

**How To Survive
the
NPDES Permitting Process**

A User-Friendly Guide for Mining Operations Within the State of Arizona

March 23, 1998

**U.S. EPA Region IX
Office of Clean Water Act Standards and Permits**

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TABLE OF CONTENTS

- I. Overview**
 - II. Why EPA Regulates Mining - - Environmental Impacts**
 - A. General Impacts**
 - B. Erosion**
 - C. Acidification**
 - III. What is the NPDES Program?**
 - IV. What Discharges From a Mining Facility Are Regulated?**
 - A. Mine Drainage**
 - B. Process Wastewater**
 - C. Storm Water**
 - V. How EPA Regulates Discharges From a Mining Facility....by means of a permit, which includes...**
 - A. Effluent Limitations**
 - 1. Technology-based limits**
 - a. Copper/gold/silver vat & heap leaching operations**
 - b. Gold Placer Mines**
 - 2. Water Quality-based limits**
 - B. Monitoring and Reporting Requirements**
 - C. Special Conditions**
 - D. Standard Conditions**
- VI. How Do I Get A Permit? Overview of the NPDES Permitting Process**
 - A. Permit Application**
 - B. Types of Permits**
 - C. What Information Will EPA Need In Order to Process My Application?**
 - D. Additional Requirements...NEPA and ESA Compliance**

1. **NPDES and the National Environmental Policy Act (NEPA)**
2. **Endangered Species Act (ESA) Compliance**
3. **EPA's Expectations for Mining NEPA documents**

E. Getting from Draft to Final Permit...

VII. After Your Permit Has Been Issued...

- A. Modifications, if necessary**
- B. Monitoring and Reporting**
- C. Follow-up Inspections / Enforcement Procedures**

VIII. Appendices

Appendix A. EPA Contact People

Appendix B. Glossary

Appendix C. Overview of NPDES Permitting Process (includes main components of a permit and index of federal NPDES regulations - 40 CFR Part 122)

Appendix D. Selected Sections of Effluent Guidelines Applicable to Mining - Subparts J, L, and M of 40 CFR Part 440 - Ore Mining and Dressing Point Source Category

Appendix E. Regulatory Walk-Through of Regulations Applicable to a Gold Placer Mining Operation and to a Copper or Gold Heap, In-Situ, or Vat Leaching Operation

Appendix F. EPA Region 10 Publication - Scoping Comments Regarding Mining EIS and EA Documents

Appendix G. NPDES Permit Application (Form 1 and Form 2C)

Appendix H. After Your Permit Has Been Issued...Discharge Monitoring Report (DMR) Form

I. OVERVIEW

The material presented in this handout has been prepared by EPA Region IX with the intention of addressing the National Pollutant Discharge Elimination System (NPDES) permitting requirements *specifically* applicable to mining facilities in Arizona. Thus, the only discharges directly addressed in this handout are discharges commonly associated with mining facilities. For detailed information on NPDES requirements specific to other types of facilities, please refer to the EPA contact list included in Appendix A.

II. WHY EPA REGULATES MINING...Environmental Impacts

A. GENERAL IMPACTS due to discharges...

1. Discharges of mine drainage and/or process wastewater can lead to fish kills & degradation of habitat as a result of sediment and heavy metal loading, and acidification (low pH) of receiving and downstream water bodies which may support beneficial uses, such as aquatic life and recreation.
2. Discharges of storm water can lead to erosion and modification of natural flow patterns, as well as to elevated pollution concentrations and loadings.

B. EROSION...

1. Caused by removal of vegetation, blasting, and use of heavy machinery.
2. Placer mining in stream beds can lead to potential damage to habitat, exposure of stream areas to erosion, and increased sedimentation.
3. High sediment loads to streams may result in adverse impacts to aquatic life and riparian ecosystems. Sediment accumulation may also lower a stream's capacity to carry runoff, causing flooding.
4. Can cause landslides and other mass movements

C. ACIDIFICATION...Acid Mine Drainage (AMD)

1. Characteristics of AMD...
 - a. AMD occurs when iron sulfides - pyrite and marcasite - are exposed to water and oxygen - - the minerals slowly oxidize, forming dilute sulfuric acid and ferric hydroxide.
 - b. AMD can be 20 to 300 times more acidic than acid rain. Particularly harmful to aquatic life but also harmful to wildlife & plants. AMD often has a pH of 3.0 or less. Few fish can spawn - or survive - in water that is more acidic than pH 4.0.
 - c. AMD can be a long-term source of contamination (once AMD starts, it's hard to control) - - acid mine drainage is a breeding ground for a naturally occurring bacterium, *thiobacillus ferrooxidans*, which dramatically speeds up the acid-forming

reaction.

2. Impacts of AMD...

- a. AMD results in leaching of heavy metals into surface streams. Mining activities may cause heavy metals to become exposed to oxygen and water - - metals which would otherwise have been stable indefinitely in a non-oxidizing environment.
 - i. In both waste piles and tailings, rock containing metals (zinc, iron, mercury, manganese, iron, lead, copper, and cadmium) has been removed from its natural subterranean environment to a new location, where it can form compounds that are hazardous to the environment.
- b. Once liberated, heavy metals can migrate to the nearest body of water - usually a surface stream or underground aquifer that flows through or near the mine, and from there can travel long distances, depending on the volume and the flow of the water. As acidity increases, the rate of release of heavy metals from the rock increases.
- c. AMD can lead to acidification of stream channels - - AMD carries dissolved, heavy metals into surface and ground waters, lowering the pH of stream channels and exposing aquatic life and other sensitive beneficial uses to potentially toxic conditions.

Alternatively, heavy metals may precipitate in stream channels. As AMD flows through a stream and becomes diluted and neutralized, heavy metals that were dissolved in the acid drainage precipitate out of solution and end up in particulate form in stream beds.

3. Controlling and mitigating AMD once started...

- a. *Control of the acid generation process* through conditioning of waste rock or spent ore to remove or exclude sulfide minerals; covers and seals to exclude water, covers and seals to exclude oxygen, waste segregation, addition of basic or buffering compounds, and application of bactericides or surfactants to control the bacterial acceleration of the oxidation process.
- b. *Control of leachate migration* through the use of covers and seals to preclude infiltration of precipitation, controlled placement of

waste to minimize infiltration, and diversion of surface water.

- c. *Collection and treatment of leachate* through surface and groundwater collection systems in conjunction with chemical treatment.

4. Criteria Used in Predicting the Potential for Mine Waste to Generate AMD:

- a. Amount of sulfides/sulfates in the waste pile;
- b. Ability of water and oxygen to interact with tailings and waste rock;
- c. Presence of certain types of bacteria can result in production of the acid at a rapid rate - - becomes self-perpetuating and difficult to stop;
- d. Presence of carbonates (i.e., calcite or dolomite) or aluminosilicates (aluminum-bearing silicates), which can neutralize AMD.
- e. Laboratory testing of waste rock, including acid-base accounting and acid-generation neutralization potential (AGNP) tests.

III. WHAT IS THE NPDES PROGRAM?

Congress enacted the Clean Water Act (CWA) in 1972 to establish a comprehensive program to "restore and maintain the chemical, physical and biological integrity of the Nation's waters" through the reduction, and eventual elimination, of the discharge of pollutants into those waters. To achieve its objectives, the CWA provides for the National Pollutant Discharge Elimination System (NPDES) permit program to control "point source" pollution. Under the NPDES program, the U.S. Environmental Protection Agency (EPA), or authorized States issue permits for point source discharges into waters of the U.S. Since Arizona is not authorized to implement the NPDES program, the EPA administers the NPDES program in Arizona.

What is an NPDES permit? An NPDES permit is basically a license allowing a facility to discharge a specified amount of a pollutant into a water of the U.S. (receiving water) under certain conditions. Except in accordance with an NPDES permit, a point source discharge of a pollutant is unlawful. Permits may be individual (specifically tailored to a particular facility) or general (permits issued under 40 CFR 122.28 authorizing a category of discharges (e.g., storm water) within a geographical area).

What is a point source? Any discrete, discernible, and confined conveyance from which

pollutants may be discharged into a receiving water, such as a pipe, channel, ditch, tunnel, conduit, well, container, impoundment, or leachate collection system.

What is a pollutant? The CWA defines "pollutant" to include essentially all types of waste, and even inert substances such as rock and sand.

What is a water of the United States? Virtually all surface waters in the United States, including wetlands and ephemeral streams. Also including navigable waters, tributaries of navigable waters, interstate waters, intrastate lakes, rivers, and streams. All of these categories have been very broadly/liberally interpreted.

IV. **WHAT DISCHARGES ARE REGULATED?...any discharges of pollutants to waters of the U.S.**

In some cases, an operator may wish to anticipate accidental releases and obtain an NPDES permit even when the operator plans no discharge. Obtaining a "zero-discharge" permit may protect the operator against liability for an otherwise unpermitted discharge, should one occur. The following mining facility discharges are regulated:

- A. *Mining facilities discharging mine drainage into a water of the U.S.:*
 - 1. *What is mine drainage?* Any water drained, pumped, or siphoned from a mine (40 CFR 440.132(h)). Includes adit drainages, pit drainages, and runoff or seepage from waste rock/overburden in the active mining areas
- B. *Any discharges of process wastewater into waters of the U.S. are PROHIBITED!*
 - 1. *What is process wastewater?* Any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.
 - 2. *Examples:* tailings, process solutions.
- C. *Mining facilities discharging storm water into a water of the U.S.:*
 - 1. *What is storm water?* Storm water runoff, snow melt runoff, surface runoff, and surface drainage (40 CFR 122.26(b)(13)). Runoff not classified as mine drainage must be permitted as storm water if it comes into contact with overburden, raw material, intermediate products, finished products, by-products, or waste products

2. *Regulation of Storm Water / How to comply:* For storm water discharges, a facility must develop a Storm Water Pollution Prevention (SWPP) Plan. Facilities may opt for coverage under EPA's Multi-Sector General Permit for Storm Water or may choose to incorporate storm water discharges into their individual permit.
 - i. Note: EPA has the authority to establish permit limitations using Best Professional Judgment (BPJ), as described at 40 CFR 125.3(d), for any discharges that may have the reasonable potential to cause or contribute to an exceedance of technology-based and/or water quality standards. Permit applicants should contact EPA for assistance in determining the appropriate permitting vehicle (general or individual permit) to fully address the discharges at their facility
3. *Note - Ongoing Litigation between National Mining Association and EPA* may affect regulation of runoff located outside the active mining area. Currently, runoff from waste rock located outside of active mining areas is classified as mine drainage, but may be reclassified as storm water.

V. **HOW ARE DISCHARGES FROM A MINE REGULATED?....by means of a permit, which includes....**

A. *Effluent Limitations*

1. Technology-based limits are defined as industry-specific limits that apply to similar facilities nationwide; limits are based on the technology specific to the industry and on the nature of the discharge.
 - a. Copper/Gold In-Situ, Vat, and Heap Leach Operations - 40 CFR Part 440 Subparts J and L - For specific requirements, see Appendices D and E:
 - i. Process Wastewater:
 - a. *Requirement:* For new and existing facilities, discharge is *PROHIBITED* (40 CFR 440.104(c)(1)).
 - b. *How to comply:* facilities must contain process wastewater to prevent any releases to waters of the U.S. - - for example, containment structures for tailings should be designed and constructed with sufficient stabilization structures/features (dams, berms, leak detection systems, etc.) to prevent any

discharges to nearby receiving waters - see BMPs for mine drainage, Section 2d. (next page of this document).

ii. Mine Drainage:

- a. *Requirement:* Mining facilities are permitted to discharge mine drainage only as a result of precipitation as described in the Storm Exemption (40 CFR 440.131(c)):
 - 1. The facility must design, construct, and maintain the facility to contain the maximum volume of wastewater which would be generated by the facility and the maximum volume of water resulting from a 10-year 24-hour storm event;
 - 2. The facility must take all reasonable steps to minimize the overflow or excess discharge;
 - 3. The facility must comply with notification requirements at 40 CFR 122.60(g) and (h).
- b. The Storm Exemption is designed to provide the facility with an affirmative defense to an enforcement action; the operator has the burden of demonstrating that the above conditions have been met.
- c. If a facility complies with the requirements outlined above for the Storm Exemption, the facility is exempt from the technology-based limits, which are outlined at 40 CFR 440.104(a) and include limits for pollutants such as total suspended solids, metals, and pH. That is, any discharges of mine drainage above the volume described at Section 440.131(c)(1) will not be required to comply with the technology-based effluent limits.
- d. *How to comply:* Implementation of preventive measures (best management practices - BMPs) to minimize chances of a release of mine drainage or

process wastewater except under allowable conditions or pollutant concentrations. Such BMPs may include - treatment; berms; impermeable liners which are chemically compatible with the material being placed onto the liner; pumpback systems; inspections; training; alarms; and general site planning and engineering, such as avoidance of geologic hazards and environmentally-sensitive areas.

- iii. Storm Water - see Section IV.C. of this training document.
 - b. Gold Placer Mines 40 CFR Part 440 Subpart M - for specific requirements see Appendices D and E:
 - 1. Exempt - Facilities processing less than 1500 cu yds of ore/year, as well as others - - see 40 CFR 440.140 for other criteria to determine applicability.
 - a. Exempt from effluent guidelines (40 CFR Part 440 Subpart M) - - however, any discharges to waters of the U.S. require a permit and must not exceed Arizona water quality standards.
 - a. BMPs: settling basins, water recycling.
 - b. EPA may issue general permit to cover small facilities - - currently collecting information on the total number and the different types of gold placer mine operations in Arizona.
 - 2. Non-Exempt Facilities
 - a. Must comply with effluent guidelines (40 CFR Part 440 Subpart M). In general, facilities are required to build sufficient storm water containment to hold the 5-year 6-hour storm, as well as implementation of BMPs at 40 CFR 440.148.
2. Water quality-based limits - limits based on water quality standards

- a. *What are water quality standards?* Standards established for all waters of the U.S that are designed to protect the quality and uses of all water bodies that lie within the State and downstream. Standards are reviewed and revised, as necessary, every 3 years by ADEQ and are specific to each water body, depending on its use classification (aquatic life, recreation, drinking water, etc.).
- b. *What is required for compliance?* Discharges from mining facilities must take measures to ensure that any discharges of mine drainage will not exceed the water quality based limits established for any receiving waters near the facility. These measures may include:
 - 1) Treatment
 - 2) Containment of all mine drainage and storm water - "zero-discharge"

B. *Monitoring & Reporting Requirements*

C. *Special Conditions* - may include additional monitoring requirements, such as whole effluent toxicity (WET) testing, ambient stream surveys, bioassessments, waste rock characterization testing, etc., or additional BMPs.

D. *Standard Conditions*

VI. HOW DO I GET A PERMIT? Overview of the NPDES Permitting Process

A. *Permit Application* - must be submitted at least 180 days prior to date of first discharge (for application forms - see Appendix G).

B. *Types of Permits*

1. Individual permit vs. General permits

a. Individual

i. tailored to one facility

ii. individual permits provide EPA with the opportunity to tailor controls appropriate for the discharge, such as through the use of Best Professional Judgment (BPJ) as described at 40 CFR 125.3(d).

- b. General
 - i. cover a category of discharges within a geographical area
 - ii. facilities can only apply for coverage under a General Permit if one has been issued that is applicable to their particular industry or discharge (ex., storm water permit for Arizona industrial facilities).
- c. EPA Region 10 has developed a general permit to cover gold placer mines in Alaska. Based on demand/need, EPA may develop general permits in the future, as follows:
 - I. Coverage will be limited to certain types of facilities/processes, such as placer mines, no-discharge design, total acreage of disturbance, etc.
 - ii. General permit option not likely for facilities using chemical treatment of ore, heap-leaching, cyanide, etc.

C. *What Information Will EPA Need In Order to Process My Permit Application?*

- 1. EPA will need facility-specific information which may include some of the following:
 - a. Maps of the general surrounding area and diagrams of the facility (processes, layout, etc.) and its waste streams;
 - b. Effluent characterization of facility's discharge (what pollutant types and concentrations) are expected to be detected in the effluent?); zero-discharge facilities are not required to characterize effluent.
 - c. Characterization of mine waste - tailings, waste rock, overburden (what is the acid generation potential of the mine waste which will be generated?);
 - d. Exact locations of all potential discharge points into receiving waters, such as toe of waste rock piles, etc.;
 - e. Characteristics of expected flow, including volume; again, this does not apply to zero-discharge facilities.

- f. General design of treatment system, if applicable;
- g. Hydrologic Characterization - depth to groundwater, flow rate of receiving water, etc.;
- h. Water Balance - the balance between incoming water (i.e., precipitation) and outflowing water (i.e., streamflow, groundwater recharge), information which is necessary in order to calculate containment requirements for a zero-discharge facility;
- i. Design criteria for water quality related mitigation measures, such as ponds, liners, storm water impoundments, and diversion structures.

D. *Additional Requirements - NEPA and ESA Compliance*

- 1. National Environmental Policy Act Compliance -
 - a. Required for all "major federal actions" prior to permit issuance;
 - b. A federal action is considered "major" if the action is significant - - that is, if the action will have more than a minimal impact on the environment.
 - c. EA vs. EIS for small facilities (i.e., less than 5 acres) - most small mines will be covered under BLM's General EA (Programmatic Document).
- 2. EPA's general expectations for Mining NEPA Documents - these requirements generally pertain to larger mining facilities. For detailed information regarding EPA's expectations for mining documents, see Appendix F:
 - a. Description of the project and the affected environment;
 - b. Description of potential long-term surface and ground water impacts;
 - c. Description of direct and indirect impacts to all aquatic resources;
 - d. Description of mitigation, closure and reclamation

measures, including performance and reclamation bonds;

- e. Characterization of local hydrology;
- f. Other areas of concern, such as historic and cultural resources, tribal issues.

- 3. Endangered Species Act (ESA) Compliance - required prior to NPDES permit issuance and usually conducted in conjunction with EIS/EA.

E. *Getting From Draft to Final Permit...*

- 1. Public Notice of Draft
- 2. Option for Public Hearing
- 3. CWA 401 Certification
 - a. Arizona Department of Environmental Quality conducts evaluation of final permit for compliance with water quality standards.
- 4. Issuance of Final Permit/Response to Comments/Opportunity for Appeal

VII. AFTER YOUR NPDES PERMIT HAS BEEN ISSUED...

A. *Modifications of Permit, as Needed*

B. *Monitoring & Reporting*

1. Must comply with monitoring/reporting requirements outlined in the permit - frequency of monitoring & reporting is usually monthly but may be less frequent for small facilities. Monitoring data reported using Discharge Monitoring Report Form (see Appendix H).
2. Record Keeping - Monitoring records must be kept for three years.

C. *Inspections / Enforcement Procedures*

1. Inspections - inspectors will check the operation of the facility against the conditions outlined in the permit to determine compliance.
2. Compliance assistance - the inspector will inspect the site with the permittee, noting any potential problem areas. The inspector will discuss potential problems with the permittee with the intention of resolving operational/procedural problems before permit violations occur.
3. Enforcement - For any permit violations, penalties for administrative cases are generally limited to \$11,500 per day per violation to a maximum of \$125,000 per case. For civil judicial actions, penalties are limited to \$27,500 per day per violation with no cap on the maximum penalty that may be assessed for the entire case.

VIII. APPENDICES

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March 1998*

Appendix A

EPA & ADEQ Contact People

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March 1998*

**Appendix A
EPA & ADEQ Contact People**

EPA Contacts

BEFORE YOUR PERMIT HAS BEEN ISSUED - if you have questions regarding whether or not you need a permit or how to apply for a permit:

Clean Water Act Standards and Permits Office:

Eugene Bromley (NPDES Permit Writer - Storm Water) - 415.744.1906

Laura Gentile (NPDES Permit Writer - Mining) - 415.744.1913

Jacques Landy (NPDES Permit Writer - Mining) - 415.744.1922

Terry Oda (Office Chief) - 415.744.1923

AFTER YOUR PERMIT HAS BEEN ISSUED - if you have questions regarding interpretation of the language of your permit, please contact anyone listed above in the Permits Office (above). If you have questions regarding compliance with the Clean Water Act, contact the following people:

Office of Clean Water Act Compliance:

John Hillenbrand (NPDES Compliance/Enforcement) - 415.744.1912

Dyi-You Shieh (NPDES monitoring/reporting requirements) - 415.744.1896

Carey Houk (NPDES/DMR Forms) - 415.744.1886

Daniel Meer (Office Chief) - 415.744.1905

ADEQ Contact

Reuse and Federal Permits Unit, Water Permits Section

Linda Taunt (NPDES/401 Certification) - 602.207.4665

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March 1998*

Appendix B

Glossary

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March 1998*

Appendix B - Glossary

1. **Acid mine drainage (AMD)** : mine water coming from mines or mine wastes which contains sulfuric acid, mainly due to the oxidation of iron pyrite.
2. **Active Mining Area (40 CFR 440.132(g))**: a place where work or other activity related to the extraction, removal, or recovery of metal ore is being conducted, except, with respect to surface mines, any area of land on or in which grading has been completed to return the earth to desired contour and reclamation work has begun.
3. **Adit** - a horizontal or nearly horizontal passage driven in rock from the surface used for access or for drainage (dewatering) of an underground mine.
4. **Leach** - leaching is the process by which a soluble metallic compound is removed from a mineral by selectively dissolving it in a suitable solvent, such as water, sulfuric acid, hydrochloric acid, cyanide, or other solvent, to make a compound amenable to further milling processes.
5. **Milling** - the process of separating the valuable minerals from the gangue, which is the worthless constituent of the mined material. Milling may involve one or more of the following processes: crushing, grinding, pulverizing, concentrating, kiln treatment, calcining, sawing and cutting stone, heat expansion, retorting (mercury), sizing, pelletizing, washing, drying, roasting, evaporating, and leaching.
6. **Mine** - an excavation for the extraction of ore or other economic minerals.
an active mining area, including all land and property placed under, or above the surface of such land, used in or resulting from the work of extracting metal ore or minerals from their natural deposits by any means or method, including secondary recovery of metal ore from refuse or other storage piles, wastes, or rock dumps and mine tailings derived from the mining, cleaning, or concentration of metal ores.
7. **Mine Drainage (40 CFR 440.132(h))** - any water drained, pumped, or siphoned from a mine.

8. **Mine Waste** - solid waste from mining operations, including waste rock, tailings, and slag.
9. **Mineral** - the valuable constituents of an ore; a naturally formed chemical element or compound, found in rocks, having a definite chemical composition, usually in a characteristic crystal form, such as "quartz" - SiO_2 .
10. **Open - Pit Mining** - a form of operation designed to extract minerals that lie near the surface. The mining of metalliferous ores by surface mining methods is commonly referred to as "open-pit mining" as distinguished from "strip mining" of coal and the "quarrying" of other nonmetal materials such as limestone, building stones, etc.
11. **Ore** - a mineral, or mineral aggregate containing precious or useful metals or metalloids, and which occurs in such quantity, grade, and chemical combination as to make extraction commercially profitable.
12. **Ore Deposit** - a general term applied to rocks containing minerals of economic value in such amount that they can be profitably exploited.
13. **Overburden** - Material removed from an open pit mine that is not ore. Also, rock removed from above the ore body. This rock typically contains cobble to boulder size particles and little to no ore.
14. **Placer Ore Deposits** - ore deposited by alluvial processes such as stream or glacial erosion and deposition.
15. **Point Source** - any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, or vessel or other floating craft, from which pollutants are or may be discharged.
16. **Process Wastewater** - all water used in and resulting from the beneficiation process, including but not limited to the water used to move ore to and through the beneficiation process, the water used to aid in classification, and the water used in gravity separation, mine drainage, and infiltration and drainage waters which commingle with mine drainage or waters resulting from the beneficiation process.

17. **Pyrite** - iron sulfide (FeS_2)
18. **Storm Water** - storm water runoff, snow melt runoff, and surface runoff and drainage (40 CFR 122.26(a)(13)).
19. **Tailings** - the waste material resulting from the washing, concentration, or treatment of milled ore. Material can be coarse gravel to sand size particles to silt like "flour". Particles tend to be more uniform in size and are typically deposited in one or a series of piles. Tailings can contain unwanted heavy metals and sulfide minerals. Tailings consist of processed rock and chemical reagents, often in a part-solid, part-liquid slurry that is left in heaps or dumped into washes or ponds.
20. **Waste Rock** - the barren rock from a mine. This term also applies to the part of the ore deposit that is too low in grade to be of economic value at the time of mining.
21. **Water Balance** - a measure of the amount of water entering and the amount of water leaving a system; an evaluation of all the sources of supply and the corresponding discharges with respect to an aquifer or a drainage basin; the balance between the income of water from precipitation and snowmelt and the outflow of water by evapotranspiration, groundwater recharge and streamflow.

Appendix C

Overview of the NPDES Permitting Process

(Includes the index of federal NPDES regulations - 40 CFR Part 122)

*EPA Region IX
NPDES Training - Mining Emphasis
March 1998*

Appendix C

Overview of the NPDES Permitting Process (Including Main Components of a Permit and Index of Federal NPDES Regulations - 40 CFR Part 122)

MAIN COMPONENTS OF A PERMIT

1. COVER PAGE
2. EFFLUENT LIMITATIONS - The primary mechanism for controlling discharges of pollutants to receiving waters.
 - (a) TECHNOLOGY-BASED LIMITS: Limits based on the technology available to treat the pollutants. For the mining industry, EPA has published technology-based effluent limitations that apply on a nationwide basis (40 CFR Part 440). The Guidelines establish industry-wide effluent limitations for two types of mine discharges: (1) mill discharges and (2) mine drainage.

All NPDES permits must, at a minimum, contain technology-based effluent limitations established in effluent guidelines or standards, or, if no such guidelines have been established, limitations derived on the basis of best professional judgment.
 - (b) WATER QUALITY-BASED EFFLUENT LIMITS. Limits that are protective of the designated uses of the receiving water. Section 303(c) of the Clean Water Act requires every State to develop water quality standards applicable to all water bodies or segments of water bodies that lie within the State.
3. MONITORING/REPORTING REQUIREMENTS - used to characterize waste streams and receiving waters, evaluate wastewater treatment efficiency, and determine compliance with permit conditions.
4. SPECIAL CONDITIONS - conditions developed to supplement effluent limitations guidelines. Examples include best management practices (BMPs), additional monitoring activities, ambient stream surveys, toxicity reduction evaluations (TREs), etc:

Additional Monitoring: Mining has adversely impacted surface waters in Arizona. In order to fully assess and characterize the impacts on the major watersheds in

Arizona due to mining, we are requiring ambient water quality monitoring for all new individual NPDES permits.

Waste Rock Characterization Plans may be required for large mining operations to ensure that there is a comprehensive plan in place for testing and continually evaluating the acid generation potential of waste rock throughout the life of the mine. Mine wastes can appear stable for years before problems with acid mine drainage begin.

5. STANDARD CONDITIONS - pre-established conditions that apply to all NPDES permits and that delineate the legal, administrative, and procedural requirements of the NPDES permit.

Chapter 3

Overview of the NPDES Permitting Process

This chapter presents an overview of the different types of NPDES permits, permit components, the permitting development and issuance process, and the roles and responsibilities of the Federal and State governments. The intent of this chapter is to give the permit writer an introduction to the elements of a NPDES permit and to provide a brief overview of the process of writing a permit. The process is illustrated by the use of flow charts. The tasks identified within the flow charts are described in detail in subsequent chapters.

3.1 Types of Permits

A permit is typically a license for a facility to discharge a specified amount of a pollutant into a receiving water under certain conditions; however, permits may also authorize facilities to process, incinerate, landfill, or beneficially use sewage sludge. The two basic types of NPDES permits that can be issued are individual and general permits.

An **individual permit** is a permit specifically tailored for an individual facility. Upon submitting the appropriate application(s), the permitting authority develops a permit for that particular facility based on the information contained in the permit

application (e.g., type of activity, nature of discharge, receiving water quality). The permit is then issued to the facility for a specific time period (not to exceed 5 years) with a requirement to reapply prior to the expiration date.

A **general permit** is developed and issued by a permitting authority to cover multiple facilities within a specific category. General permits may offer a cost-effective option for agencies because of the large number of facilities that can be covered under a single permit. According to 40 CFR §122.28, general permits may be written to cover categories of point sources having common elements, such as:

- Storm water point sources
- Facilities that involve the same or substantially similar types of operations
- Facilities that discharge the same types of wastes or engage in the same types of sludge use or disposal
- Facilities that require the same effluent limitations or operating conditions, or standards for sewage sludge use or disposal
- Facilities that require the same monitoring where tiered conditions may be used for minor differences within class (e.g., size or seasonal activity)
- Facilities that are more appropriately regulated by a general permit.

General permits, however, may only be issued to dischargers within a specific geographical area such as the following:

- Designated planning area
- Sewer district
- City, county, or State boundary
- State highway system
- Standard metropolitan statistical area
- Urbanized area.

The use of general permits allows the permitting authority to allocate resources in a more efficient manner and to provide more timely permit coverage. For example, a large number of facilities that have certain elements in common may be covered under a general permit without expending the time and money necessary to issue an individual permit to each of these facilities. In addition, the use of a general permit ensures consistency of permit conditions for similar facilities.

3.2 Major Components of a Permit

All NPDES permits, at a minimum, consist of five general sections:

- **Cover Page**—Typically contains the name and location of the permittee, a statement authorizing the discharge, and a listing of the specific locations for which a discharge is authorized.
- **Effluent Limitations**—The primary mechanism for controlling discharges of pollutants to receiving waters. The majority of the permit writer's time is spent deriving appropriate effluent limitations based on applicable technology and water quality standards.
- **Monitoring and Reporting Requirements**—Used to characterize wastestreams and receiving waters, evaluate wastewater treatment efficiency, and determine compliance with permit conditions.
- **Special Conditions**—Conditions developed to supplement effluent limitations guidelines. Examples include best management practices (BMPs), additional monitoring activities, ambient stream surveys, toxicity reduction evaluations (TREs), etc.
- **Standard Conditions**—Pre-established conditions that apply to all NPDES permits and that delineate the legal, administrative, and procedural requirements of the NPDES permit.

Although these sections compose all permits, the contents of some of these sections will vary depending on whether the permit is to be issued to a municipal or industrial facility, and whether the permit will be issued to an individual facility or to multiple dischargers (i.e., a general permit). **Exhibit 3-1** shows the components of a permit and highlights some of the distinctions between the contents of NPDES permits for industrial and municipal permits.

3.3 Overview of the Development/Issuance Process for NPDES Individual Permits

While the limits and conditions in an individual NPDES permit are unique to the permittee, the process used to develop the limits and conditions, and issue the permit, generally follows a common set of steps. **Exhibit 3-2** illustrates the major steps involved in developing and issuing an individual NPDES permit. **Exhibit 3-2** also serves as an index for the subsequent chapters of this manual by identifying the chapters where more detailed information for each step is presented.

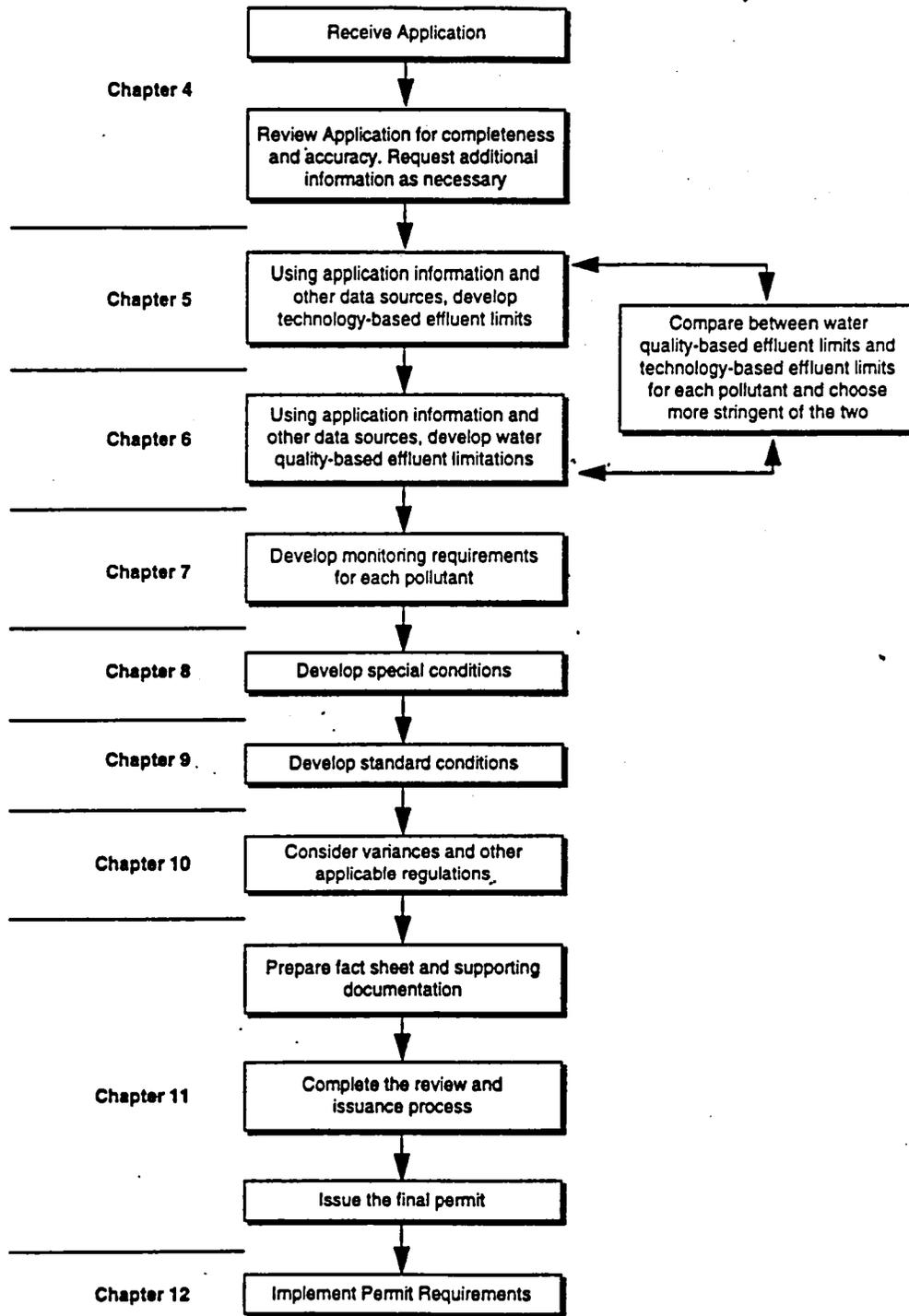
EXHIBIT 3-1
NPDES Permit Components

Industry-Specific Components	Components of All NPDES Permits	Municipal-Specific Components
	Cover Page	
Technology-Based: <ul style="list-style-type: none"> • Effluent Guidelines • Best Professional Judgment (BPJ). 	Effluent Limitations: <ul style="list-style-type: none"> - Technology-Based - Water Quality-Based 	Technology Based: <ul style="list-style-type: none"> • Secondary Treatment • Equivalent to Secondary Treatment.
	Monitoring and Reporting Requirements	
Other Requirements: <ul style="list-style-type: none"> • Best Management Practices (BMP). 	Special Conditions: <ul style="list-style-type: none"> - Compliance Schedules - Storm Water - Special Studies, Evaluation, and Other Requirements 	Other Requirements: <ul style="list-style-type: none"> • Pretreatment Program • Combined Sewer Overflow • Municipal Sewage Sludge.
	Standard Conditions	

The permitting process begins when an application is submitted by the operator of a facility. After receiving the application and making a decision to proceed with the permit, the permit writer reviews the application for completeness and accuracy. When the application is determined to be complete, the permit writer begins to develop the draft permit and the justification for the permit conditions (referred to as the fact sheet or statement of basis) based, in part, on the application data.

The first major step in the permit development process is the derivation of technology-based effluent limits. Following this step, the permit writer derives effluent limits that are protective of State water quality standards (i.e., water quality-based effluent limits (WQBEL)). The permit writer then compares the technology-based limits with the WQBELs and applies the more stringent limits in the NPDES permit. The

EXHIBIT 3-2 Major Steps Involved in Developing and Issuing an Individual NPDES Permit



1090-01

decision-making process for deriving limits is documented in the permit fact sheet. It is quite possible that a permit may have limitations that are technology-based for some parameters and water quality-based for others. For example, a permit may contain an effluent limit for TSS based on national effluent limitations guidelines (technology-based), a limit for ammonia based on prevention of aquatic toxicity (water quality-based), and a BOD₅ limit based for part of the year on effluent limitations guidelines (technology-based) and for the remainder of the year on water quality considerations.

Following the development of effluent limits, the permit writer develops appropriate monitoring and reporting conditions, facility-specific special conditions, and includes standard conditions that are the same for all permits.

The next step is to provide an opportunity for public participation in the permit process. A public notice is issued announcing the permit and interested parties may submit comments regarding the draft permit. Based on the comments, the permitting authority then finalizes the permit, with careful attention to documenting the process and decisions for the administrative record, and issues the final permit to the facility.

3.4 Overview of the Development/Issuance Process for NPDES General Permits

The process for developing and issuing general NPDES permits is similar to the process for individual permits, however, there are certain differences. In the general permit development/issuance process, the permitting authority first identifies the need for a general permit, and collects data that demonstrate that a group or category of dischargers have similarities that warrant a general permit. In deciding whether to develop a general permit, permitting authorities should consider the following:

- Are there a large number of facilities to be covered?
- Do the facilities have similar production processes or activities?
- Do the facilities generate similar pollutants?
- Do only a small percentage of the facilities have the potential for water quality standards violations?

The remaining steps of the permit process are the same as the individual permits. A draft permit and fact sheet are developed, a public notice is issued and public comments are addressed, the issues are documented for the administrative record, and the final permit is issued. After the general permit has been issued, facilities that wish to be covered under the general permit then generally submit a Notice of Intent (NOI) to the permitting authority. The permitting authority may then either request additional information describing the facility, notify the facility that it is covered by the general permit, or require the facility to apply for an individual permit.

3.5 Roles and Responsibilities of the Federal and State Authorities

EPA is authorized under the CWA to directly implement the NPDES Program. EPA, however, may authorize States, Territories, or Tribes to implement all or parts of the national program. States, Territories, or Tribes applying for authorization may seek the authority to implement the base program (i.e., issue individual NPDES permits for industrial and municipal sources), and may seek authorization to implement other parts of the national program including, Federal facilities, the national pretreatment program, general permits, and/or the municipal sewage sludge program. If the State has only partial authority (e.g., only the base NPDES permits program), EPA will implement the other program activities (e.g., pretreatment program, Federal facilities, and sewage sludge program). For example, where a State has an approved NPDES Program but has not received EPA approval of its State sludge management program, the EPA Region is responsible for including conditions to implement the Part 503 Standards for the Use or Disposal of Sewage Sludge in NPDES permits issued to treatment works in that State. EPA may issue a separate NPDES permit with the applicable sewage sludge standards and requirements, or negotiate with the State on joint issuance of NPDES permits containing the Part 503 sewage sludge standards. The same process also applies where a State has not received approval of its pretreatment program or Federal facilities. One exception to this process is where a NPDES-authorized State, Territory, or Tribe is not approved to implement the general permit program. In these cases, EPA may not issue a general permit in that State, Territory, or Tribe.

In general, once a State, Territory, or Tribe is authorized to issue permits, EPA is prohibited from conducting these activities. However, EPA must be provided with

an opportunity to review each permit issued by the State, Territory, or Tribe and may formally object to elements that conflict with Federal requirements. If the permitting agency does not address the objection points, EPA will issue the permit directly. Once a permit is issued through a government agency, it is enforceable by the approved State, Territorial, and Federal agencies (including EPA) with legal authority to implement and enforce the permit, and by private citizens (in Federal court).

EXHIBIT 2-1

Federal NPDES Regulations (40 CFR Part 122)

Subpart A - Definitions and General Program Requirements

- 122.1 Purpose and Scope of NPDES Program
- 122.2 Definitions
- 122.3 Exclusions
- 122.4 Prohibitions
- 122.5 Effect of a Permit
- 122.6 Continuation of Expired Permits
- 122.7 Confidentiality of Information

Subpart B - Permit Application and Special NPDES Program Requirements

- 122.21 Applications
- 122.22 Signatures Requirements for Applications
- 122.23 Animal Feeding Operations
- 122.24 Aquatic Animal Production
- 122.25 Aquaculture
- 122.26 Storm Water Discharges
- 122.27 Silviculture
- 122.28 General Permits
- 122.29 New Sources and New Discharges

Subpart C - Permit Conditions

- 122.41 Standard Conditions
- 122.42 Standard Conditions Applicable to Specified Categories
- 122.43 Permit Conditions
- 122.44 Permit Limitations

- | | |
|--------------------------|-------------------------------|
| (a) Technology Basis | (j) Pretreatment Program |
| (b) Other Basis (not WQ) | (k) Best Management Practices |
| (c) Reopeners | (l) Anti-Backsliding |
| (d) Water Quality Basis | (m) Private Treatment Works |
| (e) Priority Pollutants | (n) Grants |
| (f) Notification Levels | (o) Sludge |
| (g) 24 Hour Reporting | (p) Coast Guard |
| (h) Duration of Permits | (q) Navigation |
| (i) Monitoring | |

122.45 Calculating Limitations

- | | |
|-------------------------------|-----------------------------|
| (a) Discharge Points | (f) Mass Based Limits |
| (b) Production Basis | (g) Intake Water Pollutants |
| (c) Metals | (h) Internal Waste Streams |
| (d) Continuous Discharges | (i) Discharge into Wells |
| (e) Non-continuous Discharges | |

- 122.46 Duration of Permits
- 122.47 Schedules of Compliance
- 122.48 Reporting
- 122.49 Consideration of Other Federal Laws
- 122.50 Disposal to Other Points

Subpart D - Transfer, Modification, Revocation and Reissuance, and Termination of Permit

- 122.61 Transfer of Permits
- 122.62 Modification or Revocation and Reissuance of Permits
- 122.63 Minor Modifications of Permits
- 122.64 Termination of Permits

Appendix D

Selected Sections of 40 CFR Part 440

**Subpart J (Copper, Lead, Zinc, Gold, Silver, and Molybdenum Ores
Subcategory)**

**Subpart L (General Provisions), and
Subpart M (Gold Placer Mine Operations)**

alone, not as a byproduct of uranium mining and mills).

§ 440.81 [Reserved]

§ 440.82 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in subpart L of this part and 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

(a) The concentration of pollutants discharged in mine drainage from mines producing 5,000 metric tons (5,512 short tons) or more of vanadium bearing ores per year shall not exceed:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Milligrams per liter	
TSS	30	20
Cd .....	.10	.05
Cu .....	.3	.15
Zn	1.0	.5
Pb .....	.6	.3
As	1.0	.5
pH	(¹)	(¹)

¹ Within the range 6.0 to 9.0.

(b) The concentration of pollutants discharged in mine drainage from mines producing less than 5,000 metric tons (5,512 short tons) or discharged from mills processing less than 5,000 metric tons (5,512 short tons) of vanadium ore per year by methods other than ore leaching shall not exceed:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Milligrams per liter	
TSS	50	30
pH	(¹)	(¹)

¹ Within the range 6.0 to 9.0.

(c) The concentration of pollutants discharged from mills processing 5,000

metric tons (5,512 short tons) or more of vanadium ores per year by purely physical methods including ore crushing, washing, jigging, heavy media separation, and magnetic and electrostatic separation shall not exceed:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Milligrams per liter	
TSS	30	20
Cd .....	.10	.05
Cu .....	.30	.15
Zn	1.0	.5
As	1.0	.5
pH	(¹)	(¹)

¹ Within the range 6.0 to 9.0.

(d) The concentration of pollutants discharged from mills processing 5,000 metric tons (5,512 short tons) or more of vanadium ores per year by froth flotation methods shall not exceed:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Milligrams per liter	
TSS	30	20
Cd .....	.10	.05
Cu .....	.30	.15
Zn	1.0	.5
As	1.0	.5
pH	(¹)	(¹)

¹ Within the range 6.0 to 9.0.

§ 440.83 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT). [Reserved]

§ 440.84 New source performance standards (NSPS). [Reserved]

§ 440.85 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). [Reserved]

Subpart I—Antimony Ore Subcategory

§ 440.90 Applicability; description of the antimony ore subcategory.

The provisions of this subpart I are applicable to discharges from (a) mines that produce antimony ore and (b) mills that process antimony ore.

§ 440.91 [Reserved]

§ 440.92 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT). [Reserved]

§ 440.93 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT). [Reserved]

§ 440.94 New source performance standards (NSPS). [Reserved]

§ 440.95 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). [Reserved]

Subpart J—Copper, Lead, Zinc, Gold, Silver, and Molybdenum Ores Subcategory

§ 440.100 Applicability; description of the copper, lead, zinc, gold, silver, and molybdenum ores subcategory.

(a) The provisions of this subpart J are applicable to discharges from—

(1) Mines that produce copper, lead, zinc, gold, silver, or molybdenum bearing ores, or any combination of these

ores from open-pit or underground operations other than placer deposits;

(2) Mills that use the froth-flotation process alone or in conjunction with other processes, for the beneficiation of copper, lead, zinc, gold, silver, or molybdenum ores, or any combination of these ores;

(3) Mines and mills that use dump, heap, in-situ leach, or vat-leach processes to extract copper from ores or ore waste materials; and

(4) Mills that use the cyanidation process to extract gold or silver.

(b) Discharge from mines or mills and mills that use gravity separation methods (including placer or dredge mining or concentrating operations, and hydraulic mining operations) to extract gold ores are regulated under subpart M.

(c) Discharge from mines (including placer or dredge mining, and hydraulic mining operations) or mines and mills that use gravity separation methods to extract silver from placer ores are not covered under this part.

(d) The provisions of this subpart shall not apply to discharges from the Quartz Hill Molybdenum Project in the Tongass National Forest, Alaska.

[47 FR 54609, Dec. 3, 1982, as amended at 53 FR 18788, May 24, 1988]

§ 440.101 [Reserved]

§ 440.102 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology (BPT).

Except as provided in subpart L of this part and 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

(a) The concentration of pollutants discharged in mine drainage from mines operated to obtain copper bearing ores, lead bearing ores, zinc bearing ores, or any combination of these ores open-pit or underground operations other than placer deposits shall not exceed:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Milligrams per liter	
TSS	30	20
Cu .....	.30	.15
Zn	1.5	.75
Pb .....	.6	.3
Hg .....	.002	.001
pH	(¹)	(¹)

¹ Within the range 6.0 to 9.0.

(b) The concentration of pollutants discharged from mills which employ the froth flotation process alone or in conjunction with other processes, for the beneficiation of copper ores, lead ores, zinc ores, gold ores, or silver ores, or any combination of these ores shall not exceed:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Milligrams per liter	
TSS	30	20
Cu .....	.30	.15
Zn	1.0	.5
Pb .....	.6	.3
Hg .....	.002	.001
Cd .....	.10	.05
pH	(¹)	(¹)

¹ Within the range 6.0 to 9.0.

(c)(1) Except as provided in paragraph (c) of this section, there shall be no discharge of process wastewater to navigable water from mines and mills which employ dump, heap, in situ leach or vat leach processes for the extraction of copper from ores or ore waste materials. The Agency recognizes that the elimination of the discharge of pollutants to navigable waters may result in an increase in discharges of some pollutants to other media. The Agency has considered these impacts and has addressed them in the preamble published on December 3, 1982.

(2) In the event that the annual precipitation falling on the treatment facility and the drainage area contributing surface runoff to the treatment facility exceeds the annual evaporation, a volume of water equivalent to the difference between annual precipitation falling on the treatment facility

and the drainage area contributing surface runoff to the treatment facility and annual evaporation may be discharged subject to the limitations set forth in paragraph (a) of this section.

(d)(1) Except as provided in paragraph (d) of this section, there shall be no discharge of process wastewater to navigable waters from mills which extract gold or silver by use of the cyanidation process. The Agency recognizes that the elimination of the discharge of pollutants to navigable waters may result in an increase in discharges of some pollutants to other media. The Agency has considered these impacts and has addressed them in the preamble published on December 3, 1982.

(2) In the event that the annual precipitation falling on the treatment facility and the drainage area contributing surface runoff to the treatment facility exceeds the annual evaporation, a volume of water equivalent to the difference between annual precipitation falling on the treatment facility and the drainage area contributing surface runoff to the treatment facility and annual evaporation may be discharged subject to the limitations set forth in paragraph (a) of this section.

(e) The concentration of pollutants discharged in mine drainage from mines producing 5,000 metric tons (5,512 short tons) or more of molybdenum bearing ores per year shall not exceed:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Milligrams per liter	
TSS	30	20
Cd .....	.10	.05
Cu .....	.3	.15
Zn	1.0	.5
Pb .....	.6	.3
As	1.0	.5
pH	(¹)	(¹)

¹ Within the range of 6.0 to 9.0.

(f) The concentration of pollutants discharged in mine drainage from mines producing less than 5,000 metric tons (5,512 short tons) or discharged from mills processing less than 5,000 metric tons (5,512 short tons) of molybdenum ores per year by methods other than ore leaching shall not exceed:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Milligrams per liter	
TSS	50	30
pH	(¹)	(¹)

¹ Within the range 6.0 to 9.0.

(g) The concentration of pollutants discharged from mills processing 5,000 metric tons (5,512 short tons) or more of molybdenum ores per year by purely physical methods including ore crushing, washing, jigging, heavy media separation shall not exceed:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily value for 30 consecutive days
	Milligrams per liter	
TSS	30	20
Cd .....	.10	.05
Cu .....	.30	.15
Zn	1.0	.5
As	1.0	.5
pH	(¹)	(¹)

¹ Within the range 6.0 to 9.0.

(h) The concentration of pollutants discharged from mills processing 5,000 metric tons (5,512 short tons) or more of molybdenum ores per year by froth flotation methods shall not exceed:

Effluent characteristics	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Milligrams per liter	
TSS	30	20
Cd .....	.10	.05
Cu .....	.30	.15
Zn	1.0	.5
As	1.0	.5
pH	(¹)	(¹)

¹ Within the range 6.0 to 9.0.

[47 FR 54609, Dec. 3, 1982, as amended at 53 FR 18788, May 24, 1988]

§ 440.103 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in subpart L of this part and 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT):

(a) The concentration of pollutants discharged in mine drainage from mines that produce copper, lead, zinc, gold, silver, or molybdenum bearing ores or any combination of these ores from open-pit or underground operations other than placer deposits shall not exceed:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Milligrams per liter	
Cu	0.30	0.15
Zn	1.5	0.75
Pb	0.6	0.3
Hg	0.002	0.001
Cd	0.10	0.05

(b) The concentration of pollutants discharged from mills that use the froth-flotation process alone, or in conjunction with other processes, for the beneficiation of copper, lead, zinc, gold, silver, or molybdenum ores or any combination of these ores shall not exceed:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Milligrams per liter	
Cu	0.30	0.15
Zn	1.0	0.5
Pb	0.6	0.3
Hg	0.002	0.001
Cd	0.10	0.05

(c)(1) Except as provided in paragraph (c) of this section, there shall be no discharge of process wastewater to navigable waters from mine areas and mills

processes and areas that use dump, heap, in situ leach or vat-leach processes to extract copper from ores or ore waste materials. The Agency recognizes that the elimination of the discharge of pollutants to navigable waters may result in an increase in discharges of some pollutants to other media. The Agency has considered these impacts and has addressed them in the preamble published on December 3, 1982.

(2) In the event that the annual precipitation falling on the treatment facility and the drainage area contributing surface runoff to the treatment facility exceeds the annual evaporation, a volume of water equal to the difference between annual precipitation falling on the treatment facility and the drainage area contributing surface runoff to the treatment facility and annual evaporation may be discharged subject to the limitations set forth in paragraph (a) of this section.

(d)(1) Except as provided in paragraph (d) of this section, there shall be no discharge of process wastewater to navigable waters from mills that use the cyanidation process to extract gold or silver. The Agency recognizes that the elimination of the discharge of pollutants to navigable waters may result in an increase in discharges of some pollutants to other media. The Agency has considered these impacts and has addressed them in the preamble published on December 3, 1982.

(2) In the event that the annual precipitation falling on the treatment facility and the drainage area contributing surface runoff to the treatment facility exceeds the annual evaporation, a volume of water equal to the difference between annual precipitation falling on the treatment facility and the drainage area contributing surface runoff to the treatment facility and annual evaporation may be discharged subject to the limitations set forth in paragraph (a) of this section.

[47 FR 54609, Dec. 3, 1982, as amended at 53 FR 18788, May 24, 1988]

§ 440.104 New source performance standards (NSPS).

Except as provided in subpart L of this part any new source subject to this subsection must achieve the following

NSPS representing the degree of effluent reduction attainable by the application of the best available demonstrated technology (BATD):

(a) The concentration of pollutants discharged in mine drainage from mines that produce copper, lead, zinc, gold, silver, or molybdenum bearing ores or any combination of these ores from open-pit or underground operations other than placer deposits shall not exceed:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	* Milligrams per liter	
Cu	0.30	0.15
Zn	1.5	0.75
Pb	0.6	0.3
Hg	0.002	0.001
Cd	0.10	0.05
pH	(¹)	(¹)
TSS	30.0	20.0

¹ Within the range 6.0 to 9.0.

(b)(1) Except as provided in paragraph (b) of this section, there shall be no discharge of process wastewater to navigable waters from mills that use the froth-flotation process alone, or in conjunction with other processes, for the beneficiation of copper, lead, zinc, gold, silver, or molybdenum ores or any combination of these ores. The Agency recognizes that the elimination of the discharge of pollutants to navigable waters may result in an increase in discharges of some pollutants to other media. The Agency has considered these impacts and has addressed them in the preamble published on December 3, 1982.

(2)(i) In the event that the annual precipitation falling on the treatment facility and the drainage area contributing surface runoff to the treatment facility exceeds the annual evaporation, a volume of water equal to the difference between annual precipitation falling on the treatment facility and the drainage area contributing surface runoff to the treatment facility and annual evaporation may be discharged subject to the limitations set forth in paragraph (a) of this section.

(ii) In the event there is a build up of contaminants in the recycle water which significantly interferes with the

ore recovery process and this interference can not be eliminated through appropriate treatment of the recycle water, the permitting authority may allow a discharge of process wastewater in an amount necessary to correct the interference problem after installation of appropriate treatment. This discharge shall be subject to the limitations of paragraph (a) of this section. The facility shall have the burden of demonstrating to the permitting authority that the discharge is necessary to eliminate interference in the ore recovery process and that the interference could not be eliminated through appropriate treatment of the recycle water.

(c)(1) Except as provided in paragraph (c) of this section, there shall be no discharge of process wastewater to navigable waters from mine areas and mills processes and areas that use dump, heap, in-situ leach or vat-leach processes to extract copper from ores or ore waste materials. The Agency recognizes that the elimination of the discharge of pollutants to navigable waters may result in an increase in discharges of some pollutants to other media. The Agency has considered these impacts and has addressed them in the preamble published on December 3, 1982.

(2) In the event that the annual precipitation falling on the treatment facility and the drainage area contributing surface runoff to the treatment facility exceeds the annual evaporation, a volume of water equal to the difference between annual precipitation falling on the treatment facility and the drainage area contributing surface runoff to the treatment facility and annual evaporation may be discharged subject to the limitations set forth in paragraph (a) of this section.

(d)(1) Except as provided in paragraph (d) of this section, there shall be no discharge of process wastewater to navigable waters from mills that use the cyanidation process to extract gold or silver. The Agency recognizes that the elimination of the discharge of pollutants to navigable waters may result in an increase in discharges of some pollutants to other media. The Agency has considered these impacts and has

addressed them in the preamble published on December 3, 1982.

(2) In the event that the annual precipitation falling on the treatment facility and the drainage area contributing surface runoff to the treatment facility exceeds the annual evaporation, a volume of water equal to the difference between annual precipitation falling on the treatment facility and the drainage area contributing surface runoff to the treatment facility and annual evaporation may be discharged subject to the limitations set forth in paragraph (a) of this section.

[47 FR 54609, Dec. 3, 1982, as amended at 53 FR 18788, May 24, 1988]

EFFECTIVE DATE NOTE: Paragraph (b)(2)(ii) of § 440.104 published at 47 FR 54609, Dec. 3, 1982, contains information collection requirements which will not become effective until Office of Management and Budget approval has been obtained.

§ 440.105 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BCT). [Reserved]

Subpart K—Platinum Ores Subcategory

§ 440.110 Applicability; description of the platinum ore subcategory.

The provisions of this subpart K are applicable to discharges from (a) mines that produce platinum ore and (b) mills that process platinum ore.

§ 440.111 [Reserved]

§ 440.112 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT). [Reserved]

§ 440.113 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in subpart L of this part and 40 CFR 125.30 through 125.32, any existing point source subject to this subpart must achieve the

following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT):

(a) The concentration of pollutants discharged in mine drainage from mines that produce platinum bearing ores from open-pit or underground operations other than placer deposits shall not exceed:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Milligrams per liter	
Cu	0.30	0.15
Zn	1.5	0.75
Pb	0.6	0.3
Hg	0.002	0.001
Cd	0.10	0.05

(b) The concentration of pollutants discharged from mills that use the froth-flotation process alone, or in conjunction with other processes, for the beneficiation of platinum ores shall not exceed:

Effluent characteristic	Effluent limitations	
	Maximum for any 1 day	Average of daily values for 30 consecutive days
	Milligrams per liter	
Cu	0.30	0.15
Zn	1.0	0.5
Pb	0.6	0.3
Hg	0.002	0.001
Cd	0.10	0.05

§ 440.114 New source performance standards (NSPS). [Reserved]

§ 440.115 Effluent limitations representing the degree of effluent reduction attainable by the application of the best conventional pollutant control technology (BTC). [Reserved]

Subpart L—General Provisions and Definitions

§ 440.130 Applicability.

Abbreviations and methods of analysis set forth in 40 CFR part 401 shall apply to part 440 except as provided in

these general provisions and definitions. The general provisions and definitions in this subpart apply to all subparts of part 440 unless otherwise noted.

§ 440.131 General provisions.

(a) *Combined waste streams.* In the event that waste streams from various subparts or segments of subparts in part 440 are combined for treatment and discharge, the quantity and concentration of each pollutant or pollutant property in the combined discharge that is subject to effluent limitations shall not exceed the quantity and concentration of each pollutant or pollutant property that could have been discharged had each waste stream been treated separately. In addition, the discharge flow from the combined discharge shall not exceed the volume that could have been discharged had each waste stream been treated separately.

(b) *Storm exemption for facilities permitted to discharge.* If, as a result of precipitation or snowmelt, a source with an allowable discharge under 40 CFR part 440 has an overflow or excess discharge of effluent which does not meet the limitations of 40 CFR part 440, the source may qualify for an exemption from such limitations with respect to such discharge if the following conditions are met:

(1) The facility is designed, constructed and maintained to contain the maximum volume of wastewater which would be generated by the facility during a 24-hour period without an increase in volume from precipitation and the maximum volume of wastewater resulting from a 10-year, 24-hour precipitation event or treat the maximum flow associated with these volumes. In computing the maximum volume of wastewater which would result from a 10-year, 24-hour precipitation event, the facility must include the volume which would result from all areas contributing runoff to the individual treatment facility, i.e., all runoff that is not diverted from the active mining area and runoff which is not diverted from the mill area.

(2) The facility takes all reasonable steps to maintain treatment of the

wastewater and minimize the amount of overflow.

(3) The facility complies with the notification requirements of §122.60 (g) and (h). The storm exemption is designed to provide an affirmative defense to an enforcement action. Therefore, the operator has the burden of demonstrating to the appropriate authority that the above conditions have been met.

(c) *Storm exemption for facilities not permitted to discharge.* If, as a result of precipitation (rainfall or snowmelt), a source which is not permitted to discharge under 40 CFR part 440, has an overflow or discharge which violates the limitations of 40 CFR part 440, the source may qualify for an exemption from such limitations with respect to such discharge if the following conditions are met:

(1) The facility is designed, constructed, and maintained to contain the maximum volume of wastewater stored and contained by the facility during normal operating conditions without an increase in volume from precipitation and the maximum volume of wastewater resulting from a 10-year, 24-hour precipitation event. In computing the maximum volume of wastewater which would result from a 10-year, 24-hour precipitation event, the facility must include the volume which would result from all areas contributing runoff to the individual treatment facility, i.e., all runoff that is not diverted from the area or process subject to zero discharge, and other runoff that is allowed to commingle with the influent to the treatment system.

(2) The facility takes all reasonable steps to minimize the overflow or excess discharge.

(3) The facility complies with the notification requirements of §122.60(g) and (h). The storm exemption is designed to provide an affirmative defense to an enforcement action. Therefore, the operator has the burden of demonstrating to the appropriate authority that the above conditions have been met.

(d) *pH adjustment.* (1) Where the application of neutralization and sedimentation technology to comply with relevant metal limitations results in an

inability to comply with the pH range of 6 to 9, the permit issuer may allow the pH level in the final effluent to slightly exceed 9.0 so that the copper, lead, zinc, mercury, and cadmium limitations will be achieved.

(2) In the case of a discharge into natural receiving waters for which the pH, if unaltered by human activities, is or would be less than 6.0 and approved water quality standards authorize such lower pH, the pH limitations for the discharge may be adjusted downward to the pH water quality criterion for the receiving waters provided the other effluent limitations for the discharge are met. In no case shall a pH limitation below 5.0 be permitted.

(e) *Groundwater infiltration provision.* In the event a new source subject to a no discharge requirement can demonstrate that groundwater infiltration contributes a substantial amount of water to the tailing impoundment or wastewater holding facility, the permitting authority may allow the discharge of a volume of water equivalent to the amount of groundwater infiltration. This discharge shall be subject to the limitations for mine drainage applicable to the new source subcategory.

§ 440.132 General definitions.

(a) "Active mining area" is a place where work or other activity related to the extraction, removal, or recovery of metal ore is being conducted, except, with respect to surface mines, any area of land on or in which grading has been completed to return the earth to desired contour and reclamation work has begun.

(b) "Annual precipitation" and "annual evaporation" are the mean annual precipitation and mean annual lake evaporation, respectively, as established by the U.S. Department of Commerce, Environmental Science Services Administration, Environmental Data Services, or equivalent regional rainfall and evaporation data.

(c) "Appropriate treatment of the recycle water" in subpart J, §440.104 includes, but is not limited to pH adjustment, settling and pH adjustment, settling, and mixed media filtration.

(d) "Groundwater infiltration" in §440.131 means that water which enters the treatment facility as a result of the

interception of natural springs, aquifers, or run-off which percolates into the ground and seeps into the treatment facility's tailings pond or wastewater holding facility and that cannot be diverted by ditching or grouting the tailings pond or wastewater holding facility.

(e) "In-situ leach methods" means the processes involving the purposeful introduction of suitable leaching solutions into a uranium ore body to dissolve the valuable minerals in place and the purposeful leaching of uranium ore in a static or semistatic condition either by gravity through an open pile, or by flooding a confined ore pile. It does not include the natural dissolution of uranium by ground waters, the incidental leaching of uranium by mine drainage, nor the rehabilitation of aquifers and the monitoring of these aquifers.

(f) "Mill" is a preparation facility within which the metal ore is cleaned, concentrated, or otherwise processed before it is shipped to the customer, refiner, smelter, or manufacturer. A mill includes all ancillary operations and structures necessary to clean, concentrate, or otherwise process metal ore, such as ore and gangue storage areas and loading facilities.

(g) "Mine" is an active mining area, including all land and property placed under, or above the surface of such land, used in or resulting from the work of extracting metal ore or minerals from their natural deposits by any means or method, including secondary recovery of metal ore from refuse or other storage piles, wastes, or rock dumps and mill tailings derived from the mining, cleaning, or concentration of metal ores.

(h) "Mine drainage" means any water drained, pumped, or siphoned from a mine.

(i) "Ten (10)-year, 24-hour precipitation event" is the maximum 24-hour precipitation event with a probable recurrence interval of once in 10 years as established by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, or equivalent regional or rainfall probability information.

(j) "U" (Uranium) is measured by the procedure discussed in 40 CFR 141.25(b)(2), or an equivalent method.

Subpart M—Gold Placer Mine Subcategory

SOURCE: 53 FR 18788, May 24, 1988, unless otherwise noted.

§440.140 Applicability; description of the gold placer mine subcategory.

(a) The provisions of this subpart M are applicable to discharges from—

(1) Mines and dredges that produce gold or gold bearing ores from placer deposits; and

(2) The beneficiation processes which use gravity separation methods for recovering gold from placer deposits.

(b) The provisions of this subpart M are not applicable to any mines or beneficiation processes which process less than 1500 cubic yards (cu yd) of ore per year, or to dredges which process less than 50,000 cu yd of ore per year, or to dredges located in open waters (i.e., open bays, marine waters, or major rivers).

§440.141 Specialized definitions and provisions.

For the purpose of this subpart M, the general definitions, abbreviations, methods of analysis, and general provisions set forth in 40 CFR part 401 shall apply except as superseded by those below. The general provisions and definitions set forth in 40 CFR part 440, subpart L, shall not apply to this subpart.

(a) *Specialized definitions.* The following specialized definitions apply to this subpart only.

(1) "Beneficiation area" means the area of land used to stockpile ore immediately before the beneficiation process, the area of land used to stockpile the tailings immediately after the beneficiation process, and the area of land from the stockpiled tailings to the treatment system (e.g., holding pond or settling pond, and the area of the treatment system).

(2) "Beneficiation process" means the dressing or processing of gold bearing ores for the purpose of—

Environmental Protection Agency

(i) Regulating the size of, or recovering, the ore or product,

(ii) Removing unwanted constituents from the ore, and

(iii) Improving the quality, purity, or assay grade of a desired product.

(3) "Drainage water" means incidental surface waters from diverse sources such as rainfall, snow melt or permafrost melt.

(4) "Dredge" means a self-contained combination of an elevating excavator (e.g., bucket line dredge), the beneficiation or gold-concentrating plant, and a tailings disposal plant, all mounted on a floating barge.

(5) "Five (5) year, 6-hour precipitation event" means the maximum 6-hour precipitation event with a probable recurrence interval of once in 5 years as established by the U.S. Department of Commerce, National Oceanic and Atmospheric Administration, National Weather Service, or equivalent regional or rainfall probability information.

(6) "Gravity separation methods" means the treatment of mineral particles which exploits differences between their specific gravities. The separation is usually performed by means of sluices, jigs, classifiers, spirals, hydrocyclones, or shaking tables.

(7) "Infiltration water" means that water which permeates through the earth into the plant site.

(8) "Mine" means a place where work or other activity related to the extraction or recovery of ore is performed.

(9) "Mine area" means the land area from which overburden is stripped and ore is removed prior to moving the ore to the beneficiation area.

(10) "Mine drainage" means any water drained, pumped or siphoned from a mine.

(11) "New water" means water from any discrete source such as a river, creek, lake or well which is deliberately allowed or brought into the plant site.

(12) "Open cut mine" means any form of recovery of ore from the earth except by a dredge.

(13) "Ore" means gold placer deposit consisting of metallic gold-bearing gravels, which may be: residual, from weathering of rocks in-situ; river gravels in active streams; river gravels in

abandoned and often buried channels; alluvial fans; sea-beaches; and sea-beaches now elevated and inland. Ore is the raw "bank run" material measured in place, before being moved by mechanical or hydraulic means to a beneficiation process.

(14) "Permit area" means the area of land specified or referred to in an NPDES permit in which active mining and related activities may occur that result in the discharge regulated under the terms of the permit. Usually this is specifically delineated in an NPDES permit or permit application, but in other cases may be ascertainable from an Alaska Tri-agency permit application or similar document specifying the mine location, mining plan and similar data.

(15) "Plant site" means the area occupied by the mine, necessary haulage ways from the mine to the beneficiation process, the beneficiation area, the area occupied by the wastewater treatment facilities and the storage areas for waste materials and solids removed from the wastewaters during treatment.

(16) "Process wastewater" means all water used in and resulting from the beneficiation process, including but not limited to the water used to move the ore to and through the beneficiation process, the water used to aid in classification, and the water used in gravity separation, mine drainage, and infiltration and drainage waters which commingle with mine drainage or waters resulting from the beneficiation process.

(17) "Settleable solids" means the particulate material (both organic or inorganic) which will settle in one hour expressed in milliliters per liter (ml/l) as determined using an Imhoff cone and the method described for Residue—Settleable in 40 CFR part 136.

(b) *Specialized provisions—storm exemption.* This specialized provision applies to this subpart M only. If, as a result of precipitation (rainfall or snowmelt), a source subject to this subpart has an overflow or discharge of effluent which does not meet the limitations or standards of this subpart, the source may qualify for an exemption from such limitations and standards with respect

to such discharge if the following conditions are met:

(1) The treatment system is designed, constructed, and maintained to contain the maximum volume of untreated process wastewater which would be discharged, stored, contained and used or recycled by the beneficiation process into the treatment system during a 4-hour operating period without an increase in volume from precipitation or infiltration, plus the maximum volume of water runoff resulting from a 5-year, 6-hour precipitation event. In computing the maximum volume of water which would result from a 5-year, 6-hour precipitation event, the operator must include the volume which would result from the plant site contributing runoff to the individual treatment facility.

(2) The operator takes all reasonable steps to maintain treatment of the wastewater and minimize the amount of overflow.

(3) The source is in compliance with the BMP in § 140.148 and related provisions of its NPDES permit.

(4) The operator complies with the notification requirements of § 122.41 (m) and (n) of this title. The storm exemption is designed to provide an affirmative defense to an enforcement action. Therefore, the operator has the burden of demonstrating to the appropriate authority that the above conditions have been met.

§ 440.142 Effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).

Except as provided in 40 CFR 125.30-125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

(a) The concentration of pollutants discharged in process wastewater from an open-cut mine plant site shall not exceed:

Effluent limitations	
Effluent characteristics	Instantaneous maximum
Settleable solids	0.2 m/l

(b) The concentration of pollutants discharged in process wastewater from a dredge plant site shall not exceed:

Effluent characteristics	Effluent limitations—Instantaneous maximum
Settleable solids	0.2 m/l

§ 440.143 Effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

Except as provided in 40 CFR 125.30-125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).

(a) The volume of process wastewater which may be discharged from an open-cut mine plant site shall not exceed the volume of infiltration, drainage and mine drainage waters which is in excess of the make up water required for operation of the beneficiation process. The concentration of pollutants in process wastewaters discharged from an open-cut mine plant site shall not exceed:

Effluent characteristics	Effluent limitations—Instantaneous maximum
Settleable solids	0.2 m/l

(b) The volume of process wastewater which may be discharged from a dredge plant site shall not exceed the volume of infiltration, drainage and mine drainage waters which is in excess of the make up water required for operation of the beneficiation process. The concentration of pollutants in process wastewater discharged from a dredge plant site shall not exceed:

Effluent characteristics	Effluent limitations—Instantaneous maximum
Settleable solids	0.2 m/l

§ 440.144 New Source Performance Standards (NSPS).

Any new source subject to this subpart must achieve the following NSPS representing the degree of effluent reduction attainable by the application of the best available demonstrated technology:

(a) The volume of process wastewater which may be discharged from an open-cut mine plant site shall not exceed the volume of infiltration, drainage and mine drainage waters which is in excess of the make up water required for operation of the beneficiation process. The concentration of pollutants in process wastewaters discharged from an open-cut mine plant site shall not exceed:

Effluent characteristics	Effluent limitations—Instantaneous maximum
Settleable solids	0.2 m/l

(b) The volume of process wastewater which may be discharged from a dredge plant site shall not exceed the volume of infiltration, drainage and mine drainage waters which is in excess of the make up water required for operation of the beneficiation process. The concentration of pollutants in process wastewater discharged from a dredge plant site shall not exceed:

Effluent characteristics	Effluent limitations—Instantaneous maximum
Settleable solids	0.2 m/l

(c) Notwithstanding any other provision of this chapter, the Regional Administrator or Director of a State agency with authority to administer the NPDES program shall in designating new source gold placer mines, take into account and base the decision on whether one or more of the following factors has occurred after May 24, 1988.

(1) The mine will operate outside of the permit area which is covered by a currently valid NPDES Permit.

(2) The mine significantly alters the nature or quantity of pollutants discharged.

(3) The mine discharges into a stream into which it has not discharged under its currently valid NPDES permit.

(4) The mine will operate in a permit area that has not been mined during the term of the currently valid NPDES permit.

(5) Such other factors as the Regional Administrator or state Director deems relevant.

§§ 440.145—440.147 [Reserved]

§ 440.148 Best Management Practices (BMP).

The following best management practices are specific requirements which shall be included in each NPDES permit for all mining operations regulated under this subpart to the greatest extent applicable in each such mining operation.

(a) *Surface water diversion:* The flow of surface waters into the plant site shall be interrupted and these waters diverted around and away from incursion into the plant site.

(b) *Berm construction:* Berms, including any pond walls, dikes, low dams and similar water retention structures shall be constructed in a manner such that they are reasonably expected to reject the passage of water.

(c) *Pollutant materials storage:* Measures shall be taken to assure that pollutant materials removed from the process water and wastewater streams will be retained in storage areas and not discharged or released to the waters of the United States.

(d) *New water control:* The amount of new water allowed to enter the plant site for use in ore processing shall be limited to the minimum amount required as make-up water for processing operations.

(e) *Maintenance of water control and solids retention devices:* All water control devices such as diversion structures and berms and all solids retention structures such as berms, dikes, pond structures and dams shall be maintained to continue their effectiveness and to protect from unexpected and catastrophic failure.

Appendix E

**Regulatory Walk-Through of Regulations Applicable to a Copper or Gold
Heap, In-Situ, or Vat Leaching Facility and to a Gold Placer Mining
Operation.**

*EPA Region IX
NPDES Training - Mining Emphasis
March 1998*

Appendix E

Regulatory Walk-Through of Regulations Applicable to a Copper or Gold Heap, In-Situ, or Vat Leaching Facility and to a Gold Placer Mining Operation.

A. 40 CFR Part 440 - Ore Mining and Dressing Point Source Category
Subparts A - M: Regulations Specific to Ore Type

1. *What are effluent guidelines?* For many industrial point source categories, EPA has published technology-based effluent limitations that apply on a nationwide basis which are referred to as national effluent limitations guidelines or standards, pursuant to CWA Sections 304(b) and 306(b)(1)(B). EPA has published national effluent limitations for many industries, including the ore mining and dressing industry (40 CFR Part 440). The Guidelines establish industry-wide effluent limitations for two types of mine discharges: (1) mill discharges and (2) mine drainage.

B. EXAMPLE: Regulations applicable to a new copper, lead, zinc, gold, silver, or molybdenum heap, in-situ, or vat leaching facility...

1. Ore Type? Copper...

Refer to Subpart J (Copper, Lead, Zinc, Gold, Silver, and Molybdenum Ores Subcategory)

- a. Section 440.100 - Applicability
- b. Section 440.104(a) - New Source Performance Standards (NSPS) for mine drainage:

Effluent Characteristics	Effluent Limitations (mg/L)	
	Maximum for any one day	Average of Daily Values For 30 Consecutive Days
Cu	0.30	0.15
Zn	1.5	0.75
Pb	0.6	0.3
Hg	0.002	0.001
Cd	0.10	0.05
pH	6.0 - 9.0	6.0 - 9.0
TSS	30.0	20.0

- c. 440.104(c)(1) - prohibits discharge of process wastewater, except as may be provided by 440 104(c)(2).
- d. 440.104(c)(2) - allows discharge, only as a result of precipitation, of mine drainage from facilities in areas where the annual precipitation exceeds the annual evaporation (i.e., in areas other than Arizona and similar arid environments).

- in other words, under Subpart J of Part 440, no discharges are permitted. Proceed to Subpart L:

2. 40 CFR Part 440 Subpart L - General Provisions and Definitions

- a. Section 440.131(c)- Storm Exemption for Facilities Not Permitted to Discharge - If, as a result of precipitation, a source which is not permitted to discharge (i.e., facilities in arid environments such as Arizona) has an overflow or discharge which violates the limitations of 40 CFR Part 440, the source may qualify for an exemption from such limitations with respect to such discharge if the following conditions are met:

- 1. 440.131(c)(1) - The facility is designed, constructed, and maintained to contain the maximum volume of wastewater stored and contained by the facility during normal operating conditions without an increase in volume from precipitation and the maximum volume of wastewater resulting from a 10-year, 24-hour precipitation event.

- The main idea: facility is required to design facility to contain storm water such that any pollutants which may be present in a discharge over and above the containment will be considered negligible, based on dilution. Thus, the facility is exempt from technology-based limits (but not from Arizona Water Quality Standards).

- 2. 440.131(c)(2) - The facility takes all reasonable steps to minimize the overflow or excess discharge.

- The facility implements best management practices,

such as measures to control runoff, spillage or leaks, drainage from raw material storage areas, construction of berms, and maintenance of pumpback systems as back-up in the event of a major storm.

3. 440.131(c)(3) - The facility complies with the notification requirements of Sections 122.60(g) and (h). The storm exemption is designed to provide an affirmative defense to an enforcement action. Therefore, the operator has the burden of demonstrating to the appropriate authority that the above conditions have been met.

C. EXAMPLE: Regulations applicable to a new gold placer mining operation

1. Type of Ore and Processing? Gold placer mining...
Refer to Subpart M - Gold Placer Mine Subcategory

- a. 440.140 Applicability: Subpart M is not applicable to facilities utilizing beneficiation processes which process less than 1500 cubic yards of ore per year, or to dredges that process less than 50,000 cubic yards of ore per year, or to dredges located in open waters (.i.e., open bays, major rivers, marine waters) - however, small facilities with a discharge of wastewater to waters of the U.S. are required to apply for a permit - - discharges must not exceed Arizona water quality standards.

- b. 440.144(a)(b); New Source Performance Standards for gold placer mine operation wastewater from open-cut mine plant sites or dredge plant sites:

Effluent Characteristics	Effluent limitations Instantaneous Max.
Settleable Solids	0.2 ml/l

- c. 440.141(b) - Storm Exemption - If, as a result of precipitation, a source has an overflow or discharge of effluent which does not meet the limitations of this Subpart,

the source may qualify for an exemption if certain conditions are met, including:

1. treatment system is designed, constructed, and maintained to contain the maximum volume of untreated process wastewater which would be discharged, stored, contained and used or recycled by the beneficiation process into the treatment system during a 4-hour operating period without an increase in volume from precipitation or infiltration, plus the maximum volume of water resulting from a 5-year, 6-hour precipitation event.
 2. Facility must take all reasonable steps to maintain treatment of the wastewater and minimize the amount of overflow;
 3. Facility must be in compliance with the BMPs at 440.148.
- d. 440.148 - Best Management Practices - this citation lists specific requirements which must be included in each permit, including surface water diversions, berm construction, pollutant materials storage, maintenance of water control and solids retention devices, and new water control. See Appendix D for specific descriptions of requirements.

Appendix F

**EPA Region 10 Publication:
Scoping Comments Regarding Mining EIS and EA Documents**

*EPA Region IX
NPDES Training - Mining Emphasis
March 1998*

APPENDIX F

U.S. Environmental Protection Agency (EPA), Region 10 Scoping Comments Regarding Mining Environmental Impact Statements and Environmental Assessments

The following comments are designed to provide a scope of issues consistent with the U.S. Environmental Protection Agency's (EPA's) concerns for incorporation into National Environmental Policy Act (NEPA) documents. These comments are equally applicable to Environmental Assessments (EAs) and Environmental Impact Statements (EISs).

EPA reviews EAs and EISs in accordance with its responsibilities under the NEPA and the Clean Air Act. Specifically, Section 309 of the Clean Air Act directs EPA to review and comment in writing on the environmental impacts of any major federal agency action. These comments will include a rating of both the environmental impact of the proposed action and the adequacy of the NEPA document.

These comments are not intended to provide a standard format or a restricted set of issues for discussion. Each project is unique. EPA's intention is that the following issues be a basis for the full public disclosure of all foreseeable direct, indirect, and cumulative environmental impacts of a given project.

ALTERNATIVES

The NEPA document should specify the underlying purpose and need for the proposed action and support these with reasonable alternatives that meet the objectives of the purpose and need.

The alternatives section is the heart of the NEPA analysis. The CEQ NEPA regulations direct federal agencies to use the NEPA process to identify and assess the reasonable alternatives to proposed actions that will avoid or minimize adverse effects of these actions upon the quality of the human environment. [Section 1500.2(e)].

Under section 1502.14 of the CEQ regulations, agencies are directed to:

- (a) Rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated.
- (b) Devote substantial treatment to each alternative considered in detail, including the proposed action, so that reviewers may evaluate their comparative merits.
- (c) Include reasonable alternatives not within the jurisdiction of the lead agency.
- (d) Include appropriate mitigation measures not already included in the proposed action or alternatives.
- (e) Identify agency's preferred alternative.

WATER QUALITY

Introduction

Mining operations may significantly affect water resources located within the ore body, in close proximity to the ore body, and those in the surrounding areas. The erosion of exposed soils, waste rock piles, and storage piles can potentially transport sediment and toxic substances to nearby water resources. Increased sediment loads, acid mine drainage, and mine water, which may contain toxic trace elements and dissolved solids, may contribute to the deterioration of water quality. Deteriorating water quality may result in the degradation or elimination of aquatic life, the reduction of available water supplies, and the loss of beneficial water-use opportunities.

Impacts to water resources from mining operations can be significant if operational aspects are not properly evaluated and planned. Therefore, it is imperative that the National Environmental Policy Act (NEPA) process fully examine, evaluate, and mitigate potential adverse impacts to water resources.

The NEPA document should provide a detailed description of the existing physical, chemical, and biological characteristics of surface water, ground water, seeps and springs, and other water resources within and around the mining project impact area. The NEPA document should provide an understandable and detailed evaluation of the potential environmental impacts to water resources created by the mining project.

The NEPA document should include references to all assumptions, data sources, published studies, and other sources of information used to arrive at the conclusions. All related quantitative work supporting the combined NEPA and National Pollutant Discharge Elimination System (NPDES) analyses must be reproducible by EPA.

Water Quality Standards

The NEPA document should clearly demonstrate that the project will comply with federal, state, or tribal water quality standards. In addition, the document should provide a site specific evaluation of all discharges and their effects on the receiving waters.

Section 303© of the Clean Water Act (CWA) requires every State to develop water quality standards applicable to all water bodies or segments of water bodies that lie within the State. Once standards are developed, EPA must approve or disapprove them. Water quality standards should:

- (1) include provisions for restoring and maintaining the chemical, physical, and biological integrity of State waters,
- (2) provide, wherever attainable, water quality for the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water ("fishable/swimmable"), and
- (3) consider the use and value of State waters for public water supplies, propagation of fish and wildlife, recreation, agriculture and industrial purposes, and navigation. Currently, States are required to review their water quality standards at least once every three years and revise them as necessary.

Under § 510 of the CWA, States may develop water quality standards more stringent than required by the federal Water Quality Standards Regulation. Also, EPA reviews and approves or disapproves State-adopted water quality standards. EPA's review is to ensure that the State water quality standards meet the requirements of the CWA and the Water Quality Standard Regulation. EPA may promulgate a new or revised standard for a State where necessary to meet the requirements of the CWA.

Components of Water Quality Standards

Water quality standards are composed of three parts:

- Use classification
- Numeric and/or narrative water quality criteria
- Antidegradation analysis

Each of these three components is described below.

Use Classification

The first part of a State's water quality standard is a classification system for water bodies based on the expected beneficial uses of those water bodies. The CWA describes various uses of waters that are considered desirable and should be protected. These uses include public water supply, recreation, and propagation of fish and wildlife. The States are free to designate more specific uses (e.g. cold water aquatic life, agriculture), or to designate uses not mentioned in the CWA with the exception of waste transport and assimilation which is not an acceptable designated use (see 40 CFR 131.10(a)). Designated uses should support the "fishable/swimmable" goal of Section 101(a)(2) of the CWA where such uses are attainable. A State must perform a use attainability analysis under 40 CFR § 131.10(j) where it: (1) does not designate a "fishable/swimmable" use for a water; (2) wishes to remove a designated "fishable/swimmable" use that would require less stringent criteria. The use attainability analysis is a structured scientific assessment of the factors affecting the attainment of a use. The analysis may include physical, chemical, biological, and economic factors as described in 40 CFR § 131.10(g).

Water Quality Criteria

The second part of a State's water quality standard is the water quality criteria deemed necessary to support the designated uses of each water body. Section 303(a-c) of the CWA requires States to adopt criteria sufficient to protect designated uses for State waters. These criteria may be numeric or narrative. The CWA requires States to adopt numeric criteria for certain toxic pollutants where they are necessary to protect designated uses. EPA's Water Quality Standards Regulation encourages States to adopt both numeric and narrative water quality criteria.

Numeric water quality criteria are values expressed as levels, constituent concentration, toxicity units, or numbers deemed necessary to protect designated uses. These criteria often form the basis of water quality based effluent limits in NPDES permits. In 1987, Congress required States to adopt numeric criteria for the 126 priority pollutants for which EPA has developed criteria guidance. States may establish numeric criteria using EPA criteria guidance, modified to reflect site specific conditions, or other scientifically defensible methods.

EPA criteria for the protection of aquatic life address both short term (acute) and long term) chronic effects on both freshwater and salt water species. Human health criteria are designed to protect people from exposure resulting from consumption of water and fish or other aquatic life.

All States have adopted narrative criteria to supplement numeric criteria for toxicants. Narrative criteria are statements that describe the desired water quality goal. Narrative criteria can be the basis for limiting specific pollutants where the State has no numeric criteria for those pollutants or they can be used to limit toxicity where the toxicity cannot be traced to a specific pollutant. Narrative criteria can be statements, requiring that discharges be "free from toxics in toxic amounts" or "free of objectionable color, odor, taste, and turbidity."

Antidegradation Policy

The third part of a State's water quality standard is the State's antidegradation policy. Each State is required to adopt an antidegradation policy consistent with EPA's antidegradation regulations (40 CFR §131.12) and to identify the methods it will use for implementing the policy. Antidegradation policies provide three tiers of protection from degradation of water quality:

- Tier 1 - Protects existing uses and provides the absolute floor of water quality for all water of the United States.

Existing instream water uses are those uses that were attained on or after November 28, 1975, the date of EPA's first Water Quality Standards Regulation, or uses for which existing water quality is suitable unless prevented by physical problems such as substrate or flow.

- Tier 2 - Protects the level of water quality necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water in waters that are currently of higher quality than required to support these uses. Before water quality in Tier 2 waters can be lowered, there must be an antidegradation review consisting of: (1) a finding that it is necessary to accommodate important economic or social development in the area where the waters are located, (2) full satisfaction of all intergovernmental coordination and public participation provisions; and (3) assurance that the highest statutory and regulatory requirements for point sources and best management practices for nonpoint sources are achieved. Furthermore, water quality may not be lowered to less than the level necessary to fully protect the "fishable/swimmable" uses and other existing uses.
- Tier 3 - Protects the quality of outstanding national resources such as waters of national and State parks and wildlife refuges and waters of exceptional recreational or ecological significance. There may be no new or increased discharges to these waters and no new or increased discharges to tributaries of these waters that would result in lower water quality (with the exception of some limited activities that result in temporary and short-term changes in water quality).

Site specific criteria modification

Section 304(a) of the CWA recommends procedures for States to develop water quality criteria. The State does have the option of modifying water quality criteria on a site-specific basis. Setting site-specific criteria may be appropriate where background water quality parameters, such as pH, hardness, temperature, and color appear to differ significantly from the laboratory water used to develop the CWA §304(a) criteria; or the types of local aquatic organisms differ significantly from those actually tested in developing the CWA §304(a) criteria. Modifications change water quality criteria permanently, while maintaining the existing designated uses.

Supporting documentation for a site specific criteria modification must be incorporated into the NEPA document.

Designated Use Reclassification

Once a use has been designated for a particular water body or segment, the water body or water body segment cannot be reclassified for a different use except under specific conditions. To remove a designated use, as specified in Section 101(a)(2) of the CWA, the State must perform a use attainability analysis pursuant to 40 CFR §131.10(j). The *Water Quality Standards Handbook: Second Edition* (EPA-823-B-94-005a, August 1994) discusses use attainability analyses in greater detail. Reclassifying a water body causes a permanent change in the water quality standard for the water body.

Supporting documentation for a use reclassification must be incorporated into the NEPA document.

Water Quality Limited Waterbodies

Once State water quality standards have determined the appropriate levels of protection to be afforded to State water bodies, States conduct water quality monitoring and identify those waters that are "water quality limited," or not meeting state water quality standards. Section 303 (d) of the CWA requires each State to develop a list of water bodies for which current pollution control requirements are inadequate to attain or maintain water quality standards.

Although an individual project alone may not have a substantial effect on conditions in a watershed, the combination of projects on federal and non-federal lands can result in watershed degradation. Federal agencies cannot undertake or permit activities that individually or cumulatively would increase the load of the pollutant(s) of concern to

"water quality limited" waters.

NEPA documents must assess the cumulative effects of proposed federal actions, including the consideration of other past, present, and reasonably foreseeable future federal and non-federal actions in the surrounding area. When a proposed mining operation could effect a "water quality limited" water body, three options are available to the project proponent:

- (1) Demonstrate that the water body is not impaired and does not belong on the Section 303 (d) list;
- (2) Demonstrate that the proposed activity meets the criteria outlined in 40 CFR § 122.4(I), in conformance with a completed Total Maximum Daily Load (TMDL) evaluation;
- (3) Modify the proposed activity or project so that it will not increase the pollutant(s) of concern to the Section 303(d) listed water body.

The options listed above may require considerable financial resources, therefore, the project proponent should carefully evaluate each option prior to pursuing a final course of action. If the project proponent chooses to pursue option 2, then the NEPA document should incorporate the results of the TMDL evaluation. The evaluation necessary to develop a TMDL includes source identification, sampling, water quality modeling development, and identification of opportunities for pollutant trading.

NPDES Permit Information Needs

The project proponent should provide to EPA the necessary information to determine whether there could be any project-related discharges subject to NPDES authorization (see section on Water Balance). If a discharge from the proposed project requires an NPDES permit, data required for the permit review must be incorporated into the NEPA document.

Included below is a general list of project information needed to develop an NPDES permit for a mining project. This information needs to be reflected in the NEPA document. More specific information may also be requested by EPA to support the permit application. The list has been divided into the overall project elements, the mine site, and ore processing.

Overall Project Elements

Include descriptions and locations of, and alternatives for, the following project elements:

1. Ore body extraction, configuration, and sequence.
2. Ore processing method.
3. Tailings or spent ore disposal.
4. Waste rock disposal or usage.
5. Water diversions.
6. Tailings, spent ore, and waste rock material transport.
7. Haul and access roads.
8. Water intake and storage.
9. Housing facilities and domestic waste management.
10. Mine area processing and support facilities.
11. Land application of processing effluent, if applicable.
12. Surface water collection and treatment ponds.
13. Chemical treatment methods or other treatment methods proposed.
14. Inventory of chemicals and hazardous substances.

3.1.1 Mine Site

1. Annual precipitation and evaporation rates at the site.
2. Volume of the predicted maximum credible flood (i.e., usually 10-year, 24-hour event, although states may specify other flood flows) and the volume of resulting runoff for the specific location of the mine (may include rain on snow event).
3. Location of proposed mine site discharge outfalls and discharge volumes.
4. Expected quantity and quality of the runoff from the mine area, waste rock areas, and access roads if built using mine waste rock.
5. Acid drainage or toxics drainage potential.
6. Demonstration that treatment technologies can achieve necessary pollutant removals for proposed discharges.
7. Information regarding blasting and the types of explosives used.
8. Number of acres to be mined per year and progression configurations.
9. Reclamation or closure plans for the mine site, including water management.
10. Revegetation plans.
11. Analysis of vegetation pilot testing, if available.

Ore Processing (also see geochemistry and hydrogeology)

1. Concentrations and volumes of chemicals to be used in ore processing.
2. Characterization of the spent ore/tailings runoff and effluent, including projected quantity, quality, and toxicity.
3. Acid drainage potential
4. Evaluation of proposed and alternative water management practices, including no discharge.
5. Demonstration that treatment technologies can achieve necessary pollutant removals..
6. Analysis of common pathways for environmental releases and the design features intended to address each pathway.
7. Adequate design information to ensure process solution ponds will have sufficient freeboard.
8. Description of liners, including type, life expectancy, success rate (how it has performed in other projects) and installation methods.
9. Fate of fine materials suspended in water as a consequence of crushing and grinding processes.

Surface Water Characteristics

1. Low flow conditions of surface waters (see section 8.2, Surface Water).
2. Chemical characteristics of surface waters (see section 10.1, Monitoring).
3. Characterize existing discharges

Maps and text describing all ambient waters in the mine area should be included. The text should include descriptions of all drainage basins located wholly or in part within the proposed project area.

Water quality data should fully characterize baseline conditions. Trend analyses of these data should be presented and existing and future sources of pollutants identified and quantified. This information should demonstrate that water quality standards can be met and provide the basis for designing mitigation measures to prevent degradation.

Water Balance

The NEPA document should contain a detailed water balance. The water balance is critical in support of NPDES permit development. Accurate knowledge of the variables associated with determining the water balance for a mine is necessary in planning mining operations, determining operational practices, and designing hydrologic control structures to avoid unanticipated, adverse environmental impacts. The water balance information is essential to mine

planning to determine if control systems and treatment facilities are adequate to contain flows to and from mining operations. Water balances developed for mining projects must consider process waters and the natural system waters. Unfortunately, obtaining adequate data for predicting and determining water balances for proposed mining operations presents significant challenges.

Evaluating the accuracy of hydrologic information submitted by project applicants can be difficult. The water balance is developed using appropriate meteorological data from past years on site. Site-specific data may be erratic, of questionable integrity or non-existent, especially in remote areas. In addition, standard methods used to predict runoff often are not properly used for mine site planning and for inputs to a water balance.

Site meteorological data should be used to provide a range of minimum, average and maximum precipitation levels for dry and wet years. If project-related discharges subject to NPDES authorization are not anticipated, the NEPA document should explain why and include an example that shows how potential discharges from a large precipitation event can be effectively managed.

A water balance should evaluate how site soils react to peak storm events, including snow melt, describe the effects on wetlands and seep and spring flows, and discuss the management of water produced from dewatering operations (e.g., from ore units, overburden or pit structures). This evaluation should include the identification and characterization of perched and saturated water zones. Figures showing the location of aquatic resources, known fault systems, seeps and springs, surface water systems and the distribution of the saturated and unsaturated hydraulic zones in surficial soils and underlying rock units should be included.

Finally, the NEPA document must quantitatively account for all project water inputs or withdrawals. Such inputs or withdrawals might include process makeup and domestic water needs; tailings and other pond influents, effluents, and storage; evaporative losses; etc.

Although there is no requirement for performance monitoring of a site to verify that the water balance is accurate, many sites have substantial operational problems because the actual water balance is different than the predicted water balance. Periodically re-evaluating the water balance is a necessity to ensure that new data are incorporated. The water balance should be updated as additional data are made available or as operational designs change.

Treatability Analysis

The NEPA document should identify those waste streams that require treatment prior to disposal. This determination will require detailed information on the volume and characteristics of all wastewater to be produced at the site. While this will obviously include consideration of traditional pollutants such as pH and heavy metals, it may also include other pollutants such as TDS, temperature, sulfate, or radioisotopes. Wherever feasible using standard methods, analytical data collection must achieve detection limits necessary to show compliance with anticipated water quality-based permit limits. This will allow evaluation of potential additional treatment and water management requirements. Data with "non-detects" at detection limits that exceed water quality-based limits cannot be used to predict compliance with applicable water quality standards. Some streams may not require treatment if they can be recycled back into the process, permanently contained, or disposed of by some means other than discharge.

Streams which may require treatment include:

- Mine drainage
- Stormwater from process areas
- Process wastewater
- Sanitary wastewater
- Laboratory wastes

- Utility discharges (boiler blowdown, cooling water, deionizer regeneration)
- Filtration backwash water
- Treatment residual streams

The potential for source control as an alternative to treatment should be considered. For example, Best Management Practices (BMPs) to minimize the loss of blasting agents may eliminate the need for treatment to reduce ammonia and nitrate concentrations. Stormwater BMPs may reduce the need for settling impoundments and/or chemical addition to control Total Suspended Solids (TSS). A review of the chemical additives in the milling and separation process may reveal product substitutions that could eliminate or reduce the need for subsequent treatment.

Of particular interest in the treatability evaluation is the comparison between total and dissolved metal species. Insoluble metal salts can be removed by physical means such as flocculation or filtration. Dissolved metals are much less susceptible to removal by physical means, and must usually be chemically converted to an insoluble form prior to a physical removal process. Pretreatment of cyanide-bearing waste streams may be necessary to eliminate soluble metal complexes prior to conventional metals removal processes.

For those streams requiring treatment, the treatment technologies proposed for the project need to be evaluated. Part of this evaluation will include a comparison of the proposed treatment technology sequence with all other technology combinations that can achieve water quality standards. In evaluating and comparing potential treatment technologies, the NEPA document and NPDES permit development will generally address:

- 1) Will the technology achieve the necessary removals across the expected range of flows and pollutant concentrations?
- 2) Will pollutants be eliminated, returned to their original source, or transferred to another media?
- 3) What is the ultimate fate of each pollutant entering the treatment process?
- 4) Are pollutants really being removed, or simply diluted below analytical detection limits?
- 5) How will any residual streams from the treatment process be handled?
- 6) To what extent has the proposed process been demonstrated and proven under similar operating conditions?
- 7) What would be the likely impact and duration of a process failure?
- 8) Will the energy requirements of treatment have an impact on air emissions?
- 9) What would be the capital and operating costs for each of the potential technologies?

The NEPA document must not only assure that the treatment system is capable of meeting water quality standards, but that successful treatment can be assured on a consistent basis regardless of waste load variations, seasonal temperature changes, and variations in production operations. Further, the document must question whether water quality standards are being met simply by transferring pollutants to another media, or point of discharge.

Non-Point Source Pollution

Under Section 319 of the Clean Water Act, individual states conduct assessments to identify surface water that cannot reasonably be expected to attain or maintain state water quality standards or goals without control of non-point source pollution.

The NEPA process must also be integrated with the provisions of Section 319. NEPA documents should describe the existing water quality conditions, including how they relate to the state's water quality assessment. Non-point source water quality impacts should be minimized through project design and mitigation measures consistent with a state's non-point source program.

If a state determines that a federal project is not consistent with the provisions of its non-point source program, the federal agency must make efforts to accommodate the state's concerns. Executive Order 12372 provides guidelines

for using the state intergovernmental review process for conducting Section 319 federal consistency reviews.

Non-point source activities typically achieve water quality standards through the implementation of Best Management Practices (BMPs). The NEPA document should identify BMPs to be used, describe their expected performance, provide a commitment to BMP monitoring as a part of project monitoring plans, and explain how monitoring results may be used in refining BMPs. Although BMPs are designed to protect water quality, they should be monitored to verify their effectiveness. If found ineffective, they should be revised.

The use of BMPs does not guarantee compliance with water quality standards. The NEPA document should discuss the effectiveness of current BMPs based on what has been implemented at the project site, and monitoring results. Problem areas, as well as effective BMPs, should be discussed and recommendations for improvement in BMPs should be provided in the document. Proposed BMPs should be documented as having been effective under actual site conditions.

Geochemistry and Acid Generation Potential

Geochemical tests of ore materials, waste rock, protore, spent ore and tailings provide the basis to evaluate whether these materials will generate acid drainage, trace metals, or other pollutants that may adversely impact surface or ground waters. The credibility of the conclusions reached in the NEPA document are enhanced when: 1) analytical tests are shown to be comprehensive and appropriate; 2) tested samples are demonstrated to be representative of the materials to be mined and disposed of; 3) descriptions of the processing methods include potential risks from process waters and waste streams; and, 4) geochemical tests are designed with the proposed mining method and post-closure reclamation plan in mind.

The NEPA document should summarize information regarding the chemical and mineralogical compositions of geologic materials and the proposed mining and processing methods. Geologic materials include exposed mine workings, protore, ore, spent ore, tailings, and waste rock (detailed geologic and geochemical information should be provided in the form of supporting documents made available for EPA and other agency review).

Ore processing information should describe the specific use and composition of all chemicals (e.g., leaching solutions, flocculants, scale inhibitors, etc.) associated with ore processing operations. Additionally, the chemical reactions that occur during and as a consequence of processing and reaction rates for each step in ore processing and cyanide destruction (if applicable) should be discussed. This should include descriptions of any chemicals formed as byproducts.

The NEPA document should present geochemical data and analyses that can be used to evaluate the long-term probability of surface and ground water contamination from proposed tailings impoundments. In order to achieve this goal, the chemistry and mineralogy of ore and tailings should be adequately characterized to assure that analyses based on bulk samples are representative of the entire ore body. Indicators of acid generation potential and the results of leach tests can be combined to provide a basis for evaluating the potential to mobilize metals from the solid phase.

Acid Generation Potential

The potential for generating acid drainage from mine workings, waste rock, and tailings can be assessed through laboratory tests of the acid generation potential of samples collected from the mine site. Reliance on historical site acid generating data is often insufficient because ore processing techniques and waste disposal methods have changed significantly in the past several decades.

Acid-Base Accounting (ABA) tests provide an indication of the acid generating and neutralizing potential of ore and waste rock materials. The NEPA document should present a site-specific discussion that considers the reactivity

of potential acid neutralizing components (e.g., calcite vs. dolomite), views the potential for acid generation in light of local and regional climatic conditions and their variability, and acknowledges chemical or mineralogical zonation that might produce samples with widely varying acid generating and neutralizing potentials. Tests should be conducted to provide data that can be used to evaluate the feasibility of the reclamation plan and describe post-closure site conditions (e.g., if layered backfill will be placed into an abandoned pit, ABA tests should provide appropriate data). The discussion should focus on the materials that will be exposed to the environment after closure and indicate conditions where additional testing could better define acid generation potential. Detailed information on site geology can be used to evaluate how acid rock drainage can be prevented, to develop contingency plans for mitigating ARD-related hazards, and to establish effective monitoring plans.

Leaching Tests

Bench-scale leaching tests indicate whether contaminants can be produced from mine workings, tailings, waste rock, spent ore, or protore piles. These tests should be conducted in a manner that simulates the expected environmental conditions at the mine site by using leachants that reflect the amount and rate of infiltrating precipitation and the composition of meteoric waters (including potential acidification created by percolation through a waste or ore pile). In cases where samples are shown to be slightly net neutralizing, leaching tests should be conducted for a sufficiently long time period to determine whether protracted leaching will release metals or other constituents.

Leach tests should simulate the changing water chemistry that may occur as a consequence of percolation through a layered pile. For example, water chemistry may change while percolating through waste rock or tailings piles overlain by growth media (e.g., organic soils that release humic acid), other capping materials used for reclamation, underlying prepared substrates, or interlayered drainage materials (e.g., crushed waste rock). Moreover, an evaluation of leach test data and metals mobility under non-acidic conditions may be warranted if existing water quality data indicate that metals can be leached under neutral pH conditions.

Extraction Procedure (EP) Toxicity tests (EPA SW-846 Method 1310) can provide an indication of whether tailings, ore and waste rock would exhibit the characteristics of hazardous waste (although most mining wastes are exempt from hazardous waste regulation). However, the EP Toxicity test may not provide an adequate measure of potential contamination if the tests are conducted under different or other conditions than those expected at the site (e.g., tailings tests should use materials milled to the grain sizes expected during production).

Cyanide Leaching and Destruction

Where cyanidation will be used, the NEPA document should describe in detail the procedures that will be used for cyanide detoxification, discuss the potential effects of these procedures on the mobility of contaminants other than cyanide, and characterize the fate of reaction products that subsequently could be released over the long term. For example, the use of alkaline chlorination for cyanide destruction could produce chlorinated organic compounds, metal-cyanide complexes, and residual degradation by-products of cyanide, including cyanate and thiocyanate. These degradation by-products may persist due to slow chemical reaction rates occurring at low temperature. Up-front testing should be conducted in a manner that will apply estimated post-closure conditions at the site. For example, acidic leachants used in laboratory leach tests can volatilize cyanide; however, under field conditions cyanide may not volatilize at depth in a pile.

Hydrology and Hydrogeology

The NEPA document should describe the location and physical nature of hydrologic resources at the project site. The development of a conceptual model and an assessment of the baseline conditions is required for all areas affected or potentially affected by project activities. Additionally, the document should examine the direct, indirect, and cumulative impacts to hydrologic resources. Hydrologic resources can be divided into surface water and ground water.

The NEPA document should describe the interaction between surface water and ground water, including the identification of pathways along which potential contaminants may travel. For example, the location of any highly permeable deposits needs to be identified because this type of material can transport contaminants to ground water and seepage to surface waters. Other pathways may include pit drainage, surface runoff, ground water infiltration, process water discharges, and waste rock pile seepage.

Hydrogeologic Considerations

Although geologic materials are not formally a part of water resources, their description and understanding are important in evaluating impacts to surface and ground water. The rock type and volume of surficial geology underlying proposed waste facilities, including tailings impoundments, needs to be evaluated in the NEPA document. The chemical composition of rock within a pit or underground workings must also be characterized in order to evaluate potential impacts to surface and ground water.

The geologic structure of the site and surrounding area are important in understanding how surface and ground water flow is controlled. Faults, fractures, and previous underground workings can determine the course of a stream reach or act as barriers to, or conduits for, ground water flow. The NEPA process should provide a thorough understanding of the geologic system and the relationship with surface and ground water.

Surface Water

The physical characteristics of regional and site surface water systems must be defined and understood. All surface water drainage basins in and around the project area must be included in the hydrologic analysis. Watershed divides must be delineated. Surface drainage patterns can be evaluated using U.S. Geological Survey topographic maps. The proponent should also provide detailed site topography for inclusion in the NEPA document.

Meteorological data from the site are required to properly evaluate impacts to the surface water system. Evaporation, precipitation, and temperature data for the site are important to assure accurate estimates of impacts to surface water quality and quantity. Mean annual precipitation is usually derived through statistical methods from annual precipitation data. The determination of the "average" precipitation year is important in surface water analyses.

Stream flow should be characterized for the site. Stream flow data of a sufficient record are required in order to statistically determine characteristic (i.e., by probability) low and high flows for streams or reaches of interest. Modeling or other field techniques may be required to determine characteristic flows or unit hydrographs for ephemeral or intermittent streams. Accurate volumes of runoff and stream discharge, by probability of occurrence, are required to properly design diversions, storm runoff control structures, and other water management facilities. The appropriate level of design of these facilities is project dependent.

Appropriate field methods such as flow meters or automatic recording gauges should be used. Innovative field methods such as measuring water quality along stream courses can be used to identify discharge points of ground water to surface waters within the project area.

Flow contributions from snowmelt should be quantified and considered in developing mitigation control measures. For example, a large rain on snow event may result in greater runoff than a higher intensity, lower probability storm event.

Runoff calculations should be thoroughly discussed in the NEPA document. Erosion, sedimentation, and potential pollutant loadings should be estimated and appropriate BMPs or other mitigation measures discussed.

Ground Water

The physical characteristics of the ground water system must be defined and understood at the project location.

The development of a conceptual model is required. Sufficient data must be collected to adequately evaluate temporal variability of the ground water system.

Necessary ground water information includes hydrostratigraphic unit surface maps and cross sections showing the distribution of overburden and permeable hydrostratigraphic units across the site. Bedrock maps and cross sections showing hydrogeologic structures that may control the flow of ground water are also needed.

Characterization of the ground water system includes understanding the location of recharge areas and rate of recharge at the site. In addition, the hydraulic gradient, flow direction, rate of infiltration through different geologic media, and ground water flow rate (velocity) must be defined.

Determination of ground water areas existing under confined and unconfined flow conditions should be delineated. A potentiometric map should be developed for confined conditions and a water table map for unconfined conditions. Seep and spring locations should also be presented in map form. Water level elevation measurements used for mapping should be accompanied by ground surface elevations and monitoring well casing elevations as determined by a licensed surveyor.

The methods for estimating hydraulic conductivities, or permeability, of geologic materials must be specified. Field testing methods such as slug tests, packer tests, and aquifer pump tests are necessary to determine ranges of vertical and horizontal hydraulic conductivity. A thorough explanation of pump test analysis should be provided to support the NEPA process including assumptions, calculations, and analysis models (e.g., Theis, Jacobs) used.

Ground water classification type can be evaluated across the site to determine flow paths and interaction relationships with surface water. The use of Piper and Stiff diagrams may indicate different types of ground water at the site. Ground water classification diagrams use major chemical constituents to classify different types of ground water.

Sufficient hydrogeologic data should specifically be available to evaluate the quality and quantity of water produced from pit operations. Further, the NEPA document should provide an assessment of how pit water quality could affect water resources through discharge to surface and ground water after mine closure.

Modeling

The results of any surface or ground water modeling should be documented in the NEPA document and related technical reports (to be referenced in the NEPA document). Any evaluation based on computer modeling should provide a clear description of the conceptual model, what changes are made, going from the conceptual model to the computer model, the basis for selection of the computer model, and the basis for all input parameters and boundary conditions. EPA Region 10 has prepared guidelines for hydrogeologic modeling, which give an idea of the type and amount of information that should accompany modeling results.

Descriptions of appropriate model input and output variables should be provided in the NEPA document or in an appendix. Maps or tables that summarize the input variable values for each sub-watershed are necessary. For example, surface water model input parameters for the Universal Soil Loss Equation should include acreage, soils, vegetation, average slope, length, crop practice factor, conservation factor, and soil irritability factor. Furthermore, tables summarizing the model outputs should be provided, including flow outputs and sedimentation outputs for the sub-watersheds. Modeled flow outputs should be discussed in detail.

Impoundment Design/Diversion Structures

The management of water at a mining project is highly dependent upon correctly designing, constructing, and operating water control structures. Tailings impoundments, tailings dams, settling ponds, mine pits and diversion channels that are designed or operate incorrectly, can cause significant impacts to water resources.

Data concerning the physical characteristics of site watersheds are used for structure design. Runoff volumes, sediment loadings, metals loading, and flow velocities must be determined in order to properly design various types of control structures.

Dams

The two issues usually associated with impacts from dams are catastrophic failure and seepage. Seepage can occur through the toe of the dam or by infiltrating through geologic materials that underlie the impoundment.

Catastrophic failure of a dam can cause significant environmental damage by creating flood conditions and/or by releasing poor quality water (e.g., trace metals, high total suspended solids, non-neutral pH, etc.) to downstream water resources. Failure of a dam is a geotechnical engineering issue and is not addressed further here.

Seepage through or beneath the dam is of concern because of the potential to release pollutants to surface or ground water. The NEPA document should evaluate the volume and rate of seepage anticipated from both the toe of the dam and beneath the dam. The volume and rate values should also be checked against the water balance to ensure consistency. Moreover, the chemical composition of seepage should also be evaluated and discussed. Any seepage that could reach surface water must meet water quality standards as specified in the NPDES permit. Post-closure seepage composition should also be estimated by applying models using geochemical test results (see Geochemistry section).

Impoundment underdrain designs should incorporate pipes and filter material to prevent fines from clogging pores and rendering the drains ineffective. Calculations should be presented that compare the discharge capacity of underdrains with the estimated sum of ground water inflows and seepage.

The NEPA document specifically needs to assess the chemical nature of seepage from tailings impoundments. Seepage water would be expected to be higher in dissolved metals than impoundment water due to the longer contact time with interstitial water than with tailings. In addition to monitoring of impoundment water and underdrain discharge, a well or drain should be located within the tailings impoundment and should be monitored to determine the composition of potential leachate.

Liners

Generally a liner and/or a leachate collection system should be a part of any proposed tailings disposal or ore treatment facility (e.g., heap leach pads). Justification for not installing a liner should be based on a detailed evaluation of the volume and characteristics of potential leachate and the permeability of the geologic materials underlying the facility.

Installation methods for liners, both synthetic or earthen, are important in ensuring the integrity of the system. For example, the compaction of clay liners must meet specified standards to ensure that leachate will not infiltrate the liner. Synthetic impoundment liners can be punctured without a smooth base for installation. Specifications for the liner foundation should limit the angularity of construction materials in the foundation material. Construction details should be in accompanying documents used to support the NEPA document.

Diversion Structures and Ponds

Ponds and diversion structures should be sized to handle peak flows as well as debris and coarse sediments. The design of tailings impoundments, process ponds, and other types of basins as well as associated diversion structures should be based on hydrologic information that accurately estimates the magnitude of peak design flows. All potential sources of debris and sediment loading to these units should be reliably estimated. The NEPA document should also address the long-term maintenance requirements for ponds and diversions.

Monitoring of Water Resources

To adequately characterize risk to surface and ground water resources, the NEPA document should incorporate a comprehensive monitoring plan to establish baseline, operational, and post-operational conditions. Each mining project and its surroundings are presumably different, therefore the monitoring plan needs to be tailored to site-specific conditions. These site-specific conditions and associated water resource concerns should be identified in the NEPA scoping process.

Baseline monitoring should be implemented to establish a statistically representative basis to identify and quantify potential future impacts on surface and ground water. Sample size, location, frequency, and duration should be sufficient to ensure that ambient conditions are well documented. In most cases, multiple years of ambient data are required to form a representative sample base. Suitable historic data may be available or new representative data may be required. Nonetheless, the monitoring plan should describe the baseline data collection procedures in their entirety. Baseline monitoring may occur on-site or off-site depending on the level of disturbance that has already occurred at the mine site. Site selection for off-site monitoring needs to ensure consistency with on-site environmental conditions.

The scoping document should also attempt to describe anticipated operational and post-operational monitoring programs, knowing that the extent of these programs will vary depending upon the types and severity of potential impacts identified during the scoping process itself. These monitoring programs will provide data on the effects of operations on selected water resources as mining operations proceed. These monitoring plans should be developed to ensure representative conditions are being documented and that sampling and analysis protocols are consistent with baseline procedures.

For both surface and ground waters, the document should provide for monitoring of all major physical and inorganic parameters (pH, temperature, conductivity, hardness, metals, etc.) and selected hazardous substances that are known or believed to be present at the mine site. The physical and inorganic parameters will allow for the classification of different water types among tailings water, leachate, ground water and surface water. The hazardous substance parameters will assist in the classification of other potential contaminants associated with the different ore type, mineral processing method, and hazardous materials storage and handling.

Surface water monitoring points and ground water monitoring wells should be located where they can detect potential impacts from processing facilities, including leach pads, tailings impoundments, underdrains, waste rock piles, etc.. For background or ambient conditions, monitoring locations should be located at points above or away from potential sources of contamination. The monitoring plan should generally include the same list of parameters for all sample locations to ensure that collected data can be readily compared.

The initial monitoring frequency should be dependent on the amount and quality of existing data, the time schedules for project initiation and life span, and the relative degree of environmental risk. Monitoring needs to be aggressive enough to establish representative conditions, address any expected seasonal variability, and allow for statistically valid data comparisons. Depending upon the results of ongoing monitoring, the frequency, location, the types of parameters, and/or duration of monitoring may be modified throughout the life of the Project. The monitoring plan needs to include long-term monitoring following mine closure.

For ground water monitoring wells, drive or core samples should be taken during construction to provide detailed observations for the lithologic log and evaluation of position, thickness, and size of aquifer material. Screen sizes and filter pack specifications should be determined on the basis of the subsurface samples. Field pH, temperature, and electrical conductivity at wells should be measured by a down-hole probe or in a flow-through system, such as a flow-through box, to minimize contact of ground water with air. For surface water, conductivity, pH, and temperature should be required as field measurements.

A quality assurance plan should be developed to identify data quality objectives for detection limits, accuracy, precision, and completeness. The analytical methods should be specified and be consistent with applicable regulations.

Standard Operating Procedures (SOPs) for sample collection should be developed and include calibration procedures for field instruments, sampling protocols, and chain-of-custody and shipping requirements. Strict adherence to SOPs will assure consistency and accuracy throughout the monitoring program.

Spill Prevention and Control and Emergency Response

The NEPA document should provide a list of hazardous materials that are anticipated to be used at the site. For mining projects, this inventory should be based on Best Professional Judgement and/or by evaluating hazardous material storage and use at other mine sites with similar operations. For existing sources or expanded operations, projected inventories should be based on past operations. The list of potentially polluting materials should be incorporated into a Spill Prevention Control and Countermeasures (SPCC) Plan. The objectives of the SPCC plan are to: 1) reduce the potential for accidental spills and environmental contamination; 2) provide the necessary information to operations staff to properly respond to a spill; 3) define responsibilities for spill notification and control; and 4) provide a response and clean-up program which minimizes or eliminates environmental impacts. The SPCC plan should provide complete descriptions of hazardous materials handling, transportation, and spill prevention procedures.

SPCC plans generally relate to the use and storage of hydrocarbon products (e.g., fuels, oils, lubricants). The presence of large quantities of highly toxic materials (e.g., cyanide at heap leach gold mines) or the existence of extremely sensitive habitats (e.g., salmon spawning grounds) may mandate the development of pollutant-specific spill contingency and emergency response plans. These plans should provide background information on the uses and applications of the particular pollutant(s) of concern and describe personal safety, first aid, and medical treatment for individuals accidentally exposed. Additionally, the plans should describe procedures for responding to accidental spills during transportation, storage, and handling.

The NEPA document can incorporate the SPCC and/or other pollutant-specific control and emergency response plans by reference, however, the document should provide a level of detail by which the adequacy of spill control and countermeasure procedures can be evaluated.

STREAM PROTECTION AND RIPARIAN AREAS

The soils in the project area should be described in detail as to the range and distribution of saturated and unsaturated hydraulic conductivity of the soils and underlying rock units. This in turn should be related to landform stability and watershed sensitivity. The NEPA document should describe geologic composition, areas of unstable terrain, current or potential areas of mass soil failure, and erosion concerns and their relationship to proposed activities.

RESOURCE CONSERVATION AND RECOVERY ACT

The EIS should address whether the "Bevill rulings" to the Resource Conservation and Recovery Act of 1976 (RCRA), as amended, are applicable to any activities or processes at the project site. For the rulings, please refer to the following citations:

- ▼ 40 CFR Part 261, Mining Waste Exclusion; Final Rule, Federal Register vol. 54, No. 169, September 1, 1989;
- ▼ 40 CFR Part 260, Part 261, Part 262, Mining Waste Exclusion and Definition of Designated Facility; Proposed Rule, Federal Register vol. 54, No. 184, September 25, 1989;
- ▼ 40 CFR Part 260, Part 261, Part 262, Mining Waste Exclusion; §3010 Notification for Mineral Processing Facilities; Designated Facility Definition; Standards Applicable to Generators of Hazardous Waste; Final Rule, Federal Register, vol. 55,

No. 15, January 23, 1990.

The EIS should also discuss any measures to be taken at the project site to ensure compliance with applicable RCRA regulations.

RECLAMATION

A final reclamation plan, including disclosure of bond amounts, complete contingency plans, performance standards and post project monitoring should be disclosed in the final EIS. Impacts from incomplete reclamation poses a risk to the environment that could be avoided if proper consideration to reclamation is given before the EIS process is complete.

To reduce risks, EPA recommends that the mine site be returned as close to natural conditions as possible. We strongly recommend backfilling where economically feasible.

TRIGGER LEVELS AND CONTINGENCY ACTIONS

In order to prevent unnecessary and undue environmental degradation before it occurs, EPA recommends the EIS identify essential trigger levels of monitored conditions. Such trigger levels, if exceeded, would be connected to mandatory contingency actions by the operator. This effort would also be useful to determine compliance monitoring conditions for NPDES permits.

Contingency actions should be implemented if monitoring determines non-compliance as described in the following progression:

- ▼ Increase frequency of monitoring.
- ▼ Amend permit to cover increased monitoring requirements and install additional monitoring wells downgradient of interception sites.
- ▼ Activate additional catchment systems at acid-metal leachate sites if necessary. Separate trigger levels will be established for the existing pits and waste rock piles.
- ▼ Change operations to use monitoring wells as interception wells to contain contaminated ground water flow.
- ▼ Expand interception and treatment of surface waters. If additional treatment is needed, the instream criteria would be established in the contingency action plan and treatment would continue until a previously defined level of instream clean up is achieved.
- ▼ Initiate operating permit modifications and bond and/or trust reclamation amendments to cover the above changes in the reclamation plan.

WETLAND IMPACTS AND COMPLIANCE WITH THE 404(B)(1) GUIDELINES

The following discussion provides information concerning the level of detail necessary in the EIS in order to satisfy 404(b)(1) Guidelines.

The level of documentation should reflect the significance and complexity of the project. This documentation needs to address both individual and cumulative impacts. If sufficient information does not exist to make a reasonable

judgment the project may be inconsistent with the Guidelines (Part 230.12(a)(3)(iv)).

Alternative Analysis (Part 230.10(a))

The first step of this analysis is to determine the overall project purpose. Once that determination is made, alternative methods to accomplish the overall, or basic, project purpose need to be examined. The alternative with less adverse impact on the aquatic environment (as long as that alternative does not have other significant adverse environmental impacts) that still attains the overall project purpose could be designated the least damaging practicable alternative under the Guidelines or the environmentally preferred alternative under NEPA. The level of detail necessary to make this determination is based on the information needed to ensure that the least damaging alternative has been portrayed. Mitigation to reduce an alternative's impacts to a level below another alternative is not applied at this stage in this analysis.

Water quality standards, toxic effluents, and threatened and endangered species compliance (Part 230.10(b))

A project which would result in exceedances of State water quality standards or criteria set under CWA §307 regarding priority pollutants would not be in compliance with the Guidelines. The lead agency needs to seek the assistance of the State water quality standard setting agencies and document that project operations comply with water quality standards.

Demonstration of compliance with the Endangered Species Act is also a requirement of the Guidelines. Consultation with the Fish and Wildlife Service may be required to determine compliance.

Significant Degradation (Part 230.10(c))

The analysis necessary to make a determination concerning significant degradation should include human health and welfare issues (to include but not limited to municipal water supplies, fish, wildlife and special aquatic sites); aquatic life and other wildlife dependant on aquatic ecosystems (in particular the potential for transfer or spread of pollutants through biological, physical or chemical processes); aquatic ecosystem diversity, productivity and stability (such as loss of habitat, etc.); and recreational, aesthetic and economic values.

Mitigation (Part 230.10(d))

The EIS should include all appropriate and practicable measures to minimize potential harm to the aquatic ecosystem in order to comply with the Guidelines. Mitigation discussions should include analysis of avoiding impacts, minimizing impacts and compensating for unavoidable impacts. The proposed mitigation needs to be as detailed as possible so that probable effectiveness can be judged.

MITIGATION

In addition to mitigation requirements under 404(b)(1), comprehensive discussion of proposed mitigation for direct, indirect and cumulative impacts is required by the CEQ Regulations. A NEPA document should include the means to mitigate adverse environmental effects (40 CFR 1508.7). Judicial reviews of NEPA cases have supported not only the need for identifying mitigation measures, but also for discussing mitigation effectiveness as well. Mitigation effectiveness is determined by monitoring designed to compare baseline data with existing conditions.

EPA recommends that a detailed compensatory mitigation plan for unavoidable resource impacts be developed and included in the NEPA document. This mitigation plan should include consideration of both direct, indirect, and cumulative effects. It should contain a statement of goals, a monitoring plan, long-term management/protection objectives and a contingency plan (a commitment to conduct additional work if required to meet the goals of the plan).

The mitigation plan should also include best management practices where applicable.

MONITORING

The EIS should include a discussion of monitoring for each resource category determined to be significant through the scoping process, including water quality. It should help assess how well the preferred alternative addresses issues and concerns. The monitoring plan should include types of surveys, location and frequency of sampling, parameters to be monitored, budget, commitments, and procedures for using data or results in guiding current and future activities.

A properly designed monitoring plan will demonstrate how well the preferred alternative resolves the identified issues and concerns by measuring the effectiveness of the mitigation measures in controlling or minimizing adverse effects. The NEPA document should discuss how monitoring is being planned and incorporated into this project and describe monitoring activities during project development, operations, and subsequent to operations.

CUMULATIVE EFFECTS

According to the CEQ regulations,

"Cumulative impact" is the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (40 CFR 1508.7)

The CEQ has recognized that, while federal agencies routinely consider the direct and indirect effects of proposals, almost all agencies say they have difficulty addressing the cumulative effects. At the same time, experience suggests that perhaps the most ecologically devastating environmental effects may result not from the direct effects of a particular proposal, but from the combination of existing stresses and the individually minor effects of multiple actions over time. Consequently, cumulative impact assessment ought to be given special attention.

A major difference between traditional impact assessment and cumulative impact assessment is that the former is performed with respect to the proposed disturbance. Cumulative impact assessment, on the other hand, is performed with respect to valued environmental functions. In other words, direct and indirect impacts (or "effects") may be analyzed in terms of how the characteristics of one or more ecosystems have been altered by the action; whereas, a cumulative impacts (or "effects") assessment is concerned with the alteration and/or loss of valued ecological functions.

For example, the direct effect of each of multiple wetland-filling projects may be "would convert x hectares of wetland to upland;" the indirect effect may be "would reduce the attractiveness of the area to migratory waterfowl;" and the cumulative effect of the multiple projects together may be "would make the area nonviable for migratory waterfowl habitat." In this example, the individual direct and indirect effects on the landscape (although they may be factually accurate) would not disclose the cumulative effect of losing an ecosystem function.

The NEPA document should evaluate the contributions the various proposed alternatives may have on cumulative impacts to water quality, fish and wildlife, wetlands, riparian areas, and recreation resources in the affected basins/watersheds. With this in mind, a cumulative effects analysis should include, at a minimum, a discussion of the following three categories of effects:

- * Effects of past connected and cumulative actions
- * Effects of present connected and cumulative actions
- * Effects of reasonably foreseeable future connected and cumulative actions

The analysis should include evaluation of direct and indirect effects on all resource categories. Remember, that these connected and cumulative actions must include federal and non-federal (even private) actions that are "reasonably foreseeable."

As part of the analysis of indirect effects, the NEPA document should examine the environmental impacts of ore transportation and processing operations. For example, additional ore production resulting from the proposed action may have the indirect effect of requiring additional processing capacity, or waste material disposal capacity (e.g., waste lagoons, increased releases of air pollutants). The indirect impacts to various resources connected to the proposed action should be evaluated, and mitigation measures included in the alternatives.

THREATENED AND ENDANGERED SPECIES

If threatened or endangered species are potentially affected by the mine operation, the draft EIS should include the Biological Assessment and the associated U.S. Fish and Wildlife Service (FWS) or National Marine Fisheries Service (NMFS) Biological Opinion or formal concurrence. The draft EIS should include this information for the following reasons:

- NEPA requires public involvement and full disclosure of all issues upon which a decision is to be made;
- The Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA strongly encourage the integration of NEPA requirements with other environmental review and consultation requirements (40 CFR 1502.25); and
- The Endangered Species Act (ESA) consultation process can result in the identification of mandatory, reasonable, and prudent alternatives which can significantly affect project implementation.

Both the Biological Assessment and the EIS must disclose and evaluate the potential impacts of the proposed action on listed species. The final EIS and Record of Decision should not be completed prior to the completion of ESA consultation. If the consultation process is treated as a separate process and the FWS and/or the NMFS identifies necessary changes in project implementation which have not been evaluated in the draft EIS, a supplement to the draft EIS could be warranted.

SOCIAL AND ECONOMIC ISSUES

Assessment of social and economic impacts should consider existing demographics, land values, income distribution, tax schedules, mitigation efforts, and other relevant information about the human communities affected by a proposed action. These impacts are generally expressed as estimated monetary costs and benefits, but may also be described qualitatively if necessary. Where socio-economic impacts are a major consideration in a NEPA document, impact models can be developed, such as those described in Socioeconomic Impacts of Power Plants, EPRI EA-2228, February, 1982. Two things to watch for are temporary benefits, which may be overstated as long-term, and benefits offset by other losses, which may incorrectly be expressed as net benefits.

TRIBAL TRUST RESPONSIBILITIES

President Clinton's memorandum of April 29, 1994, describes government-to-government relations with native American tribal governments. The US has a unique relationship with tribal governments which requires that federal government plans, projects, programs and activities assess impacts on tribal trust resources.

Trust resources are located within the exterior boundaries of reservations and outside the reservation in Usual and Accustomed fishing and hunting areas. Agencies shall assess all impacts to tribal trust resource and include those impacts in the agencies environmental documents. Each agency shall consult to the greatest extent practicable and to the extent permitted by law, with tribal governments prior to taking actions that affect federally-recognized tribal governments. The environmental document shall fully disclose the potential environmental impacts, both negative and positive, on tribal trust resources.

COST EFFECTIVENESS ANALYSIS

It is important to present cost-effectiveness comparisons of alternatives. In particular, the tailing impoundment, water treatment and mine backfill costs need to be displayed to demonstrate and reinforce the engineering analyses of these features since these features are the key to reduction of long-term environmental risk. Even though the mine company will make these investments, it will be important to provide cost comparisons between mine features to further define the level of commitment to various features and to establish the "practicable alternative" considerations necessary to fulfill the requirements set forth in the Clean Water Act §404(b)(1) analysis which will apply to all features of the mine not just the tailing impoundment.

Appendix G

**NPDES Permit Application
(Forms 1 and 2C)**

*EPA Region IX
NPDES Training - Mining Emphasis
March 1998*



Permits Division

Application Form 1 - General Information

Consolidated Permits Program

This form must be completed by all persons applying for a permit under EPA's Consolidated Permits Program. See the general instructions to Form 1 to determine which other application forms you will need.



Paperwork Reduction Act Notice

The public reporting burden for this collection of information is estimated to average 3 hours per response. This estimate includes time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information to the Chief, Information Policy Branch (PM-223), US Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460, and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, marked Attention: Desk Officer for EPA.

**DESCRIPTION OF CONSOLIDATED
PERMIT APPLICATION FORMS**

**FORM 1 PACKAGE
TABLE OF CONTENTS**

The Consolidated Permit Application Forms are:

Form 1 - General Information (*included in this part*);

Form 2 - Discharges to Surface Water (*NPDES Permits*):

2A. Publicly Owned Treatment Works (*Reserved - not included in this package*),

2B. Concentrated Animal Feeding Operations and Aquatic Animal Production Facilities (*not included in this package*),

2C. Existing Manufacturing, Commercial, Mining, and Silvicultural Operations (*not included in this package*), and

2D. New Manufacturing, Commercial, Mining, and Silvicultural Operations (*Reserved - not included in this package*);

Form 3 - Hazardous Waste Application Form (*RCRA Permits - not included in this package*);

Form 4 - Underground Injection of Fluids (*UIC Permits - Reserved - not included in this package*); and

Form 5 - Air Emissions in Attainment Areas (*PSD Permits - Reserved - not included in this package*).

Section A. General Instructions

Section B. Instructions for Form 1

Section C. Activities Which Do Not Require Permits

Section D. Glossary

Form 1 (*two copies*)

SECTION A - GENERAL INSTRUCTIONS

Who Must Apply

With the exceptions described in Section C of these instructions, Federal laws prohibit you from conducting any of the following activities without a permit.

NPDES (*National Pollutant Discharge Elimination System Under the Clean Water Act, 33 U.S.C. 1251*). Discharge of pollutants into the waters of the United States.

RCRA (*Resource Conservation and Recovery Act, 42 U.S.C. 6901*). Treatment, storage, or disposal of hazardous wastes.

UIC (*Underground Injection Control Under the Safe Drinking Water Act, 42 U.S.C. 300f*). Injection of fluids underground by gravity flow or pumping.

PSD (*Prevention of Significant Deterioration Under the Clean Air Act, 72 U.S.C. 7401*). Emission of an air pollutant by a new or modified facility in or near an area which has attained the National Ambient Air Quality Standards for that pollutant.

Each of the above permit programs is operated in any particular State by either the United States Environmental Protection Agency (*EPA*) or by an approved State agency. You must use this application form to apply for a permit for those programs administered by EPA. For those programs administered by approved States, contact the State environmental agency for the proper forms.

If you have any questions about whether you need a permit under any of the above programs, or if you need information as to whether a particular program is administered by EPA or a State agency, or if you need to obtain application forms, contact your EPA Regional office (*listed in Table 1*).

Upon your request, and based upon information supplied by you, EPA will determine whether you are required to obtain a permit for a particular facility. Be sure to contact EPA if you have a question, because Federal laws provide that you may be heavily penalized if you do not apply for a permit when a permit is required.

Form 1 of the EPA consolidated application forms collects general information applying to all programs. You must fill out Form 1 regardless of which permit you are applying for. In addition, you must fill out one of the supplementary forms (*Forms 2 - 5*) for each permit needed under each of the above programs. Item II of Form 1 will guide you to the appropriate supplementary forms.

You should note that there are certain exclusions to the permit requirements listed above. The exclusions are described in detail in Section C of these instructions. If your activities are excluded from permit requirements then you do not need to complete and return any forms.

NOTE: Certain activities not listed above also are subject to EPA administered environmental permit requirements. These include permits for ocean dumping, dredged or fill material discharging, and certain types of air emissions. Contact your EPA Regional office for further information.

Table 1. Addresses of EPA Regional Contacts and States Within the Regional Office Jurisdictions

REGION I

Permit Contact, Environmental and Economic Impact Office, U.S. Environmental Protection Agency, John F. Kennedy Building, Boston, Massachusetts 02203, (617) 223-4635, FTS 223-4635.
Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.

REGION II

Permit Contact, Permits Administration Branch, Room 432, U.S. Environmental Protection Agency, 26 Federal Plaza, New York, New York 10007, (212) 264-9880, FTS 264-9880.
New Jersey, New York, Virgin Islands, and Puerto Rico.

REGION III

Permit Contact (*3 EN 23*), U.S. Environmental Protection Agency, 6th & Walnut Streets, Philadelphia, Pennsylvania 19106, (215) 597-8816, FTS 597-8816.
Delaware, District of Columbia, Maryland, Pennsylvania, Virginia, and West Virginia.

REGION IV

Permit Contact, Permits Section, U.S. Environmental Protection Agency, 345 Courtland Street, N.E., Atlanta, Georgia 30365, (404) 881-2017, FTS 257-2017.
Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, and Tennessee.

REGION V

Permit Contact (*SEP*), U.S. Environmental Protection Agency, 230 South Dearborn Street, Chicago, Illinois 60604, (312) 353-2105, FTS 353-2105.
Illinois, Indiana, Michigan, Minnesota, Ohio, and Wisconsin.

SECTION A – GENERAL INSTRUCTIONS (continued)

Table 1 (continued)

REGION VI

Permit Contact (6AEP), U.S. Environmental Protection Agency, First International Building, 1201 Elm Street, Dallas, Texas 75270, (214) 767-2765, FTS 729-2765.
Arkansas, Louisiana, New Mexico, Oklahoma, and Texas.

REGION VII

Permit Contact, Permits Branch, U.S. Environmental Protection Agency, 324 East 11th Street, Kansas City, Missouri 64106, (816) 758-5955, FTS 758-5955.
Iowa, Kansas, Missouri, and Nebraska.

REGION VIII

Permit Contact (BE-WE), Suite 103, U.S. Environmental Protection Agency, 1880 Lincoln Street, Denver, Colorado 80296, (303) 837-4901, FTS 327-4901.
Colorado, Montana, North Dakota, South Dakota, Utah, and Wyoming.

REGION IX

Permit Contact, Permits Branch (E-4), U.S. Environmental Protection Agency, 215 Fremont Street, San Francisco, California 94105, (415) 556-3450, FTS 556-3450.
Arizona, California, Hawaii, Nevada, Guam, American Samoa, and Trust Territories.

REGION X

Permit Contact (M/S 521), U.S. Environmental Protection Agency, 1200 6th Avenue, Seattle, Washington 98101, (206) 442-7176, FTS 399-7176.
Alaska, Idaho, Oregon, and Washington.

Where to File

The application forms should be mailed to the EPA Regional office whose Region includes the State in which the facility is located (see Table 1).

If the State in which the facility is located administers a Federal permit program under which you need a permit, you should contact the appropriate State agency for the correct forms. Your EPA Regional office (Table 1) can tell you to whom to apply and can provide the appropriate address and phone number.

When to File

Because of statutory requirements, the deadlines for filing applications vary according to the type of facility you operate and the type of permit you need. These deadlines are as follows:¹

Table 2. Filing Dates for Permits

FORM(permit)	WHEN TO FILE
2A(NPDES)	180 days before your present NPDES permit expires.
2B(NPDES)	180 days before your present NPDES permit expires ² , or 180 days prior to startup if you are a new facility.
2C(NPDES)	180 days before your present NPDES permit expires ² .
2D(NPDES)	180 days prior to startup.
3(Hazardous Waste)	Existing facility: Six months following publication of regulations listing hazardous wastes. New facility: 180 days before commencing physical construction.

Table 2 (continued)

4(UIC) A reasonable time prior to construction for new wells; as directed by the Director for existing wells.

5(PSD) Prior to commencement of construction.

¹Please note that some of these forms are not yet available for use and are listed as "Reserved" at the beginning of these instructions. Contact your EPA Regional office for information on current application requirements and forms.

²If your present permit expires on or before November 30, 1980, the filing date is the date on which your permit expires. If your permit expires during the period December 1, 1980 – May 31, 1981, the filing date is 90 days before your permit expires.

Federal regulations provide that you may not begin to construct a new source in the NPDES program, a new hazardous waste management facility, a new injection well, or a facility covered by the PSD program before the issuance of a permit under the applicable program. Please note that if you are required to obtain a permit before beginning construction, as described above, you may need to submit your permit application well in advance of an applicable deadline listed in Table 2.

Fees

The U.S. EPA does not require a fee for applying for any permit under the consolidated permit programs. (However, some States which administer one or more of these programs require fees for the permits which they issue.)

Availability of Information to Public

Information contained in these application forms will, upon request, be made available to the public for inspection and copying. However, you may request confidential treatment for certain information which you submit on certain supplementary forms. The specific instructions for each supplementary form state what information on the form, if any, may be claimed as confidential and what procedures govern the claim. No information on Forms 1 and 2A through 2D may be claimed as confidential.

Completion of Forms

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

If you have previously submitted information to EPA or to an approved State agency which answers a question, you may either repeat the information in the space provided or attach a copy of the previous submission. Some items in the form require narrative explanation. If more space is necessary to answer a question, attach a separate sheet entitled "Additional Information."

Financial Assistance for Pollution Control

There are a number of direct loans, loan guarantees, and grants available to firms and communities for pollution control expenditures. These are provided by the Small Business Administration, the Economic Development Administration, the Farmers Home Administration, and the Department of Housing and Urban Development. Each EPA Regional office (Table 1) has an economic assistance coordinator who can provide you with additional information.

EPA's construction grants program under Title II of the Clean Water Act is an additional source of assistance to publicly owned treatment works. Contact your EPA Regional office for details.

SECTION B - FORM 1 LINE-BY-LINE INSTRUCTIONS

This form must be completed by all applicants.

Completing This Form

Please type or print in the unshaded areas only. Some items have small graduation marks in the fill-in spaces. These marks indicate the number of characters that may be entered into our data system. The marks are spaced at 1/6" intervals which accommodate elite type (12 characters per inch). If you use another type you may ignore the marks. If you print, place each character between the marks. Abbreviate if necessary to stay within the number of characters allowed for each item. Use one space for breaks between words, but not for punctuation marks unless they are needed to clarify your response.

Item I

Space is provided at the upper right hand corner of Form 1 for insertion of your EPA Identification Number. If you have an existing facility, enter your Identification Number. If you don't know your EPA Identification Number, please contact your EPA Regional office (Table 1), which will provide you with your number. If your facility is new (not yet constructed), leave this item blank.

Item II

Answer each question to determine which supplementary forms you need to fill out. Be sure to check the glossary in Section D of these instructions for the legal definitions of the bold faced words. Check Section C of these instructions to determine whether your activity is excluded from permit requirements.

If you answer "no" to every question, then you do not need a permit, and you do not need to complete and return any of these forms.

If you answer "yes" to any question, then you must complete and file the supplementary form by the deadline listed in Table 2 along with this form. (The applicable form number follows each question and is enclosed in parentheses.) You need not submit a supplementary form if you already have a permit under the appropriate Federal program, unless your permit is due to expire and you wish to renew your permit.

Questions (I) and (J) of Item II refer to major new or modified sources subject to Prevention of Significant Deterioration (PSD) requirements under the Clean Air Act. For the purpose of the PSD program, major sources are defined as: (A) Sources listed in Table 3 which have the potential to emit 100 tons or more per year emissions; and (B) All other sources with the potential to emit 250 tons or more per year. See Section C of these instructions for discussion of exclusions of certain modified sources.

Table 3. 28 Industrial Categories Listed in Section 169(1) of the Clean Air Act of 1977

Fossil fuel-fired steam generators of more than 250 million BTU per hour heat input;
 Coal cleaning plants (with thermal dryers);
 Kraft pulp mills;
 Portland cement plants;
 Primary zinc smelters;
 Iron and steel mill plants;
 Primary aluminum ore reduction plants;
 Primary copper smelters;
 Municipal incinerators capable of charging more than 250 tons of refuse per day;
 Hydrofluoric acid plants;
 Nitric acid plants;
 Sulfuric acid plants;
 Petroleum refineries;
 Lime plants;
 Phosphate rock processing plants;
 Coke oven batteries;
 Sulfur recovery plants;
 Carbon black plants (furnace process);
 Primary lead smelters;
 Fuel conversion plants;
 Sintering plants;
 Secondary metal production plants;
 Chemical process plants;
 Fossil fuel boilers (or combination thereof) totaling more than 250 million BTU per hour heat input;

Table 3 (continued)

Petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels;
 Teconite ore processing plants;
 Glass fiber processing plants; and
 Charcoal production plants.

Item III

Enter the facility's official or legal name. Do not use a colloquial name.

Item IV

Give the name, title, and work telephone number of a person who is thoroughly familiar with the operation of the facility and with the facts reported in this application and who can be contacted by reviewing offices if necessary.

Item V

Give the complete mailing address of the office where correspondence should be sent. This often is not the address used to designate the location of the facility or activity.

Item VI

Give the address or location of the facility identified in Item III of this form. If the facility lacks a street name or route number, give the most accurate alternative geographic information (e.g., section number or quarter section number from county records or at intersection of Rts. 425 and 22).

Item VII

List, in descending order of significance, the four 4-digit standard Industrial classification (SIC) codes which best describe your facility in terms of the principal products or services you produce or provide. Also, specify each classification in words. These classifications may differ from the SIC codes describing the operation generating the discharge, air emissions, or hazardous wastes.

SIC code numbers are descriptions which may be found in the "Standard Industrial Classification Manual" prepared by the Executive Office of the President, Office of Management and Budget, which is available from the Government Printing Office, Washington, D.C. Use the current edition of the manual. If you have any questions concerning the appropriate SIC code for your facility, contact your EPA Regional office (see Table 1).

Item VIII-A

Give the name, as it is legally referred to, of the person, firm, public organization, or any other entity which operates the facility described in this application. This may or may not be the same name as the facility. The operator of the facility is the legal entity which controls the facility's operation rather than the plant or site manager. Do not use a colloquial name.

Item VIII-B

Indicate whether the entity which operates the facility also owns it by marking the appropriate box.

Item VIII-C

Enter the appropriate letter to indicate the legal status of the operator of the facility. Indicate "public" for a facility solely owned by local government(s) such as a city, town, county, parish, etc.

Items VIII-D - H

Enter the telephone number and address of the operator identified in Item VIII-A.

SECTION B - FORM 1 LINE-BY-LINE INSTRUCTIONS (continued)

Item IX

Indicate whether the facility is located on Indian Lands.

Item X

Give the number of each presently effective permit issued to the facility for each program or, if you have previously filed an application but have not yet received a permit, give the number of the application, if any. Fill in the unshaded area only. If you have more than one currently effective permit for your facility under a particular permit program, you may list additional permit numbers on a separate sheet of paper. List any relevant environmental Federal (e.g., permits under the Ocean Dumping Act, Section 404 of the Clean Water Act or the Surface Mining Control and Reclamation Act), State (e.g., State permits for new air emission sources in nonattainment areas under Part D of the Clean Air Act or State permits under Section 404 of the Clean Water Act), or local permits or applications under "other."

Item XI

Provide a topographic map or maps of the area extending at least to one mile beyond the property boundaries of the facility which clearly show the following:

The legal boundaries of the facility;

The location and serial number of each of your existing and proposed intake and discharge structures;

All hazardous waste management facilities;

Each well where you inject fluids underground; and

All springs and surface water bodies in the area, plus all drinking water wells within 1/4 mile of the facility which are identified in the public record or otherwise known to you.

If an intake or discharge structure, hazardous waste disposal site, or injection well associated with the facility is located more than one mile from the plant, include it on the map, if possible. If not, attach additional sheets describing the location of the structure, disposal site, or well, and identify the U.S. Geological Survey (or other) map corresponding to the location.

On each map, include the map scale, a meridian arrow showing north, and latitude and longitude at the nearest whole second. On all maps of rivers, show the direction of the current, and in tidal waters, show the directions of the ebb and flow tides. Use a 7-1/2 minute series map published by the U.S. Geological Survey, which may be obtained through the U.S. Geological Survey Offices listed below. If a 7-1/2 minute series map has not been published for your facility site, then you may use a 15 minute series map from the U.S. Geological Survey. If neither a 7-1/2 nor 15 minute series map has been published for your facility site, use a plat map or other appropriate map, including all the requested information; in this case, briefly describe land uses in the map area (e.g., residential, commercial).

You may trace your map from a geological survey chart, or other map meeting the above specifications. If you do, your map should bear a note showing the number or title of the map or chart it was traced from. Include the names of nearby towns, water bodies, and other prominent points. An example of an acceptable location map is shown in Figure 1-1 of these instructions. (NOTE: Figure 1-1 is provided for purposes of illustration only, and does not represent any actual facility.)

U.S.G.S. OFFICES	AREA SERVED
Eastern Mapping Center National Cartographic Information Center U.S.G.S. 536 National Center Reston, Va. 22092 Phone No. (703) 860-6336	Ala., Conn., Del., D.C., Fla., Ga., Ind., Ky., Maine, Md., Mass., N.H., N.J., N.Y., N.C., S.C., Ohio, Pa., Puerto Rico, R.I., Tenn., Vt., Va., W. Va., and Virgin Islands.

Item XI (continued)

Mid Continent Mapping Center
National Cartographic Information Center
U.S.G.S.
1400 Independence Road
Rolla, Mo. 65401
Phone No. (314) 341-0851

Ark., Ill., Iowa, Kans., La., Mich., Minn., Miss., Mo., N. Dak., Nebr., Okla., S. Dak., and Wis.

Rocky Mountain Mapping Center
National Cartographic Information Center
U.S.G.S.
Stop 504, Box 25046 Federal Center
Denver, Co. 80225
Phone No. (303) 234-2326

Alaska, Colo., Mont., N. Mex., Tex., Utah, and Wyo.

Western Mapping Center
National Cartographic Information Center
U.S.G.S.
345 Middlefield Road
Menlo Park, Ca. 94025
Phone No. (415) 323-8111

Ariz., Calif., Hawaii, Idaho, Nev., Oreg., Wash., American Samoa, Guam, and Trust Territories

Item XII

Briefly describe the nature of your business (e.g., products produced or services provided).

Item XIII

Federal statutes provide for severe penalties for submitting false information on this application form.

18 U.S.C. Section 1001 provides that "Whoever, in any matter within the jurisdiction of any department or agency of the United States knowingly and willfully falsifies, conceals or covers up by any trick, scheme, or device a material fact, or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statement or entry, shall be fined not more than \$10,000 or imprisoned not more than five years, or both."

Section 309(c)(2) of the Clean Water Act and Section 113(c)(2) of the Clean Air Act each provide that "Any person who knowingly makes any false statement, representation, or certification in any application, . . . shall upon conviction, be punished by a fine of no more than \$10,000 or by imprisonment for not more than six months, or both."

In addition, Section 3008(d)(3) of the Resource Conservation and Recovery Act provides for a fine up to \$25,000 per day or imprisonment up to one year, or both, for a first conviction for making a false statement in any application under the Act, and for double these penalties upon subsequent convictions.

FEDERAL REGULATIONS REQUIRE THIS APPLICATION TO BE SIGNED AS FOLLOWS:

A. For a corporation, by a principal executive officer of at least the level of vice president. However, if the only activity in Item II which is marked "yes" is Question G, the officer may authorize a person having responsibility for the overall operations of the well or well field to sign the certification. In that case, the authorization must be written and submitted to the permitting authority.

B. For partnership or sole proprietorship, by a general partner or the proprietor, respectively; or

C. For a municipality, State, Federal, or other public facility, by either a principal executive officer or ranking elected official.

SECTION C - ACTIVITIES WHICH DO NOT REQUIRE PERMITS

I. National Pollutant Discharge Elimination System Permits Under the Clean Water Act. You are not required to obtain an NPDES permit if your discharge is in one of the following categories, as provided by the Clean Water Act (CWA) and by the NPDES regulations (40 CFR Parts 122-125). However, under Section 510 of CWA a discharge exempted from the federal NPDES requirements may still be regulated by a State authority; contact your State environmental agency to determine whether you need a State permit.

A. DISCHARGES FROM VESSELS. Discharges of sewage from vessels, effluent from properly functioning marine engines, laundry, shower, and galley sink wastes, and any other discharge incidental to the normal operation of a vessel do not require NPDES permits. However, discharges of rubbish, trash, garbage, or other such materials discharged overboard require permits, and so do other discharges when the vessel is operating in a capacity other than as a means of transportation, such as when the vessel is being used as an energy or mining facility, a storage facility, or a seafood processing facility, or is secured to the bed of the ocean, contiguous zone, or waters of the United States for the purpose of mineral or oil exploration or development.

B. DREDGED OR FILL MATERIAL. Discharges of dredged or fill material into waters of the United States do not need NPDES permits if the dredging or filling is authorized by a permit issued by the U.S. Army Corps of Engineers or an EPA approved State under Section 404 of CWA.

C. DISCHARGES INTO PUBLICLY OWNED TREATMENT WORKS (POTW). The introduction of sewage, industrial wastes, or other pollutants into a POTW does not need an NPDES permit. You must comply with all applicable pretreatment standards promulgated under Section 307(b) of CWA, which may be included in the permit issued to the POTW. If you have a plan or an agreement to switch to a POTW in the future, this does not relieve you of the obligation to apply for and receive an NPDES permit until you have stopped discharging pollutants into waters of the United States.

(NOTE: Dischargers into privately owned treatment works do not have to apply for or obtain NPDES permits except as otherwise required by the EPA Regional Administrator. The owner or operator of the treatment works itself, however, must apply for a permit and identify all users in its application. Users so identified will receive public notice of actions taken on the permit for the treatment works.)

D. DISCHARGES FROM AGRICULTURAL AND SILVICULTURAL ACTIVITIES. Most discharges from agricultural and silvicultural activities to waters of the United States do not require NPDES permits. These include runoff from orchards, cultivated crops, pastures, range lands, and forest lands. However, the discharges listed below do require NPDES permits. Definitions of the terms listed below are contained in the Glossary section of these instructions.

1. Discharges from Concentrated Animal Feeding Operations. (See Glossary for definitions of "animal feeding operations" and "concentrated animal feeding operations." Only the latter require permits.)

2. Discharges from Concentrated Aquatic Animal Production Facilities. (See Glossary for size cutoffs.)

3. Discharges associated with approved Aquaculture Projects.

4. Discharges from Silvicultural Point Sources. (See Glossary for the definition of "silvicultural point source.") Nonpoint source silvicultural activities are excluded from NPDES permit requirements. However, some of these activities, such as stream crossings for roads, may involve point source discharges of dredged or fill material which may require a Section 404 permit. See 33 CFR 209.120.

E. DISCHARGES IN COMPLIANCE WITH AN ON-SCENE COORDINATOR'S INSTRUCTIONS.

II. Hazardous Waste Permits Under the Resource Conservation and Recovery Act. You may be excluded from the requirement to obtain a permit under this program if you fall into one of the following categories:

Generators who accumulate their own hazardous waste on-site for less than 90 days as provided in 40 CFR 262.34;

Farmers who dispose of hazardous waste pesticide from their own use as provided in 40 CFR 262.51;

Certain persons treating, storing, or disposing of small quantities of hazardous waste as provided in 40 CFR 261.4 or 261.5; and

Owners and operators of totally enclosed treatment facilities as defined in 40 CFR 260.10.

Check with your Regional office for details. Please note that even if you are excluded from permit requirements, you may be required by Federal regulations to handle your waste in a particular manner.

III. Underground Injection Control Permits Under the Safe Drinking Water Act. You are not required to obtain a permit under this program if you:

Inject into existing wells used to enhance recovery of oil and gas or to store hydrocarbons (note, however, that these underground injections are regulated by Federal rules); or

Inject into or above a stratum which contains, within 1/4 mile of the well bore, an underground source of drinking water (unless your injection is the type identified in Item II-H, for which you do need a permit). However, you must notify EPA of your injection and submit certain required information on forms supplied by the Agency, and your operation may be phased out if you are a generator of hazardous wastes or a hazardous waste management facility which uses wells or septic tanks to dispose of hazardous waste.

IV. Prevention of Significant Deterioration Permits Under the Clean Air Act. The PSD program applies to newly constructed or modified facilities (both of which are referred to as "new sources") which increase air emissions. The Clean Air Act Amendments of 1977 exclude small new sources of air emissions from the PSD review program. Any new source in an industrial category listed in Table 3 of these instructions whose potential to emit is less than 100 tons per year is not required to get a PSD permit. In addition, any new source in an industrial category not listed in Table 3 whose potential to emit is less than 250 tons per year is exempted from the PSD requirements.

Modified sources which increase their net emissions (the difference between the total emission increases and total emission decreases at the source) less than the significant amount set forth in EPA regulations are also exempt from PSD requirements. Contact your EPA Regional office (Table 1) for further information.

SECTION D - GLOSSARY

NOTE: This Glossary includes terms used in the instructions and in Forms 1, 2B, 2C, and 3. Additional terms will be included in the future when other forms are developed to reflect the requirements of other parts of the Consolidated Permits Program. If you have any questions concerning the meaning of any of these terms, please contact your EPA Regional office (*Table 1*).

ALIQUOT means a sample of specified volume used to make up a total composite sample.

ANIMAL FEEDING OPERATION means a lot or facility (other than an aquatic animal production facility) where the following conditions are met:

A. Animals (other than aquatic animals) have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12 month period; and

B. Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.

Two or more animal feeding operations under common ownership are a single animal feeding operation if they adjoin each other or if they use a common area or system for the disposal of wastes.

ANIMAL UNIT means a unit of measurement for any animal feeding operation calculated by adding the following numbers: The number of slaughter and feeder cattle multiplied by 1.0; Plus the number of mature dairy cattle multiplied by 1.4; Plus the number of swine weighing over 25 kilograms (approximately 55 pounds) multiplied by 0.4; Plus the number of sheep multiplied by 0.1; Plus the number of horses multiplied by 2.0.

APPLICATION means the EPA standard national forms for applying for a permit, including any additions, revisions, or modifications to the forms; or forms approved by EPA for use in approved States, including any approved modifications or revisions. For RCRA, "application" also means "Application, Part B."

APPLICATION, PART A means that part of the Consolidated Permit Application forms which a RCRA permit applicant must complete to qualify for interim status under Section 3005(e) of RCRA and for consideration for a permit. Part A consists of Form 1 (*General Information*) and Form 3 (*Hazardous Waste Application Form*).

APPLICATION, PART B means that part of the application which a RCRA permit applicant must complete to be issued a permit. (NOTE: EPA is not developing a specific form for Part B of the permit application, but an instruction booklet explaining what information must be supplied is available from the EPA Regional office.)

APPROVED PROGRAM or **APPROVED STATE** means a State program which has been approved or authorized by EPA under 40 CFR Part 123.

AQUACULTURE PROJECT means a defined managed water area which uses discharges of pollutants into that designated area for the maintenance or production of harvestable freshwater, estuarine, or marine plants or animals. "Designated area" means the portions of the waters of the United States within which the applicant plans to confine the cultivated species, using a method of plan or operation (including, but not limited to, physical confinement) which, on the basis of reliable scientific evidence, is expected to ensure the specific individual organisms comprising an aquaculture crop will enjoy increased growth attributable to the discharge of pollutants and be harvested within a defined geographic area.

AQUIFER means a geological formation, group of formations, or part of a formation that is capable of yielding a significant amount of water to a well or spring.

AREA OF REVIEW means the area surrounding an injection well which is described according to the criteria set forth in 40 CFR Section 146.06.

AREA PERMIT means a UIC permit applicable to all or certain wells within a geographic area, rather than to a specified well, under 40 CFR Section 122.37.

ATTAINMENT AREA means, for any air pollutant, an area which has been designated under Section 107 of the Clean Air Act as having ambient air quality levels better than any national primary or secondary ambient air quality standard for that pollutant. Standards have been set for sulfur oxides, particulate matter, nitrogen dioxide, carbon monoxide, ozone, lead, and hydrocarbons. For purposes of the Glossary, "attainment area" also refers to "unclassifiable area," which means, for any pollutants, an area designated under Section 107 as unclassifiable with respect to that pollutant due to insufficient information.

BEST MANAGEMENT PRACTICES (BMP) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMP's include treatment requirements, operation procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

BIOLOGICAL MONITORING TEST means any test which includes the use of aquatic algal, invertebrate, or vertebrate species to measure acute or chronic toxicity, and any biological or chemical measure of bioaccumulation.

BYPASS means the intentional diversion of wastes from any any portion of a treatment facility.

CONCENTRATED ANIMAL FEEDING OPERATION means an animal feeding operation which meets the criteria set forth in either (A) or (B) below or which the Director designates as such on a case-by-case basis:

A. More than the numbers of animals specified in any of the following categories are confined:

1. 1,000 slaughter or feeder cattle,
2. 700 mature dairy cattle (whether milked or dry cows),
3. 2,500 swine each weighing over 25 kilograms (approximately 55 pounds),
4. 500 horses,
5. 10,000 sheep or lambs,
6. 55,000 turkeys,
7. 100,000 laying hens or broilers (if the facility has a continuous overflow watering),
8. 30,000 laying hens or broilers (if the facility has a liquid manure handling system),
9. 5,000 ducks, or
10. 1,000 animal units; or

B. More than the following numbers and types of animals are confined:

1. 300 slaughter or feeder cattle,
2. 200 mature dairy cattle (whether milked or dry cows),
3. 750 swine each weighing over 25 kilograms (approximately 55 pounds),
4. 150 horses,

SECTION D - GLOSSARY (continued)

CONCENTRATED ANIMAL FEEDING OPERATION (continued)

5. 3,000 sheep or lambs,
6. 16,500 turkeys,
7. 30,000 laying hens or broilers (if the facility has continuous overflow watering),
8. 9,000 laying hens or broilers (if the facility has a liquid manure handling system),
9. 1,500 ducks, or
10. 300 animal units; AND

Either one of the following conditions are met: Pollutants are discharged into waters of the United States through a manmade ditch, flushing system or other similar manmade device ("manmade" means constructed by man and used for the purpose of transporting wastes); or Pollutants are discharged directly into waters of the United States which originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.

Provided, however, that no animal feeding operation is a concentrated animal feeding operation as defined above if such animal feeding operation discharges only in the event of a 25 year, 24 hour storm event.

CONCENTRATED AQUATIC ANIMAL PRODUCTION FACILITY means a hatchery, fish farm, or other facility which contains, grows or holds aquatic animals in either of the following categories, or which the Director designates as such on a case-by-case basis:

A. Cold water fish species or other cold water aquatic animals including, but not limited to, the Salmonidae family of fish (e.g., trout and salmon) in ponds, raceways or other similar structures which discharge at least 30 days per year but does not include:

1. Facilities which produce less than 9,090 harvest weight kilograms (approximately 20,000 pounds) of aquatic animals per year; and
2. Facilities which feed less than 2,272 kilograms (approximately 5,000 pounds) of food during the calendar month of maximum feeding.

B. Warm water fish species or other warm water aquatic animals including, but not limited to, the Ameiuridae, Cetrarchidae, and Cyprinidae families of fish (e.g., respectively, catfish, sunfish, and minnows) in ponds, raceways, or other similar structures which discharge at least 30 days per year, but does not include:

1. Closed ponds which discharge only during periods of excess runoff; or
2. Facilities which produce less than 45,454 harvest weight kilograms (approximately 100,000 pounds) of aquatic animals per year.

CONTACT COOLING WATER means water used to reduce temperature which comes into contact with a raw material, intermediate product, waste product other than heat, or finished product.

CONTAINER means any portable device in which a material is stored, transported, treated, disposed of, or otherwise handled.

CONTIGUOUS ZONE means the entire zone established by the United States under article 24 of the convention of the Territorial Sea and the Contiguous Zone.

CWA means the Clean Water Act (formerly referred to the Federal Water Pollution Control Act) Pub. L. 92-500, as amended by Pub. L. 95-217 and Pub. L. 95-576, 33 U.S.C. 1251 et seq.

DIKE means any embankment or ridge of either natural or manmade materials used to prevent the movement of liquids, sludges, solids, or other materials.

DIRECT DISCHARGE means the discharge of a pollutant as defined below.

DIRECTOR means the EPA Regional Administrator or the State Director as the context requires.

DISCHARGE (OF A POLLUTANT) means:

- A. Any addition of any pollutant or combination of pollutants to waters of the United States from any point source; or
- B. Any addition of any pollutant or combination of pollutants to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation.

This definition includes discharges into waters of the United States from: Surface runoff which is collected or channelled by man; Discharges through pipes, sewers, or other conveyances owned by a State, municipality, or other person which do not lead to POTW's; and Discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. This term does not include an addition of pollutants by any indirect discharger.

DISPOSAL (in the RCRA program) means the discharge, deposit, injection, dumping, spilling, leaking, or placing of any hazardous waste into or on any land or water so that the hazardous waste or any constituent of it may enter the environment or be emitted into the air or discharged into any waters, including ground water.

DISPOSAL FACILITY means a facility or part of a facility at which hazardous waste is intentionally placed into or on land or water, and at which hazardous waste will remain after closure.

EFFLUENT LIMITATION means any restriction imposed by the Director on quantities, discharge rates, and concentrations of pollutants which are discharged from point sources into waters of the United States, the waters of the contiguous zone, or the ocean.

EFFLUENT LIMITATION GUIDELINE means a regulation published by the Administrator under Section 304(b) of the Clean Water Act to adopt or revise effluent limitations.

ENVIRONMENTAL PROTECTION AGENCY (EPA) means the United States Environmental Protection Agency.

EPA IDENTIFICATION NUMBER means the number assigned by EPA to each generator, transporter, and facility.

EXEMPTED AQUIFER means an aquifer or its portion that meets the criteria in the definition of USDW, but which has been exempted according to the procedures in 40 CFR Section 122.35(b).

EXISTING HWM FACILITY means a Hazardous Waste Management facility which was in operation, or for which construction had commenced, on or before October 21, 1976. Construction had commenced if (A) the owner or operator had obtained all necessary Federal, State, and local preconstruction approvals or permits, and either (B1) a continuous on-site, physical construction program had begun, or (B2) the owner or operator had entered into contractual obligations, which could not be cancelled or modified without substantial loss, for construction of the facility to be completed within a reasonable time.

(NOTE: This definition reflects the literal language of the statute. However, EPA believes that amendments to RCRA now in conference will shortly be enacted and will change the date for determining when a facility is an "existing facility" to one no earlier than May of 1980; indications are the conferees are considering October 30, 1980. Accordingly, EPA encourages every owner or operator of a facility which was built or under construction as of the promulgation date of the RCRA program regulations to file Part A of its permit application so that it can be quickly processed for interim status when the change in the law takes effect. When those amendments are enacted, EPA will amend this definition.)

EXISTING SOURCE or EXISTING DISCHARGER (in the NPDES program) means any source which is not a new source or a new discharger.

EXISTING INJECTION WELL means an injection well other than a new injection well.

FACILITY means any HWM facility, UIC underground injection well, NPDES point source, PSD stationary source, or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the RCRA, UIC, NPDES, or PSD programs.

FLUID means material or substance which flows or moves whether in a semisolid, liquid, sludge, gas, or any other form or state.

GENERATOR means any person by site, whose act or process produces hazardous waste identified or listed in 40 CFR Part 261.

GROUNDWATER means water below the land surface in a zone of saturation.

HAZARDOUS SUBSTANCE means any of the substances designated under 40 CFR Part 116 pursuant to Section 311 of CWA. (NOTE: These substances are listed in Table 2c-4 of the instructions to Form 2C.)

HAZARDOUS WASTE means a hazardous waste as defined in 40 CFR Section 261.3 published May 19, 1980.

HAZARDOUS WASTE MANAGEMENT FACILITY (HWM facility) means all contiguous land, structures, appurtenances, and improvements on the land, used for treating, storing, or disposing of hazardous wastes. A facility may consist of several treatment, storage, or disposal operational units (for example, one or more landfills, surface impoundments, or combinations of them).

IN OPERATION means a facility which is treating, storing, or disposing of hazardous waste.

INCINERATOR (in the RCRA program) means an enclosed device using controlled flame combustion, the primary purpose of which is to thermally break down hazardous waste. Examples of incinerators are rotary kiln, fluidized bed, and liquid injection incinerators.

INDIRECT DISCHARGER means a nondomestic discharger introducing pollutants to a publicly owned treatment works.

INJECTION WELL means a well into which fluids are being injected.

INTERIM AUTHORIZATION means approval by EPA of a State hazardous waste program which has met the requirements of Section 3006(c) of RCRA and applicable requirements of 40 CFR Part 123, Subparts A, B, and F.

LANDFILL means a disposal facility or part of a facility where hazardous waste is placed in or on land and which is not a land treatment facility, a surface impoundment, or an injection well.

LAND TREATMENT FACILITY (in the RCRA program) means a facility or part of a facility at which hazardous waste is applied onto or incorporated into the soil surface; such facilities are disposal facilities if the waste will remain after closure.

LISTED STATE means a State listed by the Administrator under Section 1422 of SOWA as needing a State UIC program.

MGD means millions of gallons per day.

MUNICIPALITY means a city, village, town, borough, county, parish, district, association, or other public body created by or under State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under Section 208 of CWA.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring, and enforcing permits and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of CWA. The term includes an approved program.

NEW DISCHARGER means any building, structure, facility, or installation: (A) From which there is or may be a new or additional discharge of pollutants at a site at which on October 18, 1972, it had never discharged pollutants; (B) Which has never received a finally effective NPDES permit for discharges at that site; and (C) Which is not a "new source." This definition includes an indirect discharger which commences discharging into waters of the United States. It also includes any existing mobile point source, such as an offshore oil drilling rig, seafood processing vessel, or aggregate plant that begins discharging at a location for which it does not have an existing permit.

NEW HWM FACILITY means a Hazardous Waste Management facility which began operation or for which construction commenced after October 21, 1976.

NEW INJECTION WELL means a well which begins injection after a UIC program for the State in which the well is located is approved.

NEW SOURCE (in the NPDES program) means any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced:

A. After promulgation of standards of performance under Section 306 of CWA which are applicable to such source; or

B. After proposal of standards of performance in accordance with Section 306 of CWA which are applicable to such source, but only if the standards are promulgated in accordance with Section 306 within 120 days of their proposal.

NON-CONTACT COOLING WATER means water used to reduce temperature which does not come into direct contact with any raw material, intermediate product, waste product (other than heat), or finished product.

OFF-SITE means any site which is not "on-site."

ON-SITE means on the same or geographically contiguous property which may be divided by public or private right(s)-of-way, provided the entrance and exit between the properties is at a cross-roads intersection, and access is by crossing as opposed to going along, the right(s)-of-way. Non-contiguous properties owned by the same person, but connected by a right-of-way which the person controls and to which the public does not have access, is also considered on-site property.

OPEN BURNING means the combustion of any material without the following characteristics:

A. Control of combustion air to maintain adequate temperature for efficient combustion;

B. Containment of the combustion-reaction in an enclosed device to provide sufficient residence time and mixing for complete combustion; and

C. Control of emission of the gaseous combustion products.

(See also "Incinerator" and "thermal treatment").

OPERATOR means the person responsible for the overall operation of a facility.

OUTFALL means a point source.

OWNER means the person who owns a facility or part of a facility.

SECTION D - GLOSSARY (continued)

PERMIT means an authorization, license, or equivalent control document issued by EPA or an approved State to implement the requirements of 40 CFR Parts 122, 123, and 124.

PHYSICAL CONSTRUCTION (in the RCRA program) means excavation, movement of earth, erection of forms or structures, or similar activity to prepare a HWM facility to accept hazardous waste.

PILE means any noncontainerized accumulation of solid, nonflowing hazardous waste that is used for treatment or storage.

POINT SOURCE means any discernible, confined, and discrete conveyance, including but not limited to any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture.

POLLUTANT means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical waste, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended [42 U.S.C. Section 2011 et seq.]), heat, wrecked or discarded equipment, rocks, sand, silt, and industrial, municipal, and agriculture waste discharged into water. It does not mean:

A. Sewage from vessels; or

B. Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well used either to facilitate production or for disposal purposes is approved by authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.

(NOTE: Radioactive materials covered by the Atomic Energy Act are those encompassed in its definition of source, byproduct, or special nuclear materials. Examples of materials not covered include radium and accelerator produced isotopes. See *Train v. Colorado Public Interest Research Group, Inc.*, 426 U.S. 1 [1976].)

PREVENTION OF SIGNIFICANT DETERIORATION (PSD) means the national permitting program under 40 CFR 52.21 to prevent emissions of certain pollutants regulated under the Clean Air Act from significantly deteriorating air quality in attainment areas.

PRIMARY INDUSTRY CATEGORY means any industry category listed in the NRDC Settlement Agreement (*Natural Resources Defense Council v. Train*, 8 ERC 2120 [D.D.C. 1976], modified 12 ERC 1833 [D.D.C. 1979]).

PRIVATELY OWNED TREATMENT WORKS means any device or system which is: (A) Used to treat wastes from any facility whose operator is not the operator of the treatment works; and (B) Not a POTW.

PROCESS WASTEWATER means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

PUBLICLY OWNED TREATMENT WORKS or POTW means any device or system used in the treatment (including recycling and reclamation) of municipal sewage or industrial wastes of a liquid nature which is owned by a State or municipality. This definition includes any sewers, pipes, or other conveyances only if they convey wastewater to a POTW providing treatment.

RENT means use of another's property in return for regular payment.

RCRA means the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act of 1976 (Pub. L. 94-580, as amended by Pub. L. 95-609, 42 U.S.C. Section 6901 et seq.).

ROCK CRUSHING AND GRAVEL WASHING FACILITIES are facilities which process crushed and broken stone, gravel, and riprap (see 40 CFR Part 436, Subpart B, and the effluent limitations guidelines for these facilities).

SDWA means the Safe Drinking Water Act (Pub. L. 95-523, as amended by Pub. L. 95-1900, 42 U.S.C. Section 300(f) et seq.).

SECONDARY INDUSTRY CATEGORY means any industry category which is not a primary industry category.

SEWAGE FROM VESSELS means human body wastes and the wastes from toilets and other receptacles intended to receive or retain body wastes that are discharged from vessels and regulated under Section 312 of CWA, except that with respect to commercial vessels on the Great Lakes this term includes graywater. For the purposes of this definition, "graywater" means galley, bath, and shower water.

SEWAGE SLUDGE means the solids, residues, and precipitate separated from or created in sewage by the unit processes of a POTW. "Sewage" as used in this definition means any wastes, including wastes from humans, households, commercial establishments, industries, and storm water runoff, that are discharged to or otherwise enter a publicly owned treatment works.

SILVICULTURAL POINT SOURCE means any discernible, confined, and discrete conveyance related to rock crushing, gravel washing, log sorting, or log storage facilities which are operated in connection with silvicultural activities and from which pollutants are discharged into waters of the United States. This term does not include nonpoint source silvicultural activities such as nursery operations, site preparation, reforestation and subsequent cultural treatment, thinning, prescribed burning, pest and fire control, harvesting operations, surface drainage, or road construction and maintenance from which there is natural runoff. However, some of these activities (such as stream crossing for roads) may involve point source discharges of dredged or fill material which may require a CWA Section 404 permit. "Log sorting and log storage facilities" are facilities whose discharges result from the holding of unprocessed wood, e.g., logs or roundwood with bark or after removal of bark in self-contained bodies of water (mill ponds or log ponds) or stored on land where water is applied intentionally on the logs (wet decking). (See 40 CFR Part 429, Subpart J, and the effluent limitations guidelines for these facilities.)

STATE means any of the 50 States, the District of Columbia, Guam, the Commonwealth of Puerto Rico, the Virgin Islands, American Samoa, the Trust Territory of the Pacific Islands (except in the case of RCRA), and the Commonwealth of the Northern Mariana Islands (except in the case of CWA).

STATIONARY SOURCE (in the PSD program) means any building, structure, facility, or installation which emits or may emit any air pollutant regulated under the Clean Air Act. "Building, structure, facility, or installation" means any grouping of pollutant-emitting activities which are located on one or more contiguous or adjacent properties and which are owned or operated by the same person (or by persons under common control).

STORAGE (in the RCRA program) means the holding of hazardous waste for a temporary period at the end of which the hazardous waste is treated, disposed, or stored elsewhere.

STORM WATER RUNOFF means water discharged as a result of rain, snow, or other precipitation.

SURFACE IMPOUNDMENT or IMPOUNDMENT means a facility or part of a facility which is a natural topographic depression, manmade excavation, or diked area formed primarily of earthen materials (although it may be lined with manmade materials), which is designed to hold an accumulation of liquid wastes or wastes containing free liquids, and which is not an injection well. Examples of surface impoundments are holding, storage, settling, and aeration pits, ponds, and lagoons.

TANK (in the RCRA program) means a stationary device, designed to contain an accumulation of hazardous waste which is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) which provide structural support.

SECTION D - GLOSSARY (continued)

THERMAL TREATMENT (*in the RCRA program*) means the treatment of hazardous waste in a device which uses elevated temperature as the primary means to change the chemical, physical, or biological character or composition of the hazardous waste. Examples of thermal treatment processes are incineration, molten salt, pyrolysis, calcination, wet air oxidation, and microwave discharge. (See also "incinerator" and "open burning").

TOTALLY ENCLOSED TREATMENT FACILITY (*in the RCRA program*) means a facility for the treatment of hazardous waste which is directly connected to an industrial production process and which is constructed and operated in a manner which prevents the release of any hazardous waste or any constituent thereof into the environment during treatment. An example is a pipe in which waste acid is neutralized.

TOXIC POLLUTANT means any pollutant listed as toxic under Section 307(a)(1) of CWA.

TRANSPORTER (*in the RCRA program*) means a person engaged in the off-site transportation of hazardous waste by air, rail, highway, or water.

TREATMENT (*in the RCRA program*) means any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.

UNDERGROUND INJECTION means well injection.

UNDERGROUND SOURCE OF DRINKING WATER or USDW means an aquifer or its portion which is not an exempted aquifer and:

- A. Which supplies drinking water for human consumption; or
- B. In which the ground water contains fewer than 10,000 mg/l total dissolved solids.

UPSET means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

WATERS OF THE UNITED STATES means:

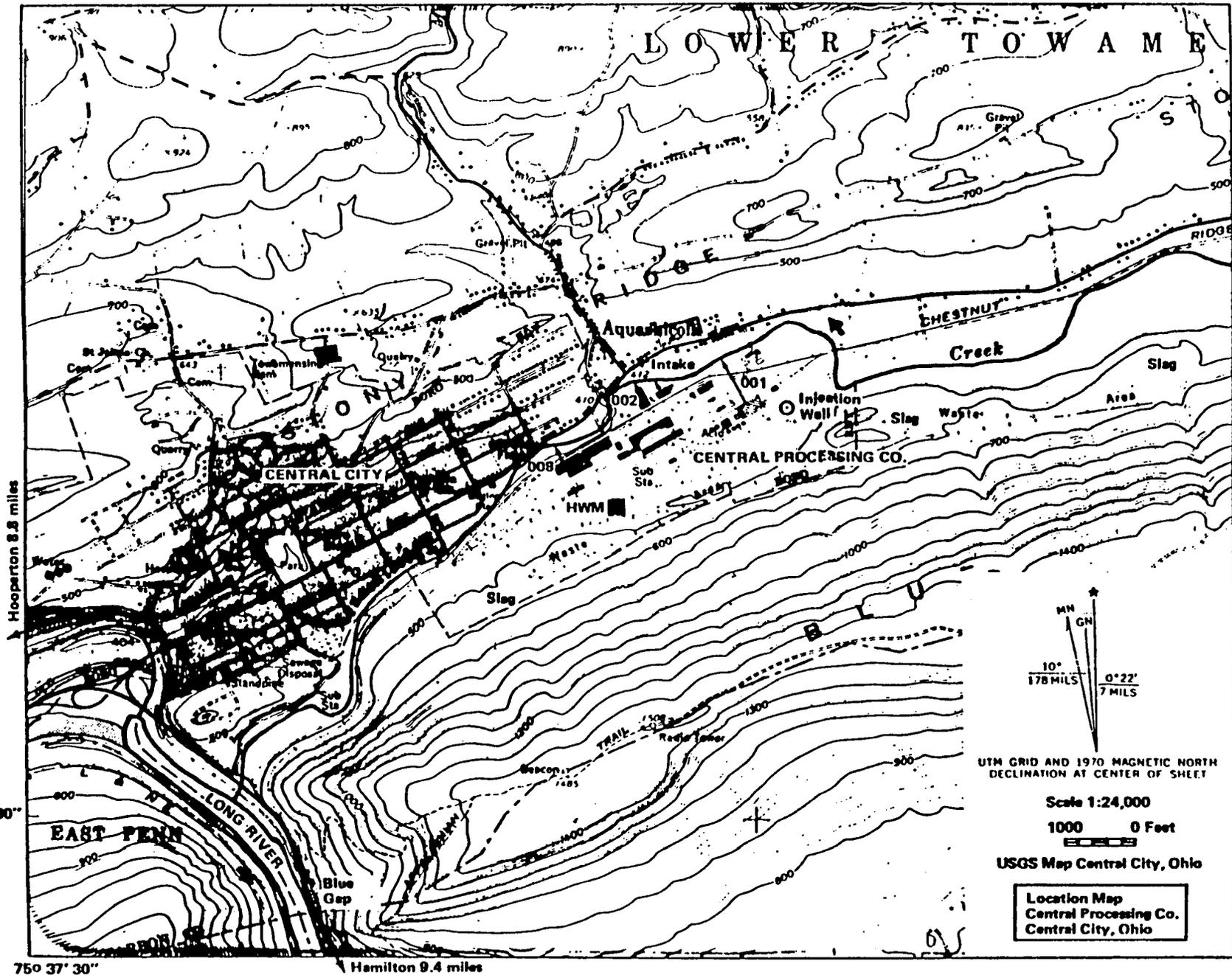
- A. All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- B. All interstate waters, including interstate wetlands;
- C. All other waters such as intrastate lakes, rivers, streams (*including intermittent streams*), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, and natural ponds, the use, degradation, or destruction of which would or could affect interstate or foreign commerce including any such waters:
 1. Which are or could be used by interstate or foreign travelers for recreational or other purposes,
 2. From which fish or shellfish are or could be taken and sold in interstate or foreign commerce,
 3. Which are used or could be used for industrial purposes by industries in interstate commerce;
- D. All impoundments of waters otherwise defined as waters of the United States under this definition;
- E. Tributaries of waters identified in paragraphs (A) - (D) above;
- F. The territorial sea; and
- G. Wetlands adjacent to waters (*other than waters that are themselves wetlands*) identified in paragraphs (A) - (F) of this definition.

Waste treatment systems, including treatment ponds or lagoons designed to meet requirement of CWA (*other than cooling ponds as defined in 40 CFR Section 423.11(m)*) which also meet the criteria of this definition) are not waters of the United States. This exclusion applies only to manmade bodies of water which neither were originally created in waters of the United States (*such as a disposal area in wetlands*) nor resulted from the impoundments of waters of the United States.

WELL INJECTION or **UNDERGROUND INJECTION** means the subsurface emplacement of fluids through a bored, drilled, or driven well; or through a dug well, where the depth of the dug well is greater than the largest surface dimension.

WETLANDS means those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.

FIGURE 1-1



FORM 1 GENERAL	U.S. ENVIRONMENTAL PROTECTION AGENCY GENERAL INFORMATION <i>Consolidated Permits Program</i> <i>(Read the "General Instructions" before starting.)</i>	I. EPA I.D. NUMBER <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%;">6</td> <td style="width:10%;">7</td> <td style="width:10%;">8</td> <td style="width:10%;">9</td> <td style="width:10%;">10</td> <td style="width:10%;">11</td> <td style="width:10%;">12</td> <td style="width:10%;">13</td> <td style="width:10%;">14</td> <td style="width:10%;">15</td> </tr> <tr> <td style="text-align: center;">F</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	6	7	8	9	10	11	12	13	14	15	F									
6	7	8	9	10	11	12	13	14	15													
F																						
LABEL ITEMS	PLEASE PLACE LABEL IN THIS SPACE	GENERAL INSTRUCTIONS If a preprinted label has been provided, affix it in the designated space. Review the information carefully; if any of it is incorrect, cross through it and enter the correct data in the appropriate fill-in area below. Also, if any of the preprinted data is absent (the area to the left of the label space lists the information that should appear), please provide it in the proper fill-in area(s) below. If the label is complete and correct, you need not complete items I, III, V, and VI (except VI-B which must be completed regardless). Complete all items if no label has been provided. Refer to the instructions for detailed item descriptions and for the legal authorizations under which this data is collected.																				
I. EPA I.D. NUMBER III. FACILITY NAME V. FACILITY MAILING ADDRESS VI. FACILITY LOCATION																						

II. POLLUTANT CHARACTERISTICS

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

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

III. NAME OF FACILITY

C	1 SKIP	
		60

IV. FACILITY CONTACT

A. NAME & TITLE (last, first, & title)	B. PHONE (area code & no.)
C	
2	
	60 44 - 60 45 - 61 62 - 63

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX			
C	3		
		60	
B. CITY OR TOWN		C. STATE	D. ZIP CODE
C	4		
		29 31 33 37	37 39

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER					
C	5				
		60			
B. COUNTY NAME			C. CITY OR TOWN	D. STATE	E. ZIP CODE
C	6				
			29 31 33 37	37 39	32 - 34

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

A. FIRST 7 (specify)				B. SECOND 7 (specify)			
C. THIRD 7 (specify)				D. FOURTH 7 (specify)			

VIII. OPERATOR INFORMATION

A. NAME												B. Is the name listed in Item VIII-A also the owner? <input type="checkbox"/> YES <input type="checkbox"/> NO	
C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.) F = FEDERAL M = PUBLIC (other than federal or state) S = STATE O = OTHER (specify) P = PRIVATE												D. PHONE (area code & no.)	
E. STREET OR P.O. BOX													
F. CITY OR TOWN						G. STATE		H. ZIP CODE		IX. INDIAN LAND Is the facility located on Indian lands? <input type="checkbox"/> YES <input type="checkbox"/> NO			

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water) 9 N						D. PSD (Air Emissions from Proposed Sources) 9 P					
B. UIC (Underground Injection of Fluids) 9 U						E. OTHER (specify)					
C. RCRA (Hazardous Wastes) 9 R						E. OTHER (specify)					

XI. MAP

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

XII. NATURE OF BUSINESS (provide a brief description)

[Empty space for business description]

XIII. CERTIFICATION (see instructions)

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

A. NAME & OFFICIAL TITLE (type or print)	B. SIGNATURE	C. DATE SIGNED
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COMMENTS FOR OFFICIAL USE ONLY

[Empty space for official use only comments]

FORM 1		U.S. ENVIRONMENTAL PROTECTION AGENCY GENERAL INFORMATION <i>Consolidated Permits Program</i> <i>(Read the "General Instructions" before starting.)</i>	I. EPA I.D. NUMBER <table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:10%; text-align: center;">F</td> <td style="width:10%; text-align: center;">G</td> <td style="width:10%; text-align: center;">H</td> <td style="width:10%; text-align: center;">I</td> <td style="width:10%; text-align: center;">J</td> <td style="width:10%; text-align: center;">K</td> <td style="width:10%; text-align: center;">L</td> <td style="width:10%; text-align: center;">M</td> <td style="width:10%; text-align: center;">N</td> <td style="width:10%; text-align: center;">O</td> <td style="width:10%; text-align: center;">P</td> <td style="width:10%; text-align: center;">Q</td> <td style="width:10%; text-align: center;">R</td> <td style="width:10%; text-align: center;">S</td> <td style="width:10%; text-align: center;">T</td> <td style="width:10%; text-align: center;">U</td> <td style="width:10%; text-align: center;">V</td> <td style="width:10%; text-align: center;">W</td> <td style="width:10%; text-align: center;">X</td> <td style="width:10%; text-align: center;">Y</td> <td style="width:10%; text-align: center;">Z</td> </tr> </table>	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z				

LABEL ITEMS	PLEASE PLACE LABEL IN THIS SPACE
I. EPA I.D. NUMBER	
III. FACILITY NAME	
V. FACILITY MAILING ADDRESS	
VI. FACILITY LOCATION	

GENERAL INSTRUCTIONS

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

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

III. NAME OF FACILITY

C	1	SKIP			
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IV. FACILITY CONTACT

A. NAME & TITLE (last, first, & title)	B. PHONE (area code & no.)
C	D
2	3

V. FACILITY MAILING ADDRESS

A. STREET OR P.O. BOX		
C	D	
3	4	
B. CITY OR TOWN	C. STATE	D. ZIP CODE
C	D	E
4	5	6

VI. FACILITY LOCATION

A. STREET, ROUTE NO. OR OTHER SPECIFIC IDENTIFIER			
C	D		
5	6		
B. COUNTY NAME			
C	D		
6	7		
C. CITY OR TOWN	D. STATE	E. ZIP CODE	F. COUNTY CODE (if known)
C	D	E	F
6	7	8	9

CONTINUED FROM THE FRONT

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

A. FIRST				B. SECOND			
C	7	(specify)		E	7	(specify)	
11	12	13	14	15	16	17	18
C. THIRD				D. FOURTH			
C	7	(specify)		E	7	(specify)	
11	12	13	14	15	16	17	18

VIII. OPERATOR INFORMATION

A. NAME												B. Is the name listed in Item VIII-A also owner?	
C												<input type="checkbox"/> YES <input type="checkbox"/> NO	
8												66	

C. STATUS OF OPERATOR (Enter the appropriate letter into the answer box; if "Other", specify.)										D. PHONE (area code & no.)			
F = FEDERAL		M = PUBLIC (other than federal or state)		(specify)		E		A					
S = STATE		O = OTHER (specify)				11		12		13		14	
P = PRIVATE													

E. STREET OR P.O. BOX											

F. CITY OR TOWN						G. STATE		H. ZIP CODE		IX. INDIAN LAND	
										Is the facility located on Indian lands?	
										<input type="checkbox"/> YES <input type="checkbox"/> NO	
										32	

X. EXISTING ENVIRONMENTAL PERMITS

A. NPDES (Discharges to Surface Water)						D. PSD (Air Emissions from Proposed Sources)					
E		T		I		E		T		I	
9		N				9		P			
11		12		13		14		15		16	
B. UIC (Underground Injection of Fluids)						E. OTHER (specify)					
E		T		I		E		T		I	
9		U				9				(specify)	
11		12		13		14		15		16	
C. RCRA (Hazardous Wastes)						E. OTHER (specify)					
E		T		I		E		T		I	
9		R				9				(specify)	
11		12		13		14		15		16	

XI. MAP

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

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A. NAME & OFFICIAL TITLE (type or print)				B. SIGNATURE				C. DATE SIGNED			

COMMENTS FOR OFFICIAL USE ONLY

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Permits Division

Application Form 2C - Wastewater Discharge Information

Consolidated Permits Program

This form must be completed by all persons applying for an EPA permit to discharge wastewater (*existing manufacturing, commercial, mining, and silvicultural operations*).



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Paperwork Reduction Act Notice

The public reporting burden for this collection of information is estimated to average 33 hours per response. This estimate includes time for reviewing instructions, searching existing data sources, gathering and maintaining the needed data, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information to the Chief, Information Policy Branch (PM-223), US Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460, and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503, marked **Attention: Desk Officer for EPA**.



Printed on Recycled Paper

INSTRUCTIONS — FORM 2c
Application for Permit to Discharge Wastewater
EXISTING MANUFACTURING, COMMERCIAL, MINING, AND SILVICULTURAL OPERATIONS

This form must be completed by all applicants who check "yes" to item II-C in Form 1.

Public Availability of Submitted Information.

Your application will not be considered complete unless you answer every question on this form and on Form 1. If an item does not apply to you, enter "NA" (for not applicable) to show that you considered the question.

You may not claim as confidential any information required by this form or Form 1, whether the information is reported on the forms or in an attachment. This information will be made available to the public upon request.

Any information you submit to EPA which goes beyond that required by this form or Form 1 you may claim as confidential, but claims for information which is effluent data will be denied. If you do not assert a claim of confidentiality at the time of submitting the information, EPA may make the information public without further notice to you. Claims of confidentiality will be handled in accordance with EPA's business confidentiality regulations at 40 CFR Part 2.

Definitions

All significant terms used in these instructions and in the form are defined in the glossary found in the General Instructions which accompany Form 1.

EPA ID Number

Fill in your EPA Identification Number at the top of each page of Form 2c. You may copy this number directly from item I of Form 1.

Item I

You may use the map you provided for item XI of Form 1 to determine the latitude and longitude of each of your outfalls and the name of the receiving water.

Item II-A

The line drawing should show generally the route taken by water in your facility from intake to discharge. Show all operations contributing wastewater, including process and production areas, sanitary flows, cooling water, and stormwater runoff. You may group similar operations into a single unit, labeled to correspond to the more detailed listing in item II-B. The water balance should show average flows. Show all significant losses of water to products, atmosphere, and discharge. You should use actual measurements whenever available; otherwise use your best estimate. An example of an acceptable line drawing appears in Figure 2c-1 to these instructions.

Item II-B

List all sources of wastewater for each outfall. Operations may be described in general terms (for example, "dye-making reactor" or "distillation tower"). You may estimate the flow contributed by each source if no data are available. For stormwater discharges you may estimate the average flow, but you must indicate the rainfall event upon which the estimate is based and the method of estimation. For each treatment unit, indicate its size, flow rate, and retention time, and describe the ultimate disposal of any solid or liquid wastes not discharged. Treatment units should be listed in order and you should select the proper code from Table 2c-1 to fill in column 3-b for each treatment unit. Insert "XX" into column 3-b if no code corresponds to a treatment unit you list. If you are applying for a permit for a privately owned treatment works, you must also identify all of your contributors in an attached listing.

Item II-C

A discharge is intermittent unless it occurs without interruption during the operating hours of the facility, except for infrequent shut-downs for maintenance, process changes, or other similar activities. A discharge is seasonal if it occurs only during certain parts of the year. Fill in every applicable column in this item for each source of intermittent or seasonal discharges. Base your answers on actual data whenever available; otherwise, provide your best estimate. Report the highest daily value for flow rate and total volume in the

"Maximum Daily" columns (columns 4-a-2 and 4-b-2). Report the average of all daily values measured during days when discharge occurred within the last year in the "Long Term Average" columns (columns 4-a-1 and 4-b-1).

Item III-A

All effluent guidelines promulgated by EPA appear in the Federal Register and are published annually in 40 CFR Subchapter N. A guideline applies to you if you have any operations contributing process wastewater in any subcategory covered by a BPT, BCT, or BAT guideline. If you are unsure whether you are covered by a promulgated effluent guideline, check with your EPA Regional office (Table 1 in the Form 1 instructions). You must check "yes" if an applicable effluent guideline has been promulgated, even if the guideline limitations are being contested in court. If you believe that a promulgated effluent guideline has been remanded for reconsideration by a court and does not apply to your operations, you may check "no."

Item III-B

An effluent guideline is expressed in terms of production (or other measure of operation) if the limitation is expressed as mass of pollutant per operational parameter; for example, "pounds of BOD per cubic foot of logs from which bark is removed," or "pounds of TSS per megawatt hour of electrical energy consumed by smelting furnace". An example of a guideline not expressed in terms of a measure of operation is one which limits the concentration of pollutants.

Item III-C

This item must be completed only if you checked "yes" to item III-B. The production information requested here is necessary to apply effluent guidelines to your facility and you cannot claim it as confidential. However, you do not have to indicate how the reported information was calculated. Report quantities in the units of measurement used in the applicable effluent guideline. The production figures provided must be based on actual daily production and not on design capacity or on predictions of future operations. To obtain alternate limits under 40 CFR 122.45(b)(2)(ii), you must define your maximum production capability and demonstrate to the Director that your actual production is substantially below maximum production capability and that there is a reasonable potential for an increase above actual production during the duration of the permit.

Item IV-A

If you check "yes" to this question, complete all parts of the chart, or attach a copy of any previous submission you have made to EPA containing same information.

Item IV-B

You are not required to submit a description of future pollution control projects if you do not wish to or if none is planned.

Item V-A, B, C, and D

The items require you to collect and report data on the pollutants discharged for each of your outfalls. Each part of this item addresses a different set of pollutants and must be completed in accordance with the specific instructions for that part. The following general instructions apply to the entire item.

General Instructions

Part A requires you to report at least one analysis for each pollutant listed. Parts B and C require you to report analytical data in two ways. For some pollutants, you may be required to mark "X" in the "Testing Required" column (column 2-a, Part C), and test (sample and analyze) and report the levels of the pollutants in your discharge whether or not you expect them to be present in your discharge. For all others, you must mark "X" in either the "Believe Present" column or the "Believe Absent" column (columns 2-a or 2-b, Part B, and columns 2-b or 2-c, Part C) based on your best estimate, and test for those which you believe to be present. (See specific instructions on the form and below for Parts A through D.) Base your determination that a pollutant is present in or absent from your discharge on your knowledge of your raw materials, maintenance chemicals, inter-

ITEM V — A, B, C, and D (continued)

mediate and final products and byproducts, and any previous analyses known to you of your effluent or similar effluent. (For example, if you manufacture pesticides, you should expect those pesticides to be present in contaminated stormwater runoff.) If you would expect a pollutant to be present solely as a result of its presence in your intake water, you must mark "Believe Present" but you are not required to analyze for that pollutant. Instead, mark an "X" in the "Intake" column.

A. Reporting. All levels must be reported as concentration and as total mass. You may report some or all of the required data by attaching separate sheets of paper instead of filling out pages V-1 to V-9 if the separate sheets contain all the required information in a format which is consistent with pages V-1 to V-9 in spacing and in identification of pollutants and columns. (For example, the data system used in your GC/MS analysis may be able to print data in the proper format.) Use the following abbreviations in the columns headed "Units" (column 3, Part A, and column 4, Parts B and C).

Concentration	Mass
ppm parts per million	lbs pounds
mg/l milligrams per liter	ton tons (English tons)
ppb parts per billion	mg milligrams
ug/l.... micrograms per liter	g..... grams
	kg..... kilograms
	T..... tonnes (metric tons)

All reporting of values for metals must be in terms of "total recoverable metal," unless:

- (1) An applicable, promulgated effluent limitation or standard specifies the limitation for the metal in dissolved, valent, or total form; or
- (2) All approved analytical methods for the metal inherently measure only its dissolved form (e.g., hexavalent chromium); or
- (3) The permitting authority has determined that in establishing case-by-case limitations it is necessary to express the limitations on the metal in dissolved, valent, or total form to carry out the provisions of the CWA.

If you measure only one daily value, complete only the "Maximum Daily Values" columns and insert '1' into the "Number of Analyses" column (columns 2-a and 2-d, Part A, and column 3-a, 3-d, Parts B and C). The permitting authority may require you to conduct additional analyses to further characterize your discharges. For composite samples, the daily value is the total mass or average concentration found in a composite sample taken over the operating hours of the facility during a 24-hour period; for grab samples, the daily value is the arithmetic or flow-weighted total mass or average concentration found in a series of at least four grab samples taken over the operating hours of the facility during a 24-hour period.

If you measure more than one daily value for a pollutant and those values are representative of your wastestream, you must report them. You must describe your method of testing and data analysis. You also must determine the average of all values within the last year and report the concentration and mass under the "Long Term Average Values" columns (column 2-c, Part A, and column 3-c, Parts B and C), and the total number of daily values under the "Number of Analyses" columns (column 2-d, Part A, and columns 3-d, Parts B and C). Also, determine the average of all daily values taken during each calendar month, and report the highest average under the "Maximum 30-day Values" columns (column 2-c, Part A, and column 3-b, Parts B and C).

B. Sampling: The collection of the samples for the reported analyses should be supervised by a person experienced in performing sampling of industrial wastewater. You may contact your EPA or State permitting authority for detailed guidance on sampling techniques and for answers to specific questions. Any specific requirements contained in the applicable analytical methods should be followed for sample containers, sample preservation,

holding times, the collection of duplicate samples, etc. The time when you sample should be representative of your normal operation, to the extent feasible, with all processes which contribute wastewater in normal operation, and with your treatment system operating properly with no system upsets. Samples should be collected from the center of the flow channel, where turbulence is at a maximum, at a site specified in your present permit, or at any site adequate for the collection of a representative sample.

For pH, temperature, cyanide, total phenols, residual chlorine, oil and grease, and fecal coliform, grab samples must be used. For all other pollutants 24-hour composite samples must be used. However, a minimum of one grab sample may be taken for effluents from holding ponds or other impoundments with a retention period of greater than 24 hours. For stormwater discharges a minimum of one to four grab samples may be taken, depending on the duration of the discharge. One grab must be taken in the first hour (or less) of discharge, with one additional grab (up to a minimum of four) taken in each succeeding hour of discharge for discharges lasting four or more hours. The Director may waive composite sampling for any outfall for which you demonstrate that use of an automatic sampler is infeasible and that a minimum of four grab samples will be representative of your discharge.

Grab and composite samples are defined as follows:

Grab sample: An individual sample of at least 100 milliliters collected at a randomly-selected time over a period not exceeding 15 minutes.

Composite sample: A combination of at least 8 sample aliquots of at least 100 milliliters, collected at periodic intervals during the operating hours of a facility over a 24 hour period. The composite must be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to either the stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically. For GC/MS Volatile Organic Analysis (VOA), aliquots must be combined in the laboratory immediately before analysis. Four (4) (rather than eight) aliquots or grab samples should be collected for VOA. These four samples should be collected during actual hours of discharge over a 24 hour period and need not be flow proportioned. Only one analysis is required.

The Agency is currently reviewing sampling requirements in light of recent research on testing methods. Upon completion of its review, the Agency plans to propose changes to the sampling requirements.

Data from samples taken in the past may be used, provided that:

All data requirements are met;

Sampling was done no more than three years before submission; and

All data are representative of the present discharge.

Among the factors which would cause the data to be unrepresentative are significant changes in production level, changes in raw materials, processes, or final products, and changes in wastewater treatment. When the Agency promulgates new analytical methods in 40 CFR Part 136, EPA will provide information as to when you should use the new methods to generate data on your discharges. Of course, the Director may request additional information, including current quantitative data, if she or he determines it to be necessary to assess your discharges.

C. Analysis: You must use test methods promulgated in 40 CFR Part 136; however, if none has been promulgated for a particular pollutant, you may use any suitable method for measuring the level of the pollutant in your discharge provided that you submit a description of the method or a reference to a published method. Your description should include the sample holding time, preservation techniques, and the quality control measures which you used. If you have two or more substantially identical outfalls, you may request permission from your permitting authority to sample and analyze only one outfall and submit the results of the analysis

ITEM V — A, B, C, and D (continued)

for other substantially identical outfalls. If your request is granted by the permitting authority, on a separate sheet attached to the application form, identify which outfall you did test, and describe why the outfalls which you did not test are substantially identical to the outfall which you did test.

D. Reporting of Intake Data: You are not required to report data under the "Intake" columns unless you wish to demonstrate your eligibility for a "net" effluent limitation for one or more pollutants, that is, an effluent limitation adjusted by subtracting the average level of the pollutant(s) present in your intake water. NPDES regulations allow net limitations only in certain circumstances. To demonstrate your eligibility, under the "Intake" columns report the average of the results of analyses on your intake water (if your water is treated before use, test the water after it is treated), and discuss the requirements for a net limitation with your permitting authority.

Part V-A

Part V-A must be completed by all applicants for all outfalls, including outfalls containing only noncontact cooling water or storm runoff. However, at your request, the Director may waive the requirement to test for one or more of these pollutants, upon a determination that available information is adequate to support issuance of the permit with less stringent reporting requirements for these pollutants. You also may request a waiver for one or more of these pollutants for your category or subcategory from the Director, Office of Water Enforcement and Permits. See discussion in General Instructions to item V for definitions of the columns in Part A. The "Long Term Average Values" column (column 2-c) and "Maximum 30-day Values" column (column 2-b) are not compulsory but should be filled out if data are available.

Use composite samples for all pollutants in this Part, except use grab samples for pH and temperature. See discussion in General Instructions to Item V for definitions of the columns in Part A. The "Long Term Average Values" column (column 2-c) and "Maximum 30-Day Values" column (column 2-b) are not compulsory but should be filled out if data are available.

Part V-B

Part V-B must be completed by all applicants for all outfalls, including outfalls containing only noncontact cooling water or storm runoff. You must report quantitative data if the pollutant(s) in question is limited in an effluent limitations guideline either directly, or indirectly but expressly through limitation on an indicator (e.g., use of TSS as an indicator to control the discharge of iron and aluminum). For other discharged pollutants you must provide quantitative data or explain their presence in your discharge. EPA will consider requests to the Director of the Office of Water Enforcement and Permits to eliminate the requirement to test for pollutants for an industrial category or subcategory. Your request must be supported by data representative of the industrial category or subcategory in question. The data must demonstrate that individual testing for each applicant is unnecessary, because the facilities in the category or subcategory discharge substantially identical levels of the pollutant or discharge the pollutant uniformly at sufficiently low levels. Use composite samples for all pollutants you analyze for in this part, except use grab samples for residual chlorine, oil and grease, and fecal coliform. The "Long Term Average Values" column (column 3-c) and "Maximum 30-day Values" column (column 3-b) are not compulsory but should be filled out if data are available.

Part V-C

Table 2c-2 lists the 34 "primary" industry categories in the left-hand column. For each outfall, if any of your processes which contribute wastewater falls into one of those categories, you must mark "X" in "Testing Required" column (column 2-a) and test for (1) all of the toxic metals, cyanide, and total phenols, and (2) the organic toxic pollutants contained in Table 2c-2 as applicable to your category, unless you qualify as a small business (see below). The organic toxic pollutants are listed by GC/MS frac-

tions on pages V-4 to V-9 in Part V-C. For example, the Organic Chemicals Industry has an asterisk in all four fractions, therefore, applicants in this category must test for all organic toxic pollutants in Part V-C. The inclusion of total phenols in Part V-C is not intended to classify total phenols as a toxic pollutant. If you are applying for a permit for a privately owned treatment works, determine your testing requirements on the basis of the industry categories of your contributors. When you determine which industry category you are in to find your testing requirements, you are not determining your category for any other purpose and you are not giving up your right to challenge your inclusion in that category (for example, for deciding whether an effluent guideline is applicable) before your permit is issued. For all other cases (secondary industries, nonprocess wastewater outfalls, and non-required GC/MS fractions), you must mark "X" in either the "Believed Present" column (column 2-b) or the "Believed Absent" column (column 2-c) for each pollutant. For every pollutant you know or have reason to believe is present in your discharge in concentrations of 10 ppb or greater, you must report quantitative data. For acrolein, acrylonitrile, 2, 4 dinitrophenol, and 2-methyl-4, 6 dinitrophenol, where you expect these four pollutants to be discharged in concentrations of 100 ppb or greater, you must report quantitative data. For every pollutant expected to be discharged in concentrations less than the thresholds specified above, you must either submit quantitative data or briefly describe the reasons the pollutant is expected to be discharged. At your request the Director, Office of Water Enforcement and Permits, may waive the requirement to test for pollutants for an industrial category or subcategory. Your request must be supported by data representative of the industrial category or subcategory in question. The data must demonstrate that individual testing for each applicant is unnecessary, because the facilities in question discharge substantially identical levels of the pollutant, or discharge the pollutant uniformly at sufficiently low levels. If you qualify as a small business (see below) you are exempt from testing for the organic toxic pollutants, listed on pages V-4 to V-9 in Part C. For pollutants in intake water, see discussion in General Instructions to this item. The "Long Term Average Values" column (column 3-c) and "Maximum 30-day Values" column (column 3-b) are not compulsory but should be filled out if data are available. You are required to mark "Testing Required" for dioxin if you use or manufacture one of the following compounds:

- (a) 2,4,5-trichlorophenoxy acetic acid, (2,4,5-T);
- (b) 2-(2,4,5-trichlorophenoxy) propanoic acid, (Silvex, 2,4,5-TP);
- (c) 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate, (Erbon);
- (d) O,O-dimethyl O-(2,4,5-trichlorophenoxy) phosphorothioate, (Ronne);
- (e) 2,4,5-trichlorophenol, (TCP), or
- (f) hexachlorophene, (HCP).

If you mark "Testing Required" or "Believed Present," you must perform a screening analysis for dioxins, using gas chromatography with an electron capture detector. A TCDD standard for quantitation is not required. Describe the results of this analysis in the space provided; for example, "no measurable baseline deflection at the retention time of TCDD" or "a measurable peak within the tolerances of the retention time of TCDD." The permitting authority may require you to perform a quantitative analysis if you report a positive result. The Effluent Guidelines Division of EPA has collected and analyzed samples from some plants for the pollutants listed in Part C in the course of its BAT guidelines development program. If your effluents are sampled and analyzed as part of this program in the last three years, you may use these data to answer Part C provided that the permitting authority approves, and provided that no process change or change in raw materials or operating practices has occurred since the samples were taken that would make the analyses unrepresentative of your current discharge.

FORM 2C — INSTRUCTIONS (continued)

ITEM V — A, B, C, and D (continued)

Small Business Exemption: If you qualify as a "small business," you are exempt from the reporting requirements for the organic toxic pollutants, listed on pages V-4 to V-9 in Part C. There are two ways in which you can qualify as a "small business." If your facility is a coal mine, and if your probable total annual production is less than 100,000 tons per year, you may submit past production data or estimated future production (such as a schedule of estimated total production under 30 CFR § 795.14(c)) instead of conducting analyses for the organic toxic pollutants. If your facility is not a coal mine, and if your gross total annual sales for the most recent three years average less than \$100,000 per year (in second quarter 1980 dollars), you may submit sales data for those years instead of conducting analyses for the organic toxic pollutants. The production or sales data must be for the facility which is the source of the discharge. The data should not be limited to production or sales for the process or processes which contribute to the discharge, unless those are the only processes at your facility. For sales data, in situations involving intracorporate transfer of goods and services, the transfer price per unit should approximate market prices for those goods and services as closely as possible. Sales figures for years after 1980 should be indexed to the second quarter of 1980 by using the gross national product price deflator (second quarter of 1980 = 100). This index is available in *National Income and Product Accounts of the United States (Department of Commerce, Bureau of Economic Analysis)*.

Part V-D

List any pollutants in Table 2c-3 that you believe to be present and explain why you believe them to be present. No analysis is required, but if you have analytical data, you must report it.

Note: Under 40 CFR 117.12(a)(2), certain discharges of hazardous substances (listed in Table 2c-4 of these instructions) may be exempted from the requirements of section 311 of CWA, which establishes reporting requirements, civil penalties and liability for cleanup costs for spills of oil and hazardous substances. A discharge of a particular substance may be exempted if the origin, source, and amount of the discharged substances are identified in the NDPEs permit application or in the permit, if the permit contains a requirement for treatment of the discharge, and if the treatment is in place. To apply for an exclusion of the discharge of any hazardous substance from the requirements of section 311, attach additional sheets of paper to your form, setting forth the following information:

1. The substance and the amount of each substance which may be discharged.
2. The origin and source of the discharge of the substance.
3. The treatment which is to be provided for the discharge by:
 - a. An onsite treatment system separate from any treatment system treating your normal discharge;
 - b. A treatment system designed to treat your normal discharge and which is additionally capable of treating the amount of the substance identified under paragraph 1 above; or
 - c. Any combination of the above.

See 40 CFR § 117.12(a)(2) and (c), published on August 29, 1979, in 44 FR 50765, or contact your Regional Office (Table 1 on Form 1, Instructions), for further information on exclusions from section 311.

Item VI

This requirement applies to current use or manufacture of a toxic pollutant as an intermediate or final product or byproduct. The Director may waive or modify the requirement if you demonstrate that it would be unduly burdensome to identify each toxic pollutant and the Director has adequate information to issue your permit. You may not claim this information as confidential; however, you do not have to distinguish between use or production of the pollutants or list the amounts

Item VII

Self explanatory. The permitting authority may ask you to provide additional details after your application is received

Item IX

The Clean Water Act provides for severe penalties for submitting false information on this application form.

Section 309(c)(2) of the Clean Water Act provides that "Any person who knowingly makes any false statement, representation, or certification in any application, ... shall upon conviction, be punished by a fine of not more than \$10,000 or by imprisonment for not more than six months, or by both."

40 CFR Part 122.22 requires the certification to be signed as follows:

(A) *For a corporation:* by a responsible corporate official. For purposes of this section, a responsible corporate official means (i) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy- or decision-making functions for the corporation, or (ii) the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25,000,000 (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

Note: EPA does not require specific assignments or delegation of authority to responsible corporate officers identified in §122.22(a)(1)(i). The Agency will presume that these responsible corporate officers have the requisite authority to sign permit applications unless the corporation has notified the director to the contrary. Corporate procedures governing authority to sign permit applications may provide for assignment or delegation to applicable corporate position under §122.22(a)(1)(ii) rather than to specific individuals.

(B) *For a partnership or sole proprietorship:* by a general partner or the proprietor, respectively; or

(C) *For a municipality, State, Federal, or other public agency:* by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal Agency includes (i) the chief executive officer of the Agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the Agency (e.g., *Regional Administrators of EPA*). Applications for Group II stormwater dischargers may be signed by a duly authorized representative (as defined in 40 CFR 122.22(b)) of the individuals identified above.

CODES FOR TREATMENT UNITS

PHYSICAL TREATMENT PROCESSES

1-A Ammonia Stripping	1-M Grit Removal
1-B Dialysis	1-N Microstraining
1-C Diatomaceous Earth Filtration	1-O Mixing
1-D Distillation	1-P Moving Bed Filters
1-E Electrodialysis	1-Q Multimedia Filtration
1-F Evaporation	1-R Rapid Sand Filtration
1-G Flocculation	1-S Reverse Osmosis (<i>Hyperfiltration</i>)
1-H Flotation	1-T Screening
1-I Foam Fractionation	1-U Sedimentation (<i>Settling</i>)
1-J Freezing	1-V Slow Sand Filtration
1-K Gas-Phase Separation	1-W Solvent Extraction
1-L Grinding (<i>Comminutors</i>)	1-X Sorption

CHEMICAL TREATMENT PROCESSES

2-A Carbon Adsorption	2-G Disinfection (<i>Ozone</i>)
2-B Chemical Oxidation	2-H Disinfection (<i>Other</i>)
2-C Chemical Precipitation	2-I Electrochemical Treatment
2-D Coagulation	2-J Ion Exchange
2-E Dechlorination	2-K Neutralization
2-F Disinfection (<i>Chlorine</i>)	2-L Reduction

BIOLOGICAL TREATMENT PROCESSES

3-A Activated Sludge	3-E Pre-Aeration
3-B Aerated Lagoons	3-F Spray Irrigation/Land Application
3-C Anaerobic Treatment	3-G Stabilization Ponds
3-D Nitrification-Denitrification	3-H Trickling Filtration

OTHER PROCESSES

4-A Discharge to Surface Water	4-C Reuse/Recycle of Treated Effluent
4-B Ocean Discharge Through Outfall	4-D Underground Injection

SLUDGE TREATMENT AND DISPOSAL PROCESSES

5-A Aerobic Digestion	5-M Heat Drying
5-B Anaerobic Digestion	5-N Heat Treatment
5-C Belt Filtration	5-O Incineration
5-D Centrifugation	5-P Land Application
5-E Chemical Conditioning	5-Q Landfill
5-F Chlorine Treatment	5-R Pressure Filtration
5-G Composting	5-S Pyrolysis
5-H Drying Beds	5-T Sludge Lagoons
5-I Elutriation	5-U Vacuum Filtration
5-J Flotation Thickening	5-V Vibration
5-K Freezing	5-W Wet Oxidation
5-L Gravity Thickening	

TESTING REQUIREMENTS FOR ORGANIC TOXIC POLLUTANTS INDUSTRY CATEGORY*

INDUSTRY CATEGORY	GC/MS FRACTION ¹			
	Volatile	Acid	Base/Neutral	Pesticide
Adhesives and sealants	X	X	X	-
Aluminum forming	X	X	X	-
Auto and other laundries	X	X	X	X
Battery manufacturing	X	-	X	-
Coal mining	X	X	X	X
Coil coating	X	X	X	-
Copper forming	X	X	X	-
Electric and electronic compounds	X	X	X	X
Electroplating	X	X	X	-
Explosives manufacturing	-	X	X	-
Foundries	X	X	X	-
Gum and wood chemicals	X	X	X	X
Inorganic chemicals manufacturing	X	X	X	-
Iron and steel manufacturing	X	X	X	-
Leather tanning and finishing	X	X	X	X
Mechanical products manufacturing	X	X	X	-
Nonferrous metals manufacturing	X	X	X	X
Ore mining	X	X	X	X
Organic chemicals manufacturing	X	X	X	X
Paint and ink formulation	X	X	X	X
Pesticides	X	X	X	X
Petroleum refining	X	X	X	X
Pharmaceutical preparations	X	X	X	-
Photographic equipment and supplies	X	X	X	X
Plastic and synthetic materials manufacturing	X	X	X	X
Plastic processing	X	-	-	-
Porcelain enameling	X	-	X	X
Printing and publishing	X	X	X	X
Pulp and paperboard mills	X	X	X	X
Rubber processing	X	X	X	-
Soap and detergent manufacturing	X	X	X	-
Steam electric power plants	X	X	X	-
Textile mills	X	X	X	X
Timber products processing	X	X	X	X

*See note at conclusion of 40 CFR Part 122, Appendix D (1983) for explanation of effect of suspensions on testing requirements for primary industry categories

¹The pollutants in each fraction are listed in Item V-C.

X = Testing required

- = Testing not required.

**TOXIC POLLUTANTS AND HAZARDOUS SUBSTANCES REQUIRED TO
BE IDENTIFIED BY APPLICANTS IF EXPECTED TO BE PRESENT**

TOXIC POLLUTANT	HAZARDOUS SUBSTANCES	HAZARDOUS SUBSTANCES
Asbestos	Dichlorvos	Naled
	Diethyl amine	Napthenic acid
HAZARDOUS SUBSTANCES	Dimethyl amine	Nitrotoluene
Acetaldehyde	Dinitrobenzene	Parathion
Allyl alcohol	Diquat	Phenolsulfonate
Allyl chloride	Disulfoton	Phosgene
Amyl acetate	Diuron	Propargite
Aniline	Epichlorohydrin	Propylene oxide
Benzonitrile	Ethion	Pyrethrins
Benzyl chloride	Ethylene diamine	Quinoline
Butyl acetate	Ethylene dibromide	Resorcinol
Butylamine	Formaldehyde	Strontium
Captan	Furfural	Strychnine
Carbaryl	Guthion	Styrene
Carbofuran	Isoprene	2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)
Carbon disulfide	Isopropanolamine	TDE (Tetrachlorodiphenyl ethane)
Chlorpyrifos	Kelthane	2,4,5-TP (2-(2,4,5-Trichlorophenoxy) propanoic acid)
Coumaphos	Kepone	Trichlorofon
Cresol	Malathion	Triethanolamine
Crotonaldehyde	Mercaptodimethur	Triethylamine
Cyclohexane	Methoxychlor	Trimethylamine
2,4-D (2,4-Dichlorophenoxyacetic acid)	Methyl mercaptan	Uranium
Diazinon	Methyl methacrylate	Vanadium
Dicamba	Methyl parathion	Vinyl acetate
Dichlobenil	Mevinphos	Xylene
Dichlone	Mexacarbate	Xylenol
2,2-Dichloropropionic acid	Monoethyl amine	Zirconium
	Monomethyl amine	

HAZARDOUS SUBSTANCES

1. Acetaldehyde	70. Calcium cyanide	136. Ferric ammonium citrate
2. Acetic acid	71. Calcium dodecylbenzenesulfonate	137. Ferric ammonium oxalate
3. Acetic anhydride	72. Calcium hypochlorite	138. Ferric chloride
4. Acetone cyanohydrin	73. Captan	139. Ferric fluoride
5. Acetyl bromide	74. Carbaryl	140. Ferric nitrate
6. Acetyl chloride	75. Carbofuran	141. Ferric sulfate
7. Acrolein	76. Carbon disulfide	142. Ferrous ammonium sulfate
8. Acrylonitrile	77. Carbon tetrachloride	143. Ferrous chloride
9. Adipic acid	78. Chlordane	144. Ferrous sulfate
10. Aldrin	79. Chlorine	145. Formaldehyde
11. Allyl alcohol	80. Chlorobenzene	146. Formic acid
12. Allyl chloride	81. Chloroform	147. Fumaric acid
13. Aluminum sulfate	82. Chloropyrifos	148. Furfural
14. Ammonia	83. Chlorosulfonic acid	149. Guthion
15. Ammonium acetate	84. Chromic acetate	150. Heptachlor
16. Ammonium benzoate	85. Chromic acid	151. Hexachlorocyclopentadiene
17. Ammonium bicarbonate	86. Chromic sulfate	152. Hydrochloric acid
18. Ammonium bichromate	87. Chromous chloride	153. Hydrofluoric acid
19. Ammonium bifluoride	88. Cobaltous bromide	154. Hydrogen cyanide
20. Ammonium bisulfite	89. Cobaltous formate	155. Hydrogen sulfide
21. Ammonium carbamate	90. Cobaltous sulfamate	156. Isoprene
22. Ammonium carbonate	91. Coumaphos	157. Isopropanolamine
23. Ammonium chloride	92. Cresol	dodecylbenzenesulfonate
24. Ammonium chromate	93. Crotonaldehyde	158. Kelthane
25. Ammonium citrate	94. Cupric acetate	159. Kepone
26. Ammonium fluoroborate	95. Cupric acetoarsenite	160. Lead acetate
27. Ammonium fluoride	96. Cupric chloride	161. Lead arsenate
28. Ammonium hydroxide	97. Cupric nitrate	162. Lead chloride
29. Ammonium oxalate	98. Cupric oxalate	163. Lead fluoroborate
30. Ammonium silicofluoride	99. Cupric sulfate	164. Lead flourite
31. Ammonium sulfamate	100. Cupric sulfate ammoniated	165. Lead iodide
32. Ammonium sulfide	101. Cupric tartrate	166. Lead nitrate
33. Ammonium sulfite	102. Cyanogen chloride	167. Lead stearate
34. Ammonium tartrate	103. Cyclohexane	168. Lead sulfate
35. Ammonium thiocyanate	104. 2,4-D acid (2,4-Dichlorophenoxyacetic acid)	169. Lead sulfide
36. Ammonium thiosulfate	105. 2,4-D esters (2,4-Dichlorophenoxyacetic acid esters)	170. Lead thiocyanate
37. Amyl acetate	106. DDT	171. Lindane
38. Aniline	107. Dazamon	172. Lithium chromate
39. Antimony pentachloride	108. Dicamba	173. Malathion
40. Antimony potassium tartrate	109. Dichlobenil	174. Maleic acid
41. Antimony tribromide	110. Dichlone	175. Maleic anhydride
42. Antimony trichloride	111. Dichlorobenzene	176. Mercaptodimethur
43. Antimony trifluoride	112. Dichloropropane	177. Mercuric cyanide
44. Antimony trioxide	113. Dichloropropene	178. Mercuric nitrate
45. Arsenic disulfide	114. Dichloropropene-dichloropropane mix	179. Mercuric sulfate
46. Arsenic pentoxide	115. 2,2-Dichloropropionic acid	180. Mercuric thiocyanate
47. Arsenic trichloride	116. Dieldrin	181. Mercurous nitrate
48. Arsenic trioxide	117. Dieldrin	182. Methoxychlor
49. Arsenic trisulfide	118. Diethylamine	183. Methyl mercaptan
50. Barium cyanide	119. Dimethyamine	184. Methyl methacrylate
51. Benzene	120. Dinitrobenzene	185. Methyl parathion
52. Benzoic acid	121. Dinitrophenol	186. Mevinphos
53. Benzointrile	122. Dinitrotoluene	187. Mexacarbate
54. Benzoyl chloride	123. Diquat	188. Monoethylamine
55. Benzyl chloride	124. Disulfoton	189. Monomethylamine
56. Beryllium chloride	125. Diuron	190. Naled
57. Beryllium fluoride	126. Dodecylbenzenesulfonic acid	191. Naphthalene
58. Beryllium nitrate	127. Endosulfan	192. Naphthenic acid
59. Butylacetate	128. Endrin	193. Nickel ammonium sulfate
60. n-Butylphthalate	129. Epichlorohydrin	194. Nickel chloride
61. Butylamine	130. Ethion	195. Nickel hydroxide
62. Butyric acid	131. Ethylbenzene	196. Nickel nitrate
63. Cadmium acetate	132. Ethylenediamine	197. Nickel sulfate
64. Cadmium bromide	133. Ethylene dibromide	198. Nitric acid
65. Cadmium chloride	134. Ethylene dichloride	199. Nitrobenzene
66. Calcium arsenate	135. Ethylene diaminetetracetic acid (EDTA)	200. Nitrogen dioxide
67. Calcium arsenite		201. Nitrophenol
68. Calcium carbide		202. Nitrotoluene
69. Calcium chromate		203. Paraformaldehyde

HAZARDOUS SUBSTANCES (continued)

204. Parathion	238. Sodium dodecylbenzenesulfonate	266. Trichloroethylene
205. Pentachlorophenol	239. Sodium fluoride	267. Trichlorophenol
206. Phenol	240. Sodium hydrosulfide	268. Triethanolamine dodecylbenzenesulfonate
207. Phosgene	241. Sodium hydroxide	269. Triethylamine
208. Phosphoric acid	242. Sodium hypochlorite	270. Trimethylamine
209. Phosphorus	243. Sodium methylate	271. Uranyl acetate
210. Phosphorus oxychloride	244. Sodium nitrite	272. Uranyl nitrate
211. Phosphorus pentasulfide	245. Sodium phosphate (dibasic)	273. Vanadium pentoxide
212. Phosphorus trichloride	246. Sodium phosphate (tribasic)	274. Vanadyl sulfate
213. Polychlorinated biphenyls (PCB)	247. Sodium selenite	275. Vinyl acetate
214. Potassium arsenate	248. Strontium chromate	276. Vinylidene chloride
215. Potassium arsenite	249. Strychnine	277. Xylene
216. Potassium bichromate	250. Styrene	278. Xylenol
217. Potassium chromate	251. Sulfuric acid	279. Zinc acetate
218. Potassium cyanide	252. Sulfur monochloride	280. Zinc ammonium chloride
219. Potassium hydroxide	253. 2,4,5-T acid (2,4,5- Trichlorophenoxyacetic acid)	281. Zinc borate
220. Potassium permanganate	254. 2,4,5-T amines (2,4,5-Trichlorophenoxy acetic acid amines)	282. Zinc bromide
221. Propargite	255. 2,4,5-T esters (2,4,5-Trichlorophenoxy acetic acid esters)	283. Zinc carbonate
222. Propionic acid	256. 2,4,5-T salts (2,4,5-Trichlorophenoxy acetic acid salts)	284. Zinc chloride
223. Propionic anhydride	257. 2,4,5-TP acid (2,4,5-Trichlorophenoxy propanoic acid)	285. Zinc cyanide
224. Propylene oxide	258. 2,4,5-TP acid esters (2,4,5- Trichlorophenoxy propanoic acid esters)	286. Zinc fluoride
225. Pyrethrins	259. TDE (Tetrachlorodiphenyl ethane)	287. Zinc formate
226. Quinoline	260. Tetraethyl lead	288. Zinc hydrosulfite
227. Resorcinol	261. Tetraethyl pyrophosphate	289. Zinc nitrate
228. Selenium oxide	262. Thallium sulfate	290. Zinc phenylsulfonate
229. Silver nitrate	263. Toluene	291. Zinc phosphide
230. Sodium	264. Toxaphene	292. Zinc silicofluoride
231. Sodium arsenate	265. Trichlorofon	293. Zinc sulfate
232. Sodium arsenite		294. Zirconium nitrate
233. Sodium bichromate		295. Zirconium potassium fluoride
234. Sodium bifluoride		296. Zirconium sulfate
235. Sodium bisulfite		297. Zirconium tetrachloride
236. Sodium chromate		
237. Sodium cyanide		

LINE DRAWING

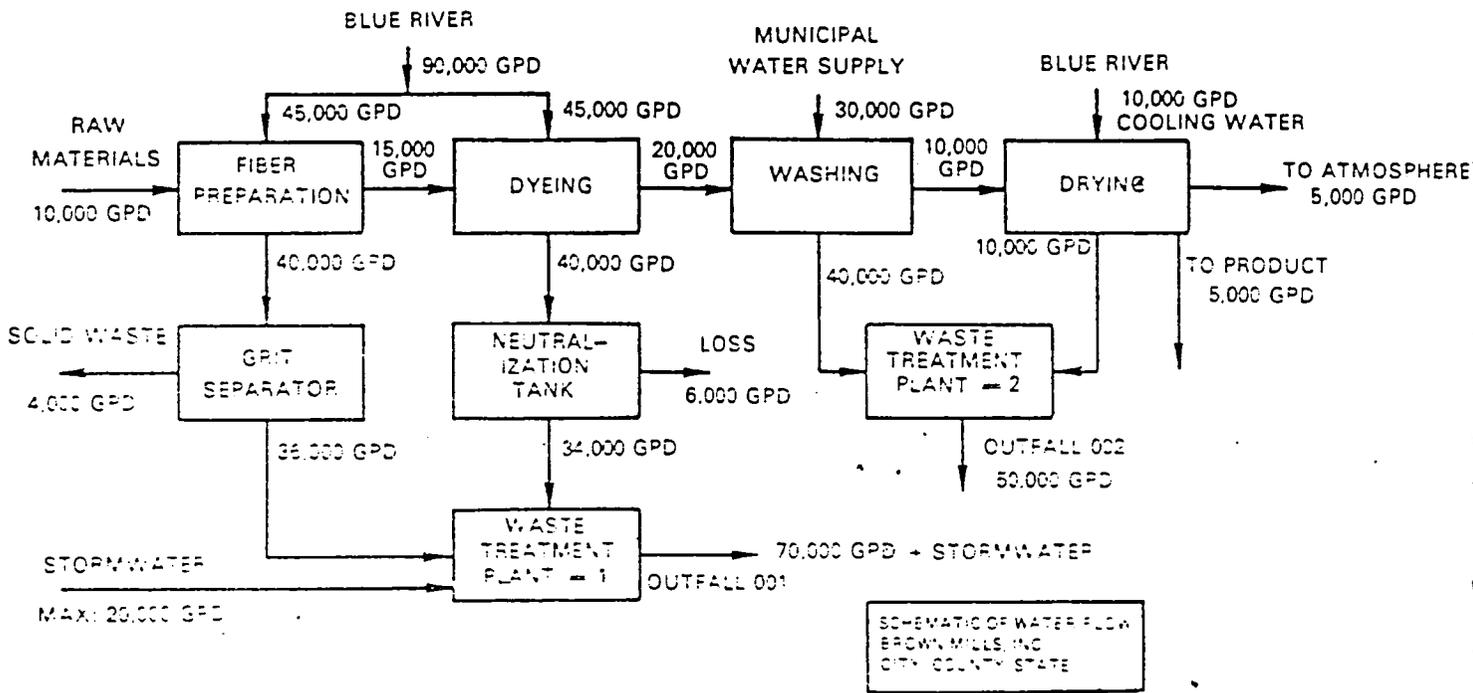


FIGURE 2C-1

C. Except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?
 YES (complete the following table) NO (go to Section III)

1. OUTFALL NUMBER (list)	2. OPERATION(S) CONTRIBUTING FLOW (list)	3. FREQUENCY		4. FLOW				c. DUR- ATION (in days)
		a. DAYS PER WEEK (specify average)	b. MONTHS PER YEAR (specify average)	a. FLOW RATE (in mgd)		b. TOTAL VOLUME (specify with units)		
				1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	

III. PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?
 YES (complete Item III-B) NO (to to Section IV)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (or other measure of operation)?
 YES (complete Item III-C) NO (go to Section IV)

C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

1. AVERAGE DAILY PRODUCTION			2. AFFECTED OUTFALLS (list outfall numbers)
a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL, ETC. (specify)	

IV. IMPROVEMENTS

A. Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operation of waste-water treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.
 YES (complete the following table) NO (go to Item IV-B)

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COM- PLIANCE DATE	
	a. NO.	b. SOURCE OF DISCHARGE		a. RE- QUIRED	b. PRO- JECTED

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (or other environmental projects which may affect your discharges) you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction. MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED

VII. BIOLOGICAL TOXICITY TESTING DATA

Do you have any knowledge or reason to believe that any biological test for acute or chronic toxicity has been made on any of your discharges or on a receiving water in relation to your discharge within the last 3 years?

YES (identify the test(s) and describe their purposes below)

NO (go to Section VIII)

VIII. CONTRACT ANALYSIS INFORMATION

Were any of the analyses reported in Item V performed by a contract laboratory or consulting firm?

YES (list the name, address, and telephone number of, and pollutants analyzed by, each such laboratory or firm below)

NO (go to Section IX)

A. NAME	B. ADDRESS	C. TELEPHONE (area code & no.)	D. POLLUTANTS ANALYZED (list)

IX. CERTIFICATION

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

A. NAME & OFFICIAL TITLE (type or print)	B. PHONE NO. (area code & no.)
C. SIGNATURE	D. DATE SIGNED

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages. SEE INSTRUCTIONS.

OUTFALL NO.

V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT						4. NO. OF ANALYSES	3. UNITS (specify if blank)		4. INTAKE (optional)		5. NO. OF ANALYSES
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)			a. CONCENTRATION	b. MASS	d. LONG TERM AVERAGE VALUE		
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Biochemical Oxygen Demand (BOD)												
b. Chemical Oxygen Demand (COD)												
c. Total Organic Carbon (TOC)												
d. Total Suspended Solids (TSS)												
e. Ammonia (as N)												
f. Flow	VALUE:		VALUE		VALUE				VALUE			
g. Temperature (winter)	VALUE		VALUE		VALUE			°C	VALUE			
h. Temperature (summer)	VALUE		VALUE		VALUE			°C	VALUE			
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM	X			STANDARD UNITS		X		

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'		3. EFFLUENT						4. UNITS		5. INTAKE (optional)		6. NO. OF ANALYSES
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		a. CONCENTRATION	b. MASS	d. LONG TERM AVERAGE VALUE		
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS			(1) CONCENTRATION	(2) MASS	
a. Bromide (24959-67-9)													
b. Chlorine, Total Residual													
c. Color													
d. Fecal Coliform													
e. Fluoride (16984-48-8)													
f. Nitrate-Nitrite (as N)													

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'		3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	a. RE- LIEVE D. PRE- SENT	b. RE- LIEVE D. AB- SE NCE	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAL- YSES	a. CONCEN- TRATION	b. MASS	b. LONG TERM AVERAGE VALUE		c. NO. OF ANAL- YSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (as N)														
h. Oil and Grease														
i. Phosphorus (as P), Total (7723-14 0)														
j. Radioactivity														
(1) Alpha, Total														
(2) Beta, Total														
(3) Radium, Total														
(4) Radium 226, Total														
k. Sulfate (as SO ₄) (14808-79-8)														
l. Sulfide (as S)														
m. Sulfite (as SO ₃) (14265-45-3)														
n. Surfactants														
o. Aluminum, Total (7429-90-5)														
p. Barium, Total (7440-39-3)														
q. Boron, Total (7440-42-8)														
r. Cobalt, Total (7440-48-4)														
s. Iron, Total (7439-89-6)														
t. Magnesium, Total (7439-95-4)														
u. Molybdenum, Total (7439-98-7)														
v. Manganese, Total (7439-96-5)														
w. Tin, Total (7440-31-5)														
x. Titanium, Total (7440-32-6)														

CONTINUED FROM PAGE 3 OF FORM 2-C

PART C - If you are a primary industry and this outfall contains process wastewater, refer to Table 2c-2 in the instructions to determine which of the GC/MS fractions you must test for. Mark "X" in column 2-a for all such GC/MS fractions that apply to your industry and for ALL toxic metals, cyanides, and total phenols. If you are not required to mark column 2-a (*secondary industries, nonprocess wastewater outfalls, and nonrequired GC/MS fractions*), mark "X" in column 2-b for each pollutant you know or have reason to believe is present. Mark "X" in column 2-c for each pollutant you believe is absent. If you mark column 2a for any pollutant, you must provide the results of at least one analysis for that pollutant. If you mark column 2b for any pollutant, you must provide the results of at least one analysis for that pollutant if you know or have reason to believe it will be discharged in concentrations of 10 ppb or greater. If you mark column 2b for acrolein, acrylonitrile, 2,4 dinitrophenol, or 2-methyl-4, 6 dinitrophenol, you must provide the results of at least one analysis for each of these pollutants which you know or have reason to believe that you discharge in concentrations of 100 ppb or greater. Otherwise, for pollutants for which you mark column 2b, you must either submit at least one analysis or briefly describe the reasons the pollutant is expected to be discharged. Note that there are 7 pages to this part; please review each carefully. Complete one table (*all 7 pages*) for each outfall. See instructions for additional details and requirements.

POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	A. TESTING REQUIRED	B. BELIEVED PRESENT	C. BELIEVED ABSENT	B. MAXIMUM DAILY VALUE		D. MAXIMUM 30 DAY VALUE (if available)		C. LONG TERM AVRG. VALUE (if available)		D. NO. OF ANALYSES	A. CONCENTRATION	B. MASS	E. LONG TERM AVERAGE VALUE		F. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
METALS, CYANIDE, AND TOTAL PHENOLS															
I. Antimony, Total (7440-36-0)															
II. Arsenic, Total (440-38-2)															
III. Beryllium, Total (7440-41-7)															
IV. Cadmium, Total (7440-43-9)															
V. Chromium, Total (7440-47-3)															
VI. Copper, Total (440-50-8)															
VII. Lead, Total (439-92-1)															
VIII. Mercury, Total (439-97-6)															
IX. Nickel, Total (440-02-0)															
X. Selenium, Total (7782-49-2)															
XI. Silver, Total (440-22-4)															
XII. Thallium, Total (7440-28-0)															
XIII. Zinc, Total (440-66-6)															
XIV. Cyanide, Total (57-12-5)															
XV. Phenols, Total															
DIOXIN															
I. 2,3,7,8-Tetrachlorodibenzo-P-dioxin (1764-01-6)				DESCRIBE RESULTS											

ONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	A. TESTING REQUIRED	B. BELIEVED PRESENT	C. BELIEVED ABSENT	B. MAXIMUM DAILY VALUE		D. MAXIMUM 30 DAY VALUE (if available)		C. LONG TERM AVRG. VALUE (if available)		D. NO. OF ANALYSES	A. CONCENTRATION	B. MASS	A. LONG TERM AVERAGE VALUE		B. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)															
2V. Acrylonitrile (107-13-1)															
3V. Benzene (71-43-2)															
4V. Bis (Chloromethyl) Ether (542-88-1)															
5V. Bromoform (75-25-2)															
6V. Carbon Tetrachloride (56-23-5)															
7V. Chlorobenzene (108-90-7)															
8V. Chlorodibromomethane (124-48-1)															
9V. Chloroethane (75-00-3)															
10V. 2-Chloroethylvinyl Ether (110-75-8)															
11V. Chloroform (67-66-3)															
12V. Dichlorobromomethane (75-27-4)															
13V. Dichlorodifluoromethane (75-71-8)															
14V. 1,1-Dichloroethane (75-34-3)															
15V. 1,2-Dichloroethane (107-06-2)															
16V. 1,1-Dichloroethylene (75-35-4)															
17V. 1,2-Dichloropropane (78-87-5)															
18V. 1,3-Dichloropropylene (542-75-6)															
19V. Ethylbenzene (100-41-4)															
20V. Methyl Bromide (74-83-9)															
21V. Methyl Chloride (74-87-3)															

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	A. TEST INC. RE-QUIR-ED	B. BE-LIEVED PA-SENT	C. BE-LIEVED AD-SENT	a. MAXIMUM DAILY VALUE		d. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		i. NO. OF ANAL-YSES	b. CONCENT-RATION	b. MASS	e. LONG TERM AVERAGE VALUE		ii. NO. OF ANAL-YSES
				(i) CONCENTRATION	(j) MASS	(i) CONCENTRATION	(j) MASS	(i) CONCENTRATION	(j) MASS				(i) CONCENTRATION	(j) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)															
2B. Acenaphthylene (208-96-8)															
3B. Anthracene (120-12-7)															
4B. Benzidine (92-87-5)															
5B. Benzo (a) Anthracene (56-55-3)															
6B. Benzo (a) Pyrene (50-32-8)															
7B. 3,4-Benzo-fluoranthene (205-99-2)															
8B. Benzo (ghi) Perylene (191-24-2)															
9B. Benzo (k) Fluoranthene (207-08-9)															
10B. Bis (2-Chloro-ethoxy) Methane (111-91-1)															
11B. Bis (2-Chloro-ethyl) Ether (111-44-4)															
12B. Bis (2-Chloroiso-propyl) Ether (102-60-1)															
13B. Bis (2-Ethyl-hexyl) Phthalate (117-81-7)															
14B. 4-Bromo-phenyl Phenyl Ether (101-55-3)															
15B. Butyl Benzyl Phthalate (85-68-7)															
16B. 2-Chloro-naphthalene (91-58-7)															
17B. 4-Chloro-phenyl Phenyl Ether (7005-72-3)															
18B. Chrysene (218-01-9)															
19B. Dibenzo (a,h) Anthracene (53-70-3)															
20B. 1,2-Dichloro-benzene (95-50-1)															
21B. 1,3-Dichloro-benzene (541-73-1)															

CONTINUED FROM PAGE V-6

POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	A. TESTING REQUIRED	B. RECEIVED PRESENT	C. RECEIVED ABSENT	B. MAXIMUM DAILY VALUE		D. MAXIMUM 30 DAY VALUE (if available)		C. LONG TERM AVRG. VALUE (if available)		D. NO. OF ANALYSES	B. CONCENTRATION	D. MASS	B. LONG TERM AVERAGE VALUE		D. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
/MS FRACTION - BASE/NEUTRAL COMPOUNDS (continued)															
8. 1,4-Dichlorobenzene (106-46-7)															
9. 3,3'-Dichlorobenzidine (194-1)															
10. Diethyl phthalate (4-66-2)															
11. Dimethyl phthalate (31-11-3)															
12. Di-N-Butyl phthalate (4-74-2)															
13. 2,4-Dinitrofluorene (121-14-2)															
14. 2,6-Dinitrofluorene (506-20-2)															
15. Di-N-Octyl phthalate (17-84-0)															
16. 1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)															
17. Fluoranthene (206-44-0)															
18. Fluorene (36-73-7)															
19. Hexachlorobenzene (18-74-1)															
20. Hexachlorobutadiene (87-68-3)															
21. Hexachlorocyclopentadiene (77-47-4)															
22. Hexachloroethane (67-72-1)															
23. Indeno (1,2,3-cd) Pyrene (193-39-5)															
24. Isophorone (78-59-1)															
25. Naphthalene (91-20-3)															
26. Nitrobenzene (98-95-3)															
27. N-Nitrosodimethylamine (62-75-9)															
28. N-Nitrosodi-N-Propylamine (621-64-7)															

CONTINUED FROM THE FRONT

POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	A. TESTING REQUIRED	B. BELIEVED PRESENT	C. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	8. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
C/MS FRACTION - BASE/NEUTRAL COMPOUNDS (continued)															
3B. N-Nitro-diphenylamine (6-30-6)															
1B. Phenanthrene (5-01-8)															
3B. Pyrene (29-00-0)															
3B. 1,2,4-Trichlorobenzene (20-82-1)															
C/MS FRACTION - PESTICIDES															
2. Aldrin (109-00-2)															
2. α -BHC (119-84-6)															
2. β -BHC (119-85-7)															
2. γ -BHC (8-89-9)															
2. δ -BHC (119-86-8)															
2. Chlordane (7-74-9)															
2. 4,4'-DDT (10-29-3)															
2. 4,4'-DDE (2-55-9)															
2. 4,4'-DDD (2-54-8)															
3P. Dieldrin (10-57-1)															
1P. α -Endosulfan (15-29-7)															
2P. β -Endosulfan (15-29-7)															
3P. Endosulfan sulfate (1031-07-8)															
4P. Endrin (2-20-8)															
3P. Endrin aldehyde (421-93-4)															
3P. Heptachlor (6-44-8)															

CONTINUED FROM PAGE V-8

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	a. TESTING RE-QUIR-ED	b. BE-LIEVED PRE-SENT	c. BE-LIEVED AB-SENT	b. MAXIMUM DAILY VALUE		d. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAL-YSES	b. CONCENTRATION	b. MASS	b. LONG TERM AVERAGE VALUE		b. NO. OF ANAL-YSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION — PESTICIDES (continued)															
17P. Heptachlor Epoxide (1024-67-3)															
18P. PCB-1242 (53469-21-9)															
19P. PCB-1254 (11097-69-1)															
20P. PCB-1221 (11104-28-2)															
21P. PCB-1232 (11141-18-5)															
22P. PCB-1248 (12672-29-6)															
23P. PCB-1260 (11098-82-5)															
24P. PCB-1016 (12674-11-2)															
25P. Toxaphene (8001-35-2)															

C. Except for storm runoff, leaks, or spills, are any of the discharges described in Items II-A or B intermittent or seasonal?

YES (complete the following table)

NO (go to Section III)

1. OUTFALL NUMBER (list)	2. OPERATION(S) CONTRIBUTING FLOW (list)	3. FREQUENCY		4. FLOW				C. DUR- ATION (in days)
		a. DAYS PER WEEK (specify average)	b. MONTHS PER YEAR (specify average)	a. FLOW RATE (in mgd)		b. TOTAL VOLUME (specify with units)		
				1. LONG TERM AVERAGE	2. MAXIMUM DAILY	1. LONG TERM AVERAGE	2. MAXIMUM DAILY	

III. PRODUCTION

A. Does an effluent guideline limitation promulgated by EPA under Section 304 of the Clean Water Act apply to your facility?

YES (complete Item III-B)

NO (to to Section IV)

B. Are the limitations in the applicable effluent guideline expressed in terms of production (or other measure of operation)?

YES (complete Item III-C)

NO (go to Section IV)

C. If you answered "yes" to Item III-B, list the quantity which represents an actual measurement of your level of production, expressed in the terms and units used in the applicable effluent guideline, and indicate the affected outfalls.

1. AVERAGE DAILY PRODUCTION			2. AFFECTED OUTFALLS (list outfall numbers)
a. QUANTITY PER DAY	b. UNITS OF MEASURE	c. OPERATION, PRODUCT, MATERIAL, ETC. (specify)	

IV. IMPROVEMENTS

A. Are you now required by any Federal, State or local authority to meet any implementation schedule for the construction, upgrading or operation of waste-water treatment equipment or practices or any other environmental programs which may affect the discharges described in this application? This includes, but is not limited to, permit conditions, administrative or enforcement orders, enforcement compliance schedule letters, stipulations, court orders, and grant or loan conditions.

YES (complete the following table)

NO (go to Item IV-B)

1. IDENTIFICATION OF CONDITION, AGREEMENT, ETC.	2. AFFECTED OUTFALLS		3. BRIEF DESCRIPTION OF PROJECT	4. FINAL COM- PLIANCE DATE	
	a. NO.	b. SOURCE OF DISCHARGE		a. RE- QUIRED	b. PRO- JECTED

B. OPTIONAL: You may attach additional sheets describing any additional water pollution control programs (or other environmental projects which may affect your discharges) you now have underway or which you plan. Indicate whether each program is now underway or planned, and indicate your actual or planned schedules for construction. MARK "X" IF DESCRIPTION OF ADDITIONAL CONTROL PROGRAMS IS ATTACHED

ITEM V-B CONTINUED FROM FRONT

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'		3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	a. BE-LEVEL PRESENT	b. BE-LEVEL ABSENT	b. MAXIMUM DAILY VALUE		d. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	b. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
g. Nitrogen, Total Organic (as N)														
h. Oil and Grease														
i. Phosphorus (as P), Total (7723-14-0)														
j. Radioactivity														
(1) Alpha, Total														
(2) Beta, Total														
(3) Radium, Total														
(4) Radium 226, Total														
k. Sulfate (as SO ₄) (14808-79-8)														
l. Sulfide (as S)														
m. Sulfite (as SO ₃) (14265-45-3)														
n. Surfactants														
o. Aluminum, Total (7429-90-5)														
p. Barium, Total (7440-39-3)														
q. Boron, Total (7440-42-8)														
r. Cobalt, Total (7440-48-4)														
s. Iron, Total (7439-89-6)														
t. Magnesium, Total (7439-95-4)														
u. Molybdenum, Total (7439-98-7)														
v. Manganese, Total (7439-96-5)														
w. Tin, Total (7440-31-5)														
x. Titanium, Total (7440-32-6)														

EPA I.D. NUMBER (copy from Item 1 of Form 1)

PLEASE PRINT OR TYPE IN THE UNSHADED AREAS ONLY. You may report some or all of this information on separate sheets (use the same format) instead of completing these pages. SEE INSTRUCTIONS.

V. INTAKE AND EFFLUENT CHARACTERISTICS (continued from page 3 of Form 2-C)

OUTFALL NO.

PART A - You must provide the results of at least one analysis for every pollutant in this table. Complete one table for each outfall. See instructions for additional details.

1. POLLUTANT	2. EFFLUENT						3. UNITS (specify if blank)		4. INTAKE (optional)			
	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Biochemical Oxygen Demand (BOD)												
b. Chemical Oxygen Demand (COD)												
c. Total Organic Carbon (TOC)												
d. Total Suspended Solids (TSS)												
e. Ammonia (as N)												
f. Flow.	VALUE		VALUE		VALUE					VALUE		
g. Temperature (winter)	VALUE		VALUE		VALUE			°C		VALUE		
h. Temperature (summer)	VALUE		VALUE		VALUE			°C		VALUE		
i. pH	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM	X			STANDARD UNITS		X		

PART B - Mark "X" in column 2-a for each pollutant you know or have reason to believe is present. Mark "X" in column 2-b for each pollutant you believe to be absent. If you mark column 2a for any pollutant which is limited either directly, or indirectly but expressly, in an effluent limitations guideline, you must provide the results of at least one analysis for that pollutant. For other pollutants for which you mark column 2a, you must provide quantitative data or an explanation of their presence in your discharge. Complete one table for each outfall. See the instructions for additional details and requirements.

1. POLLUTANT AND CAS NO. (if available)	2. MARK 'X'		3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	a. BELIEVED PRESENT	b. BELIEVED ABSENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	a. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
			(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
a. Bromide (24959-67-9)														
b. Chlorine, Total Residual														
c. Color														
d. Fecal Coliform														
e. Fluoride (16984-48-8)														
f. Nitrate-Nitrite (as N)														

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	a. TEST NO. RE-QUIRED	b. DE-TERMINED PRE-SENT	c. DE-TERMINED AB-SENT	b. MAXIMUM DAILY VALUE		d. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAL-YSES	a. CONCENTRATION	b. MASS	b. LONG TERM AVERAGE VALUE		d. NO. OF ANAL-YSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION -- VOLATILE COMPOUNDS															
1V. Acrolein (107-02-8)															
2V. Acrylonitrile (107-13-1)															
3V. Benzene (71-43-2)															
4V. Bis (Chloromethyl) Ether (542-88-1)															
5V. Bromoform (75-25-2)															
6V. Carbon Tetrachloride (56-23-5)															
7V. Chlorobenzene (108-90-7)															
8V. Chlorodibromomethane (124-48-1)															
9V. Chloroethane (75-00-3)															
10V. 2-Chloroethylvinyl Ether (110-75-8)															
11V. Chloroform (67-66-3)															
12V. Dichlorobromomethane (75-27-4)															
13V. Dichlorodifluoromethane (75-71-8)															
14V. 1,1-Dichloroethane (75-34-3)															
15V. 1,2-Dichloroethane (107-06-2)															
16V. 1,1-Dichloroethylene (75-35-4)															
17V. 1,2-Dichloropropane (78-87-5)															
18V. 1,3-Dichloropropylene (542-75-6)															
19V. Ethylbenzene (100-41-4)															
20V. Methyl Bromide (74-83-9)															
21V. Methyl Chloride (74-87-3)															

CONTINUED FROM PAGE V-4

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	a. TESTING REQUIRED	b. BELIEVED PRESENT	c. BELIEVED ABSENT	b. MAXIMUM DAILY VALUE		d. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	b. LONG TERM AVERAGE VALUE		d. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - VOLATILE COMPOUNDS (continued)															
22V. Methylene Chloride (75-09-2)															
23V. 1,1,2,2-Tetrachloroethane (79-34-5)															
24V. Tetrachloroethylene (127-18-4)															
25V. Toluene (108-88-3)															
26V. 1,2-Trans-Dichloroethylene (156-60-5)															
27V. 1,1,1-Trichloroethane (71-55-6)															
28V. 1,1,2-Trichloroethane (79-00-5)															
29V. Trichloroethylene (79-01-6)															
30V. Trichlorofluoromethane (75-69-4)															
31V. Vinyl Chloride (75-01-4)															
GC/MS FRACTION - ACID COMPOUNDS															
1A. 2-Chlorophenol (95-57-8)															
2A. 2,4-Dichlorophenol (120-83-2)															
3A. 2,4-Dimethylphenol (105-67-9)															
4A. 4,6-Dinitro-O-Cresol (534-52-1)															
5A. 2,4-Dinitrophenol (51-28-5)															
6A. 2-Nitrophenol (88-75-5)															
7A. 4-Nitrophenol (100-02-7)															
8A. P-Chloro-M-Cresol (59-50-7)															
9A. Pentachlorophenol (87-86-5)															
10A. Phenol (108-95-2)															
11A. 2,4,6-Trichlorophenol (88-06-2)															

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	A. TESTING REQUIRED	B. BELIEVED PRESENT	C. BELIEVED ABSENT	D. MAXIMUM DAILY VALUE		D. MAXIMUM 30 DAY VALUE (if available)		C. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANALYSES	B. CONCENTRATION	b. MASS	B. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS															
1B. Acenaphthene (83-32-9)															
2B. Acenaphthylene (208-96-8)															
3B. Anthracene (120-12-7)															
4B. Benzidine (92-87-5)															
5B. Benzo (a) Anthracene (56-55-3)															
6B. Benzo (a) Pyrene (50-32-8)															
7B. 3,4-Benzo-fluoranthene (205-99-2)															
8B. Benzo (ghi) Perylene (191-24-2)															
9B. Benzo (k) Fluoranthene (207-08-9)															
10B. Bis (2-Chloroethoxy) Methane (111-91-1)															
11B. Bis (2-Chloroethyl) Ether (111-44-4)															
12B. Bis (2-Chloroisopropyl) Ether (102-60-1)															
13B. Bis (2-Ethylhexyl) Phthalate (117-81-7)															
14B. 4-Bromophenyl Phenyl Ether (101-55-3)															
15B. Butyl Benzyl Phthalate (85-68-7)															
16B. 2-Chloronaphthalene (91-58-7)															
17B. 4-Chlorophenyl Phenyl Ether (7005-72-3)															
18B. Chrysene (218-01-9)															
19B. Dibenzo (a,h) Anthracene (53-70-3)															
20B. 1,2-Dichlorobenzene (95-50-1)															
21B. 1,3-Dichlorobenzene (541-73-1)															

CONTINUED FROM PAGE V-6

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	B. TESTING REQUIRED	D. BE-HEAVY PRESENT	C. BE-HEAVY ABSENT	B. MAXIMUM DAILY VALUE		D. MAXIMUM 30 DAY VALUE (if available)		C. LONG TERM AVRG. VALUE (if available)		J. NO. OF ANALYSES	8. CONCENTRATION	D. MASS	8. LONG TERM AVERAGE VALUE		D. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
3/CMS FRACTION - BASE/NEUTRAL COMPOUNDS (continued)															
22B. 1,4-Dichlorobenzene (106-46-7)															
23B. 3,3'-Dichlorobenzidine (91-94-1)															
24B. Diethyl Phthalate (84-66-2)															
25B. Dimethyl Phthalate (131-11-3)															
26B. Di-N-Butyl Phthalate (84-74-2)															
27B. 2,4-Dinitrotoluene (121-14-2)															
28B. 2,6-Dinitrotoluene (606-20-2)															
29B. Di-N-Octyl Phthalate (117-84-0)															
30B. 1,2-Diphenylhydrazine (as Azobenzene) (122-66-7)															
31B. Fluoranthene (206-44-0)															
32B. Fluorene (86-73-7)															
33B. Hexachlorobenzene (118-74-1)															
34B. Hexachlorobutadiene (87-68-3)															
35B. Hexachlorocyclopentadiene (77-47-4)															
36B. Hexachloroethane (67-72-1)															
37B. Indeno (1,2,3-cd) Pyrene (193-39-5)															
38B. Isophorone (78-59-1)															
39B. Naphthalene (91-20-3)															
40B. Nitrobenzene (98-95-3)															
41B. N-Nitrosodimethylamine (62-75-9)															
42B. N-Nitrosodi-N-Propylamine (621-64-7)															

CONTINUED FROM THE FRONT

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	A. TESTING REQUIRED	B. BELIEVED PRESENT	C. BELIEVED ABSENT	8. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVG. VALUE (if available)		d. NO. OF ANALYSES	a. CONCENTRATION	b. MASS	8. LONG TERM AVERAGE VALUE		b. NO. OF ANALYSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - BASE/NEUTRAL COMPOUNDS (continued)															
43B. N-Nitrosodiphenylamine (86-30-6)															
44B. Phenanthrene (85-01-8)															
45B. Pyrene (129-00-0)															
48B. 1,2,4-Trichlorobenzene (120-82-1)															
GC/MS FRACTION - PESTICIDES															
1P. Aldrin (309-00-2)															
2P. α -BHC (319-84-6)															
3P. β -BHC (319-85-7)															
4P. γ -BHC (58-89-9)															
5P. δ -BHC (319-86-8)															
6P. Chlordane (57-74-9)															
7P. 4,4'-DDT (50-29-3)															
8P. 4,4'-DDE (72-55-9)															
9P. 4,4'-DDD (72-54-8)															
10P. Dieldrin (60-57-1)															
11P. α -Endosulfan (115-29-7)															
12P. β -Endosulfan (115-29-7)															
13P. Endosulfan Sulfate (1031-07-8)															
14P. Endrin (72-20-8)															
15P. Endrin Aldehyde (7421-93-4)															
16P. Heptachlor (76-44-8)															

CONTINUED FROM PAGE V-8

EPA I.D. NUMBER (copy from Item 1 of Form 1) OUTPUT NUMBER

1. POLLUTANT AND CAS NUMBER (if available)	2. MARK 'X'			3. EFFLUENT						4. UNITS		5. INTAKE (optional)			
	A. TEST INC. RE-QUIR-ED	B. BE-ING PER-SENT	C. BE-LIEVE AB-SENT	a. MAXIMUM DAILY VALUE		b. MAXIMUM 30 DAY VALUE (if available)		c. LONG TERM AVRG. VALUE (if available)		d. NO. OF ANAL-YSES	e. CONCEN-TRATION	f. MASS	g. LONG TERM AVERAGE VALUE		h. NO. OF ANAL-YSES
				(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS	(1) CONCENTRATION	(2) MASS				(1) CONCENTRATION	(2) MASS	
GC/MS FRACTION - PESTICIDES (continued)															
17P. Heptachlor Epoxide (1024-57-3)															
18P. PCB-1242 (53469-21-9)															
19P. PCB-1254 (11097-69-1)															
20P. PCB-1221 (11104-28-2)															
21P. PCB-1232 (11141-16-5)															
22P. PCB-1248 (12672-29-6)															
23P. PCB-1260 (11096-82-5)															
24P. PCB-1016 (12674-11-2)															
25P. Toxaphene (8001-35-2)															

PAGE V-9

U.S. G.P.O.:1992-312-020:63176

Appendix H

**After Your Permit Has Been Issued...
Discharge Monitoring Report (DMR) Forms**

*EPA Region IX
NPDES Training - Mining Emphasis
March 1998*

PERMITTEE NAME/ADDRESS (Include

Facility Name/Location if different)

NAME _____

ADDRESS _____

FACILITY _____

LOCATION _____

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)
(12-16) (17-19)

PERMIT NUMBER _____

DISCHARGE NUMBER _____

MONITORING PERIOD

FROM YEAR MO DAY TO YEAR MO DAY
(20-21) (22-23) (24-25) (26-27) (28-29) (30-31)

NOTE: Read instructions before completing this form.

PARAMETER (32-37)	X	QUANTITY OR LOADING (3 Card Only) (46-53)			QUALITY OR CONCENTRATION (4 Card Only) (38-45)			NO. EX (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-71)
		AVERAGE	MAXIMUM	UNITS	MINIMUM	AVERAGE	MAXIMUM				UNITS
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									
7-11	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									
	SAMPLE MEASUREMENT									
	PERMIT REQUIREMENT									

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN, AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION, I BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE 18 U.S.C. § 1001 AND 33 U.S.C. § 1319 (Penalties under these statutes may include fines up to \$10,000 and/or maximum imprisonment of between 6 months and 5 years.)

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

TELEPHONE

DATE

TYPED OR PRINTED

AREA CODE

NUMBER

YEAR

MO

DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS (Reference all attachments here)

Appendix I
Presentation Overheads

EPA Region IX
NPDES Training - Mining Emphasis
March 1998



How to Survive the NPDES Permitting Process



Why Does EPA Regulate Mining...Environmental Impacts...

- Erosion
 - damage to habitat
 - sediment loadings
 - landslides
 - flooding

- Acid mine drainage (AMD)
 - leaching of metals into waters
 - fish kills



Once AMD Starts

- Control of acid generation process
 - covers and seals to exclude water/oxygen;
 - use of bactericides

- Control of leachate migration
 - covers and seals; diversion of surface waters

- Collection and treatment of leachate
 - collection systems with chemical treatment



Predicting AMD - Generating Potential of Mine Waste

- sulfide/sulfate content
- interaction with water/oxygen
- presence of bacteria
- presence of carbonates or aluminosilicates
- laboratory testing



The NPDES Program

- Permits required for point source discharges
- Discharge is a privilege - not a right
- Permit limits must be based on treatment technology and water quality standards
- Permit is a shield



The Following Discharges/Waste Streams Are Regulated...

- Process Wastewater: 40 CFR 440.141(a)(16)
Water used in/resulting from ore processing
▲ (tailings)
- Mine Drainage: 40 CFR 440.132(h)
Water drained, pumped, or siphoned from a mine
▲ (runoff or seepage from waste rock/overburden)
- Storm Water: 40 CFR 122.26b(b)(13)
Runoff from storms, snow melt
▲ (runoff from ancillary roads and haul roads)



Pollutants Observed at Mining Sites:

- Metals
- Sediment Loadings
- Nitrates
- Acid Mine Drainage (low pH)
 - ▲ Toxic to Aquatic Organisms



Top Five Components of a Permit...

1. Select appropriate standards
 - ▲ Technology-based standards
 - Industry-specific; nationwide application
 - Based on technology, nature of the discharge
 - ▲ Water Quality-based standards
 - Based on State-established standards designed to protect water quality
 - ◆ chemical specific
 - ◆ toxicity



Top Five Components of a Permit...

continued...

2. Establish reasonable potential
 - ▲ Review effluent data
 - ▲ Compare tech-based standards to water quality standards
 - ▲ Determine "reasonable potential" for limits
 - effluent data
 - similar facilities



Top Five Components of a Permit...

continued...

3. Monitoring & Reporting
 - ▲ Frequencies, locations, record keeping requirements
4. Special Conditions
 - ▲ for unique situations
 - ▲ additional monitoring requirements, toxicity testing, preventive measures (BMPs)
5. Standard Conditions (40 CFR 122.41)
 - ▲ duty to comply, duty to mitigate, etc.
 - ▲ same conditions for all permits



Definition of Best Management Practices

"Best management practices (BMPs) are actions or procedures to prevent or minimize the potential for the release of toxic pollutants or hazardous substances in significant amounts to surface waters"



How Does EPA Regulate New Mining Facilities?...such as copper heap leach operations...

continued...

- Tech-Based (Part 440, Subparts J/L)
 - ▲ Process wastewater discharges are prohibited (440.104(c)(1)).
 - ▲ Mine drainage discharges allowed as result of precipitation (440.131(c)):
 - Build 10-year 24-hr storm containment
 - Implement BMPs
 - Operator must demonstrate compliance



How Does EPA Regulate New Mining Facilities?...such as copper heap leach operations... *continued...*

- ▲ SW discharges
 - Develop Storm Water Pollution Prevention Plan
- Facilities must comply with WQ standards...
 - ▲ Through implementation of BMPs
 - ▲ Zero-discharge facility design
 - ▲ Treatment



How To Comply...

- Through implementation of BMPs
 - ▲ liners under waste rock piles, tailing impoundments
 - ▲ engineering and design criteria
 - ▲ secondary containment
 - ▲ collection ponds downgradient of waste piles
 - ▲ run-on and run-off control measures -- berms, ditches
 - ▲ installation of leachate collection system
 - ▲ anaerobic environment in tailings piles during periods of inactivity



How Does EPA Regulate New Mining Facilities?...such as gold placer mines...

- Tech-Based (Part 440 Subpart M)
 - ▲ Exemption from Tech Based Limits:
 - Facilities processing < 1500 cu yds
 - 40 CFR 440.140
 - exempt facilities required to comply with WQ standards



How Does EPA Regulate New Mining Facilities?...such as gold placer mines... *continued...*

- ▲ Non-Exempt Facilities:
 - discharges allowed as result of precipitation (440.141(b))
 - ◆ Build 5-year 6-hr storm containment
 - ◆ Implement BMPs outlined at 440.148

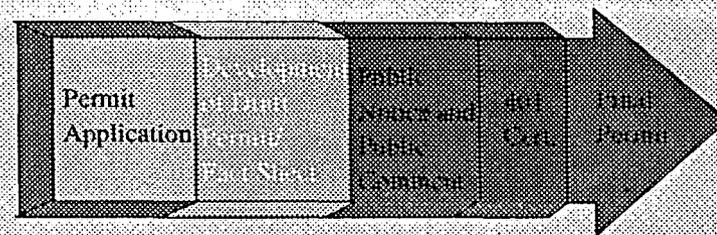


How To Comply?

■ BMPs for placer mines

- ▲ settling basins
- ▲ minimize disturbance in stream beds
- ▲ spill prevention measures
- ▲ water conservation
- ▲ no mercury
- ▲ other actions to reduce siltation

How Do I Get A Permit?



Types of NPDES Permits

■ Individual

- ▲ 1 application submitted....1 permit issued

■ General

- ▲ 1 permit issued....many applications submitted
- ▲ Issued on an area-wide (State, watershed) basis for a category of discharges.



Permit Application

- EPA requires site-specific information, which may include...
 - ▲ maps of the area
 - ▲ facility diagrams
 - ▲ description of waste streams
 - ▲ location of all discharge points into receiving waters
 - ▲ balance between incoming water (precipitation) and outflowing water (streamflow)
 - ▲ BMPs, design criteria for impoundments, etc.



Additional Requirements - NEPA and ESA Compliance

- National Environmental Policy Act
 - ▲ compliance required prior to permit issuance
 - ▲ required for all major federal actions
 - ▲ federal action -- "major" if action is considered to be significant
 - ▲ EA vs. EIS for small mining facilities



Additional Requirements - NEPA and ESA Compliance

continued...

- Expectations for EISs - description of project, affected environment; potential long-term surface and GW impacts, direct & indirect impacts to aquatic resources; mitigation, closure, and reclamation measures.
- Endangered Species Act
 - ▲ compliance required prior to permit issuance



After Your Permit Has Been Issued...

- Modifications, as needed
- Monitoring & Reporting
- Inspections/Compliance Assistance
- Enforcement