e.g., construction).*-The date the action to be implemented is scheduled to begin.

g. *End action (e.g., end construction).*-The date the action to be implemented is scheduled to be completed.

h. *Begin discharge.*-The date the discharge is scheduled to start operating after the action has been completed.

i. *Operational level attained.*-The date the effluent level is scheduled to meet the conditions imposed by the implementation plan.

3. *Actual completion.*-Supply actual completion dates for those steps of the implementation schedule which have been completed.

Table 1 Units of Measurement by SIC Code (Industry)
(To Be Used for Item 14, Section II)

SIC Code(s)	Code	Units of measurement	Industry
201; 2077	A-1	Pound live weight killed (meatpacking in slaughterhouse or packinghouse; poultry processing).	Meat products.
	A-2	Pound product (slaughtering & rendering; processing).	
	A-3	Pound raw material (rendering in offsite plant).	
202; 5143	B-1	1,000 lb milk equivalent	Dairy products.
2033; 2034; 2037; 2038.	C-1	Ton raw material	Canned and preserved fruits and vegetables.
204	D-1	1,000 bu processed	Grain mill products.
2061	E-1	Ton sugar cane processed	Raw cane sugar.
2062	E-2	Ton raw sugar processed	Cane sugar refining.
2063	E-3	Ton beets sliced	Beet sugar.
2077		See SIC 201	
2084	F-1	Ton grapes pressed	Wines, brandy, and brandy spirits.
	F-2	1,000 gal wine (table wine, for process season only).	
2085	F-3	1,000 bu grain processed	Distilled liquor, except brandy.
2086	F-4	1,000 standard cases	Bottled and canned soft drinks.
2091; 2092	G-1	Ton raw material	Seafoods.
22	H-1	1,000 lb raw material	Textile mill products.
	H-2	*or* 1,000 lb product	
2421	I-1	1,000 fbm	Sawmills and planing mills.
2435; 2436	I-2	1,000 ft^2 on three-eighths inch basis	Veneer and plywood.
2491	I-3	1,000 ft^3 treated	Wood preserving.
2492	I-4	1,000 ft^2 on a three-fourths inch basis	Particle board.
26	J-1	Ton product	Paper and allied products.
2812; 2816; 2819	K-1	Ton product	Inorganic chemicals.
2821; 2823; 2824; 2891; 3079.	L-1	1,000 lb product	Plastic materials and synthetics industry.
2822	M-1	1,000 lb rubber produced	Synthetic rubber (vulcanizable elastomers).
283	N-1	1,000 lb raw material	Drugs and pharmaceuticals.
2841	O-1	1,000 lb product	Soap and detergents.
	O-2	*or* 1,000 gal product	
2865; 2869	P-1	1,000 lb product	Organic chemicals.
2873; 2874; 2875	Q-1	1,000 ton product	Fertilizer industry.
2879	R-1	1,000 lb product	Agricultural chemicals and pesticides.
2891		See SIC 2821	
2911	S-1	1,000 bbl crude or partially refined feed stock (stream day).	Petroleum refining.
3011; 3021; 3031; 3041; 3069.	T-1	1,000 lb raw material	Rubber products.
3111	U-1	1,000 lb green salted hides or pickled skins.	Leather tanning and finishing.
3211; 3231	V-1	1,000 ton product	Flat glass and glass products made from purchased glass.
	V-2	*or* 1,000 ft^2 mirrored surface (for mirrored glass only).	
3241	V-3	1,000 bbl product	Hydraulic cement.
327	V-4	1,000 ton product	Concrete, gypsum, and plaster products.

Table I -- Units of Measurement by SIC Code (Industry)
(To Be Used for Item 14, Section II)
(Continued)

SIC Code(s)	Code	Units of measurement	Industry
3292	V-5	1,000 ton asbestos used	Asbestos products.
331	W-1	Ton dry coal	Coke making.
	W-2	Ton hot metal	Blast furnaces.
	W-3	Ton liquid steel	Steelworks.
	W-4	Ton hot formed steel	Hot forming.
	W-5	Ton processed steel	Rolling and finishing mills.
332	W-6	Ton metal cast	Iron and steel foundries.
333	X-1	1,000 lb metal product	Primary smelting and refining of nonferrous metals.
334	X-2	1,000 lb metal product	Secondary smelting and refining of nonferrous metals.
335	X-3	1,000 lb metal processed	Rolling, drawing, and extruding of nonferrous metals.
336	X-4	1,000 lb metal cast	Nonferrous foundries.
3465, 3711; 3714	Y-1	Unit production	Automobile manufacturing.
	Y-2	*or* square feet	
4911; 4931	Z-1	1,000 MWd generated	Electric power services.
4961	Z-2	1 million lb steam produced	Steam supply.

Table II –Waste Treatment Process Codes

1. IN-PLANT CONTROL MEASURES

E Series - Engineering Design Considerations

ESEPAR - Installation of separate drainage systems.
ESEGRE--Segregation and collection of specific wastes.
ESURFA–Use of surface condensers in place of barometric condensers.
EMERGE - Emergency storage facilities.
ECOUNT–Countercurrent use of chemicals and/or wash waters.
EPUMPS--Use of pumps and valves with special seals to minimize leakage.
EOTHER--Other.

D Series--Process Design Modifications

DREACT–Use of reaction chemicals or feed stocks producing minimum waste.
DCHEMI–Chemical regeneration.
DDOWNG–Downgraded use of chemicals.
DELIMI–Elimination of air blowing and water washing.
DHYSIC–Physical separators.
DCHANG–Change in design basis for chemical recovery facilities.
DSTOPD - Elimination of discharge.
DOTHER--Other.

R Series - Recovery & Utilization

RECOVE--Recovery of material for reuse in process.
RDOWNG–Downgraded use of spent chemicals in other processes.
RUSEOR–Use or sale of wastes as raw material for other processes.
RECYCL–Recycle or reuse of water.
RHEATR--Heat recovery.
REVAPO--Multieffect evaporators.
ROTHER–Other.

L Series–Local Pretreatment or Disposal

LOCALS - Local separators and traps.
LEVAPO - Evaporation and incineration of noxious liquid wastes.
LUSEOF - Use of emulsion prevention chemicals.
LOTHER - Other.

O Series--Operation Control

OMONIT–Monitoring sewer effluents.
OOTHER–Other.

2. WASTEWATER TREATMENT UNIT OPERATIONS

P Series Physical Treatment

PEQUAL Equalization.
PSCREE Screening.
PAERAT Preaeration.
PSEDIM–Sedimentation.
PFLOAT–Flotation.
PTEMPE–Temperature control.
PSKIMC–Skimming and clarification.
PSEPAR–Separation (API separator).
PAIRSG--Air stripping.
PSTRIP–Steam stripping.
PSANDF–Sand filtration.
PDIATO–Diatomite filtration.
PMIXED--Mixed media filtration.
POTHER–Other.

C Series - Chemical Treatment

CNEUTR–Neutralization.
CCOAGU–Chemical coagulation.
CPHADJ--pH adjustment (other than neutralization).
CODORC--Odor control.
CNUTRI- Nutrient addition.
CFLOCC Flocculation.
CMTDRO Chemical hydrolysis (use NaOH to hydrolize to urea to NH_3 then apply steam stripping).
CCLDIS - Chlorine disinfection.
CODISN - Other disinfection.
COTHER--Other.

B Series–Biological Treatment

BSTABI--Stabilization pond (facultative).
BACTIV–Activated sludge (all modifications).
BTRICK–Trickling filter.
BAERAT–Aerated lagoon.
BANERO–Anaerobic contact.
BAPOND–Anaerobic pond.
BDENIT–Denitrification.
BNUTRI–Biological nitrification.
BPOLIS - Polishing lagoon.
BROTAT–Rotating biological contactor.
BHYDRO--Biological hydrolysis (urea to NH_3).
BOTHER–Other.

S Series - Sludge Handling

STHICK--Thickening.
SLAGOO - Lagooning or drying bed.

Table II–Waste Treatment Process Codes (Continued)

SCENTR–Centrifugation.
SVACUM–Vacuum filtration.
SDRYCO–Dry combustion.
SWETCO–Wet combustion.
SLANDD–Land disposal.
SEADIS–Sea disposal.
SANAER–Anaerobic digestion.
SAEROB–Aerobic digestion.
SPRESS–Filter press.
SOTHER–Other.

3. ADVANCED WASTE TREATMENT

T Series–Temperature Change Process

TEVAPO–Evaporation.
TFREEZ–Freezing.
TDISTI–Distillation.
TEUTEC–Eutectic freezing.
TWETOX–Wet oxidation.
TPROCE–Process residue, handling and disposal.
TOTHER–Other.

M Series–Miscellaneous

MADSOR–Adsorption.
MELECT–Electrodialysis.
MIONOX–Ion exchange.
MSOLVE–Solvent extraction.
MREVER–Reverse osmosis.
MFOAMI–Foaming.
MTREAT–Electrochemical treatment.
MPOSTA–Post aeration.
MUNDIS–Discharge to municipal waste treatment facility.
MOTHER–Other.

4. NO WASTE ABATEMENT PRACTICE

NONONE–None.

APPENDIX A – STANDARD ANALYTICAL METHODS (INTERIM)

(To be Used with Item 17, Section II, and the "Additional Required Information" Form)

The following tables are to be used as a guide in reporting the data concerning each parameter. The first column of each table, "PARAMETER & UNITS," indicates the preferred units for reporting data for a given parameter. The second column, "METHOD," lists the preferred analytical method (if any) for determining the required parameter values. The next three columns, "REFERENCES," give the page numbers in standard reference works where a detailed description of the recommended analytical technique given under "METHOD" can be found. These standard references are:

1. Standard Methods for the Examination of Water and Wastewaters, 13th Edition, 1971, American Public Health Association, New York, N.Y. 10019.
2. A.S.T.M. Standards, Part 23, Water; Atmospheric Analysis, 1972 American Society for Testing and Materials, Philadelphia, Pa. 19103.
3. EPA Methods for Chemical Analysis of Water and Wastes, April 1971, Environmental Protection Agency, Water Quality Office, Analytical Quality Control Laboratory, NERC, Cincinnati, Ohio 45268.

Copies of the publications are available from the above sources, or for review in the Regional Offices of the Environmental Protection Agency or the State Water Control Board.

Data must be reported with an accuracy of *at least* two significant digits, i.e., values less than 1 must be reported *at least* to the nearest .01, values between 1 and 10 to the nearest 0.1, values between 10 and 100 to the nearest 1.0, and so forth.

TABLE A

Chemical Parameters				
Parameter & Units	Method	References		
		Standard Methods 13th Ed. 1971	A.S.T.M. Standards Pt. 23 1972	EPA Methods 1971
Alkalinity (as $CaCO_3$) 00410	Titration-Electrometric or Automated Method-Methyl Orange End Point	p. 370	p. 143	p. 6 p. 8
BOD 5 Day mg/liter 00310	Modified Winkler or Probe Method	p. 489	p. 618	p. 15
Chemical Oxygen Demand (COD) mg/liter 00340	Dichromate Reflux	p. 495	p. 219	p. 17
Total Solids mg/liter 00500	Gravimetric, 105°C.	p. 535	–	p. 280
Total Dissolved (Filterable) Solids mg/liter 70300	Glass Fiber Filtration 180°C.	–	–	p. 275
Total Suspended (Non-Filterable) Solids mg/liter 00530	Glass Fiber Filtration 103-105°C.	p. 537	–	p. 278
Total Volatile Solids mg/liter 00505	Gravimetric Method 550°C.	p. 536	–	p. 282
Settleable Matter (Residue) ml/liter 00545	Imhoff Cone, by Volume	p. 539	–	–
Ammonia (as N) mg/liter 00610	Distillation-Nesslerization or Automated Phenolate	–	–	p. 134 p. 141
Kjeldahl Nitrogen (as N) mg/liter 00625	Digestion-Distillation or Automated-Digestion and Phenolate	p. 469	–	p. 149 p. 157
Nitrate (as N) mg/liter 00620	Brucine Sulfate or Automated-Hydrazine or Cadmium Reduction	p. 461	p. 124	p. 185 p. 170 p. 175
Total Phosphorus (as P) mg/liter 00665	Persulfate Digestion and Single Reagent or Manual Digestion and Automated Single Reagent or Stannous Chloride	p. 526	–	p. 246 p. 235 p. 259
Acidity (as $CaCO_3$) mg/liter 00435	Volumetric-color or Electrometric End Point	p. 370	p. 143	p. 5
Total Organic Carbon (TOC) mg/liter 00680	Combustion-Infrared Method	p. 257	p. 702	p. 221
Hardness-Total (as $CaCO_3$) mg/liter 00900	EDTA Titration-Automated Colorimetric, or Atomic Absorption Spectrophotometer	p. 179	p. 169	p. 76 p. 78
Nitrite (as N) mg/liter 00615	Diazotization-Manual or Automated Colorimetric	p. 468	p. 228	p. 195

TABLE A (Continued)

Total Metal Content				
Parameter & Units	Method	References		
		Standard Methods 13th Ed. 1971	A.S.T.M. Standards Pt. 23 1972	EPA Methods 1971
Aluminum-Total** mg/liter 01105	Atomic Absorption Spectrophotometer	p. 57	–	p. 98
Antimony-Total** mg/liter 01097	Atomic Absorption Spectrophotometer	–	–	p. 83
Arsenic-Total** mg/liter 01002	Silver Diethyldithiocarbamate or Atomic Absorption Spectrophotometer	p. 62	–	p. 13 p. 99
Barium-Total** mg/liter 01007	Atomic Absorption Spectrophotometer	p. 66	–	p. 83
Beryllium-Total** mg/liter 01012	Aluminon or Atomic Absorption Spectrophotometer	p. 67	–	p. 83
Boron-Total** mg/liter 01022	Curcumin, Carmine or Potentiometric	p. 69	–	p. 83
Cadmium-Total** mg/liter 01027	Atomic Absorption Spectrophotometer or Colorimetric	p. 422	p. 692	p. 101
Calcium-Total** mg/liter 00916	EDTA Titration or Atomic Absorption Spectrophotometer or Colorimetric	p. 84	p. 692	p. 102
Chromium-Total** mg/liter 01034	Atomic Absorption Spectrophotometer or Colorimetric	p. 426	p. 692	p. 104
Cobalt-Total** mg/liter 01037	Atomic Absorption Spectrophotometer	–	p. 692	p. 83
Copper-Total** mg/liter 01042	Atomic Absorption Spectrophotometer or Colorimetric	p. 430	p. 692	p. 106
Iron-Total** mg/liter 01045	Atomic Absorption Spectrophotometer or Colorimetric	p. 433	p. 692	p. 108
Lead-Total** mg/liter 01051	Atomic Absorption Spectrophotometer or Colorimetric	p. 436	p. 692	p. 110
Magnesium-Total** mg/liter 00927	Atomic Absorption Spectrophotometer or Colorimetric	p. 416	p. 692	p. 112
Manganese-Total** mg/liter 01055	Atomic Absorption Spectrophotometer	–	p. 692	p. 114

**See Note 2 at end of table.

TABLE A (Continued)

Total Metal Content				
Parameter & Units	Method	References		
		Standard Methods 13th Ed. 1971	A.S.T.M. Standards Pt. 23 1972	EPA Methods 1971
Mercury-Total** mg/liter 71900	Flameless Atomic Absorption Procedure. For updated method, see JAWWA, 64, No. 1, pp. 20-25 (Jan. 1972)	–	–	p. 121
Molybdenum-Total** mg/liter 01062	Atomic Absorption Spectrophotometer	–	–	p. 83
Nickel-Total** mg/liter 01067	Absorption or Atomic Spectrophotometer	p. 443	p. 692	p. 83
Potassium-Total** mg/liter 00937	Colorimetric, Flame Photometric or Atomic Absorption Spectrophotometer	p. 285 p. 283	p. 326	p. 115
Selenium-Total** mg/liter 01147	Colorimetric-Diaminobenzidine	p. 296	–	p. 271
Silver-Total** mg/liter 01077	Atomic Absorption Spectrophotometer	p. 309	–	p. 117
Sodium-Total** mg/liter 00929	Flame Photometric or Atomic Absorption Spectrophotometer	p. 317	p. 326	p. 118
Thallium-Total** mg/liter 01059	Atomic Absorption Spectrophotometer	–	–	p. 83
Tin-Total** mg/liter 01102	Atomic Absorption Spectrophotometer	–	–	p. 83
Titanium-Total** mg/liter 01152	Atomic Absorption Spectrophotometer	–	–	p. 83
Zinc-Total** mg/liter 01092	Colorimetric, or Atomic Absorption Spectrophotometer	p. 444 p. 211	p. 692	p. 120

**See Note 2 at end of table.

TABLE A (Continued)

Chemical Parameters				
Parameter & Units	Method	References		
		Standard Methods 13th Ed. 1971	A.S.T.M. Standards Pt. 23 1972	EPA Methods 1971
Organic Nitrogen (as N) mg/liter 00605	Kjeldahl Nitrogen Minus Ammonia (N)	p. 468	–	p. 149
Ortho-Phosphate (as P) mg/liter 70507	Direct Single Reagent, Automated Colorimetric-Single Reagent or Stannous Chloride	p. 532	p. 42	p. 235 p. 246 p. 259
Sulfate (as SO_4) mg/liter 00945	Turbidimetric or Automated Colorimetric-Barium Chloranilate	p. 334	p. 52	p. 286 p. 288
Sulfide (as S) mg/liter 00745	Titrimetric-Iodide, Methylene Blue Color Matching or Methylene Blue Colorimetric	p. 551	–	p. 294
Sulfite (as SO_3) mg/liter 00740	Iodide-Iodate Titration	p. 337	p. 261	–
Bromide mg/liter 71870	Colorimetric	p. 75	p. 214	–
Chloride mg/liter 00940	Mercuric Nitrate or Automated Colorimetric-Ferric Thiocyanate	p. 97	p. 21	p. 29 p. 31
Cyanide mg/liter 00720	Distillation-Silver Nitrate Titration or Pyridine Pyrazolone Colorimetric	p. 404	p. 556	p. 41
Fluoride mg/liter 00951	Distillation-Spadns Automated Complexone or Electrode	p. 171	p. 191	p. 64 p. 66 p. 72
Chlorine-Total Residual mg/liter 50060	Amperometric or Colorimetric	p. 107	–	–
Oil and Grease mg/liter 00550	Liquid-Liquid Extraction	p. 254	–	–
Phenols mg/liter 32730	Colorimetric, 4-AAP	p. 502	p. 445	p. 232
Surfactants mg/liter 38260	Methylene Blue Procedure	p. 559	p. 619	p. 131
Algicides* mg/liter 74051	Specify Method Used in "Remarks"	–	–	–
Chlorinated Organic Compounds* (Except Pesticides) 74052	Specify Method Used in "Remarks"	–	–	–
Pesticides* mg/liter 74053	Specify Method Used in "Remarks"	–	–	–

*See Note 1 at end of table.

TABLE A (Continued)

Physical and Biological Parameters				
Parameter & Units	Method	References		
		Standard Methods 13th Ed. 1971	A.S.T.M. Standards Pt. 23 1972	EPA Methods 1971
Color Pt-Co units 00080	Platinum-Cobalt Visual	p. 160	–	p. 38
Specific Conductance micromhos/cm at 25°C 00095	Wheatstone Bridge	p. 323	p. 163	p. 284
Turbidity Jackson units 00070	Turbidimeter	p. 577	p. 467	p. 308
Fecal Streptococci Bacteria number/100 ml 74054	Specify Method Used in "Remarks"	p. 688	–	–
Coliform Bacteria, Fecal number/100 ml 74055	Specify Method Used in "Remarks"	p. 669 p. 684	–	–
Coliform Bacteria, Total number/100 ml 74056	Specify Method Used in "Remarks"	p. 664 p. 679	–	–

TABLE A (Continued)

Radioactive Parameters		
Type of Radiation	References	
	Standard Methods 13th Ed. 1971	A.S.T.M. Standards Pt. 23 1972
Alpha-Total picocurie/liter 01501	p. 598	p. 509
Alpha Counting Error picocurie/liter 01502	p. 598	p. 512
Beta-Total picocurie/liter 03501	p. 598	p. 473
Beta Counting Error picocurie/liter 03502	p. 598	p. 478

Note 1.—*Interim procedures for algicides, chlorinated organic compounds, and pesticides can be obtained from the Analytical Quality Control Laboratory, National Environmental Research Center, Cincinnati, Ohio 45268, or from the Regional Offices of the Environmental Protection Agency.

Note 2.—**For the determination of total metals the sample is not filtered before processing. Choose a volume of sample appropriate for the expected level of metals. If much suspended material is present, as little as 50–100 ml of well-mixed sample will most probably be sufficient. (The sample volume required may also vary proportionally with the number of metals to be determined.)

Transfer a representative aliquot of the well-mixed sample to a Griffin beaker and add 3 ml of concentrated distilled HNO_3. Place the beaker on a hotplate and evaporate to dryness making certain that the sample does not boil. Cool the beaker and add another 3 ml portion of distilled concentrated HNO_3. Cover the beaker with a watch glass and return to the hotplate. Increase the temperature of the hotplate so that a gentle reflux action occurs. Continue heating, adding additional acid as necessary until the digestion is complete, generally indicated by a light-colored residue. Add sufficient distilled 1:1 HCl and again warm the beaker to dissolve the residue. Wash down the beaker walls and watch glass with distilled water and filter the sample to remove silicates and other insoluble material that could clog the atomizer. Adjust the volume to some predetermined value based on the expected metal concentrations. The sample is now ready for analysis. Concentrations so determined shall be reported as "total." STORET parameter numbers for reporting this type of data have been assigned and are given for each metal.

* U. S. GOVERNMENT PRINTING OFFICE : 1979--281-147/115

FORM APPROVED
OMB No. 158–R0100

FOR AGENCY USE

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
APPLICATION FOR PERMIT TO DISCHARGE WASTEWATER

STANDARD FORM C – MANUFACTURING AND COMMERCIAL

SECTION I. APPLICANT AND FACILITY DESCRIPTION

Unless otherwise specified on this form all items are to be completed. If an item is not applicable indicate 'NA.'

ADDITIONAL INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

Please Print or Type

1. **Legal Name of Applicant** (see instructions)	101	
2. **Mailing Address of Applicant** (see instructions) Number & Street	102a	
City	102b	
State	102c	
Zip Code	102d	
3. **Applicant's Authorized Agent** (see instructions) Name and Title	103a	
Number & Street Address	103b	
City	103c	
State	103d	
Zip Code	103e	
Telephone	103f	Area Code ____ Number ____
4. **Previous Application** If a previous application for a National or Federal discharge permit has been made, give the date of application. Use numeric designation for date.	104	___ ___ ___ YR MO DAY

I certify that I am familiar with the information contained in this application and that to the best of my knowledge and belief such information is true, complete, and accurate.

Printed Name of Person Signing	102e	Title
		___ ___ ___ YR MO DAY
Signature of Applicant or Authorized Agent	102f	Date Application Signed

18 U.S.C. Section 1001 provides that:

Whoever, in any matter within the jurisdiction of any department or agency of the United States knowingly and wilfully falsifies, conceals or covers up by any trick, scheme, or device a material fact, or makes any false, fictitious or fraudulent statement or representation, or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than five years, or both.

FOR AGENCY USE

Received ___ ___ ___ YR MO DAY

OFFICE: ____EPA Region Number
____State

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This section contains 3 pages.

5. Facility/Activity (see instructions) Give the name, ownership, and physical location of the plant or other operating facility where discharge(s) does or will occur.

FOR AGENCY USE

Name	105a	
Ownership (Public, Private or Both Public and Private)	105b	☐ PUB ☐ PRV ☐ BPP
Check block if Federal Facility and give GSA Inventory Control Number	105c	☐ FED
	105d	
Location		
Street & Number	105e	
City	105f	
County	105g	
State	105h	

6. Nature of Business State the nature of the business conducted at the plant or operating facility.

	106a	
	106b	AGENCY USE

7. Facility Intake Water (see instructions) Indicate water intake volume per day by sources. Estimate average volume per day in thousand gallons per day.

Municipal or private water system	107a	_____ thousand gallons per day
Surface water	107b	_____ thousand gallons per day
Groundwater	107c	_____ thousand gallons per day
Other*	107d	_____ thousand gallons per day
Total Item 7	107e	_____ thousand gallons per day
*If there is intake water from 'other,' specify the source.	107f	

8. Facility Water Use Estimate average volume per day in thousand gallons per day for the following types of water usage at the facility. (see instructions)

Noncontact cooling water	108a	_____ thousand gallons per day
Boiler feed water	108b	_____ thousand gallons per day
Process water (including contact cooling water)	108c	_____ thousand gallons per day
Sanitary water	108d	_____ thousand gallons per day
Other*	108e	_____ thousand gallons per day
Total Item 8	108f	_____ thousand gallons per day
*If there are discharges to 'other,' specify.	108g	
If there is 'Sanitary' water use, give the number of people served.	108h	_____ people served

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9. **All Facility Discharges and other Losses; Number and Discharge (see instructions) Volume** Specify the number of discharge points and the volume of water discharged or lost from the facility according to the categories below. Estimate average volume per day in thousand gallons per day.

		Number of Discharge Points		Total Volume Used or Discharged, Thousand Gal/Day
Surface Water	109a1		109a2	
Sanitary wastewater transport system	109b1		109b2	
Storm water transport system	109c1		109c2	
Combined sanitary and storm water transport system	109d1		109d2	
Surface impoundment with no effluent	109e1		109e2	
Underground percolation	109f1		109f2	
Well injection	109g1		109g2	
Waste acceptance firm	109h1		109h2	
Evaporation	109i1		109i2	
Consumption	109j1		109j2	
Other*	109k1		109k2	
Facility discharges and volume Total Item 9.	109l1		109l2	
*If there are discharges to 'other,' specify.	109m1			

10. **Permits, Licenses and Applications**
List all existing, pending or denied permits, licenses and applications related to discharges from this facility (see instructions).

	Issuing Agency	For Agency Use	Type of Permit or License	ID Number	Date Filed YR/MO/DA	Date Issued YR/MO/DA	Date Denied YR/MO/DA	Expiration Date YR/MO/DA
110	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)
1.								
2.								
3.								

11. **Maps and Drawings**
Attach all required maps and drawings to the back of this application.(see instructions)

12. **Additional Information**

112 Item Number	Information

FORM APPROVED
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STANDARD FORM C – MANUFACTURING AND COMMERCIAL

FOR AGENCY USE

SECTION II. BASIC DISCHARGE DESCRIPTION

Complete this section for each discharge indicated in Section I, Item 9, that is to surface waters. This includes discharges to municipal sewerage systems in which the wastewater does not go through a treatment works prior to being discharged to surface waters. Discharges to wells must be described where there are also discharges to surface waters from this facility. **SEPARATE DESCRIPTIONS OF EACH DISCHARGE ARE REQUIRED EVEN IF SEVERAL DISCHARGES ORIGINATE IN THE SAME FACILITY.** All values for an existing discharge should be representative of the twelve previous months of operation. If this is a proposed discharge, values should reflect best engineering estimates.

ADDITIONAL INSTRUCTIONS FOR SELECTED ITEMS APPEAR IN SEPARATE INSTRUCTION BOOKLET AS INDICATED. REFER TO BOOKLET BEFORE FILLING OUT THESE ITEMS.

1. Discharge Serial No. and Name

a. **Discharge Serial No.** (see instructions)	201a	
b. **Discharge Name** Give name of discharge, if any. (see instructions)	201b	
c. **Previous Discharge Serial No.** If previous permit application was made for this discharge (see *Item 4, Section I), provide* previous discharge serial number.	201c	

2. Discharge Operating Dates

a. **Discharge Began Date** If the discharge described below is in operation, give the date (within best estimate) the discharge began.	202a	___ ___ YR MO
b. **Discharge to Begin Date** If the discharge has never occurred but is planned for some future date, give the date (within best estimate) the discharge will begin.	202b	___ ___ YR MO
c. **Discharge to End Date** If discharge is scheduled to be discontinued within the next 5 years, give the date (within best estimate) the discharge will end.	202c	___ ___ YR MO

3. Engineering Report Available
Check if an engineering report is available to reviewing agency upon request. (see instructions) 203 ☐

4. Discharge Location Name the political boundaries within which the point of discharge is located.

				Agency Use
State	204a		204d	
County	204b		204e	
(If applicable) City or Town	204c		204f	

5. Discharge Point Description
Discharge is into (check one): (see instructions)

Stream (includes ditches, arroyos, and other intermittent watercourses)	205a	☐STR
Lake		☐LKE
Ocean		☐OCE
Municipal Sanitary Wastewater Transport System		☐MTS
Municipal Combined Sanitary and Storm Transport System		☐MCS

DISCHARGE SERIAL NUMBER

_____

FOR AGENCY USE

Municipal Storm Water Transport System		☐ STS
Well (Injection)		☐ WEL
Other.		☐ OTH
If 'other' is checked, specify	205b	_____

6. **Discharge Point -- Lat/Long** Give the precise location of the point of discharge to the nearest second.

Latitude	206a	___ DEG ___ MIN ___ SEC
Longitude	206b	___ DEG ___ MIN ___ SEC

7. **Discharge Receiving Water Name** Name the waterway at the point of discharge.(see instructions)

207a _____

_____

If the discharge is through an outfall that extends beyond the shoreline or is below the mean low water line, complete Item 8.

207b

For Agency Use				For Agency Use
Major	Minor	Sub	207c	303e

8. **Offshore Discharge**

a. Discharge Distance from Shore	208a	_____ feet
b. Discharge Depth Below Water Surface	208b	_____ feet

9. **Discharge Type and Occurrence**

a. Type of Discharge Check whether the discharge is continuous or intermittent. (see instructions)	209a	☐ (con) Continuous ☐ (int) Intermittent
b. Discharge Occurrence Days per Week Enter the average number of days per week (during periods of discharge) this discharge occurs.	209b	___ days per week
c. Discharge Occurrence —Months If this discharge normally operates (either intermittently, or continuously) on less than a year-around basis (excluding shutdowns for routine maintenance), check the months during the year when the discharge is operating. (see instructions)	209c	☐ JAN ☐ FEB ☐ MAR ☐ APR ☐ MAY ☐ JUN ☐ JUL ☐ AUG ☐ SEP ☐ OCT ☐ NOV ☐ DEC

Complete Items 10 and 11 if "intermittent" is checked in Item 9.a. Otherwise, proceed to Item 12.

10. **Intermittent Discharge Quantity** State the average volume per discharge occurrence in thousands of gallons.

210 _____ thousand gallons per discharge occurrence.

11. **Intermittent Discharge Duration and Frequency**

a. Intermittent Discharge Duration Per Day State the average number of hours per day the discharge is operating.	211a	___ hours per day
b. Intermittent Discharge Frequency State the average number of discharge occurrences per day during days when discharging.	211b	___ discharge occurrences per day

12. **Maximum Flow Period** Give the time period in which the maximum flow of this discharge occurs.

212 From ___ (month) to ___ (month)

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DISCHARGE SERIAL NUMBER

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13. Activity Description Give a narrative description of activity producing this discharge.(see instructions)

213a

14. Activity Causing Discharge For each SIC Code which describes the activity causing this discharge, supply the type and maximum amount of either the raw material consumed (Item 14a) or the product produced (Item 14b) in the units specified in Table I of the Instruction Booklet. For SIC Codes not listed in Table I, use raw material or production units normally used for measuring production.(see instructions)

a. Raw Materials

	SIC Code	Name	Maximum Amount/Day	Unit (See Table I)	Shared Discharges (Serial Number)
214a	(1)	(2)	(3)	(4)	(5)

b. Products

	SIC Code	Name	Maximum Amount/Day	Unit (See Table I)	Shared Discharges (Serial Number)
214b	(1)	(2)	(3)	(4)	(5)

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DISCHARGE SERIAL NUMBER

FOR AGENCY USE

15. **Waste Abatement**

a. **Waste Abatement Practices** Describe the waste abatement practices used on this discharge with a brief narrative. (see instructions)

215a Narrative: _____

b. **Waste Abatement Codes** Using the codes listed in Table II of the Instruction Booklet, describe the waste abatement processes for this discharge in the order in which they occur if possible.

215b

(1) _____, (2) _____, (3) _____,
(4) _____, (5) _____, (6) _____,
(7) _____, (8) _____, (9) _____,
(10) _____, (11) _____, (12) _____,
(13) _____, (14) _____, (15) _____,
(16) _____, (17) _____, (18) _____,
(19) _____, (20) _____, (21) _____,
(22) _____, (23) _____, (24) _____,
(25) _____.

DISCHARGE SERIAL NUMBER

FOR AGENCY USE

15. **Waste Abatement**

a. **Waste Abatement Practices** Describe the waste abatement practices used on this discharge with a brief narrative. (see instructions)

215a Narrative: _____

b. **Waste Abatement Codes** Using the codes listed in Table II of the Instruction Booklet, describe the waste abatement processes for this discharge in the order in which they occur if possible.

215b

(1) _____, (2) _____, (3) _____,
(4) _____, (5) _____, (6) _____,
(7) _____, (8) _____, (9) _____,
(10) _____, (11) _____, (12) _____,
(13) _____, (14) _____, (15) _____,
(16) _____, (17) _____, (18) _____,
(19) _____, (20) _____, (21) _____,
(22) _____, (23) _____, (24) _____,
(25) _____.

DISCHARGE SERIAL NUMBER

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16. Wastewater Characteristics

Check the box beside each constituent which is present in the effluent (discharge water). This determination is to be based on actual analysis or best estimate.(see instructions)

Parameter 216	Present	Parameter 216	Present
Color 00080		Copper 01042	
Ammonia 00610		Iron 01045	
Organic nitrogen 00605		Lead 01051	
Nitrate 00620		Magnesium 00927	
Nitrite 00615		Manganese 01055	
Phosphorus 00665		Mercury 71900	
Sulfate 00945		Molybdenum 01062	
Sulfide 00745		Nickel 01067	
Sulfite 00740		Selenium 01147	
Bromide 71870		Silver 01077	
Chloride 00940		Potassium 00937	
Cyanide 00720		Sodium 00929	
Fluoride 00951		Thallium 01059	
Aluminum 01105		Titanium 01152	
Antimony 01097		Tin 01102	
Arsenic 01002		Zinc 01092	
Beryllium 01012		Algicides* 74051	
Barium 01007		Chlorinated organic compounds* 74052	
Boron 01022		Pesticides* 74053	
Cadmium 01027		Oil and grease 00550	
Calcium 00916		Phenols 32730	
Cobalt 01037		Surfactants 38260	
Chromium 01034		Chlorine 50060	
Fecal coliform bacteria 74055		Radioactivity* 74050	

*Specify substances, compounds and/or elements in Item 26.

Pesticides (insecticides, fungicides, and rodenticides) must be reported in terms of the acceptable common names specified in *Acceptable Common Names and Chemical Names for the Ingredient Statement on Pesticide Labels*, 2nd Edition, Environmental Protection Agency, Washington, D.C. 20250, June 1972, as required by Subsection 162.7(b) of the Regulations for the Enforcement of the Federal Insecticide, Fungicide, and Rodenticide Act.

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17. **Description of Intake and Discharge**

For each of the parameters listed below, enter in the appropriate box the value or code letter answer called for.(see instructions)

In addition, enter the parameter name and code and all required values for any of the following parameters if they were checked in Item 16; ammonia, cyanide, aluminum, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, zinc, phenols, oil and grease, and chlorine (residual).

Parameter and Code (217a)	Influent		Effluent					
	Untreated Intake Water (Daily Average) (1)	In-Plant Treated Intake Water (Daily Average) (2)	Daily Average (3)	Minimum Value Observed or Expected During Discharge Activity (4)	Maximum Value Observed or Expected During Discharge Activity (5)	Frequency of Analysis (6)	Number of Analyses (7)	Sample Type (8)
Flow* Gallons per day 00056								
pH Units 00400			X					
Temperature (winter) °F 74028								
Temperature (summer) °F 74027								
Biochemical Oxygen Demand (BOD 5-day) mg/l 00310								
Chemical Oxygen Demand (COD) mg/l 00340								
Total Suspended (nonfilterable) Solids mg/l 00530								
Specific Conductance micromhos/cm at 25° C 00095			X					
Settleable Matter (residue) ml/l 00545								

*Other discharges sharing intake flow (serial numbers).(see instructions)

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17. (Cont'd.)

Parameter and Code 217a	Influent		Effluent					
	Untreated Intake Water (Daily Average) (1)	In-Plant Treated Intake Water (Daily Average) (2)	Daily Average (3)	Minimum Value Observed or Expected During Discharge Activity (4)	Maximum Value Observed or Expected During Discharge Activity (5)	Frequency of Analysis (6)	Number of Analyses (7)	Sample Type (8)

18. Plant Controls. Check if the following plant controls are available for this discharge. 218

Alternate power source for major pumping facility. ☐ APS

Alarm or emergency procedure for power or equipment failure ☐ ALM

Complete Item 19 if discharge is from cooling and/or steam water generation and water treatment additives are used.

19. Water Treatment Additives If the discharge is treated with any conditioner, inhibitor, or algicide, answer the following:

a. Name of Material(s) 219a _____

b. Name and address of manufacturer 219b _____

c. Quantity (pounds added per million gallons of water treated). 219c _____

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d. Chemical composition of these additives (see instructions). 219d

Complete items 20-25 if there is a thermal discharge (e.g., associated with a steam and/or power generation plant, steel mill, petroleum refinery, or any other manufacturing process) and the total discharge flow is 10 million gallons per day or more. (see instructions)

20. Thermal Discharge Source Check the appropriate item(s) indicating the source of the discharge. (see instructions) 220

- Boiler Blowdown ☐ BLBD
- Boiler Chemical Cleaning ☐ BCCL
- Ash Pond Overflow ☐ APOF
- Boiler Water Treatment — Evaporator Blowdown ☐ EPBD
- Oil or Coal Fired Plants — Effluent from Air Pollution Control Devices ☐ OCFP
- Condense Cooling Water ☐ COND
- Cooling Tower Blowdown ☐ CTBD
- Manufacturing Process ☐ MFPR
- Other ☐ OTHR

21. Discharge/Receiving Water Temperature Difference

Give the maximum temperature difference between the discharge and receiving waters for summer and winter operating conditions. (see instructions)

Summer 221a _____ °F.

Winter 221b _____ °F.

22. Discharge Temperature, Rate of Change Per Hour 222 _____ °F./hour

Give the maximum possible rate of temperature change per hour of discharge under operating conditions. (see instructions)

23. Water Temperature, Percentile Report (Frequency of Occurrence)

In the table below, enter the temperature which is exceeded 10% of the year, 5% of the year, 1% of the year and not at all (maximum yearly temperature). (see instructions)

Frequency of occurrence

		10%	5%	1%	Maximum
a.	Intake Water Temperature (Subject to natural changes) 223a	°F	°F	°F	°F
b.	Discharge Water Temperature 223b	°F	°F	°F	°F

24. Water Intake Velocity (see instructions) 224 _____ feet/sec.

25. Retention Time Give the length of time, in minutes, from start of water temperature rise to discharge of cooling water. (see instructions) 225 _____ minutes

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26. Additional Information

226 Item	Information

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STANDARD FORM C – MANUFACTURING AND COMMERCIAL

SECTION III. WASTE ABATEMENT REQUIREMENTS & IMPLEMENTATION (CONSTRUCTION) SCHEDULE

This section requires information on any uncompleted implementation schedule which may have been imposed for construction of waste abatement facilities. Such requirements and implementation schedules may have been established by local, State, or Federal agencies or by court action. In addition to completing the following items, a copy of an official implementation schedule should be attached to this application. IF YOU ARE SUBJECT TO SEVERAL DIFFERENT IMPLEMENTATION SCHEDULES, EITHER BECAUSE OF DIFFERENT LEVELS OF AUTHORITY IMPOSING DIFFERENT SCHEDULES (Item 1a.) AND/OR STAGED CONSTRUCTION OF SEPARATE OPERATION UNITS (Item 1c), SUBMIT A SEPARATE SECTION III FOR EACH ONE.

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SCHED. NO.

1. Improvements	300	
a. Discharge Serial Number Affected List the discharge serial numbers, assigned in Section II, that are covered by this implementation schedule.	301a	____, ____, ____ ____, ____, ____
b. Authority Imposing Requirements Check the appropriate item indicating the authority for implementation schedule. If the identical implementation schedule has been ordered by more than one authority, check the appropriate items. (see instructions)		
Locally developed plan	301b	☐LOC
Areawide Plan		☐ARE
Basic Plan		☐BAS
State approved implementation schedule		☐SQS
Federal approved water quality standards implementation plan.		☐WQS
Federal enforcement procedure or action		☐ENF
State court order		☐CRT
Federal court order		☐FED
c. Facility Requirement. Specify the 3-character code of those listed below that best describes in general terms the requirement of the implementation schedule and the applicable six-character abatement code(s) from Table II of the Instruction booklet. If more than one schedule applies to the facility because of a staged construction schedule, state the stage of construction being described here with the appropriate general action code. Submit a separate Section III for each stage of construction planned.	301c 301d	3-character (general) ____ 6-character (specific) (see Table II) ____ ____ ____

New Facility	NEW
Modification (no increase in capacity or treatment)	MOD
Increase in Capacity	INC
Increase in Treatment Level	INT
Both Increase in Treatment Level and Capacity	ICT
Process Change	PRO
Elimination of Discharge	ELI

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2. Implementation Schedule and 3. Actual Completion Dates

Provide dates imposed by schedule and any actual dates of completion for implementation steps listed below. Indicate dates as accurately as possible. (see instructions)

Implementation Steps		2. Schedule (Yr./Mo./Day)		3. Actual Completion (Yr./Mo./Day)
a. Preliminary plan complete	302a	___/___/___	303a	___/___/___
b. Final plan submission	302b	___/___/___	303b	___/___/___
c. Final plan complete	302c	___/___/___	303c	___/___/___
d. Financing complete & contract awarded	302d	___/___/___	303d	___/___/___
e. Site acquired	302e	___/___/___	303e	___/___/___
f. Begin action (e.g., construction)	302f	___/___/___	303f	___/___/___
g. End action (e.g., construction)	302g	___/___/___	303g	___/___/___
h. Discharge Began	302h	___/___/___	303h	___/___/___
i. Operational level attained	302i	___/___/___	303i	___/___/___

APPENDIX D

TENNESSEE EFFLUENT LIMITATIONS FOR EFFLUENT LIMITED STREAM SEGMENTS

D-1 TENNESSEE EFFLUENT LIMITATIONS FOR EFFLUENT LIMITED STREAM SEGMENTS

The U.S. Environmental Protection Agency has adopted effluent limitations and guidelines for existing sources and standards of performance for new sources pursuant to Section 301, 304, and 306 of the Federal Water Pollution Control Act as amended, PL92-500. Permits for discharges to effluent limited segments* will contain limitations and standards in accordance with these guidelines, when such are in effect. The Commissioner of TDPH has authority, pursuant to Section 70-330, Tennessee Code Annotated, and Rule 1200-4-3, to require wastewater treatment, independent of Federal guidelines. A set of effluent limitations will be required in each permit which will indicate adequate operation or performance of treatment units used and which will appropriately limit those harmful parameters present in the wastewater. In the absence of Federal guidelines, treatment units will be required to achieve as a minimum the concentrations given in Table D-1 as maximum effluent limitations when such parameters are present as a result of processes causing the contamination or discharges.

Where it can be demonstrated that higher concentration values have resulted from utilization of water conservation practices, allowances may be made in determination of effluent limitations. Parameters other than those listed may be limited in accordance with current treatment technology.

Where it can be demonstrated that treatment by practical conventional unit treatment processes cannot provide compliance with the concentration limitations listed in Table D-1, other reasonable effluent limitations may be established.

It is not the intent or purpose of these regulations that all permits require limitation of or monitoring of all parameters listed for industrial wastewater treatment plants. Rather, it is the intent that each permit include limitations of those parameters listed that are directly attributable to the processes causing the discharge for which the permit is granted.

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*The term "effluent limited segment" means a segment of waters, or segments of waters, wherein water quality, in accordance with assigned classifications, can be maintained by the application of effluent limitations in accordance with BPTCA (Best Practical Technology Currently Available) or practical conventional unit treatment processes.

TABLE D-1

TENNESSEE EFFLUENT LIMITATIONS FOR EFFLUENT LIMITED SEGMENTS

Municipal and Domestic Wastewater Treatment Plants

Parameter	Monthly Average (mg/l)	Weekly Average (mg/l)	Daily Maximum (mg/l)
BOD_5	30	40	45
Suspended Solids (TSS)	30	40	45
Settleable Solids*	--	--	--

Industrial Wastewater Treatment Plants

Parameter	Daily Maximum Concentrations (mg/l, except as noted)
Aluminum	250
Antimony	1.0
Arsenic	1.0
Barium	5.0
Boron	500
Cadmium	0.01
Chlorine (total)	2.0
Chromium (total)	3.0
Cobalt	10
Copper	1.0
Cyanide	0.05
Fluoride (soluble)	20.0
Iron (total)	10.0
Lead	0.1
Manganese	10.0
Mercury	0.05
Nickel	3.0
Oil and Grease	(a) 30
	(b) No visible or floating oil or grease

TABLE D-1 (Continued)

INDUSTRIAL WASTEWATER TREATMENT PLANTS (Continued)

Parameters	Daily Maximum Concentrations (mg/l, except as noted)
pH (6.0 to 9.0)	Standard Unit
Phenols	1.0
Selenium	0.01
Silver	0.05
Suspended Solids**	40
Settleable Solids	0.5 ml/l
Zinc	2.0

Domestic Waste Stabilization Lagoons (Existing)

Parameter	Monthly Average (mg/l)	Weekly Average (mg/l)	Daily Maximum (mg/l)
BOD_5	30	40	45
Suspended Solids (TSS)	100	110	120

* The concentration of settleable solids shall not exceed 1.0 ml/l as measured by the standard one-hour Imhoff cone test.

** In the case of biological treatment units, the daily maximum TSS may be 120 mg/l.

APPENDIX E

ENGINEERING REPORT GUIDELINES

E-1 ENGINEERING REPORT GUIDELINES

Following is the "Outline of Engineering Requirements" for the preparation of reports, plans and specifications for wastewater treatment systems built in Tennessee. These guidelines are presently being revised by the Tennessee Department of Public Health (TDPH) to take into consideration the requirements of the NPDES permit program.

CHAPTER I

OUTLINE OF ENGINEERING REQUIREMENTS

For the Preparation of Reports, Plans and Specifications for Waste Disposal Facilities Serving Public, Private and Industrial Installations

Tennessee Department of Public Health
Nashville, Tennessee 37219

1.1 GENERAL INFORMATION

The Regulations of the Tennessee Department of Public Health and the Water Quality Control Board require that whenever any new works or major changes of existing works for the collection and/or treatment of sewage (wastewater), industrial wastes or other wastes are contemplated, whereby sewage, industrial wastes or other wastes will be discharged into or adjacent to any waters of the State, certain information shall be obtained and submitted to the Tennessee Department of Public Health. This information should be compiled by a consulting engineer, licensed to practice within the State of Tennessee, representing the responsible person (municipality, industry or owner) and submitted to the Department in two parts: (1) an engineering report with preliminary plans, and (2) final construction plans and specifications.

The review by the Tennessee Department of Public Health takes into consideration the regional plan for water quality control. Informal discussions and conferences are suggested and encouraged in all phases of the work.

The engineers of the Department can not act as consulting engineers for industries, municipalities, or other persons, but assistance will be given insofar as possible in developing suitable and economical works.

1.2 ADMINISTRATIVE PROCEDURES

The Division of Water Quality Control within the Tennessee Department of Public Health is involved with control over construction and operation of wastewater treatment and disposal facilities. Engineering proposals; including reports, plans and specifications must be submitted to this Division if the project scope involves any of the following:

(a) Municipal sewerage (wastewater) systems
(b) Utility District sewerage (wastewater) systems
(c) Publicly owned sewerage systems required to obtain a charter from the Tennessee Public Service Commission
(d) Public corporation sewerage systems organized under the General Corporation Act of Tennessee
(e) Public sewerage systems organized under the Federal Housing Authority Title Bond
(f) All sewerage (domestic wastewater) systems owned by the State of Tennessee
(g) Industrial waste systems
(h) Agricultural waste systems
(i) Industrial sewerage systems

(j) Federally owned systems
(k) Sewerage systems for schools
(l) Sewerage systems for service stations
(m) Sewerage systems for shopping centers
(n) Sewerage systems for truck stops
(o) Sewerage systems for motels
(p) Sewerage and industrial waste systems for laundries and car wash facilities

In a effort to be consistant the following procedures have been established:

(a) Upon receipt of an engineering proposal and/or preliminary engineering report, the Division of Water Quality Control will investigate the proposed point of discharge and will establish appropriate effluent standards. The actual plant site will be investigated and the owner and consulting engineer will be informed of the standards in an official letter of site review and approval.
(b) Divisional review of the final engineering report and preliminary plans will follow the issuance of the effluent standard.

1.3 PRELIMINARY DISCUSSION CONCERNING PROJECT

A preliminary discussion of the project should be made with representatives of the Division of Water Quality Control. The representatives of the industry, municipality, etc. should be prepared to discuss pertinent project related information. This discussion will follow the concept written in Regulation 9.

During the informal discussion, the files of the Department relating to the specific problem will be made available to the consulting engineer for use in designing the works. In order to protect certain information concerning confidential processes at some industries, proof may be required that the engineer is employed by said industry before any data will be made available to persons other than company officials.

The preliminary discussion should help to expedite project approvals, since any major disagreements with proposed design concepts can be resolved at this time.

1.4 FINAL ENGINEERING REPORT AND PRELIMINARY PLANS

The final engineering report and preliminary plans must present the basis for design and all unit designs specified must be verified or substantiated in a sufficient manner. Additionally, this submittal must examine alternative solutions to the problem and select the most appropriate solution on the basis of economics, efficiency, dependability, serviceability, and sociological considerations.

Each unit process and operation within both the waste producing system and also the proposed waste treatment system will be discussed in detail. Material balances, flow diagrams, preliminary sketches, results of analytical studies and other means should be employed to fully explain the decisions reached in the design of the proposed facility.

On public projects, submission and approval of final plans and specifications prior to bidding is mandatory. On other projects it is suggested that preliminary plans and specifications be prepared prior to the acceptance of bids and that the preliminary plans be sufficiently detailed to allow contractors to bid from the

plans. It is further suggested that final plans and specifications be prepared following acceptance of the successful bid, but prior to completion of contract negotiations as some revision in final plans and specifications may be required for Water Quality Control Division approval. The procedures and other specific requirements for this submittal are written in Regulation 10.

1.4.1 Title: Brief description of project including the name of the owner.

1.4.2 Letter to Transmittal: submission of report from consulting engineer to client.

1.4.3 Title Page: listing of the following:

(1) Title of project
(2) Owner (city, industry, person, etc.)
(3) Names of owner's representatives
(4) Name and address of engineering firm preparing report
(5) Seal, date and signature of registered engineer in charge of project

1.4.4 Table of Contents: number all pages; organize in sections and chapters.

1.4.5 The preparation of a complete, final engineering report should consider the following items:

(a) Sampling - continuous flow monitoring, and flow-proportionate composite samples should be procured.

(b) Characterization - contaminant sources should be identified and fully described in conjuction with an appropriate sampling program. All parameters for which standards have been established must be considered as well as any others that may become apparent during plant process analyses.

(c) Treatability Studies - should be conducted to substantiate or verify that all proposed concepts are sound and workable. Special attention should be given to the aspects of quality control of the systems considered, since the level of control achievable in the laboratory may not be possible under field or pilot plant conditions. The need for extensive treatability work may be negated in situations where past histories of similar wastewater and treatment can be documented. However, correlation through sample comparison of the systems is mandatory. Treatability studies will not be required for package-type units such as chromium reduction units and cyanide destruction units, etc. However, vendor documentation of unit design is essential.

It is recognized that pollution abatement problems, although similar in nature, will probably require a unique treatment system specific for the project in question. Of course, unit operations and treatment schemes will basically be the same; however, the size of units, the type of chemicals, the pattern of flow, etc. will vary.

Listed below are a number of commonly used unit operations along with a nut-shell sketch of the engineering report requirements for a complete design of each:

(i) Neutralization - a neutralization curve must be generated so that chemical feed additions can be calculated. An indication of buffering capacity and pH sensitivity can also be determined so that any problems with instrumentation or the need for staged-neutralization can be anticipated.

(ii) Equalization - generally the design problem consists of determining the relationship between the size of equalization facilities of given characteristics and the reduction in fluctuations in the concentration-time curve. Where flow varies considerably, and not particularly in the same fashion as the concentration, then the equalization facilities should be physically arranged to provide some storage in addition to its normal required volume to attentuate surges. It should be noted that the concentration-time history of the component or components of interest must be obtained. As a rule-of-thumb the length of record required should be about 10 times the length of the time-scale of the problem. Wallace and Zollman (Journal of the Sanitary Engineering Division, ASCE, 97, SA3, June, 1971) indicate that about 80 samples is the absolute minimum number needed to characterize a concentration-time series for a waste and twice that number or about 150, would be desirable.

(iii) Precipitation - jar test to determine optimun chemicals, chemical additions, polyelectrolytes, etcs. should be conducted. Considerable attention should be given to wastes containing soluble metals, since verying optimum - pH precipitation ranges, various metal complexes and chelating agents may pose some treatment difficulties. Segration and/or special treatment may be necessitated. Additional consideration must be given to standing time (following precipitation) and the amphoteric properties of some metal hydroxides.

(iv) Sedimentation - settleability tests must be conducted utilizing a 5 to 6 ft. (or greater) column (at least 6 in. diameter) to design sedimentation units. Physical/chemical systems will be allocated the same overflow rate limitations (based on effective surface area) as those for biological clarifiers (chapter 5) i.e. 360 GPD/SF for flows up to 0.15 MGD and 600 GPD/SF for flows greater than 0.15 MGD. This policy for P/C systems is restrictive in that should any question

exist as to the nature of the solids (tendency to produce poor settleability characteristics) or if a greater overflow rate is requested, then in these instances a column settleability analysis will be required. Tube settlers are approvable on a case by case basis, since extremely high loading rates can be tolerated in these units.

(v) Thickening - design must consider both clarification and thickening. The overall design is similar to clarifier design; however, the most important aspect of thickener design is to establish the area required to accomplish the desired degree of thickening. The required area is established by determining the limiting capacity of the sludge (solid flux) for transporting solids to the bottom of the thickener under the prevailing operating conditions.

(vi) Filtration - Watman paper and millipore filter analysis may be used to determine if filtration could be beneficial.

(vii) Sludge dewatering - Leaf tests to determine the optimum filter cloth, and Buckner funnel analysis to measure sludge filterability are used to specify and ascertain filter type and mode of operation. Designs must be substantiated by this procedure.

(viii) Biological systems - acclimation studies and reactor investigations are needed to determine whether some wastes are amenable to biological treatment, and if so, what type of system and flow scheme should be adopted (recirculation percentages, MLVSS levels, etc.)

(ix) Pilot plant studies - only when extreme difficulties are anticipated in operating the full size wastewater treatment plant are pilot plant studies normally pursued. Possible problems with biological systems, compliance with stringent effluent standards, etc., are some good reasons for initiating a pilot plant study.

(d) Alternatives and cost estimates - the engineering report, (only in special cases), may have to present viable alternatives to meeting the established discharge standards and/or other permit requirements. An economic and feasibility evaluation should then be inclusive of all alternatives. (The lowest cost does not always relate the best alternative.)

1.4.5.1 Conclusions: description of proposed waste disposal practices and facilities being recommended to the client on the basis of findings in the report including cost summary.

1.4.5.2 Recommendations: summary of step by step requirement for client to follow presented as a time schedule.

(a) Client review and acceptance
(b) Submission of report to Tennessee Department of Public Health
(c) Submission of final plans to the Tennessee Department of Public Health
(d) Financing
(e) Legal and administrative requirements
(f) Implementation of construction
(g) Start-up of new facility

1.4.6 General Data and Introduction

(a) Topographic data, general geology
(b) Location of treatment works with respect to sources of waste; include plot map showing general location, essential elevations, drainage areas, sewers and receiving stream.
(c) Meteorology, precipitation, runoff and flood records and estimates. Indicate projected effect on project.
(d) For industrial waste project, describe the type of industry including: manufacturing process; flow sheets (both process and waste); chemicals and raw materials (both description and quantity); products (both description and quantity). Estimate production growth over design period (5 year minimum) and project the effect on wastes produced.
(e) For domestic sewage projects, indicate present and future population served. State basis of sewer and treatment unit design such as organic, solid, hydraulic loan, velocities and flow rates. Indicate basis for loading estimates where applicable on small projects such as number of employees per shift and number of shifts; hours of operation and hours wastes will be discharged; number of students for schools; number of seats and/or meals per day for restaurants; number of beds for hospitals; number of rooms for motels and so forth.
(f) Indicate source, treatment and daily quantity of potable and/or process water supply.

1.4.7 Collection System Layout Map

(a) Show all sewers and indicate type of each: sanitary, storm, industrial waste, cooling water. Sanitary sewers must be separate from storm sewers; combined sanitary and storm sewers are not acceptable.
(b) Indicate buildings, locations and extent of existing and proposed collection system, show grades, manhole spacing, pipe sizes. Piping within buildings served must be shown if such piping is an integral part of the collection and treatment system for industrial waste or small domestic sewerage projects. Piping from each waste source must be shown.

1.4.8 Tabulation of Wastewater Characteristics

(a) Show estimated or measured quantity and quality of wastewater produced by each contributing facility or process.
(b) Estimate infiltration where applicable.
(c) For industrial waste sources describe each wet production process; indicate whether batch or continuous; indicate maximum, minimum and average flow rates including total flow and loading period.

1.4.8.1 Recommended Minimum Data on Characteristics of Wastes and Sewers

Chemical and physical analyses should be made of representative samples composited or collected over such periods of time as may be required to determine average character and range of characteristics of waste and sewage. Pilot treatability studies, either bench or production size, are encouraged.

Although the necessary analyses will vary depending upon the wastes produced by the individual source, municipality or industry, the following analyses are usually considered significant. The Division's staff engineers will discuss individual problems with the engineer.

(a) Temperature (average and range)
(b) Dissolved oxygen
(c) 5-day, 20°C biochemical oxygen demand, "K" rate, oxygen uptake rate
(d) Chemical oxygen demand, TOC, TOD
(e) Solids: Total, suspended, dissolved, volatile, settleable and floating; settleability properties.
(f) pH, acidity and alkalinity (average, range and titration curves)
(g) Turbidity
(h) Color
(i) Odor
(j) Toxic substances
(k) Grease or oil
(l) NH_3-N, Organic N, NO_3-N, NO_2-N, Total N
(m) Total P
(n) Phenols
(o) Heavy metals
(p) Other pollutants

1.4.9 Treatment Works: Sewage, Industrial Wastes or Combined

(a) Location, plant layout, relative elevations.
(b) Fundamental assumptions on which design is based.
(c) Type of treatment contemplated. A diagrammatic layout is desirable.
(d) Capacities, rates of flow, and other operating features of each unit.

(e) Results expected from each treatment process.
(f) Proposed laboratory, flow measuring and sampling devices to be used for plant control.
(g) Where untried methods are proposed, works may be approved for construction based upon results of experimental or trial data in the form of bench scale treatability studies for each appropriate process and operation.

1.4.10 Cost Data

Estimated cost of construction by major units of treatment works: operation cost; bond schedule where applicable. Comparison of initial and operating costs of proposed works with costs for alternative works.

1.4.11 Receiving Stream

(a) Identification of receiving water course and point of waste discharge. State stream mileage, latitude and longitude.
(b) Type of outfall structure.
(c) Design stream flow: Unregulated streams - 3-day minimum, 20-year recurrence interval; regulated streams - instantaneous minimum flow.
(d) Flood level at specific recurrence interval (25, 50, 100 yr.).
(e) Use classification of receiving stream and/or existing uses.

1.4.12 Effluent standards: Estimate the characteristics of treated wastewater and the effluent standards which the treated wastes are likely to meet.

1.5 PRELIMINARY PLANS AND SPECIFICATIONS

Preliminary plans and specifications may be prepared for bidding purposes and in such cases must contain sufficient information to allow accurate bidding. Preliminary plans will be reviewed for adequacy but will not be approved for construction; final plans and specifications must be submitted for approval following the selection of equipment based upon the successful bid.

1.6 SUBMISSION OF REPORT AND PRELIMINARY PLANS

The engineering report and preliminary plans should be submitted in triplicate to the Tennessee Department of Public Health thirty days prior to the date upon which action is desired. Public projects shall have been approved by responsible officials, and shall be indicated by stamp or signature on the plans. (Policy Statement Number 7). The system approval must be obtained before the Department will review the project.

These plans and data will be reviewed, and if sufficient to indicate the scope and intent of the project, the Department will outline general requirements for its final approval in accordance with the Regulations. A conference including representatives of the Tennessee Department of Public Health, the municipality, the industry or owner involved, and the engineer, may be desirable after review of the engineering report and preliminary plans and before preparation of final plans.

After the engineering report is approved by this Division, design of the final plans and construction drawings may begin. These documents must be designed and submitted in accordance to paragraphs 1.7 through 1.10 of the "Outline of Engineering Requirements" and Regulations 12 and 13.

In special or critical situations specific pieces of equipment or phases of construction may be approved prior to the completion of the entire set of final plans and specifications. This "piece-meal" approval procedure will be used primarily to facilitate the ordering of extremely long delivery date items or to expedite certain essential construction phases. An approved engineering report is a mandatory prerequisite to any "piece-meal" project requests. Additionally, each "piece-meal" approval will be granted specifically for one aspect, unit or phase of the project and will be contingent upon the requirement that the "piece-meal" approved portion will not change from its original function as stipulated in the engineering report.

1.7 FINAL PLANS, CONSTRUCTION DRAWINGS AND SPECIFICATIONS

The final plans and specifications for the project will be reviewed by the Division of Water Quality Control. These documents should have been approved by responsible officials for public projects. Upon approval of the submittal, each complete set of plans and specifications will be stamped with the official stamp of approval of the Tennessee Department of Public Health, and a letter will be written, stating that the plans and specifications have been approved for construction. This letter will also contain information on how to apply for a discharge permit and how to make a request for a final inspection of the treatment facilities. This approval for construction will be in accordance to Regulation 14. Construction plans do not and must not give design assumptions and factors necessary for use of the Tennessee Department of Public Health in checking the basis of design. Such data should have been included in the final engineering report. If revisions are made in the fundamental assumptions on which the design is based, these should be covered in an addendum to the final engineering report.

1.7.1 General

Each plans sheet shall bear an appropriate title block showing the name of the project, location, owner, engineer, date, scale in feet, true north (or plant north with true north reference) where applicable, sheet number and revision data.

Each sheet shall contain a blank area at least 3" x 4" near the title block for imprinting the official "Approved for Construction" stamp of the Department. Plans shall be clear and legible and shall conform to the requirements of the Regulations. Plans should be blue line, on sheets approximately 24 inches by 36 inches, with all sheets the same size.

1.7.2 Plans of Sewers

1.7.2.1 General Plan

A plot plan of the existing and proposed sewers shall be submitted for projects involving new sewer systems or substantial additions to existing systems. This plan shall show the following:

A. Geographical Features

1. Topography and elevations - existing or proposed streets and all streams or water surfaces shall be clearly shown. Contour lines at suitable intervals should be included.

2. Streams - the direction of flow in all streams, and high and low water elevations of all water surfaces at sewer outlets and overflows shall be shown.
3. Boundaries - the boundary lines of the owner's property, municipality, sewer district or area to be sewered shall be shown.

B. Sewers

The plans shall show the location, size and direction of flow of all existing and proposed sewers draining to the treatment works concerned. Hydraulic calculations are required for all lines in the project. All lines receiving discharge from the project shall be shown to be adequate. A vicinity map must accompany all sewer line extensions showing the flow route to the treatment facilities. Hydraulic calculations of pumping stations and sewer lines must be furnished, taking into consideration existing loading plus projected loading from developments under construction as well as the projected loading from the proposed extension.

1.7.2.2 Detail Plans

Detail plans shall be submitted. Plans and profiles are required for all wastewater lines. Profiles should have a horizontal scale of not more than 100 feet to the inch. The plan view should be drawn to a corresponding horizontal scale. Plans and profiles shall be drawn on the same sheet and will show:

a. Location of streets and sewers.
b. Line of ground surface, size, material and type of pipe, length between manholes, invert and surface elevation at each manhole, and grade of sewer between each two adjacent manholes. All manholes shall be numbered on the plans and correspondingly numbered on the profiles. Where there is any question of the sewer being sufficiently deep to serve any residence or other source, the elevation and location of the basement floor or other low point source shall be plotted on the profile of the sewer which is to serve the house or source in question. The engineer shall state that all sewers are sufficiently deep to serve adjacent basements or sources except where otherwise noted on the plans.
c. Locations of all special features such as inverted siphons, concrete encasements, elevated sewers, etc.
d. All known existing structures both above and below ground which might interfere with the proposed construction, particularly water mains, gas mains, storm drains, etc.
e. Special detail drawings, made to a scale to clearly show the nature of the design, shall be furnished to show the following particulars:

All stream crossings and sewer outlets, with elevations of the stream bed and of normal and extreme high and low water levels to include the 100 year flood plain.

Details of all special sewer joints and cross-sections.

Details of all sewer appurtenances such as manholes, inspection chambers, flush valves, inverted siphons, regulators, tide gates and elevated sewers.

1.7.3 Plans of Sewage and Industrial Waste Pumping Stations

1.7.3.1 Location Plan

A plot plan shall be submitted for projects involving construction or revision of pumping stations. This plan shall show the following:

a. The location and extent of the tributary area.
b. Municipal or property boundaries with the tributary area.
c. The location of the pumping station and force main and pertinent elevations.

1.7.3.2 Detail Plans

Detail plans shall be submitted showing the following where applicable:

a. A contour map of the property to be used.
b. Existing pumping station.
c. Proposed pumping station, including servicing provisions and provisions for installation of future pumps or ejectors.
d. Elevation of the 100 year flood plain at the site, and maximum elevation of sewage in the collection system upon occasion of power failure.
e. Test borings and groundwater elevations.

1.7.4 Plans of Sewage and Industrial Waste Treatment Systems

1.7.4.1 Location Plan

A plot plan shall be submitted, showing the treatment system components in relation to the remainder of the system.

Sufficient topographic features shall be included to indicate its location with relation to streams and the point of discharge of treated effluent.

1.7.4.2 General Layout

Layouts of the proposed treatment system shall be submitted, showing:

a. Topography of the site.
b. Size and location of plant structures.
c. Schematic flow diagram showing the flow through various plant units.
d. Piping, including any arrangements for by-passing individual units. Materials handled and direction of flow through pipes shall be shown.
e. Hydraulic profiles showing the flow of wastes, floating scum, supernatant liquors, and sludges.
f. Test borings and groundwater elevation.

1.7.4.3 Detail Plans

Detail plans shall show the following:

a. Location, dimensions and elevations of all existing and proposed plant facilities.
b. Elevations of high and low water level of the body of water to which the plant effluent is to be discharged.
c. Type, size, pertinent features, and manufacturer's rated capacity of all pumps, blowers, motors and other mechanical devices.
d. Minimum, average and maximum hydraulic flow in profile.
e. Adequate description of any features not otherwise covered by specifications or engineering report.

1.8 SPECIFICATIONS

Complete technical specifications for the construction of sewers, sewage pumping stations, sewage treatment plants, industrial waste treatment units, and all appurtenances, shall accompany the plans.

The specifications accompanying construction drawings shall include, but not be limited to, all construction information not shown on the drawings which is necessary to inform the builder in detail of the design requirements as to the quality of materials and workmanship and fabrication of the project and the type, size, strength, operating characteristics and rating of equipment; allowable infiltration; the complete requirements for all mechanical and electrical equipment, including machinery, pump specifications with pump curves, valves, piping, and jointing of pipe; electrical apparatus, wiring, and meters; laboratory fixtures and equipment; operating tools; construction materials and methods; earthworks specifications including compaction, moisture and density requirements; special filter materials such as stone, sand, gravel or slag; cloths, pre-coating, strainer sizes; miscellaneous appurtenances; chemicals when used; instructions for testing materials and equipment as necessary to meet design standards; and operating tests for the completed works and component units.

1.9 SUBMISSION OF FINAL PLANS AND SPECIFICATIONS

Refer to Regulation 12 for the specific requirements.

1.10 REVISION OF PLANS

Refer to Regulation 13 for the specific requirements.

1.11 OPERATION DURING CONSTRUCTION

Specifications shall contain a program for keeping existing treatment plant units in operation during construction of plant additions. Should it be necessary to take plant units out of operation, a shutdown schedule shall be adhered to which will minimize pollutional effects on the receiving stream.

1.12 FINAL INSPECTION - WORK IN CONFORMITY WITH PLANS AND SPECIFICATIONS

The Division of Water Quality Control must receive a written request for final inspection approval of the treatment facilities at least two weeks in advance of the requested date, so that personnel from this Division can arrange their schedules to perform the final inspection.

This final inspection will be performed by personnel of this Division, accompanied by the engineer and the agent or agents for the person responsible for the operation and maintenance of the treatment facilities. There should be no discharge from this treatment facility until the final inspection has been made and final approval given. This will be in accordance with paragraph 1.13 of the "Outline of Engineering Requirements" and Regulations 15 and 16.

1.13 COMMENCEMENT OF OPERATION OF COMPLETED FACILITY

At the time that the final approval is given, personnel from this Division will request the Monitoring and Enforcement Section of this Division to issue a full permit to discharge. It should be noted that once the final inspection approval has been granted, the treatment plant may begin discharging even though the full discharge permit has not yet been issued. Essentially, all the requirements have been met for a full permit at this time and only delays in receiving the document would be administrative. For more specific requirements refer to Regulation

1.14 RECOVERY OF WASTES AT INDUSTRIAL INSTALLATIONS

Waste recovery, product recovery, and similar measures are encouraged and will be considered as waste treatment. Details of any secret formula, processes or methods used in the manufacturing operation or recovery will not be made public, however, evidence that the recovery method will remove the objectionable pollution from the effluent should be submitted in the preliminary report or supplementary report. Approval of plans and specifications will be required for the recovery processes.

1.15 PERMITS TO DISCHARGE INDUSTRIAL WASTES, SEWAGE AND OTHER WASTES

Refer to SECTION III, Chapters one (1) and five (5): Water Quality Control Act of 1971 and Guidelines for Filing Application for Permit.

APPENDIX F

DEPARTMENT OF THE ARMY
PERMIT APPLICATION AND MAP REQUIREMENTS

F-1 DEPARTMENT OF THE ARMY PERMIT APPLICATION AND MAP REQUIREMENTS

Following is Standard Engineering Form 4345 used for applying for a Department of the Army Permit, a copy of the permit that will be issued by the COE (Engineering Form 1721) and a checklist of information required on the maps and drawings that must accompany Engineering Form 4345--vicinity map, plan view drawing and section view drawing.

APPLICATION FOR A DEPARTMENT OF THE ARMY PERMIT

For use of this form, see EP 1145–2–1

The Department of the Army permit program is authorized by Section 10 of the River and Harbor Act of 1899, Section 404 of P. L. 92–500 and Section 103 of P. L. 92–532. These laws require permits authorizing structures and work in or affecting navigable waters of the United States, the discharge of dredged or fill material into waters of the United States, and the transportation of dredged material for the purpose of dumping it into ocean waters. Information provided in ENG Form 4345 will be used in evaluating the application for a permit. Information in the application is made a matter of public record through issuance of a public notice. Disclosure of the information requested is voluntary; however, the data requested are necessary in order to communicate with the applicant and to evaluate the permit application. If necessary information is not provided, the permit application cannot be processed nor can a permit be issued.

One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and checklist) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.

1. Application number (To be assigned by Corps)	2. Date Day Mo. Yr.	3. For Corps use only.

4. Name and address of applicant.	5. Name, address and title of authorized agent.
Telephone no. during business hours A/C ( ) _____ A/C ( ) _____	Telephone no. during business hours A/C ( ) _____ A/C ( ) _____

6. Describe in detail the proposed activity, its purpose and intended use (private, public, commercial or other) including description of the type of structures, if any to be erected on fills, or pile or float–supported platforms, the type, composition and quantity of materials to be discharged or dumped and means of conveyance, and the source of discharge or fill material. If additional space is needed, use Block 14.

7. Names, addresses and telephone numbers of adjoining property owners, lessees, etc., whose property also adjoins the waterway.

8. Location where proposed activity exists or will occur.

Address:

_____
Street, road or other descriptive location

_____
In or near city or town

_____
County State Zip Code

Tax Assessors Description: (If known)

Map No. Subdiv. No. Lot No.

Sec. Twp. Rge.

9. Name of waterway at location of the activity.

ENG Form 4345, 1 OCT 77 Edition of 1 Apr 74 is obsolete.

10. Date activity is proposed to commence. _____

Date activity is expected to be completed _____

11. Is any portion of the activity for which authorization is sought now complete? ☐ YES ☐ NO
If answer is "Yes" give reasons in the remark section. Month and year the activity was completed _____. Indicate the existing work on the drawings.

12. List all approvals or certifications required by other federal, interstate, state or local agencies for any structures, construction, discharges, deposits or other activities described in this application.

Issuing Agency	Type Approval	Identification No.	Date of Application	Date of Approval

13. Has any agency denied approval for the activity described herein or for any activity directly related to the activity described herein?

☐ Yes ☐ No (If "Yes" explain in remarks)

14. Remarks or additional information.

15. Application is hereby made for a permit or permits to authorize the activities described herein. I certify that I am familiar with the information contained in this application, and that to the best of my knowledge and belief such information is true, complete, and accurate. I further certify that I possess the authority to undertake the proposed activities.

_____
Signature of Applicant or Authorized Agent

The application must be signed by the applicant; however, it may be signed by a duly authorized agent (named in Item 5) if this form is accompanied by a statement by the applicant designating the agent and agreeing to furnish upon request, supplemental information in support of the application.

18 U. S. C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of The United States knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false fictitious or fraudulent statement or entry, shall be fined not more than $10,000 or imprisioned not more than five years, or both. Do not send a permit processing fee with this application. The appropriate fee will be assessed when a permit is issued.

Application No. _____

Name of Applicant _____

Effective Date _____

Expiration Date (If applicable) _____

DEPARTMENT OF THE ARMY
PERMIT

Referring to written request dated _____ for a permit to:

( ) Perform work in or affecting navigable waters of the United States, upon the recommendation of the Chief of Engineers, pursuant to Section 10 of the Rivers and Harbors Act of March 3, 1899 (33 U.S.C. 403);

( ) Discharge dredged or fill material into waters of the United States upon the issuance of a permit from the Secretary of the Army acting through the Chief of Engineers pursuant to Section 404 of the Federal Water Pollution Control Act (86 Stat. 816, P.L. 92-500);

( ) Transport dredged material for the purpose of dumping it into ocean waters upon the issuance of a permit from the Secretary of the Army acting through the Chief of Engineers pursuant to Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (86 Stat. 1052; P.L. 92-532);

is hereby authorized by the Secretary of the Army:
to

in

at

in accordance with the plans and drawings attached hereto which are incorporated in and made a part of this permit (on drawings: give file number or other definite identification marks.)

subject to the following conditions:

I. General Conditions:

a. That all activities identified and authorized herein shall be consistent with the terms and conditions of this permit; and that any activities not specifically identified and authorized herein shall constitute a violation of the terms and conditions of this permit which may result in the modification, suspension or revocation of this permit, in whole or in part, as set forth more specifically in General Conditions j or k hereto, and in the institution of such legal proceedings as the United States Government may consider appropriate, whether or not this permit has been previously modified, suspended or revoked in whole or in part.

ENG FORM 1721 1 JUL 77 EDITION OF 1 APR 74 IS OBSOLETE. (ER 1145-2-303)

b. That all activities authorized herein shall, if they involve, during their construction or operation, any discharge of pollutants into waters of the United States or ocean waters, be at all times consistent with applicable water quality standards, effluent limitations and standards of performance, prohibitions, pretreatment standards and management practices established pursuant to the Federal Water Pollution Control Act of 1972 (P.L. 92-500; 86 Stat. 816), the Marine Protection, Research and Sanctuaries Act of 1972 (P.L. 92-532, 86 Stat. 1052), or pursuant to applicable State and local law.

c. That when the activity authorized herein involves a discharge during its construction or operation, of any pollutant (including dredged or fill material), into waters of the United States, the authorized activity shall, if applicable water quality standards are revised or modified during the term of this permit, be modified, if necessary, to conform with such revised or modified water quality standards within 6 months of the effective date of any revision or modification of water quality standards, or as directed by an implementation plan contained in such revised or modified standards, or within such longer period of time as the District Engineer, in consultation with the Regional Administrator of the Environmental Protection Agency, may determine to be reasonable under the circumstances.

d. That the discharge will not destroy a threatened or endangered species as identified under the Endangered Species Act, or endanger the critical habitat of such species.

e. That the permittee agrees to make every reasonable effort to prosecute the construction or operation of the work authorized herein in a manner so as to minimize any adverse impact on fish, wildlife, and natural environmental values.

f. That the permittee agrees that he will prosecute the construction or work authorized herein in a manner so as to minimize any degradation of water quality.

g. That the permittee shall permit the District Engineer or his authorized representative(s) or designee(s) to make periodic inspections at any time deemed necessary in order to assure that the activity being performed under authority of this permit is in accordance with the terms and conditions prescribed herein.

h. That the permittee shall maintain the structure or work authorized herein in good condition and in accordance with the plans and drawings attached hereto.

i. That this permit does not convey any property rights, either in real estate or material, or any exclusive privileges; and that it does not authorize any injury to property or invasion of rights or any infringement of Federal, State, or local laws or regulations nor does it obviate the requirement to obtain State or local assent required by law for the activity authorized herein.

j. That this permit may be summarily suspended, in whole or in part, upon a finding by the District Engineer that immediate suspension of the activity authorized herein would be in the general public interest. Such suspension shall be effective upon receipt by the permittee of a written notice thereof which shall indicate (1) the extent of the suspension, (2) the reasons for this action, and (3) any corrective or preventative measures to be taken by the permittee which are deemed necessary by the District Engineer to abate imminent hazards to the general public interest. The permittee shall take immediate action to comply with the provisions of this notice. Within ten days following receipt of this notice of suspension, the permittee may request a hearing in order to present information relevant to a decision as to whether his permit should be reinstated, modified or revoked. If a hearing is requested, it shall be conducted pursuant to procedures prescribed by the Chief of Engineers. After completion of the hearing, or within a reasonable time after issuance of the suspension notice to the permittee if no hearing is requested, the permit will either be reinstated, modified or revoked.

k. That this permit may be either modified, suspended or revoked in whole or in part if the Secretary of the Army or his authorized representative determines that there has been a violation of any of the terms or conditions of this permit or that such action would otherwise be in the public interest. Any such modification, suspension, or revocation shall become effective 30 days after receipt by the permittee of written notice of such action which shall specify the facts or conduct warranting same unless (1) within the 30-day period the permittee is able to satisfactorily demonstrate that (a) the alleged violation of the terms and the conditions of this permit did not, in fact, occur or (b) the alleged violation was accidental, and the permittee has been operating in compliance with the terms and conditions of the permit and is able to provide satisfactory assurances that future operations shall be in full compliance with the terms and conditions of this permit; or (2) within the aforesaid 30-day period, the permittee requests that a public hearing be held to present oral and written evidence concerning the proposed modification, suspension or revocation. The conduct of this hearing and the procedures for making a final decision either to modify, suspend or revoke this permit in whole or in part shall be pursuant to procedures prescribed by the Chief of Engineers.

l. That in issuing this permit, the Government has relied on the information and data which the permittee has provided in connection with his permit application. If, subsequent to the issuance of this permit, such information and data prove to be false, incomplete or inaccurate, this permit may be modified, suspended or revoked, in whole or in part, and/or the Government may, in addition, institute appropriate legal proceedings.

m. That any modification, suspension, or revocation of this permit shall not be the basis for any claim for damages against the United States.

n. That the permittee shall notify the District Engineer at what time the activity authorized herein will be commenced, as far in advance of the time of commencement as the District Engineer may specify, and of any suspension of work, if for a period of more than one week, resumption of work and its completion.

o. That if the activity authorized herein is not started on or before _____day of _____, 19 _____, (one year from the date of issuance of this permit unless otherwise specified) and is not completed on or before _____ day of _____, 19 _____, (three years from the date of issuance of this permit unless otherwise specified) this permit, if not previously revoked or specifically extended, shall automatically expire.

p. That this permit does not authorize or approve the construction of particular structures, the authorization or approval of which may require authorization by the Congress or other agencies of the Federal Government.

q. That if and when the permittee desires to abandon the activity authorized herein, unless such abandonment is part of a transfer procedure by which the permittee is transferring his interests herein to a third party pursuant to General Condition t hereof, he must restore the area to a condition satisfactory to the District Engineer.

r. That if the recording of this permit is possible under applicable State or local law, the permittee shall take such action as may be necessary to record this permit with the Register of Deeds or other appropriate official charged with the responsibility for maintaining records of title to and interests in real property.

s. That there shall be no unreasonable interference with navigation by the existence or use of the activity authorized herein.

t. That this permit may not be transferred to a third party without prior written notice to the District Engineer, either by the transferee's written agreement to comply with all terms and conditions of this permit or by the transferee subscribing to this permit in the space provided below and thereby agreeing to comply with all terms and conditions of this permit. In addition, if the permittee transfers the interests authorized herein by conveyance of realty, the deed shall reference this permit and the terms and conditions specified herein and this permit shall be recorded along with the deed with the Register of Deeds or other appropriate official.

II. Special Conditions: (Here list conditions relating specifically to the proposed structure or work authorized by this permit):

The following Special Conditions will be applicable when appropriate:

STRUCTURES IN OR AFFECTING NAVIGABLE WATERS OF THE UNITED STATES:

a. That this permit does not authorize the interference with any existing or proposed Federal project and that the permittee shall not be entitled to compensation for damage or injury to the structures or work authorized herein which may be caused by or result from existing or future operations undertaken by the United States in the public interest.

b. That no attempt shall be made by the permittee to prevent the full and free use by the public of all navigable waters at or adjacent to the activity authorized by this permit.

c. That if the display of lights and signals on any structure or work authorized herein is not otherwise provided for by law, such lights and signals as may be prescribed by the United States Coast Guard shall be installed and maintained by and at the expense of the permittee.

d. That the permittee, upon receipt of a notice of revocation of this permit or upon its expiration before completion of the authorized structure or work, shall, without expense to the United States and in such time and manner as the Secretary of the Army or his authorized representative may direct, restore the waterway to its former conditions. If the permittee fails to comply with the direction of the Secretary of the Army or his authorized representative, the Secretary or his designee may restore the waterway to its former condition, by contract or otherwise, and recover the cost thereof from the permittee.

e. Structures for Small Boats: That permittee hereby recognizes the possibility that the structure permitted herein may be subject to damage by wave wash from passing vessels. The issuance of this permit does not relieve the permittee from taking all proper steps to insure the integrity of the structure permitted herein and the safety of boats moored thereto from damage by wave wash and the permittee shall not hold the United States liable for any such damage.

MAINTENANCE DREDGING:

a. That when the work authorized herein includes periodic maintenance dredging, it may be performed under this permit for _____years from the date of issuance of this permit (ten years unless otherwise indicated);

b. That the permittee will advise the District Engineer in writing at least two weeks before he intends to undertake any maintenance dredging.

DISCHARGES OF DREDGED OR FILL MATERIAL INTO WATERS OF THE UNITED STATES:

a. That the discharge will be carried out in conformity with the goals and objectives of the EPA Guidelines established pursuant to Section 404(b) of the FWPCA and published in 40 CFR 230;

b. That the discharge will consist of suitable material free from toxic pollutants in other than trace quantities;

c. That the fill created by the discharge will be properly maintained to prevent erosion and other non-point sources of pollution; and

d. That the discharge will not occur in a component of the National Wild and Scenic River System or in a component of a State wild and scenic river system.

DUMPING OF DREDGED MATERIAL INTO OCEAN WATERS:

a. That the dumping will be carried out in conformity with the goals, objectives, and requirements of the EPA criteria established pursuant to Section 102 of the Marine Protection, Research and Sanctuaries Act of 1972, published in 40 CFR 220-228.

b. That the permittee shall place a copy of this permit in a conspicuous place in the vessel to be used for the transportation and/or dumping of the dredged material as authorized herein.

This permit shall become effective on the date of the District Engineer's signature.

Permittee hereby accepts and agrees to comply with the terms and conditions of this permit.

_____ _____

PERMITTEE DATE

BY AUTHORITY OF THE SECRETARY OF THE ARMY:

_____ _____

DATE

DISTRICT ENGINEER,
U.S. ARMY, CORPS OF ENGINEERS

Transferee hereby agrees to comply with the terms and conditions of this permit.

_____ _____

TRANSFEREE DATE

APPLICATION CHECKLIST FOR REQUIRED MAPS

General Requirements for all Maps

a. Submit one original or good quality reproducible set of all drawings on 8" X 10-1/2" tracing cloth, tracing film or paper. Submit the fewest number of sheets necessary to adequately show the proposed activity. Drawings should be prepared in accordance with the general format of the samples presented in Figure F-1. Block style lettering should be used.

b. A 1-inch margin should be left at the top edge of each sheet for purposes of reproduction and binding. A 1/2-inch margin is required on the three other edges.

c. Title block of each sheet submitted should identify the proposed activity and contain the name of the body of water, river mile (if applicable), name of county and state, name of applicant or agent, number of the sheet and total number of sheets in set, and date the drawing was prepared.

d. Drawings should not reflect the apporval, non-objection or action of other agencies.

e. Since drawings must be reproduced photographically, color shading cannot be used. Drawings must show work as a dot shading, hatching or similar graphic symbols.

Vicinity Map

Identify the map or chart from which the vicinity map was taken and show the following:

a. Location of the activity site including latitude and longitude and river mile, if known.

b. Name of waterway.

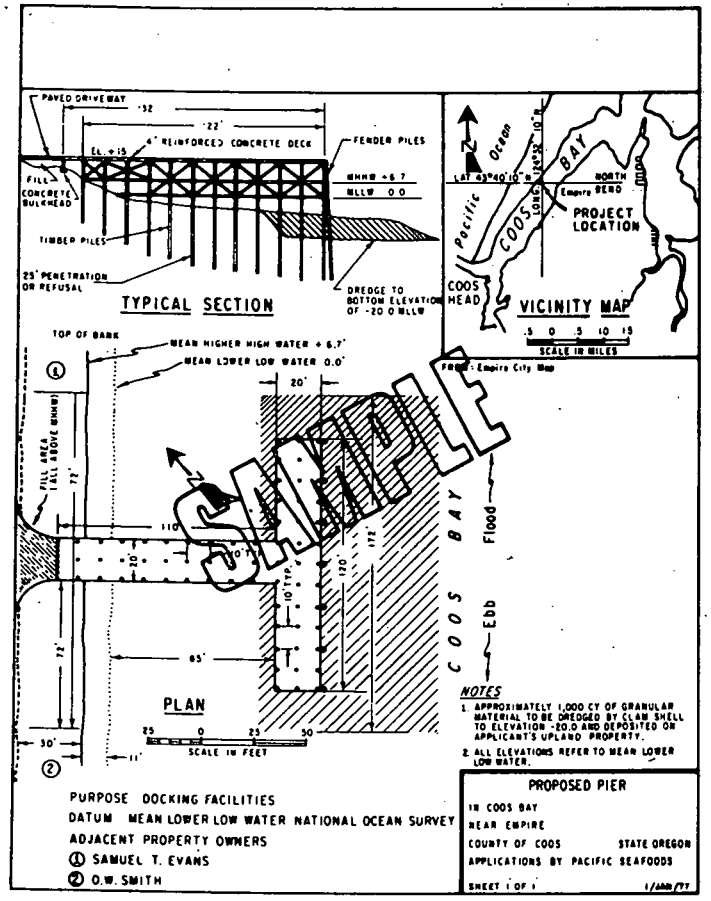
c. All applicable political (county, borough, town, city, etc.) boundary lines.

d. Name of and distance to local town, community or other identifying location.

e. Names of all roads in the vicinity of the site.

f. Graphic scale.

g. North arrow.



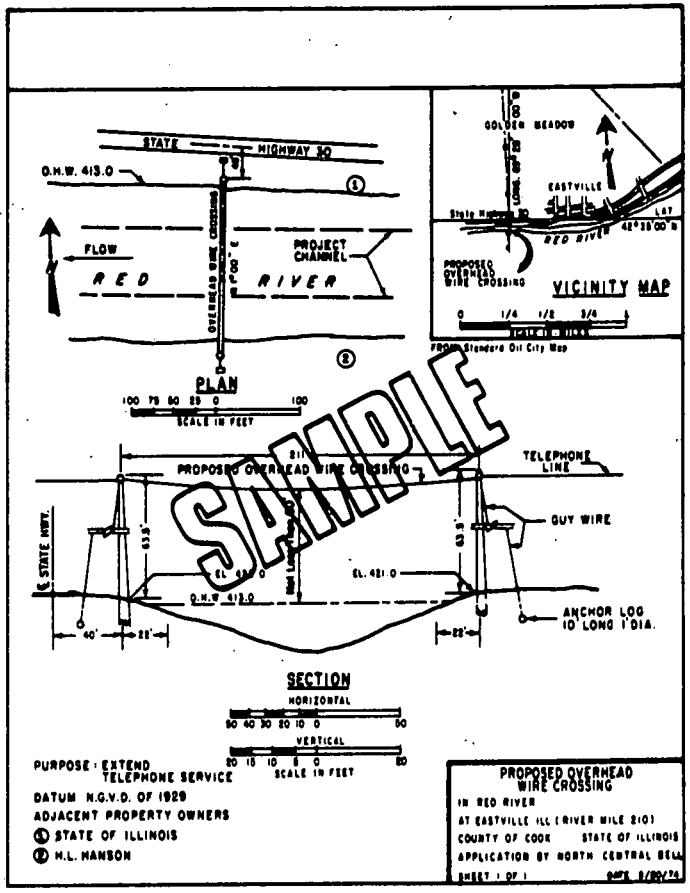


Figure F-1. Sample Application Drawings

Plan View

The plan view of the proposed activity should show the following:

a. Existing shorelines.

b. Ebb and flood in tidal waters and direction of flow in rivers.

c. North arrow.

d. Graphic or numerical scale.

e. Mean high and low-water lines if the proposed activity is located in tidal areas on the Atlantic and Gulf coasts.

f. Mean higher-high water and mean lower-low water lines if the proposed activity is located in tidal areas on the Pacific coast.

g. Ordinary high water line and ordinary low water line if the proposed activity is on a lake or ordinary high water if on a stream.

h. Water depths around the project.

i. Principal dimensions of the structure or work and extent of encroachment beyond the applicable high water line.

j. Waterward dimension from an existing permanent fixed structure or object.

k. Distances to nearby federal projects, if applicable.

l. Number of cubic yards, type of material, method of handling and location of fill or spoil disposal area, if applicable. If spoil material is to be placed in approved dumping grounds a separate map showing the location of the dumping grounds should be attached. The drawing must indicate proposed retention levees, weirs and/or other devices for retaining hydraulically placed materials.

m. Distance between proposed activity and navigation channel, where applicable.

n. Federal harbor lines, if established and if known.

o. Location of structures, if any, in navigable waters immediately adjacent to the proposed activity, including permit numbers, if known. Identify purpose of all structures.

p. Location of any wetlands, swamps, marshes, etc. Identify.

Elevation and/or Section View

The elevation and/or section view of the proposed project should show the following:

a. Same water elevations as in the plan view.

b. Depth at waterward face of proposed work, or if dredging is proposed, show dredging grade.

c. Dimensions from applicable high water line for proposed fill, float or pile supported platform. Identify any structures to be erected thereon.

d. Graphic or numerical scale.

e. Cross-section of excavation or fill, including approximate side slopes.

f. Elevation of spoil areas.

Notes on Drawings

a. List names of adjacent property owners whose property also adjoins the water and are not shown on plan view.

b. State purpose (private use, commercial, etc.) or proposed activity.

c. State datum used in plan and elevation views. Use mean low water, mean lower-low water, National Ocean Survey Datum or National Geodetic Vertical Datum of 1929.

APPENDIX G

REQUIREMENTS FOR SOLID WASTE DISPOSAL SITE CONSTRUCTION AND OPERATIONAL PLANS

G-1 REQUIREMENTS FOR SOLID WASTE DISPOSAL SITE CONSTRUCTION AND OPERATIONAL PLANS

Following is a copy of the application for registration of a solid waste disposal or processing operation and requirements that must be addressed in preparing construction and operational plans for a solid waste processing and/or disposal facility. These requirements are according to Regulations Governing Solid Waste Processing and Disposal in Tennessee (1977).

TENNESSEE DEPARTMENT OF PUBLIC HEALTH

REGISTRATION NO:_____

APPLICATION FOR REGISTRATION

OF SOLID WASTE DISPOSAL OR PROCESSING OPERATION

1. Name of individual corporation, governmental agency, etc. making application. _____

_____

2. Mailing address of applicant_____

_____

3. Official responsible for operation_____

_____

4. Phone number of official_____

5. Entity or entities served_____

6. County in which operation is located_____

7. Type operation proposed: (Check as many as needed.)

Sanitary Landfill_____ Incinerator_____

Modified Landfill_____ Transfer Station_____

Compost Plant_____ Other_____

8. Population to be served_____

9. Existing operation_____New operation_____

10. Scheduled week of construction completion operation_____

11. Is this a request for re-registration due to change of ownership? Yes___ No___

12. If change of ownership, who was former owner?_____

13. Is construction or preparation of facility or site being done by owner?

Yes___ No___

14. If above is no, give name of contractor_____

15. Mailing address of above contractor_____

Date_____Name of Applicant_____

Signed_____

Official Title_____

FILE ONLY THE ORIGINAL OF THIS FORM.

TDPH - SWM
B-044 (1/77)

RULE 1200-1-7-.05 Solid Waste Disposal System Design and Construction.

(1) General - No new construction shall be initiated nor shall any major change be made in any solid waste processing facility or disposal facility or site until the plans for such new construction or change have been submitted to and approved by the Department. At least four (4) sets of plans and specifications shall be submitted not less than four (4) weeks prior to the date upon which action by the Department is desired. In the event it is necessary or desirable to make any significant change in the approved plans and specifications, revised plans and specifications, accompanied by a statement of the reasons for the changes shall be submitted to the Department for review and no part of the affected work shall be commenced until the Department has given its written approval.

(a) All work on new construction or changes of existing disposal systems shall be done in conformity with approved plans and specifications. The Department may require reports and make investigations during and following the completion of any construction to determine conformity of the work with the approved plans. The facility shall not be operated until a final investigation is made and approval is granted.

(b) All plans and specifications shall be accompanied by a letter from the local agency having jurisdiction over zoning or from the Tennessee State Planning Commission if no local agency exists stating that the proposed site or facility meets zoning requirements, if such exist, and is consistent with comprehensive community planning if such a plan has been developed.

(2) Processing Facilities - Incinerator (1,000 lbs./hr. capacity or greater), composting plants, transfer stations, hazardous waste processing and other processing methods.

(a) Processing facility design and construction shall be such as to produce a facility which will preserve the prescribed quality of the environment and provide the maintenance of good health and safety of the operators. This regulation shall also require compliance with other applicable Tennessee environmental control regulations. Plans and specifications shall be prepared by an engineer licensed to practice in Tennessee and shall contain the following:

1. A master plan for the area lying within a one mile radius of the site. This plan shall be drawn at a scale of not less than 1 in. = 400 ft. It shall indicate existing roads, bridges, streams, rail facilities, water impoundments, land use, zoning, topography - 20 ft. contour interval, water and waste water treatment facilities, water supply sources, and other utilities adjacent to or located on the site. It shall show the proposed site, location or proposed access roads, and major drainage routing.

2. A site plan for the area lying within the designated site boundaries. This plan shall be drawn on a scale of not less than 1" = 100 ft. On this plan shall be noted site boundaries, topography - 5 foot contour intervals, on-site structure, access roads, drainage appurtenances, sanitary facilities, utilities, water supply, waste water collection and treatment facilities, and any other facilities utilized in waste processing.

3. A set of drawings and specifications for equipment and buildings shall be included.

4. Such other drawings and details as may be required by the Department.

5. Traffic control information in the area of the processing facility must be evaluated. Such evaluation shall be reflected in a letter from the controlling traffic authority indicating that the operation of a processing facility at the proposed site will be acceptable. A map of the proposed route to and from the designated disposal site shall be submitted to the Department.

6. A manual containing operational procedures must be submitted to the Department. This manual must include but not necessarily be limited to: operating hours, personnel duties, odor and vector control, waste processing sequence, fire and accident prevention, site and equipment maintenance, and any other operations necessary for the maintenance of an approved system.

7. Operation and/or construction plans shall indicate an acceptable method of handling solid waste in the event of a failure in the primary processing facility.

8. A proposal shall be submitted for the disposal or use of processed waste.

(3) Disposal Facility or Site

(a) General - For land disposal sites serving counties, cities, towns, municipalities, or any combination thereof, the approved method of disposal shall be the sanitary landfill. For land disposal sites serving industrial and agricultural concerns the approved method of disposal, including items of design, construction, operation and abandonment shall be approved by the Department for each individual situation.

2. A site plan for the area lying within the designated site boundaries. This plan shall be drawn on a scale of not less than 1" = 100 ft. On this plan shall be noted site boundaries, topography - 5 foot contour intervals, on-site structure, access roads, drainage appurtenances, sanitary facilities, utilities, water supply, waste water collection and treatment facilities, and any other facilities utilized in waste processing.

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(b) Sanitary Landfill - Those items of design, construction, and operation which define a sanitary landfill are presented in this section and in the section on operation. Plans and specifications should be prepared by an engineer licensed to practice in Tennessee and shall contain but may not necessarily be limited to:

1. A master plan for the area lying within a one mile radius of the site. This plan shall be drawn at a scale of not less than 1 in. = 400 ft. It shall indicate existing roads, bridges, streams, rail facilities, water, impoundments, land use, zoning, topography - 20 ft. contour interval, water and waste water treatment facilities, water supply sources, and other utilities adjacent to or located on the site. It shall show the proposed site, location of proposed access roads, and major drainage routing.

2. Detailed construction plans at a scale of not less than 1 in. = 100 ft. Plans shall indicate actual plan of operation including existing contours - 5 ft. intervals, structures, drainage area, utilities, fencings, property lines, and proposed structures, drainage and drainage appurtenances; finish contours - 5 ft. intervals, method of developing fill areas, on-site access roads, fencing, sign location or artifical screening, utilities, cross section of typical lift, land use, and conservation plan.

(c) Basic design considerations:

1. Site Selection - No site shall be subject to flooding. Geologic conditions shall be such as not to permit pollution of the ground water. Sufficient soil cover or other material approved by the Department shall be available preferably at the site, for covering the waste at the required intervals and to the required depth. The site must comply with the local zoning requirements and land use planning.

2. Access Roads - All-weather roads shall be provided to the disposal site and shall be of such design and construction as to safely accommodate the traffic using the site. On-site roads shall be all-weather or, in lieu thereof, wet-weather disposal areas shall be provided.

3. Site Drainage - All surface water shall be diverted around the operations area. Water shall not be allowed to accumulate at any location on the site unless such location has been approved by the Department.

4. Site Fencing - Access to the site shall be controlled by means of gates which may be locked and by fencing if such become necessary. All fencing and gates shall be of sufficient height and strength to serve the purpose intended.

5. On-Site Structures - There shall be provided on the site a structure for the use of operating personnel. The structure shall be heated and shall provide shelter during inclement weather. At or near the structure there shall be provided sanitary toilet facilities.

6. Fire Protection - Fire protection shall be provided for the site. The specific method to be used shall be approved by the Department.

7. Signs - There shall be erected at the entrance to the site a sign, clearly legible and visible which shall contain the following:

   (i) Name entity served
   (ii) Emergency phone number
   (iii) Fees charged (if applicable)
   (iv) Restricted materials (if applicable)
   (v) Operating hours
   (vi) Penalty for unlawful dumping (if applicable)

8. Equipment - The equipment specified shall meet the performance requirements necessary for operating the sanitary landfill in accordance with the operating requirements contained in these regulations. Arrangements for emergency equipment shall be made to allow for operating equipment breakdown.

RULE 1200-1-7-.06. Solid Waste Disposal System Operation.

(1) General-The operation and maintenance of all solid waste disposal systems shall be such as not to endanger the public health or safety, not to adversely affect the quality of the environment and to provide for the proper processing and disposal of solid waste.

(2) Processing Facility.

(a) Incinerators - Incinerator operation shall be such that the requirements of the Tennessee Air Pollution and local control regulations are met.

1. Access to Site - Access to the incinerator shall be limited to the hours in which authorized operating personnel are on duty at the site.

2. Site Storage - All solid waste disposed of at the site shall be confined to the designated dumping area. Storage of the waste at the site shall be kept to a minimum.

3. Supervision of Operation - An incinerator shall be operated under the supervision of a responsible individual who is thoroughly familiar with the operating procedures established by the designer.

4. Incinerator Residue - An incinerator shall be so operated that the residue produced will contain little or no combustible or organic material. All incinerator residue shall be disposed of in a sanitary manner.

(b) Composting Plants -

1. Access to Site - Access to the composting plant shall be limited to the hours in which authorized operating personnel are on duty at the site.

2. Site Storage - All solid waste disposed of at the site shall be confined to the designated dumping area. Storage of the waste at the site shall be kept to a minimum.

3. Supervision of Operation - A composting plant shall be operated under the supervision of a responsible individual who is thoroughly familiar with the operating procedures established by the designer.

4. Nongradable Solid Waste - Solid waste which is not degradable by compost methods and is a resulting by-product of a composting plant shall be disposed of in a sanitary manner.

5. Use of Composted Solid Waste - Composted solid waste offered for use by the general public shall contain no pathogenic organisms, shall be innocuous, shall be nuisance free, and shall not endanger the public health or safety.

(c) Transfer Stations, Hazardous Waste Processing Plants, and Other Processing Methods - Operation of transfer stations, hazardous waste processing plants, or other processing methods shall be such that the intended function of the facility will be best served, and that the public health and safety will not be endangered, and that nuisances will not be created. Specific operating procedures for each installation shall be approved by the Department prior to initiation of operation.

(3) Disposal Facilities and Sites.

(a) Sanitary Landfill.

1. Access to Site - Access to the sanitary landfill site shall be limited to the hours in which authorized personnel are on duty at the site. A container shall be provided for after hours usage at the entrance of the site.

2. Unloading of Waste - The unloading of the solid waste shall be controlled and restricted to an area such that the material can easily be incorporated into the working face with the available equipment.

3. Blowing Litter - Blowing litter shall be controlled. The entire sanitary landfill shall be kept free of litter, and unloading shall be performed so as to minimize scattering of the solid waste.

4. Spreading and Compacting of Waste - Solid waste shall be spread in layers of approximately two (2) feet depth prior to compaction.

5. Daily Cover - At least six (6) inches of compacted cover material shall be placed on all exposed solid waste by the end of each working day.

6. Intermediate Cover - In all but the final lift of a sanitary landfill twelve (12) inches of compacted cover material shall be placed on all surfaces which will be left exposed for a period of over one month.

7. Final Cover - A depth of at least twenty-four (24) inches of compacted cover material shall be placed on the fill not later than one (1) week after final lift is completed. In order to prevent erosion and surface deterioration the final cover shall be stabilized immediately to the satisfaction of the Department.

8. Open Burning - No garbage or refuse containing garbage shall be burned at the sanitary landfill site. Open burning of tree limbs, brush, excelsior, dunnage, and other items of comparable combusion characteristics may be performed but shall comply with requirements of the Tennessee Air Pollution Control Regulations or local regulations.

9. Salvage Operations - Salvaging shall not be permitted at the working face of a landfill site or at any place within a site that interferes with prompt sanitary disposal of solid waste. Salvaging when performed shall be such that no hazard to the public health or safety shall be created. Before any salvage operation is begun, approval of the operation shall be made by the Department.

10. Handling of Special Wastes - Dead animals, sewage solids or liquids, and other materials which are either hazardous or hard to manage shall be disposed of in a sanitary landfill only if special provisions are made for such disposal and are approved by the Department.

11. Vector Control - Conditions unfavorable for the production of insects and rodents shall be maintained by carrying out routine sanitary landfilling operations promptly in a systematic manner. Supplemental vector control measures shall be instituted whenever necessary.

12. Dust Control - Dust control measures shall be taken at a landfill site to prevent dust from creating a nuisance or safety hazard to adjacent landowners, or to people engaged in supervising, operating and using the site.

13. Supervision of Operation - A sanitary landfill shall be operated under the supervision of a responsible individual who is thoroughly familiar with the operating procedures for the specific landfill under consideration.

14. Domestic Animals - Domestic animals shall be excluded from the site.

15. Records and Reports - The Department shall require such records and reports necessary to assist it in fulfilling the requirements of these regulations.

16. Contamination Control - There shall be no contamination of ground or surface waters resulting from deposited solid wastes or their products of decomposition, nor hazard or nuisance caused by gases or other products generated by the biologically or chemically active wastes. Should any liquids or gases which might contaminate ground or surface water or create a hazard or nuisance be released from a registered sanitary landfill, then those measures necessary to eliminate the contamination or nuisance shall be initiated immediately by the registrant. All gaseous or liquid waste discharges shall comply with the existing "Water Quality Control Act of 1971," (T.C.A. 70-324, et seq.) and the provisions of the "Tennessee Air Quality Act" (T.C.A. 53-3408 et seq.). Prior approval should be received from the Department before initiating control procedures which require alteration of the approved operating plan.

17. Accident Prevention and Safety - Employees shall be instructed in the principles of first aid and safety and in the specific operational procedures necessary to prevent accidents. Accident precautionary measures shall be employed at the site. An adequate stock of first-aid supplies shall be maintained at the site.

18. Drainage and Grading - The entire site shall be graded and/or provided with drainage facilities to minimize run-off onto the sanitary landfill, to prevent the erosion of earth cover, and to drain rainwater falling on the surface of the sanitary landfill. The final surface of the landfill shall be graded to drain, but no surface slope shall be so steep as to cause erosion of the cover. The surface drainage shall be consistent with the surrounding area and shall in no way adversely affect proper drainage from these adjacent lands.

19. Completion of the Sanitary Landfill - An inspection of the entire site shall be made by a representative of the Department before the site is abandoned. Any corrective work shall be performed before the project is accepted. Arrangements satisfactory to the Department shall be made for repair of all cracked, eroded, and uneven areas in the final cover during the year following completion of the fill. Upon completion all sites shall be recorded with the Register of Deeds as a former landfill site.

20. Future Planning - All owners or operators of registered sanitary landfills within the State of Tennessee shall file with the Department, by May 1st of every year, an estimate of the remaining life of their site. This report shall include the original usable acreage of the site and the remaining unused portion at the time of the report. Where measuring facilities are available, an average monthly weight (or volume) estimate of the incoming waste shall be supplied. The

Department shall have final determination of the accuracy of the estimate. A feasibility study as provided by Rule 1200-1-7-.04 must be submitted to the Department for a new site, facility or system one year prior to the completion of the existing facility. A suitable site for the new facility shall be selected six months before the existing site is completed. Design and construction plans shall be submitted ninety days prior to the closure of the existing site to assure continued operation in an approved facility or site.

(4) Conversion or Abandonment of Open Dumping - The following steps shall be followed when sites are abandoned or converted to sanitary landfills.

(a) When converting, prepare construction plans for landfill operation of site in accordance with provisions of these regulations.

(b) If a site is to be abandoned, submit plans, as required by these regulations, showing condition of site upon completion.

(c) Fence or otherwise restrict unauthorized access.

(d) Place necessary informational signs.

(e) Close site to incoming refuse or establish a specific spot on the site for sanitary landfill operation during closing.

(f) Extinguish fires, except as herein stated.

(g) Control vectors - Bait site not later than one week following final load of solid waste. Compact and cover sites not more than one week following baiting.

(h) Provide drainage of the entire site.

(i) In order to prevent erosion and surface deterioration, the final cover shall be stabilized immediately to the satisfaction of the Department.

(j) All cracked, eroded and uneven areas occurring in the final cover during the year following final abandonment of the site shall be repaired to the satisfaction of the Department. Should any former dump site release liquids or gases which might contaminate surface or groundwaters or create a hazard or a nuisance, then all necessary measures shall be taken by the responsible person(s) to eliminate the contamination or nuisance to the satisfaction of the Department. All gaseous or liquid waste discharges shall comply with the existing "Water Quality Control Act of 1971," (T.C.A. 70-324, et seq.) and the provisions of the "Tennessee Air Quality Act" (T.C.A. 53-3408 et seq.).

(k) Upon completion, all sites shall be recorded with the Register of Deeds as a former disposal site.

APPENDIX H
WATER WELL APPLICATION

H.1 WATER WELL APPLICATION

Following is the application that must be submitted prior to drilling a water well. This application is oriented toward the drilling of a well for drinking water purposes, but must also be submitted for monitoring purposes. General information on specifications for water wells is also included.

MEMPHIS AND SHELBY COUNTY HEALTH DEPARTMENT
POLLUTION CONTROL DIVISION
WATER QUALITY CONTROL SECTION
814 Jefferson Avenue
Memphis, Tennessee

WATER WELL APPLICATION

Date_____ 19_____

NAME OR OWNER_____
(Individual)

ADDRESS_____ PHONE NO._____

WELL DRILLING CO._____

LICENSE NO._____ PHONE NO._____

(1) STATE BRIEFLY NATURE OF APPLICATION AND REASONS FOR SAME, SUCH AS REPLACEMENT WELL OR NEW SUPPLY.

_____

_____

(2) PROPOSED WATER BEARING STRATUM TO BE USED:

Shallow Sands (under 150 feet)_____. 500 foot stratum_____

(3) TYPE WELL CONSTRUCTION AND SIZE:

(a) 4 inch plastic well casing & screen - wall thickness_____

(b) Standard well casing_____ Inches in diameter. wall thickness_____

(4) TYPE WATER PUMPING EQUIPMENT:

Submersible_____ Jet_____

Turbine_____

(5) ESTIMATE PUMPAGE:

Proposed gallons per minute_____

SPECIFICATIONS FOR A PRIVATE WATER WELL

Location of Well Sites

A properly constructed well should divert surface water away from a ground water source the same as does the undisturbed overlying geological formation. The well site should not be subject to flooding and should be at least two feet above flood level for the area. The following precautions will insure reasonable protection against entry of surface water:

1. The area should be filled if necessary, graded, and maintained to prevent the accumulation or retention of surface water.

2. Every well shall be located at a safe distance from sources of contamination. This distance should not be less than 100 feet from any subsurface sewage disposal field or other sources of contamination, and 50 feet from any adjoining property.

3. The owner will be required to obtain Health Department approval of the site where the water well is to be drilled. If test holes are needed, the owner will be required to backfill the test holes in the presence of a representative of the Health Department, and in a manner prescribed by the Health Department.

4. The owner will be required to provide one set of plans which include all underground utilities within 50 feet of the proposed water well, grade elevation in relation to adjoining areas and drainage of the areas. These plans will also include a plot plan showing the location of the residence, property boundaries, owners of adjoining property, locations of septic tank and field line on applicant's property and any additional buildings and water service lines for this property.

Sanitary Protection of Wells

The penetration of a water bearing formation by a well provides a direct route for possible contamination of the ground water. Although there are different types of wells and well construction, there are basic sanitary aspects which must be considered and followed:

1. All water used in the construction of the well shall be from an approved potable water supply.

2. At the beginning of the drilling of the water well and until completion a chlorine residual in the drilling fluid shall be maintained. The owner shall see that such precautions, as necessary for protection of the water bearing strata, are taken to prevent contaminated water, or any foreign material from entering the opening made in drilling the well or test well.

In the event that the water well or test well becomes contaminated or obstructed, the contractor shall take whatever measures necessary to free the water well or test well of contamination or obstruction. Should he decide to abandon the well for any reason, the well shall be filled in a manner prescribed by the Health Department.

3. The well shall be drilled to a size that will permit the outer casing to be surrounded by a water tight seal a minimum of two inches thick. This seal shall be installed in such a manner as to insure uniformity of thickness in casing coverage from the bottom of the casing to the surface of the ground.

4. Upon completion of the well, chlorinate the well with such volume and strength to be so applied that a concentration of at least 50 ppm shall be obtained in all parts of the well for a period of 24 hours. The well is then to be pumped free of chlorine, and water sample collected for bacteriological analysis. The results will be required to be negative prior to putting the well in service.

Well Covers and Seals

A sanitary well seal must be provided at the terminal of any well casing. This must be water tight to prevent any contamination form entering the well casing.

Sanitary Protection of Pumping Facilities

1. If the well is to be vented, it should have an inverted screen vent. It will be required that a means be provided for obtaining a water sample at the well.

2. Where a turbine pump is being used, the pump base foundation shall be reinforced and a minimum of two inches larger than the base plate. The concrete used for this foundation shall be of a strength suitable to withstand any vibrations, etc. which it might be subjected to.

Where Submersible Pumps Are Used

A "pitless" adapter shall be required that meets NSF specifications at subsurface installations.

Information To Be Supplied Upon Completion of The Water Well

Depth of water well, size of well, size of casing, length of casing, length of screen, water level, static head, log of well, formations, and depth of each formation.

Cross-Connections

A well driller shall not cross-connect a private water supply with a public supply.

The applicant and well driller hereby agree to comply with specifications as set forth in this application or as directed.

DATE_____ BY_____
(Well Driller)

DATE_____ BY_____
(Owner)

Remarks by the Health Department.

The Health Department reserves the right to supplement the general specifications by an addendum as may be required.

ACTION TAKEN ON APPLICATION REVIEW OF PLANS AND FIELD SURVEY

Date_____ By_____
CHIEF OF WATER QUALITY CONTROL

Approved_____ Rejected_____

Date_____ By_____
SANITARY ENGINEER
WATER QUALITY CONTROL

JRG/sb
4/22/74
WQ-1 rev.

APPENDIX I

ALPHABETICAL DIRECTORY OF AGENCY CONTACTS

The following is an alphabetical directory of all agency contacts mentioned in this document:

Mr. Steve Anderson, Assistant Director
Permits Section
Division of Water Quality Control
490 Capitol Hill Building
Nashville, Tennessee 37219
615/741-7883

Mr. William Cloward, Chief
Permits Section
Water Enforcement Branch
Enforcement Division
U.S. EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30308
404/881-2017

Mr. John Dickinson
Residuals Management Branch
Air and Hazardous Materials Division
U.S. EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30308
404/881-3004

Mr. Tommie Gibbs
Air Facilities Branch
U.S. EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30308
404/881-4552

Mr. Randal B. Harris
Division of Solid Waste Management
Tennessee Department of Public Health
Watkins Towers, Suite 201
646 Old Hickory and U.S. 45 Bypass
Jackson, Tennessee 38301
901/668-1315

Mr. Harold Hodges, Director
Division of Air Pollution Control
Tennessee Department of Public Health
256 Capitol Hill Building
Nashville, Tennessee 37219
615/740-3931

Mr. Tom Little
Air Engineers Division
U.S. EPA, Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30308
404/881-2786

Ms. Natalie Ransone
Division of Water Quality Control
Tennessee Department of Public Health
490 Capitol Building
Nashville, Tennessee 37219
615/741-7883

Mr. Mike Robinson, Chief
Division of Water Quality Control
Watkins Towers, Suite 201
646 Old Hickory Boulevard
Jackson, Tennessee 38301
901/668-1315

Mr. Jerry Rodery
Regulatory Functions Branch
Department of the Army
Memphis District, Corps of Engineers
668 Clifford Davis Federal Building
Memphis, Tennessee 38103
901/521-3471

Mr. Tom Tiesler, Director
Division of Solid Waste Management
Bureau of Environmental Services
Tennessee Department of Public Health
Capitol Hill Buidling
Nashville, Tennessee 37219
615/741-3424

Mr. Benjamin White
Air Pollution Control Section
Memphis and Shelby County Health Department
814 Jefferson Avenue
Memphis, Tennessee 38105
901/528-3854

APPENDIX J

LIST OF ABBREVIATIONS

LIST OF ABBREVIATIONS

APC - Air Pollution Control
BACT - Best Available Control Technology
BPTCA - Best Practical Technology Currently Available
Btu - British thermal units
CAA - Clean Air Act
CFR - Code of Federal Regulations
CO - carbon monoxide
DOE - Department of Energy
EIA - Energy Impact Associates
EIS - Environmental Impact Statement
EPA - Environmental Protection Agency
ER - Environmental Report
et seq. - and the following
FR - Federal Register
FWEC - Foster Wheeler Energy Company
HC - hydrocarbon
IFG - Industrial Fuel Gas
IFGDP - Industrial Fuel Gas Demonstration Plant
LAER - Lowest Achievable Emission Rate
MLGW - Memphis Light, Gas and Water
MSCHD - Memphis and Shelby County Health Department
NAAQS - National Ambient Air Quality Standards
NEPA - National Environmental Policy Act
NO_2 - nitrogen dioxide
NPDES - National Pollutant Discharge Elimination System
NSPS - New Source Review
O_3 - ozone
PMN - Premanufacture Notification
PSD - Prevention of Significant Deterioration
PTC - Permit to Construct
PTO - Permit to Operate
RCRA - Resource Conservation and Recovery Act

scf - standard cubic foot

SIC - standard industrial code

SNG - Synthetic Natural Gas

SO_2 - sulfur dioxide

T.C.A. - Tennessee Code Annotated

TDPH - Tennessee Department of Health

TSCA - Toxic Substances Control Act

TSP - total suspended particulates

U.S.C. - United States Code