CALIFORNIA ENVIRONMENTAL QUALITY ACT
INITIAL STUDY

The Department of Toxic Substances Control (DTSC) has completed the following document for this project in accordance with the California Environmental Quality Act (CEQA) [Pub. Resources Code, div. 13, § 21000 et seq] and accompanying Guidelines [Cal. Code Regs., tit. 14, § 15000 et seq].

<table>
<thead>
<tr>
<th>PROJECT TITLE:</th>
<th>CALSTARS CODING:</th>
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<tbody>
<tr>
<td>Permit by Rule for Treatment of Aqueous Waste with Cyanides</td>
<td>22440</td>
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<th>PROJECT ADDRESS:</th>
<th>CITY:</th>
<th>COUNTY:</th>
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<tr>
<td>Statewide</td>
<td>All</td>
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<tr>
<th>PROJECT SPONSOR:</th>
<th>CONTACT:</th>
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<tbody>
<tr>
<td>California</td>
<td>Evelia Rodriguez</td>
<td>(916) 322-3810</td>
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<tr>
<td>Department of Toxic Substances Control</td>
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APPROVAL ACTION UNDER CONSIDERATION BY DTSC:
- Initial Permit Issuance
- Permit Renewal
- Permit Modification
- Closure Plan
- Interim Modification
- Regulations

STATUTORY AUTHORITY:
- California H&SC, Chap. 6.5
- California H&SC, Chap. 6.8
- Other (specify):

DTSC PROGRAM/ ADDRESS:
1001 I Street, P.O. Box 806
CONTACT: Evelia Rodriguez
PHONE: (916) 322-3810

PROJECT DESCRIPTION:

This project consists of adoption of regulations authorizing onsite treatment of aqueous wastes containing cyanides under a Permit by Rule or PBR. Existing law would require that a person treating cyanide wastes at their place of business (“onsite”) obtain a Standardized Hazardous Waste Facility Permit for that activity. An explanation of some of the terms used in this document are:

- **“Aqueous wastes”.** In the context of this project, this term means that the cyanides are dissolved in water instead of a dry solid salt concentrate form. The proposed grant of authorization to treat cyanides extends only to specific lower cyanide concentration aqueous wastes.

- **“Authorization”.** Existing State law requires that persons treating, storing, transferring, or disposing of hazardous waste obtain authorization from DTSC for those activities, with specific narrow exemptions. There are a number of different types of authorization available under State law; the proposed Permit by Rule would authorize this treatment.

- **“Certified Unified Program Agency” or “CUPA”.** The CUPA is a local agency that implements six statewide programs on a local basis. The CUPA is responsible for tracking and inspecting businesses subject to those programs. The programs implemented by the CUPAs that are germane to this project include the hazardous waste generator program, the onsite hazardous waste treatment authorization program (e.g., Permit by Rule, conditional authorization, and conditional exemption), the hazardous materials business plan requirements, and the Accidental Release Prevention Program (Cal ARP).

- **“Cyanide”.** Cyanide is any chemical compound that contains the cyano group (C≡N), which consists of a carbon atom triple-bonded to a nitrogen atom. Cyanide is the anion, a negative ion with the formula $\text{CN}^-$.

- **“Generator standards”.** These standards are regulatory requirements that all persons that generate a hazardous waste must follow. Generator standards include the following important environmental protections that are germane to this rulemaking:
  - Obtain an Identification number (“EPA ID Number”)
  - Properly classify wastes as hazardous or non-hazardous
  - Manage waste only in tanks or containers and follow detailed technical requirements for the
containers or tanks including:
- Must be appropriate for the type of waste
- Provide secondary containment
- Keep in good condition
- Provide overfill and spill protection
- Perform required inspections
- Obtain professional engineer’s certification (tanks)
  o Label and mark all containers and tanks of hazardous waste.
  o Write a hazardous waste contingency plan
  o Train employees, retain records

• “Onsite”. This term means the site (location) where the waste was generated. Normally, cyanide-containing wastes are generated at plating and surface treatment facilities and manufacturing firms that have plating and surface treatment operations. Onsite treatment means that the wastes are treated at the same business location where they were generated.

• “Permit by Rule” or “PBR”. This term refers to a type of authorization where the facility meets the regulatory standards, notifies the local CUPA of treatment under Permit by Rule, and is inspected later (within 3 years and every three years thereafter). See the comparison of Standardized Permit and Permit by Rule below to compare regulatory standards and application/approval processes.

• “Process solution”. In the context of this project, a process solution is an electrolyte or aqueous solution containing high concentrations of the metal which is to be electroplated to a surface. The process solution is also commonly referred to the plating bath. Cyanide compounds are added as ingredients in the process solution to form complexes with ions of the deposition metal and to help stabilize the solution.

• “Rinsewater”. In the context of this project, rinsewater is an aqueous waste generated by rinsing workpieces or fixtures in freshwater after processing in a process solution such as a plating or stripping solution; or generated by rinsing containers, pumps, hoses, and other equipment with freshwater after being used to transfer process solutions. Rinsewater generally contains cyanides and other constituents at concentrations orders of magnitude lower than the process solutions.

• “Standardized Permit”. This term refers to a type of authorization that entails significant pre-review of plans, documents, and physical facilities by DTSC staff and extensive public participation including factsheets and public meetings. Standardized permits require expenditure of large amounts of resources by both the applicant and the State. Standardized permits are generally used to authorize commercial offsite hazardous waste treatment, transfer, and recycling facilities. The process for issuing Standardized Permits is more complex than that for authorizing activities through a Permit by Rule. The table titled “Comparison: Standardized Permit vs. Permit by Rule” on the next page summarizes the Standardized Permit process.

• “Transportable treatment unit” or “TTU” means a waste treatment unit that is mobile. TTUs are transported to a generator’s site and treat hazardous wastes on that site prior to being transported to another location. TTUs are usually owned by a different firm than the generator’s firm; the TTU acts as an agent for the generator. Most TTUs are used sporadically to treat waste streams that are generated infrequently such as utility boiler cleanout solutions that are generated only every three to five years. Treatment by TTUs can also be authorized under a Permit by Rule. The Permit by Rule regulations have separate standards for authorizing and operating TTUs.

• “Treatment”. This term means actions that are designed to change the chemical, physical, or biological properties of a hazardous waste. Treatment can include activities such as changing the pH (acidic or alkaline nature) of the waste, removing dissolved metals, and many other activities. Treatment, as applied to this project, means destroying or removing cyanide ions from aqueous solutions at rinsewater concentrations and means diluting concentrated solutions down to rinsewater concentrations for subsequent cyanide destruction or removal.

What is the project that is the subject of this initial study?

The project is the adoption of regulations that would allow Permit by Rule as an alternative grant of authorization for certain lower risk treatment of cyanide-containing aqueous wastes at the site where the waste was generated.
Currently generators must have Standardized Permit from DTSC to authorize treatment of wastewater containing cyanide.

What alternatives were considered for authorizing cyanide wastewater treatment?

The two potential ways to grant authorization to destroy cyanides in wastewaters are Standardized Permit and Permit by Rule. These two types of authorization are compared below:

Comparison: Standardized Permit vs. Permit by Rule: This project proposes to allow a Permit by Rule as an authorization option to the current requirement to obtain a Standardized Permit for persons treating aqueous wastes with cyanides. The fundamental change is the procedural difference between DTSC’s permit program for a Standardized Permit versus the onsite treatment notification for a Permit by Rule and how the procedural difference in these two requirements impact the environment. The two different grants of authorization are compared below.

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<th>STANDARDIZED PERMIT</th>
<th>PERMIT-BY-RULE</th>
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<tr>
<td>Provides authorization to operate</td>
<td>Yes</td>
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<tr>
<td>Generator standards apply (see definition of generator standards)</td>
<td>Yes (Note: permit conditions can alter requirements for a specific facility)</td>
<td>Yes</td>
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<tr>
<td>Notify DTSC or CUPA</td>
<td>Notify DTSC using the permit application</td>
<td>Notify CUPA using the CUPA data forms</td>
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<tr>
<td>Closure Rules (When the treatment unit ceases operation)</td>
<td>Closure plan Review and approval Annual closure cost estimate Financial assurance, annual update Performance standard, specific technical and procedure rules Pre-closure approval After-closure certification by a professional engineer</td>
<td>Closure plan Annual closure cost estimate Financial assurance, annual update Performance standard Specific closure rules Pre-closure notification After-closure notification/certification by a professional engineer</td>
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<td>Full disclosure statement Modified disclosure statement for series C</td>
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<td>Container and tank secondary containment</td>
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<td>Plan, sufficient knowledge to treat</td>
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<td>Comply with applicable</td>
<td>Yes</td>
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<td>Submittal of Standardized Permit</td>
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<td>and financial</td>
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<tr>
<td>assurances for liability and closure.</td>
<td>Some requirements are self-certified and reviewed on inspection.</td>
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<td>DTSC review and preparation of a draft permit.</td>
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<td>retention requirements</td>
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What waste streams could be treated under the proposed project?

1. **Aqueous waste generated from the rinsing workpieces and fixturing.** Facilities using cyanide solutions generate large volumes of rinsewaters containing both dissolved metals and cyanides. Facilities implementing the best management practices for rinsewaters generate wastewaters with concentrations of cyanide up to 5000 parts per million (ppm). Facilities that do not use efficient rinsing methods generate wastewaters with lower cyanide concentrations.

2. **Aqueous waste generated by reverse osmosis or the regeneration of demineralizer (ion exchange) column.** Ion exchange or reverse osmosis are used to recycle water and eliminate the discharge of wastewater derived from industrial processes. Businesses that recycle virtually all of their wastewaters periodically need to dispose only the effluent from the recycling operation. Any aqueous waste resulting from regenerating spent ion exchange resins or from concentrating the solute in reverse osmosis may be treated if the facility has eliminated the discharge of any wastewater derived from the treatment of cyanide-containing aqueous waste.

3. **Aqueous waste generated by rinsing pumps, containers, and hoses that have been used to transfer process solutions.** All businesses must rinse any residual process solution from transfer equipment prior to transferring a
different solution.

4. Aqueous waste generated by the onsite recycling of empty containers and spent anode bags. If a business chooses to recycle empty product drums or spent anode bags for use onsite, these containers and anode bags must be rinsed.

5. Aqueous waste generated by onsite laboratories conducting analysis and testing. Many businesses use onsite laboratories in support of metal finishing activities. The volume of aqueous waste generated by these laboratories is minimal.

6. Spent process solutions that are treated by electrowinning. Businesses use electrowinning for metal recovery prior to shipment to a hazardous waste treatment facility. When electroplating with precious metals, many businesses electrowin process solutions prior to shipment offsite to recover precious metals.

7. Spent process solutions added slowly to rinse tanks to dilute the process solutions for treatment in the normal wastewater treatment tank. Process solutions are concentrated metal and cyanide solutions used for plating, stripping, and other industrial processes. These solutions can contain up to 30% to 40% cyanide. This concentration is well above the rinsewater concentration levels that are the intended scope of this rulemaking; however, the solutions can be slowly added to rinse tanks resulting in cyanide concentrations at rinsewater levels and the resulting dilute solution then treated to destroy cyanides and remove dissolved metals. Specific conditions are proposed for businesses that choose to treat spent process solutions by slow addition to rinse tanks:

   - The business must ensure that the cyanide concentration in the rinse tank does not rise above the range of concentrations normally found in rinsewaters with 5000 milligrams per liter (or 5000 ppm) being the upper limit.
   - The business must obtain written approval from the local sewer agency for treating process solutions by slow addition to the rinse tanks.
   - The business must recycle the resulting solid or semi solid wastes that contain the metals removed from solution.
   - The business must retain documents to demonstrate compliance with these requirements.

Where would the treatment activities take place?

The hazardous waste treatment activities authorized under this Permit by Rule would only take place on the site where the hazardous waste was generated. That is, at businesses whose primary activity is producing goods and services where the waste treatment is incidental to other activities of the businesses. This Permit by Rule would not authorize any treatment not occurring at the generator’s site such as offsite commercial waste treatment.

What treatment processes could be used under the proposed project?

The eight new treatment processes proposed for treatment of cyanide-containing wastes under a Permit by Rule are:

1. Oxidation by addition of hypochlorite (ClO\(^-\)). In this process, hypochlorite is added to a cyanide bearing wastewater with the pH adjusted to about 10.5. The hypochlorite oxidizes the cyanide to cyanate. When the oxidation reaction is complete, the pH is adjusted to a slightly acid pH promoting decomposition of the cyanate ion into carbon dioxide and nitrogen. After this treatment, the wastewater can be treated to remove metals or organic compounds and/or the pH can be adjusted to make the solution amenable for sewer discharge. Note that the solution must be made non-hazardous prior to sewer discharge or discharge to the waters of the State. The electroplating industry uses this treatment technology most often to detoxify cyanide.

2. Oxidation by addition of peroxide or ozone. This treatment process is identical to that above in 1 except that peroxide or ozone is used as the oxidizing agent instead of hypochlorite.

3. Alkaline chlorination. This process is similar to the process 1 above, except that chlorine gas is bubbled into the solution forming hypochlorous acid which then oxidizes the cyanide. After oxidation, the remaining steps in process 1 are carried out.
4. **Electrochemical oxidation.** In this process, an electrical current passed through the solution oxidizes the cyanide. After oxidation, the remaining steps in process 1 are carried out.

5. **Ion exchange.** In this process, cyanide bearing wastewaters are pumped through columns containing ion exchange resins. The resins have hydroxyl groups (OH\(^-\)) attached to the resin. The cyanide replaces the hydroxyl groups on the resin and is thus removed from the wastewater. Additional treatment follows (not within the scope of this rulemaking) to remove any other hazardous properties of the wastewater prior to discharge to the sewers or the waters of the State. The spent resins are typically sent offsite to an authorized hazardous waste transfer, treatment, storage, or disposal facility.

6. **Reverse Osmosis.** Reverse osmosis is a separation technology used to remove dissolved impurities from water through the use of a semi-permeable membrane. The semi-permeable membrane allows the passage of water, but not ions (e.g., CN\(^-\)). The membrane is impermeable to most dissolved solids. In reverse osmosis, pressure is exerted on the side with the concentrated solution (permeate) to force the water molecules across the membrane to the fresh water side against the concentration gradient.

7. **Electrowinning.** Electrowinning is a method to recover metals from process solutions by electroplating them onto a “dummy cathode” prior to offsite recycling or disposal of the process solution. Many metals can be plated from solution onto a polished cathode such as a thin piece of stainless steel. When the plated cathode is bent, the plated metal spalls off and can be recycled as metallic scrap. Electrowinning is essentially identical to the electroplating process. Note that some cyanide is incidentally destroyed by electrochemical oxidation during electroplating and electrowinning.

8. **Dilution.** The regulations would allow spent process solutions to be diluted by addition to a rinse tank. After dilution, the cyanides are required to be destroyed as described in treatment processes 1-6 above. Dilution of cyanide solutions does not release significant amounts of energy. Note that directly destroying cyanides in concentrated process solutions would pose an elevated risk compared to dilution prior to treatment.

**What types of businesses are likely to treat aqueous wastes with cyanides under the proposed project?**

There are a number of industries that use cyanides for a number of purposes in California. Most of these uses involve the use of a more concentrated “process solution” and the subsequent generation of a lower concentration rinsewater when rinsing the residues of the process solutions (dragout) off of the workpieces. These purposes include:

**1. Electroplating:** Cyanide solutions (process solutions) electrodeposit layers of metals onto the pieces to be plated. By means of an electric current between two electrodes, a metal surface coating is plated onto the workpiece from the process solution. Metals commonly plated from cyanide baths include cadmium, copper, gold, silver, platinum, and zinc.

Note: If a business electroplates products manufactured by another business, the business is considered an electroplater and falls under the North American Industry Classification System (NAICS) code 332813. If, a business both manufactures a product and then electroplates that product, the business is considered a metal finisher and falls under the specific the NAICS code for the product. Other industries include aerospace, electronics, circuit board manufacture, metal fabrication, plumbing fixtures, automotive parts, appliances, and jewelry manufacture.

**2. Stripping:** Cyanide solutions are used to dissolve and remove precious metals from various products. Industries involved include aerospace, jewelry manufacture, electronics, and circuit board manufacture.

**3. Cleaning:** Cyanides are combined with hydrogen peroxide to form an aggressive cleaning solution for cleaning jewelry castings. The process is called “cyanide bombing”.

**4. Heat treatment:** Metals are heated to specified temperatures and quenched in cyanide powders in a “case-hardening” process. The cyanides are used to maintain a reducing atmosphere during heat treatment. Cyanide-containing wastewaters are generated from rinsing the work pieces after heat treatment.

**5. Primary metals production:** Huge quantities of cyanide solutions are sprayed over piles of ores acres in extent to remove metals in the mining industry. The process is called “heap leaching”. Note that most of the wastes from heap leaching are exempted from classification as hazardous wastes by Health and Safety Code section 25143.1 and are outside the scope of this project.
Where are these businesses located?
Geographically, businesses treating cyanides are concentrated in the industrial areas of the State. Cyanides are primarily generated in the San Francisco Bay Area, Greater Los Angeles, San Diego, Sacramento, and other valley cities. However, authorization granted by this project will be available throughout the State. The businesses that must obtain authorization for their cyanide treatment are located in concentrated industrial areas. There are no agricultural uses of cyanides that must obtain authorization for wastewater treatment. Industrial businesses are located in urbanized areas and in industrial parks. The areas are already developed because these businesses not only already exist, they are already generating and treating these cyanide-containing wastewaters through authorizations other than Permit by Rule.

The sole user of cyanides that is located outside of developed areas is the mining industry that uses large volumes of concentrated cyanides in open pits and heaps of ore in deserts, forests, and other otherwise natural areas. However, mining wastes containing cyanide are exempted from regulation under the hazardous waste program and do not require the grants of authorization addressed by this project.

What hazards does cyanide pose?

The waste streams allowed by this project can be divided into two general categories. The first is wastewater with low concentrations of cyanide (as low as hundredths of a percent) and the second waste stream is process solutions with high concentrations of cyanide, typically in the 30% to 50% range.

Cyanides in general are toxic materials due to their effect on human or aquatic organisms. Pure uncomplexed cyanide ions in water (such as derived from sodium or potassium cyanide) have an oral LD50 of 3.2 mg/kg making most pure cyanides extremely hazardous wastes. None of the dilute wastewaters would be extremely hazardous due to their cyanide concentration. Furthermore, some cyanide-containing wastes are a reactive hazardous waste if the waste can generate toxic gases or vapors at a quantity sufficient to present a health danger.

All cyanide compounds do not pose the same level of toxicity. The stability and toxicity of cyanide-containing waste depend on many factors such as type of cyanide compound used; the concentration of the cyanide compound; the concentration of other co-contaminants; the strength of the cyanide-metal complex bond; and pH and temperature of the aqueous solution. In general, extremely low concentrations (in parts per million) of total cyanide may not be hazardous due to reactivity or to oral toxicity, but may fail for aquatic toxicity. At higher concentrations but still much lower than 0.5%, cyanide-containing aqueous waste may be reactive. More concentrated aqueous waste will be toxic and reactive. Above 1%, cyanide-containing waste may be extremely hazardous. This is not a rule of thumb, but merely an attempt to describe how the hazardous characteristics may vary based on cyanide concentrations. Again, there are many factors that will determine the exact nature of the hazardous waste, so analytical testing is strongly recommended for each waste stream to provide the generator with the information necessary to assess all potential hazards.

**Human Toxicity:** Probable routes of human exposure to cyanide occur through inhalation of the gas, absorption through the skin, and, to a lesser degree, ingestion. Cyanide is very toxic to humans and inhalation exposure can be lethal. Conversely, low level long term exposures to cyanide do not cause cancer, but may cause central nervous system effects. The United States Environmental Protection Agency (U.S. EPA) has established a Reference Concentration for hydrogen cyanide based on central nervous system symptoms and thyroid effects in humans and an oral Reference Dose based on weight loss, thyroid effects, and myelin degeneration in rats. The U.S. EPA estimates that consumption of cyanide at these doses or less, over a lifetime, would not likely result in the occurrence of chronic non-cancer effects. (ATSDR 2006)

Other constituents in either the process solution or the wastewater provide additional toxicity. Cyanide-containing solutions often have metal ions which may add significantly to the toxicity of the solution. Conversely, the tendency of many metals to form strongly bonded complexes with cyanides leads to much lower toxicity levels for those solutions. The existing Permit by Rule would authorize most treatment of metal ions and pH adjustment or neutralization of the solutions if destruction of the cyanide were allowed.

**Reactivity:** All solutions (process solutions and wastewater) with cyanides may also produce amounts of hydrogen cyanide, a compound which is a product of the complex equilibria found in aqueous cyanide solutions. A waste is a reactive hazardous waste if the waste can generate toxic gases or vapors at a quantity sufficient to present a health danger. Hydrogen cyanide is a toxic gas that has been used as a war gas and has been used to administer capital punishment.
Hydrogen cyanide can be emitted as a gas from cyanide process solutions if the pH drops to less than 12. Cyanide process solutions are not intentionally operated at pH less than 12 because, in addition to the emission of hydrogen cyanide, unfavorable plating conditions would occur in the tank. The use of cyanide products in commercial processes are not addressed by this project.

This particular hazard is also posed by the treatment of cyanide bearing wastes, including the wastewaters addressed by this project. Generation of hydrogen cyanide is the primary hazard considered in limiting the types of wastes that can be treated under this proposal. The risk of hydrogen cyanide release is addressed both by the limitations on the types of waste treated and by other laws that address such releases. Actual chemical treatment authorized by this project would be limited to dilute waste streams and more concentrated waste streams diluted to wastewater concentrations. This proposal does not allow direct treatment of concentrated process solutions and other non-aqueous wastes. However, concentrated process solutions can be treated under this proposal by metal recovery, a process identical to the business’s normal electroplating operations.

**Regulatory Standards and Advisories for Human Cyanide Exposures:** The following are standards, and guidelines, reported by the Agency for Toxic Substances and Disease Registry for cyanide (ATSDR, 2006):

**AIR:** The California Air Board has identified cyanide compounds as Toxic Air Contaminants. The US EPA has identified cyanides as hazardous air pollutants, but neither regulatory agency has established specific limits on emissions.

**WATER:** Maximum contaminant levels (MCL) are regulatory standards that are set by the California Department of Public Health for drinking water quality. The highest level of cyanide allowed in drinking water is 0.15 parts cyanide per million parts of water (0.15 ppm) in California. The federal MCL is 0.2 parts cyanide per million parts of water.

**WORKPLACE RELATED:** The current California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA) permissible exposure limit (PEL) for hydrogen cyanide is 10 parts cyanide per million parts of air (10 ppm or 11 mg/m³) as an 8-hour time-weighted average (TWA) concentration. This PEL for general industry is based on the potential exposure by the cutaneous route. The National Institute for Occupational Safety and Health (NIOSH) has set the recommended exposure level as a short term exposure limit (STEL) expressed as a ten-minute ceiling limit as 4.7 ppm (5 mg/m³). The REL is the highest allowable regulatory airborne concentration that is not expected to injure workers. The Immediately Dangerous to Life or Health (IDLH) Level for hydrogen cyanide published by NIOSH is 50 ppm (55 mg/m³). This level is defined for the purpose of respirator selection. IDHL represents a maximum concentration from which, in the event of a respirator failure, one could escape within 30 minutes without experiencing any "escape-impairing or irreversible health effects."

**ADVISORIES:** A reference dose (RfDs) is the United States Environmental Protection Agency's maximum acceptable oral dose of a toxic substance. RfDs are not enforceable standards. Instead, the EPA uses RfDs as risk assessment benchmarks and tries to set other regulations so that people are not exposed to chemicals in amounts that exceed RfDs. RfDs established for chronic oral exposure to cyanide and its compounds range from $2 \times 10^{-1}$ mg/kg/day for potassium silver cyanide to $5 \times 10^{-3}$ mg/kg/day for copper cyanide. An EPA reference concentration (RfC) exists only for chronic inhalation exposure to hydrogen cyanide; this RfC is $3 \times 10^{-3}$ mg/m³.

The US EPA has determined that cyanide is not classifiable as to its human carcinogenicity (Group D). No cancer classifications exist for the National Toxicology Program, the U.S. EPA Integrated Risk Information System (IRIS), or International Agency for Research on Cancer (IARC).

**What other regulatory programs govern cyanide waste treatment?**
A number of different agencies regulate various aspects of cyanide use and cyanide treatment. These laws combine with the hazardous waste treatment permit program to protect workers, the public, and the environment from the hazards of cyanide.

**Worker safety programs:** The federal Occupational Safety and Health Administration (OSHA) and Cal/OSHA have specific rules for working with cyanides. California standards for workers dealing with hazardous materials and hazardous waste are contained in California Code of Regulations, title 8 and include practices for all industries and specific practices for hazardous waste operations. Most importantly, the OSHA and Cal/OSHA rules limit workplace exposure to hydrogen cyanide and require specific precautions to avoid generating hydrogen cyanide. Cal/OSHA
requires employers of workers who are occupationally exposed to cyanide to institute engineering controls and work practices to reduce and maintain employee exposure at or below PELs. The employer must use engineering and work practice controls, if feasible, to reduce exposure to or below an 8-hour TWA of 10 ppm (11 mg/m$^3$) as cyanide. Respirators must be provided and used during the time period necessary to install or implement feasible engineering and work practice controls recommends a 10-minute ceiling of 5 mg/m$^3$ (4.7 ppm) for cyanide in compounds such as sodium cyanide or potassium cyanide.

Because the workers are in the closest proximity to the cyanide waste treatment system for up to 12 hours in a workday, they would be the most exposed humans to any significant release of hydrogen cyanide. Thus, the OSHA and Cal/OSHA rules provide comprehensive protection against hydrogen cyanide for the public since members of the public will be further from the waste treatment operation and exposed to lower cyanide concentrations in the case of an air release and this rulemaking does not need to address that issue separately.

**Clean Water Act programs:** The federal Clean Water Act and the California Porter Cologne Act protect the waters of the State from pollution including from cyanide solutions. Both acts govern the composition of wastewaters disposed to the waters of the State by issuing permits to dischargers that specify types and concentrations of pollutants allowed. In practice, industries discharge to sewer systems and rarely discharge directly to the waters of the State. Sewer systems maintain pretreatment regulation systems that establish discharge limits for all persons discharging to the sewer system that control pollutants in the discharge to the sewers. The effluent discharge limits set concentration limits for discharge of a given contaminant. The effluent limits on pollutants are technology-based for specific industries and are adjusted to ensure that the local POTW meets its own permit standards in its own discharge. Thus, the Clean Water Act programs adequately regulate the chemistry of sewer discharges and this rulemaking does not address that issue separately.

**Clean Air Act programs:** The California Air Resources Board, working through local air pollution districts, governs discharges to the air. Any business operation that could emit Toxic Air Contaminants could be required to obtain an operating permit. The local air pollution districts have authority to require pollution prevention measures such as installation of air pollution control devices, process changes, changes in work practices, and substitution of material. Cyanide emissions are controlled and limited; however, permits are needed for only the largest releases and the most polluted air basins.

The Clean Air act also contains the Accidental Release Prevention Program (Cal ARP) that requires pre-planning for businesses with large quantities of very hazardous chemicals, including cyanides. In California, the Cal ARP program is implemented at a Statewide level by the California Office of Emergency Services and directly implemented on a local level by the CUPAs. All businesses that have over 100 pounds of cyanide onsite at any one time are subject to the Cal ARP program. Cal ARP requires complex analysis of cyanide using operations to identify potential process upsets and other types of accidents that can cause release of cyanides to the environment including offsite consequence analysis of worst case releases and mitigation measures to minimize the chances of such releases and the consequences of these releases. The Cal ARP program is implemented in California by the CUPAs, the same agencies that implement the Permit by Rule program, providing a seamless continuum of protection from cyanide releases.

**How does the Permit by Rule program work?**

The tiered permitting system offers a tiered system for authorizing hazardous waste treatment where the regulatory requirements of each tier roughly mirror the relative hazard of the activities authorized. For instance, solvent recyclers managing large volumes of toxic, ignitable, and even explosive solvents are authorized by the full hazardous waste facility permit with the highest level of review and public participation. On the other hand, separation of oil from aqueous wastes that are hazardous solely due to the presence of oil is authorized under the simple self-implementing Conditional Exemption tier.

Permit by Rule is the most complex of the three self-implementing tiers for generators treating their own hazardous waste onsite. Permit by Rule facilities are subject to more stringent regulation because the wastes they treat, or the treatment processes they operate, offer a higher level of risk to human health and the environment. However, Permit by Rule does not authorize all onsite hazardous waste treatment; many operations cannot be authorized through a Permit by Rule but must be authorized under a more intensive review under discretionary full or Standardized Permit. Some treatment operations may even be denied authorization and effectively forbidden due to unacceptable levels of risk.

Permit by Rule was adopted into regulation in 1991. A limited subset of waste stream/treatment processes were chosen that met the following criteria:
• The waste stream/treatment processes were well characterized. That is, the operator can understand how to treat the wastes successfully and which actions or other errors would cause failure to properly treat the waste or process upset and emergency conditions. Processes are shown to be well characterized when they are widely used in industry and appear in numerous journal articles and textbooks.

• The waste stream/treatment processes could reliably be operated safely. A relatively clean track record demonstrates that commonly used treatment processes can be operated safely over time. However, many treatment processes that would meet this standard may have caused incidents over time due to improper operation. “Well characterized” and “reliable” mean that the processes can be operated safely, not that they always will be operated safely. Promoting safe and effective operation is the reason that hazardous waste treatment operations must obtain authorization and are inspected for compliance with regulatory standards.

• The waste stream/treatment processes did not have a track record of treatment upset or treatment failure. That is, the treatment processes have a good reputation, both in print and in verbal knowledge of skilled process operators, and are not known to frequently fail or go into upset conditions.

The waste streams and treatment processes proposed for this rulemaking meet the above criteria. There are other cyanide-containing waste streams and treatment processes in use that have not been proposed for inclusion in this rulemaking; some of the treatment processes are commercially available. None of these non-included treatment processes has been judged to be widely enough used to be “well characterized” or the wastes have not been included in the scope of this rulemaking. Note that the waste streams chosen for inclusion in this rulemaking set the scope of the applicability for this rule; there are certainly other cyanide-containing waste streams along with many other waste streams with other hazardous constituents that can be treated with the same degree of safety as the ones included in the rule. However, every rulemaking must be limited in scope in order to limit the work and documentation to an amount that can be accomplished inside an agency’s timelines and resource limitations. DTSC has chosen waste streams for inclusion in this rulemaking based on the need for authorization for onsite treatment and the desirability of treating these wastes onsite.

Project Activities: This project is the adoption of regulations by DTSC that will be implemented by the CUPAs. DTSC’s activities involve regulation development and adoption followed by training and outreach to the CUPAs and the regulated industry. The CUPAs activities will include tracking of firms that have notified of treatment under the Permit by Rule, collection of fees, and inspection of the operations within 3 years of notification and every three years after, followed by any enforcement and compliance assistance actions needed.

ENVIRONMENTAL IMPACT ANALYSIS:

1. Aesthetics

Project Activities Likely to Create an Impact:

No project activities have any potential to create an impact.

Description of Baseline Environmental Conditions:

Cyanide treatment is an industrial activity that takes place inside plating, stripping, and other industrial facilities which are generally not located in scenic areas. Most of these activities take place in industrial areas in the Los Angeles, San Diego, and San Francisco Bay areas and in the urban areas of the central valley. The regulations will authorize existing and, potentially, new activities in these industrial areas in California. However, any new activities authorized under these regulations will either be in existing industrial facilities or will be subject to local land use permits.

Analysis as to whether or not project activities would:

a. Have a substantial adverse effect on a scenic vista.
Impact Analysis: No potential for an impact.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings and historic buildings within a state scenic highway.

Impact Analysis: No potential for an impact.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

c. Substantially degrade the existing visual character or quality of the site and its surroundings.

Impact Analysis: No potential for an impact. It is possible the proposed rule could have an impact on the character of a site by requiring additional equipment inside the buildings, but the proposed rule should not impact the visual character of the site or its surroundings.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

d. Create a new source of substantial light of glare that would adversely affect day or nighttime views in the area.

Impact Analysis: No potential for an impact.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

References Used: None

2. Agricultural Resources

Project Activities Likely to Create an Impact:

There are no project activities that are likely to create an impact.

Description of Baseline Environmental Conditions:

Cyanide treatment is an industrial activity that takes place inside plating, stripping, and other industrial facilities which are generally located in urban areas. Most of these activities take place in industrial areas in the Los Angeles, San Diego, and San Francisco Bay areas and in the urban areas of the central valley. The regulations will authorize existing and, potentially, new activities in these industrial areas in California. New businesses could have activities that are authorized under these regulations. These new businesses will either be in existing industrial facilities or will be subject to local land use permits.

Analysis as to whether or not project activities would:
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland) as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use.

Impact Analysis: Most of the activities authorized under these regulations take place in urban industrialized areas. Most will be in existing industrial businesses. However, any new businesses that become authorized under these regulations will carry out these activities ancillary to other business activities and will be subject to local land use permits.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- ☒ No Impact

b. Conflict with existing zoning or agriculture use, or Williamson Act contract.

Impact Analysis: See response to (a) above.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- ☒ No Impact

c. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural uses.

Impact Analysis: See response to (a) above.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- ☒ No Impact

References Used: None

3. Air Quality

Project Activities Likely to Create an Impact:

Cyanide treatment is an industrial activity that takes place inside plating, stripping, and other industrial facilities which are generally located in urban areas. Most of these activities take place in industrial areas in the Los Angeles, San Diego, and San Francisco Bay areas and in the urban areas of the central valley. The regulations will authorize existing and, potentially, new activities in these industrial areas in California. New businesses could have activities that are authorized under these regulations. These new businesses will either be in existing industrial facilities or will be subject to local land use permits.

Regulatory Setting:

The Federal Clean Air Act as amended in 1990, defines two classes of pollutants: criteria pollutants and hazardous air pollutants. California has adopted implementing regulations for both of these classes. Hazardous air pollutants are called toxic air contaminants in California regulations. U.S. EPA has begun to review the information available on the health effects and outdoor concentrations of 188 specific pollutants or chemical groups that are listed as hazardous air pollutants. The U.S. EPA's Cumulative Exposure Project was designed to provide risk guidance for hazardous air pollutants for prioritizing research, monitoring, and regulatory intervention activities to reduce potential hazards to the general population.

The California Air Resources Board is authorized to control air emissions and required to limit public exposure to toxic air contaminants through a number of programs. The California Air Resources Board has established ambient air quality
Cyanide compounds are federal hazardous air pollutants and were identified as California toxic air contaminants in April 1993. Cyanide is a Category IIa substance known to be emitted in California with one or more health values under development by the Office of Environmental Health Hazard Assessment for review by the Scientific Review Panel.

Cyanide is a constituent of some process solutions and works to keep the metals in solution. The source of the metal for electroplating is either the metal anode or metal salts or oxides in the solution. The metal to be plated is either bound in the metal cyanide complex, or reduced at the cathode to elemental metal and plated onto the immersed parts. The cyanide in the process solution causes the process solution to act as if wetting agents or fume suppressants are being used to prevent metal air contaminants from being emitted rather than plated. Although there may be some cyanide emissions, the extremely low levels of cyanide concentrations in air do not pose significant long term chronic risk to either onsite workers or offsite sensitive populations.

EPA is currently conducting a project to assess the national distribution of air toxic concentrations across United States as part of the Cumulative Exposure Project. The air toxics component of this project estimated outdoor concentrations of toxic air contaminants, including cyanide, in the United States for 1990 as a baseline. Emissions data were used to model the atmospheric dispersion of 148 air contaminants for more than 60,000 census tracts. The calculated outdoor concentrations of each air toxic were compared to benchmark concentrations for cancer and noncancer health effects. Benchmarks used were inhalation reference concentrations (RfCs) when available. A RfC is an estimate of a continuous inhalation exposure concentration to people that is likely to be without risk of deleterious effects during a lifetime.

The Cumulative Exposure Project estimated the maximum concentration of cyanide compounds in outdoor air was 1.1 micrograms per cubic meter. This maximum concentration was lower than the benchmark concentration of 3.0 micrograms per cubic meter for hydrogen cyanide and 5.0 micrograms per cubic meter for both potassium cyanide and sodium cyanide. The maximum concentration was the highest modeled concentration found in any individual census tract across the entire set of about 60,000. However, because all cyanide compounds were considered as a group, there was insufficient information to
estimate the individual proportions of each of these compounds in the modeled concentration and therefore, applying benchmark concentrations to cyanide compounds may under- or over-estimate the health risks.

Physically, cyanides are generally used in urban areas with high levels of air pollution, many cyanide users are in non-attainment areas for air quality.

Analysis as to whether or not project activities would:

a. Conflict with or obstruct implementation of the applicable air quality plan.

Impact Analysis: These activities will not obstruct implementation of air quality plans. Cyanide is not a criteria pollutant and does not impact the ability of any air district to attain air quality standards set for any criteria pollutants, Clean Air Act regulations and permit requirements apply to most industrial processes handling cyanide materials. Failure to complete this project will drive businesses to ship larger volumes of waste to offsite facilities increasing generation of criteria pollutants.

Conclusion:  
☐ Potentially Significant Impact  
☐ Potentially Significant Unless Mitigated  
☐ Less Than Significant Impact  
☒ No Impact

b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Impact Analysis: See response to (a) above. Note that cyanides are controlled separately as a toxic air contaminant and there are strict rules under Title 17, California Code of Regulations, for cyanide emissions. Because the waste streams proposed for treatment under this project are relatively dilute aqueous solutions, they cannot add significant amounts of cyanide compounds to the air when compared with the large volumes of process solution that is several orders of magnitude more concentrated.

Conclusion:  
☐ Potentially Significant Impact  
☐ Potentially Significant Unless Mitigated  
☐ Less Than Significant Impact  
☒ No Impact

c. Result in cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors).

Impact Analysis: Cyanide compounds are not regulated as criteria pollutants.

Conclusion:  
☐ Potentially Significant Impact  
☐ Potentially Significant Unless Mitigated  
☐ Less Than Significant Impact  
☒ No Impact

d. Expose sensitive receptors to substantial pollutant concentrations.

Impact Analysis: The only time that sensitive receptors could be adversely impacted by cyanides released by industrial businesses is during a process upset that releases hydrogen cyanide. Ongoing releases of cyanides would not impact sensitive receptors because the Cal/OSHA rules strictly limit workplace exposure to cyanides. The workers in a plant are the closest receptors to any ongoing releases of cyanide; protection of these workers that are within feet of concentrated cyanide baths reduces airborne concentrations of cyanides offsite to negligible levels.

Process upset conditions can conceivably affect offsite receptors, including both sensitive and ordinary receptors. However, businesses with more than 100 pounds of cyanide onsite at any one time are subject to the Cal ARP accidental release planning and mitigation process independent of this project. Note that the Cal ARP analysis addresses not only the dilute cyanide wastes that are the subject of this project but also the very concentrated and much more dangerous process solutions that cannot be treated under this project. Businesses holding less than 100 pounds at any one time would not be required to comply with the Cal ARP requirements for cyanide. However,
because the process solutions are very concentrated and the rinsewaters are very dilute, little of that 100 pounds would be contained in the rinsewaters and would be available for release due to a waste treatment upset.

Ongoing low level exposures are subject to the Air Toxics Hot Spots program. Facilities are required to prepare and report inventories of cyanide emissions to the California Air Resources Board. Health risk assessments are required for high priority facilities. The affected communities are notified of any offsite consequences and actions are required to reduce risk to surrounding communities.

Additionally, the actual treatment operations for cyanides would be identical under the Standardized Permit and the Permit by Rule. This project, changing the authorization mechanism for cyanide wastewater treatment, would not affect the potential for cyanide release.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☒ Less Than Significant Impact
☐ No Impact

e. Create objectionable odors affecting a substantial number of people.

Impact Analysis: As discussed above, the Air Toxics Hot Spots, Cal ARP and Cal/OSHA programs act to limit the release of gaseous hydrogen cyanide and cyanide compounds to the environment. Note that, in the case of a release, hydrogen cyanide does not have an objectionable odor. Cyanide sometimes is described as having a “bitter almond” smell, but it does not always give off an odor, and not everyone can detect this odor.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

f. Result in human exposure to Naturally Occurring Asbestos (see also Geology and Soils, f.).

Impact Analysis: The use of cyanides is unrelated to the use of asbestos. Production of naturally occurring asbestos fibers would take place only where new construction disturbed serpentine soils. New construction is not an anticipated consequence of this project and would require separate approval under the local planning and building permit processes.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

References Used:
a. OSHA industrial safety orders. Title 8, California Code of Regulations, division 1, chapters 3.2 and 4.

b. The California Accidental Release Prevention Program. Title 19, California Code of Regulations, Division 2, chapter 4.5. California Accidental Release Prevention (Cal ARP)

c. California Air Resources Board. Air Toxics "Hot Spots" (AB 2588) Program. http://www.arb.ca.gov/ab2588/ab2588.htm


4. Biological Resources

Project Activities Likely to Create an Impact:

None

Description of Baseline Environmental Conditions:

Cyanide treatment is an industrial activity that takes place inside plating, stripping, and other industrial facilities which are generally located in urban areas. Most of these activities take place in industrial areas in the Los Angeles, San Diego, and San Francisco Bay areas and in the urban areas of the central valley. The regulations will authorize existing and, potentially, new activities in these industrial areas in California. New businesses could have activities that are authorized under these regulations. These new businesses will either be in existing industrial facilities or will be subject to local land use permits.

Analysis as to whether or not project activities would:

a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

Impact Analysis: Because this project addresses activities concentrated in industrial urbanized areas, which are also indoor activities, there is no potential for impacts on biological resources.

Conclusion:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service.

Impact Analysis: See response to (a) above.

Conclusion:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

Impact Analysis: See response to (a) above.

Conclusion:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.
Impact Analysis: See response to (a) above.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

e. Conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

Impact Analysis: See response to (a) above.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

Impact Analysis: See response to (a) above.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

References Used: None.

5. Cultural Resources

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

Cyanide treatment is an industrial activity that takes place inside plating, stripping, and other industrial facilities which are generally located in urban areas. Most of these activities take place in industrial areas in the Los Angeles, San Diego, and San Francisco Bay areas and in the urban areas of the central valley. The regulations will authorize existing and, potentially, new activities in these industrial areas in California. New businesses could have activities that are authorized under these regulations. These new businesses will either be in existing industrial facilities or will be subject to local land use permits.

Analysis as to whether or not project activities would:

a. Cause a substantial adverse change in the significance of a historical resource as defined in 15064.5.

Impact Analysis: The activities addressed by this project take place inside industrial buildings. They do not require physical construction. Any new businesses that could use the Permit by Rule created by this project would be subject to local land use planning and building permits that would address impacts much larger than the potential for cyanide treatment (which is ancillary to the commercial purpose of the business). Thus, any activities that could cause an impact would be subject to a separate planning review process.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
b. Cause a substantial adverse change in the significance of an archeological resource pursuant to 15064.5.

Impact Analysis: See response to (a) above.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature.

Impact Analysis: See response to (a) above.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

d. Disturb any human remains, including those interred outside of formal cemeteries.

Impact Analysis: See response to (a) above.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

References Used: None.

6. Geology and Soils

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

Cyanide treatment is an industrial activity that takes place inside plating, stripping, and other industrial facilities. Industrial facilities are generally located in urban areas. Most of these activities take place in industrial areas in the Los Angeles, San Diego, and San Francisco Bay areas and in the urban areas of the central valley. The regulations will authorize existing and, potentially, new activities in these industrial areas in California. New businesses could have activities that are authorized under these regulations. These new businesses will either be in existing industrial facilities or will be subject to local land use permits.

Analysis as to whether or not project activities would:

a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

☐ Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault. (Refer to Division of Mines and Geology Special Publication 42).

☐ Strong seismic ground shaking.

☐ Seismic-related ground failure, including liquefaction.
f. Landslides.

Impact Analysis: The proposed project does not impact the siting of facilities and therefore has no impact on the presence of any of the listed geological hazards. However, treatment of these cyanide-containing wastes onsite reduces the amount of cyanide waste held onsite and shipped to offsite facilities by rendering the wastes cyanide free immediately upon treatment. Thus, the proposed project may reduce the risks of cyanide release during a geologic event by reducing the amount of cyanide-containing waste available for release.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

b. Result in substantial soil erosion or the loss of topsoil.

Impact Analysis: The proposed project does not impact the siting of facilities. Any new construction that would disturb soils would be subject to analysis under the local planning and building permit process.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

c. Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on or off-site landslide, lateral spreading, subsidence, liquefaction or collapse.

Impact Analysis: See response to (b) above.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.

Impact Analysis: See response to (b) above.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

e. Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of water.

Impact Analysis: See response to (b) above.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

f. Be located in an area containing naturally occurring asbestos (see also Air Quality, f.).
Impact Analysis: See response to (b) above.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

References Used: None.

7. Hazards and Hazardous Materials

Project Activities Likely to Create an Impact:

The project activities analyzed for this project are somewhat esoteric. The differences between authorizing activities through a Standardized Permit and a Permit by Rule are summarized in the table above entitled “Comparison: Standardized Permit vs. Permit by Rule”. Germaine differences are explained below:

- Notification vs. application: A Standardized Permit facility applies to DTSC for a permit and the Permit by Rule facility notifies a CUPA of all operations eligible under a Permit by Rule.

- Authorization process:
  - Under the Standardized Permit, there is a review and approval process for important facility documents such as the operations plan, the closure plan, and other facets of facility operation. A draft permit is prepared and circulated for public comment and public meetings are often held to gather further public input. An individual CEQA determination is carried out to assess potential environmental impacts of the facility. A pre-permit inspection of an existing facility is carried out to ensure that the physical facility is in compliance with the tank and container technical standards and that the facility is in compliance with security, emergency preparedness, and other generator standards and that the information submitted is true, accurate, and complete.
  - Under the Permit by Rule program, a business complies with the technical regulatory requirements for operation under a Permit by Rule. These standards are functionally identical to those for a Standardized Permit facility. The business submits information to the CUPA in a notification using the CUPA data forms. The CUPA reviews the submitted notification form to ensure that it is complete and that the facility’s operations, as described, are eligible for operation under a Permit by Rule. If the notification is complete and correct, the CUPA sends a letter to the facility authorizing it to operate under a Permit by Rule; compliance with the regulatory requirements is assessed upon inspection which, by statute, must be carried out within three years of notification.

- Corrective action: Corrective action is the process of investigating the environmental contamination at hazardous waste facilities and correcting any environmental problems found. A determination is made that either the facility is clean and there is no need for further investigation, or a determination is made that contamination exists at the facility and must be cleaned up. Corrective action programs then lead the facility through an involved environmental cleanup process to mitigate any threat from contamination at the facility. While the terminology of the corrective action process is different at Standardized Permit facilities and Permit by Rule facilities, the investigations and actions required lead to the same clean up and environmental restoration.

Compliance assessment: As discussed above, the timing of compliance assessment is a key difference between a Standardized Permit and a Permit by Rule. DTSC requires that a facility be found in compliance with the regulatory requirements prior to becoming authorized. The Standardized Permit compliance assessment is accomplished by a thorough facility inspection by DTSC staff prior to a draft permit decision. All deficiencies found in the pre-permit inspection must either be fixed prior to permit issuance or addressed with a schedule of compliance that firmly schedules needed facility changes. Under a Permit by Rule, the facility is authorized to treat hazardous waste upon approval of the notification. Compliance with the technical regulatory requirements is assessed upon inspection by the CUPA staff. This inspection often occurs within a short time of authorizing the facility, but can wait for up to three years by statute. The inspections for either the Standardized Permit program or the Permit by Rule program look at the same aspects of the facility plans, layout, equipment, and operations and violations are subject to the same enforcement authorities.
Regulatory Setting:

Although DTSC is responsible for implementing the hazardous waste management program, the CUPA implements the program for onsite treatment facilities pursuant to the California Health and Safety Code, division 20, chapter 6.11, and the California Code of Regulations, title 22, division 4.5, chapter 45. Facilities authorized by a Standardized Permit or a Permit by Rule to treat hazardous waste must comply with many standards that are required to ensure the safety of treatment and/or storage. Authorized hazardous waste facilities must comply with general facility standards that include, at a minimum, a waste analysis plan, security measures, an inspection schedule, a personnel training program, and special requirements for reactive waste to prevent uncontrolled reactions.

A waste analysis plan is the documentation that is required to ensure a facility complies with hazardous waste requirements. This plan must contain all the information which must be known to treat or store the waste. The proposed rule includes an additional element to ensure a facility will be able to maintain a wastewater concentration not to exceed 5,000 milligrams per liter (5,000 ppm). The personnel training program that is required must ensure that employees are taught to perform their duties in a way that ensures the facilities compliance with hazardous waste requirements and that employees are able to respond effectively to emergencies. Initial training and annual reviews must be provided.

U.S. EPA and a few CUPAs have developed guidance documents in an effort to assist metal finishing facilities in obtaining improved compliance with the hazardous waste regulatory requirements through education.

Description of Baseline Environmental Conditions:

The regulatory standards of the Standardized Permit are the existing conditions for authorizing treatment of cyanide waste streams. The proposed project would allow the use of Permit by Rule standards. Although the Permit by Rule regulatory standards differ little from those of the Standardized Permit, the permit issuance process is different lacking the detailed pre-review and pre-inspection of the physical facility. Both Permit by Rule and Standardized Permit apply the same engineering standards to tank and container systems, emergency planning and equipment, employee training, process operation and control, facility security, and waste analysis. The major difference is that compliance with these standards is assured by the pre-approval inspection under a Standardized Permit.

However, DTSC, in four workshops and two meetings with industry associations, has not identified a single facility that would become newly authorized under Permit by Rule by this project. Virtually every facility that would become authorized under Permit by Rule for their cyanide treatment is already authorized under Permit by Rule for other related activities such as acid/base neutralization, metal precipitation, container treatment, and other Permit by Rule activities. Additionally, every facility that uses cyanide produces hazardous wastes as part of their activities and is inspected by the CUPAs regularly for compliance with the hazardous waste generator standards.

Thus, each existing facility that would treat cyanides under the Permit by Rule for cyanide treatment has already been inspected by their CUPA for compliance with Permit by Rule and hazardous waste generator regulatory standards; most facilities have now been inspected multiple times.

A second important difference between a Standardized Permit and a Permit by Rule is the range of activities that can be authorized under each grant of authorization:

- Standardized permits can be granted for any treatment activity that meets the following criteria:
  - The activity doesn’t require a federal hazardous waste facility permit.
  - The activity is not used oil or solvent recycling, incineration or other thermal destruction, or most types of land disposal. Thus, a wide range of hazardous waste treatment activities both onsite and offsite (commercial) can be authorized under a Standardized Permit.

Permit by rule authorizes only a limited subset of onsite treatment activities. These activities have been chosen because they have been determined to be well known and well characterized and capable or reliably successful and safe operation, but offering relatively low risk.

Analysis as to whether or not project activities would:

a. Create a significant hazard to the public or the environment throughout the routine transport, use or disposal of hazardous materials.
Impact Analysis: Compared to authorization under Standardized Permit, treatment authorized by his Permit by Rule will lessen the amount of cyanide-containing wastes kept onsite and transported offsite and will thus reduce the risks posed by onsite accumulation and offsite transportation of cyanide solutions. The reduction will come because the facilities that destroy the cyanides rendering them non-hazardous will not have to ship this waste to offsite for authorized treatment. In addition, there is a requirement for offsite recycling of sludge waste if a generator chooses to dilute process solutions prior to Permit by Rule treatment. This recycling of sludge should reduce the disposal of this hazardous waste sludge and any resulting land disturbance.

Conclusion:

Potential Significantly Impact
Potential Significant Unless Mitigated
Less Than Significant Impact
X No Impact

b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Impact Analysis: There are three general reasons why the limited subset of cyanide treatment activities proposed for this Permit by Rule are unlikely to create an impact due to use or release of cyanides or other hazardous materials or upset of the cyanide treatment process.

- DTSC has studied the actual history of cyanide wastewater treatment and the other activities proposed for authorization under this project. The internet was searched thoroughly along with the California and U.S. EPA hazardous materials incident databases. Serious cyanide incidents found were almost exclusively limited to accidents and releases at mine sites which are not addressed by this rulemaking. Three hazardous waste related incidents were found. All three involved deaths and injuries of workers cleaning carbonate sludge from process tanks and revealed egregious violations of worker safety laws, especially confined space entry rules. Cleaning sludge from process tanks is a hazardous waste generator activity that does not require authorization and is not part of this rulemaking.

- There are many other agencies regulating different aspects of the use of cyanides. The section entitled “What other regulatory programs govern cyanide waste treatment?” above in the general discussion of this project details these other agencies and their regulatory coverage. These agencies combine with DTSC to form a seamless web of regulatory oversight that, when complied with, protects workers, neighbors, and the environment from the hazards of cyanide.

- The cyanide destruction treatment activities for the waste streams addressed by this rulemaking are well known and well characterized. They have been used worldwide for many years and treat cyanide wastes daily in thousands of industrial facilities. The processes proposed for treating the wastewaters are those that the U.S. EPA has presented as mature and well characterized in their summary report on cyanide use “Capsule Report – Managing Cyanide in Metal Finishing” (see “References” above.) Being “well characterized” means that a treatment process is understood completely enough so that an operator can predict with surety both the progress and the outcome of the treatment process and can design equipment and operating procedures that afford consistently safe and successful treatment of the waste.

Two treatment processes that do not involve cyanide destruction and are proposed for authorization under this Permit by Rule are also well characterized and safe:

- Dilution of process solutions to wastewater concentrations: The highly concentrated process solutions are added slowly to wastewaters, often into rinse tanks, and treated at low concentrations by cyanide destruction using the processes discussed above. Dilution of cyanide solutions does not release significant amounts of heat and no chemical reactions take place; thus dilution for subsequent cyanide destruction does not increase the hazard level of the treatment operation. In fact, diluting prior to cyanide destruction lowers the hazard level for destroying cyanides in process solutions. Note that these regulations do not authorize dilution as a substitute for destruction of cyanides and removal of metals. Dilution is authorized only to make spent process solutions more amenable for further treatment.

- Electrowinning metals from spent process solutions. This process involves simply plating metal from the solution onto an electrode that is polished to the point where metal can later be flaked off for recycling. Electrowinning is simply electroplating and offers the same limited hazards that the general plating process offers.
The most likely process upset scenario with treatment of cyanides is the production of hydrogen cyanide by allowing the pH of the solution to become acidic. This process upset would only happen through accidental addition of acid to the wastewaters rather than a normally used reagent such as alkali solution or oxidizing agent. As the most likely process upset scenario, this scenario is central to the Cal ARP process safety analysis and offsite consequence analysis required of businesses with more than 100 pounds of cyanide on hand and is addressed by the mitigation strategies required by Cal ARP.

While Cal ARP addresses almost all cyanide using businesses, very small cyanide users (less than 100 pounds on hand) would not be addressed by the very protective analysis required under Cal ARP. However, most of the cyanide in industrial facilities is in the form of highly concentrated process solutions that contain several pounds per gallon of cyanides rather than rinsewaters that typically range from 1,000 ppm to 5,000 ppm. Clearly, the amount of cyanide that could be released by process upset in a rinsewater treatment system is insignificant and would disperse rapidly in the air outside of the immediate vicinity of the treatment tank.

The pre-permit inspection under the Standardized Permit program will not be an important issue for the almost 200 existing cyanide treatment facilities. Given that virtually every facility expected to utilize this authorization has already been repeatedly inspected by their CUPA for other Permit by Rule activities and for generating hazardous waste, the advantages of the pre-approval inspection in Standardized Permit have been realized by previous inspections of these businesses by the local CUPAs.

New facilities that would obtain the authorization under the regulations proposed for adoption in this project would be newly authorized under Permit by Rule and would not yet have been inspected for compliance. Theoretically, these facilities could be substantially out of compliance for up to three years. However, they must obtain sign off on building permits and fire department signoff before being allowed legal occupancy. Since the California Adopted Fire Code contains variants on secondary containment requirements and because the Cal/ARP, Clean Air Act, and Cal/OSHA programs apply immediately, a serious process upset or leak is unlikely prior to inspections.

To understand the potential for release of hydrogen cyanide from treatment of aqueous wastes with cyanides, DTSC searched several information repositories looking for incidents involving cyanides. When cyanides were involved in an incident, DTSC then attempted to determine if the incident was related to the treatment activities proposed for Permit by Rule authorization in this project. In addition to the Internet searches above, DTSC searched the archive of the Release Information Management System (RIMS) maintained by the California Office of Emergency Services (http://rimsinland.oes.ca.gov/rims.nsf/RIMS%20Archive%20Databases?OpenPage). The RIMS database records all hazardous materials incidents reported in California. The database contains hundreds of thousands of records of hazardous materials incidents ranging from fuel spills from motor vehicle accidents to catastrophic refinery explosions. However, DTSC failed to find any incidents of hydrogen cyanide release caused by cyanide wastewater treatment despite the fact that over 200 businesses treat cyanide wastewaters on a daily basis. Cyanide incidents that DTSC found include one death at a plating shop during a tank cleanout (involving criminal violations of OSHA confined space entry rules), several incidents of mining waste releases (exempt from the hazardous waste control law), fires at plating shops, illegally disposed cyanides found on the road or in dumpsters, tank overflows, a suicide, and theft of a drum of potassium gold cyanide.

Additionally, DTSC searched the internet and the U.S. EPA emergency response databases for incidents that would help quantify the risks from treatment of cyanide wastewaters. Again, no incidents were found indicating that the risks of cyanide wastewater treatment are small and that the treatment processes are under effective control.

All together, DTSC found numerous incidents involving the release of cyanides from mining operations causing, in some cases, massive environmental damage to entire river systems. However, these regulations do not address mining uses of cyanide which are exempt from the hazardous waste control law (Health and Safety Code section 25143.1.)

Three incidents were found where two employees were killed and one injured cleaning out cyanide-containing sludge from the bottom of plating tanks. Removing the sludge is a hazardous waste generation activity that is not addressed in this project. Additionally, treatment of sludges and other solid and semi-solid materials is not addressed by this project. Note that all three incidents that occurred during tank cleanouts were egregious violations of OSHA (and in one case Cal/OSHA) confined space entry rules.

Thus, the limited selection of applicable waste stream/treatment processes along with the known accident history of those waste stream/treatment processes and the interwoven web of protective rules implemented by other agencies makes a significant release extremely unlikely.
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances or waste within one-quarter mile of an existing or proposed school.

Impact Analysis: This regulation would allow treatment of cyanide-containing wastes at any location where cyanides are used. It can be clearly assumed that some existing cyanide using businesses are located within one mile of schools and other sensitive receptors. However, as explained in the response in (b) above, there is no evidence that cyanide wastewater treatment releases significant amounts of hydrogen cyanide to the environment. Note that this project would not authorize handling or using hazardous materials. That authorization is granted by the local land use decisions about what type of businesses are allowed in which locations and the issue of hazardous materials handling is beyond the scope of this analysis. All businesses handling cyanides authorized by this project would also be handling cyanides under the baseline condition of Standardized Permit.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to public or the environment.

Impact Analysis: It can be assumed that some of the businesses authorized under this project are engaged in corrective action resulting from previous grants of authorization including a Permit by Rule for other hazardous waste treatment. However, there is no indication (see (b) above) that wastewater treatment affords an enhanced risk to the public because the proposed treatment of aqueous waste is anticipated to occur within existing buildings in urban industrial areas. The treatment is compatible with existing operations and is similar to any currently authorized Permit by Rule treatment. If a new business requests authorization which requires any construction, this will trigger local land use review and building permits.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

e. Impair implementation of, or physically interfere with, an adopted emergency response plan or emergency evacuation plan.

Impact Analysis: This project does not affect any adopted emergency plans. It merely establishes an alternative authorization mechanism for waste treatment that is physically the same under both the existing conditions and the project.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

References Used:


b. United States Environmental Protection Agency incident reporting system.

c. Google searches of the Internet for:
Cyanide release
Cyanide incident
Cyanide poisoning
Cyanide spill
Hydrogen cyanide release


8. Hydrology and Water Quality

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

These regulations address treatment of wastewaters containing cyanides. During a manufacturing process, some portion of the materials used in production is not totally captured on the finished product and can exit the process in wastewater and waste. Effluent guidelines require businesses to treat their wastewater to remove or reduce pollutants prior to discharge to either a wastewater treatment plant or a public waterway.

To comply, businesses such as metal finishers need to treat these wastewaters to destroy the cyanides prior to further treatment to remove metals and particulates, and change to pH. All of these treatment activities are necessary to allow the discharge from the regulated businesses to meet discharge requirements for wastewater. The discharge requirements are either set by the local publicly owned treatment works (POTW) or, in the case of businesses that discharge directly to the waters of the State, by the appropriate regional water quality control board (RWQCB). Note that there are very few, if any, cyanide waste generating businesses that are direct dischargers. The POTW discharge standards are set at levels that allow the POTW to meet its own discharge limits established by the RWQCB in the POTW’s discharge permit and to keep concentrations of hazardous constituents in the POTW’s biosolids (sewage sludge) at non-hazardous levels. Concentration limits for direct dischargers are set at levels that protect the quality of the receiving waters. Effective treatment is necessary to protect both the POTW discharge and the receiving waters.

Discharge limits are enforced by the POTW or the RWQCB. Those agencies sample effluent for compliance with discharge limits and take any enforcement necessary to achieve compliance. Note that POTWs often initiate a sampling and enforcement program if their own discharge violates their own permit standards or if the concentrations of hazardous constituents in their discharge are approaching those limits.

Hazardous waste facilities are also subject to regulations that protect the groundwater from leaks, operational errors, and other releases. Extensive and detailed regulations require secondary containment or equivalent protection for all hazardous waste tank systems and establish operating standards that protect against operational releases from, for instance, overfilling the tank.

Analysis as to whether or not project activities would:

a. Violate any water quality standards or waste discharge requirements.

Impact Analysis: These regulations are intended to help facilities meet their discharge standards by allowing effective pretreatment of industrial discharges. The water quality standards and waste discharge requirements are separately enforced by the RWQCBs and the POTW pretreatment programs; this project does not change any discharge standards.

Conclusion:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☑ No Impact
b. Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficient in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted).

Impact Analysis: These regulations do not address water usage and will not increase the use of water. By allowing treatment of wastewaters at the cyanide concentrations that occur in the facility rather than setting a numerical limit on which wastes can be treated, the regulations discourage dilution to meet those numerical limits, thus not increasing the need for water or POTW capacity.

Conclusion:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off-site.

Impact Analysis: These regulations do not address drainage or other surface water issues other than through the POTW discharge or a direct discharge permit. Changing the mechanism for authorizing cyanide treatment does not increase or decrease discharges.

Conclusion:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off-site.

Impact Analysis: These regulations do not address drainage or other surface water issues other than through the POTW discharge or a direct discharge permit. Changing the mechanism for authorizing cyanide treatment does not increase or decrease discharges.

Conclusion:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

e. Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff.

Impact Analysis: These regulations do not address drainage or other surface water issues other than through the POTW discharge or a direct discharge permit. Changing the mechanism for authorizing cyanide treatment does not increase or decrease discharges.

Conclusion:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

f. Otherwise substantially degrade water quality.

Impact Analysis: These regulations will allow effective treatment of cyanides in wastewaters that will be discharged to the waters of the State or to POTWs that ultimately discharge to the waters of the State. This treatment will destroy any cyanides in the wastewaters below the level at which the waste is hazardous. Further treatment is often
necessary to meet POTW discharge requirements which are often lower than hazardous waste levels in areas with many industrial dischargers.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☒ Less Than Significant Impact
☐ No Impact

g. Place within a 100-flood hazard area structures which would impede or redirect flood flows.

Impact Analysis: These regulations will not cause existing businesses to build new structures or add to existing structures. Any new businesses that would take advantage of this project would be separately subject to review under local planning and building permit programs.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

h. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.

Impact Analysis: This project will allow onsite treatment of cyanide wastes in lieu of accumulation and offsite treatment. The regulations will reduce the total amounts of cyanide-containing wastes held at any facility that treats the cyanide wastes under a Permit by Rule thus reducing the total amount of waste that could be affected by flooding. See response to (g) above.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

i. Inundation by sieche, tsunami or mudflow.

Impact Analysis: See response to (g) and (h) above.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

References Used: None.

9. Land Use and Planning

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

This project would authorize treatment of cyanide wastes in existing industrial businesses in existing tanks and containers. No new facilities or construction are required by these regulations. Any new businesses that would take advantage of these regulations would be subject to review under the local planning and building permit process.

Analysis as to whether or not project activities would:
a. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

Impact Analysis: This project does not address any land use issues and will not cause any new construction.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

b. Conflict with any applicable habitat conservation plan or natural community conservation plan.

Impact Analysis: See response to (a) above.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

References Used: None.

10. Mineral Resources

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

Cyanide treatment is an industrial activity that takes place inside plating, stripping, and other industrial facilities. Industrial facilities are generally located in urban areas. Most of these activities take place in industrial areas in the Los Angeles, San Diego, and San Francisco Bay areas and in the urban areas of the central valley. The regulations will authorize existing and, potentially, new activities in these industrial areas in California. New businesses could have activities that are authorized under these regulations. These new businesses will either be in existing industrial facilities or will be subject to separate review under the local land use and building permit programs.

Analysis as to whether or not project activities would:

a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state.

Impact Analysis: This project will not authorize any new activities that would preclude extraction of minerals because it only authorizes treatment activities with a different mechanism than the existing Standardized Permit. There would be no physical difference in the operations. Additionally, cyanide treatment takes place in existing industrial facilities. Any new businesses that could be sited on otherwise extractable minerals would be subject independently to review under the local planning and building permit processes.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

b. Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan.

Impact Analysis: See response to (a) above.
Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

References Used: None.

11. Noise

Project Activities Likely to Create an Impact:
None.

Description of Baseline Environmental Conditions:
Cyanide treatment is an industrial activity that takes place inside plating, stripping, and other industrial facilities. Industrial facilities are generally located in urban areas. Most of these activities take place in industrial areas in the Los Angeles, San Diego, and San Francisco Bay areas and in the urban areas of the central valley. The regulations will authorize existing and, potentially, new activities in these industrial areas in California. New businesses could have activities that are authorized under these regulations. These new businesses will either be in existing industrial facilities or will be subject to local land use permits.

Analysis as to whether or not project activities would:

a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

Impact Analysis: The change in the authorization mechanism for cyanide treatment does not address any noise generating activities. Additionally, industrial wastewater treatment takes place inside existing structures and incorporates no equipment or processes that generate significant noise levels.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

Impact Analysis: See response to (a) above.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

c. A substantial permanent increase in ambient noise levels in the vicinity above levels existing without the project.

Impact Analysis: See response to (a) above.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
Impact Analysis: See response to (a) above.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

References Used: None.

12. Population and Housing

Project Activities Likely to Create an Impact:
None.

Description of Baseline Environmental Conditions:

Cyanide treatment is an industrial activity that takes place inside plating, stripping, and other industrial facilities. Industrial facilities are generally located in urban areas. Most of these activities take place in industrial areas in the Los Angeles, San Diego, and San Francisco Bay areas and in the urban areas of the central valley. The regulations will authorize existing and, potentially, new activities in these industrial areas in California. New businesses could have activities that are authorized under these regulations. These new businesses will either be in existing industrial facilities or will be subject to local land use permits.

Analysis as to whether or not project activities would:

a. Induce substantial population growth in area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure).

Impact Analysis: This project would simply change the authorization mechanism for existing waste treatment operations. No new employees would be needed. There would be no impact on housing and population.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere.

Impact Analysis: This project simply changes the authorization mechanism for existing waste treatment operations and would cause no new construction. Any new businesses taking advantage of this authorization would subject to review independently under the local planning and building permit processes.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

c. Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere.

Impact Analysis: See response to (b) above.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact
13. Public Services

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

Facilities treating cyanide wastes typically discharge wastes to the sewers after treatment. These facilities generally use city water supplies for makeup and rinsewater. Fire and emergency response services are provided by local fire and police departments.

Analysis as to whether or not project activities would:

a. Result in substantial adverse physical impacts associated with the provision of new or physically altered government facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the following public services:

- Fire protection
- Police protection
- Schools
- Parks
- Other public facilities

Impact Analysis: None of these public services would be affected by the project because it simply changes the means of authorizing waste treatment that is the same under each system. With the treatment process identical under each type of grant of authorization, there is no change to the potential for fire or process upset, thus, to police or fire protection resources. No new employees are needed by changing from Standardized Permit to Permit by Rule, thus there is no impact on schools and parks.

The other public facilities that could potentially be affected would be public water supplies and POTWs. However, this project changes only the authorization mechanism for cyanide waste treatment, not the actual physical treatment processes. Since the chemical processes and the physical treatment equipment would be identical under both Standardized Permit and Permit by Rule, this project has no impact on these other public facilities.

Conclusion:

- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- ☒ No Impact

References Used: None.

14. Recreation

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

Cyanide treatment is an industrial activity that takes place inside plating, stripping, and other industrial facilities. Industrial facilities are generally located in urban areas. Most of these activities take place in industrial areas in the Los Angeles, San Diego, and San Francisco Bay areas and in the urban areas of the central valley. The regulations will authorize existing and, potentially, new activities in these industrial areas in California. New businesses could have activities that are authorized under these regulations. These new businesses will either be in existing industrial facilities or will be subject to local land use permits.

Analysis as to whether or not project activities would:
a. Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.

Impact Analysis: Cyanide waste treatment is unrelated to recreation.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

b. Include recreational facilities or require construction or expansion of recreational facilities which might have an adverse physical effect on the environment.

Impact Analysis: Cyanide waste treatment is unrelated to recreation.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

References Used: None.

15. Transportation and Traffic

Project Activities Likely to Create an Impact:

None.

Description of Baseline Environmental Conditions:

Cyanide treatment is an industrial activity that takes place inside plating, stripping, and other industrial facilities. Industrial facilities are generally located in urban areas. Most of these activities take place in industrial areas in the Los Angeles, San Diego, and San Francisco Bay areas and in the urban areas of the central valley. The regulations will authorize existing and, potentially, new activities in these industrial areas in California. New businesses could have activities that are authorized under these regulations. These new businesses will either be in existing industrial facilities or will be subject to local land use permits.

Analysis as to whether or not project activities would:

a. Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections).

Impact Analysis: To the extent that this project reduces the cost of becoming authorized for cyanide waste treatment, this project may induce more facilities to treat their own cyanide wastes onsite rather than ship it offsite for treatment. Thus, both the number of trips transporting waste and the potential for release during transport accidents would be reduced. Given that this conclusion is speculative, it is not possible to reliably quantify any trip reductions.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

b. Exceed, either individually or cumulatively, a level of service standard established by the country congestion management agency for designated roads or highway.

Impact Analysis: Because the total quantity of cyanide waste is both comparatively small and broadly distributed geographically in urban areas, transportation of cyanide waste is insignificant compared with the high level of use of
the urban roadways around cyanide using businesses. Note that, as discussed in (a) above, these regulations will diminish the volume of cyanide-containing wastes transported offsite.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

c. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).

Impact Analysis: This project does not include design or specification of roadways and would not add incompatible uses to existing roadways.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

d. Result in inadequate emergency access.

Impact Analysis: This project does not build or otherwise encroach on roadways or right of ways since cyanide waste treatment takes place inside existing industrial facilities.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

e. Result in inadequate parking capacity.

Impact Analysis: This project does not address parking in any manner. It will not consume additional land because cyanide waste treatment takes place inside existing industrial businesses and will not generate significant numbers of new jobs to consume existing parking.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

f. Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).

Impact Analysis: This project does not address transportation alternatives in any manner.

Conclusion:
☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☐ Less Than Significant Impact
☒ No Impact

References Used: None.

16. Utilities and Service Systems

Project Activities Likely to Create an Impact:
As discussed above under “Public Services”, this project changes the authorization mechanism for wastes that are ultimately disposed to the sewer system. Further, makeup water for rinsewaters comes from the public water system in most cases.

Regulatory Setting:

Through its nine RWQCBs, the State Water Regional Control Board (SWRCB) allows for individual waste discharge requirements, or general waste discharge requirements to regulate the discharge of biosolids to land. Federal regulations allow state and local agencies to impose more stringent requirements for the use and disposal of biosolids than those specified in Code of Federal Regulations, title 40, part 503. In California, the rule is enforced through National Pollutant Discharge Elimination System (NPDES) permits. A land application permit with individual waste discharge requirements involves a more complicated permitting process and includes more stringent conditions. Application forms for individual waste discharge requirements are very detailed and are designed to provide the RWQCB staff with in-depth site information.

Description of Baseline Environmental Conditions:

The existing condition is that treatment of cyanide-containing wastewaters is authorized under a Standardized Permit. The project will provide Permit by Rule as an additional authorization. Note that the actual treatment activities and the volume and chemistry of the wastewater discharge are identical under both authorization mechanisms.

The Clean Water Act regulations require industry to control the amount of pollutants discharged into municipal sewer systems by establishing discharge limits. These standards prevent excessive levels of unwanted constituents, such as heavy metals to protect the wastewater treatment facilities from pollutants that may create hazards or interfere with the operation and performance of the POTW, including contamination of sewage sludge, and reduces the likelihood that untreated pollutants are introduced into the receiving waters. Metals are not effectively destroyed by conventional wastewater treatment and end up concentrated in biosolids.

Biosolids are the nutrient rich by-product of wastewater treatment. With the prohibition of ocean disposal of wastewater residuals in 1992, the use of biosolids as soil amendments or for land reclamation has increased to reduce the volume of biosolids that must be landfilled, incinerated, or disposed of at surface sites.

Analysis as to whether or not project activities would:

a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board.

  Impact Analysis: This project would not change the chemistry or the volume of wastewater produced by cyanide treatment facilities given that the sole change is in the mechanism for authorizing the treatment. Note that written approval from the local POTW would be required for a facility to treat process solutions by slow addition to the rinse tanks. This provision ensures that the POTW will only approve that operation if it will not degrade it’s discharge or the biosolids produced by the waste treatment operation.

The discharge limits for POTWs are structured in two different ways. Some POTWs use limits that consist of maximum allowed concentrations of contaminants in a facility’s discharge. While other POTWs set mass based limits for contaminants in wastewater discharges that limit the total mass of any pollutant that can be discharged by a discharger. Both types of limits are set by the POTWs based on the total volumes of wastewater that they receive and the chemical characteristics of that waste. These limits are set to allow the POTW to meet their own discharge permits for discharging treated wastewater. The permit’s limits are set at levels that protect the quality of the receiving waters. Each POTW must set limits for businesses discharging wastewaters to the sewer that ensure that the POTW can meet the discharge limits they are given in their own Waste Discharge Requirements under the Porter Cologne Water Quality Act. The RWQCBs develop Waste Discharge Requirement limits for each POTW by considering wastewater flow volumes, characteristics of the receiving waters, and sensitive species in those waters.

To ensure that these regulations do not allow dilution prior to treatment that causes POTWs to exceed pollution limits in their own permits, these regulations require that businesses bleeding process solutions into the treatment system obtain written permission from the POTW to do so and maintain that documentation in their files. Thus, POTWs will have the opportunity to assess the impacts of bleeding on their own treatment works and their own discharges and veto bleeding if that bleeding would cause problems for their own operations or discharges.

Conclusion:

☐ Potentially Significant Impact
☐ Potentially Significant Unless Mitigated
☒ Less Than Significant Impact
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Impact Analysis: See the response to (a) above.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- **No Impact**

c. Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.

Impact Analysis: See the response to (a) above.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- **No Impact**

d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed.

Impact Analysis: Because this project will not change the existing methods for wastewater treatment, it will not change water needs for businesses treating cyanide waste. The proposed project includes best management practices to conserve water usage and minimize wastewater generation.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- **No Impact**

e. Result in determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the projects projected demand in addition to the providers existing commitments.

Impact Analysis: See the response to (a) and (d) above.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- **No Impact**

f. Be served by a landfill with sufficient permitted capacity to accommodate the projects solid waste disposal needs.

Impact Analysis: Treatment of cyanide wastewaters does not produce solid waste for landfill disposal. The filtercake produced is typically sent to primary metal smelters for metals recovery. If disposed, the filtercake must be solidified to meet the treatment standards and disposed in a hazardous waste landfill. Note that the State’s hazardous waste landfills have significant excess capacity to accept hazardous waste for land disposal. Further, the production of solid and hazardous waste residual materials is independent of the grant of authorization; thus, this project will have no impact on solid waste and hazardous waste generation.

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- **No Impact**
g. Comply with federal, state, and local statutes and regulations related to solid waste.

Impact Analysis: This project changes the authorization mechanism for cyanide waste treatment, but does not change the actual physical treatment processes. Thus, there will be no change in the rate of generation of solid waste (non-hazardous waste).

Conclusion:
- Potentially Significant Impact
- Potentially Significant Unless Mitigated
- Less Than Significant Impact
- No Impact

References Used:


Mandatory Findings of Significance

Based on evidence provided in this Initial Study, DTSC makes the following findings:

a. The project does not have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory.

Because this project simply changes the authorization mechanism for activities that take place inside of industrial buildings, there is no potential for degradation of the environment or impacts on fish or wildlife, plants or animals, or loss of historic buildings or other historic features. Note that any impact to these media would come from new construction for a new or expanded business that would become authorized under this project. Such construction would be separately reviewed under the local planning process and the building permit process.

b. The project does not have impacts that are individually limited but cumulatively considerable. “Cumulatively considerable” means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.

This project would authorize, through a Permit by Rule, the destruction of cyanide-containing aqueous waste. As described in the Air Quality section of this document, the proposed project activities will not obstruct implementation of air quality plans. Cyanide is not a criteria pollutant and does not impact the ability of any air district to attain air quality standards set for any criteria pollutants. Cyanides are controlled separately as a toxic air contaminant and there are strict rules for cyanide emissions based on site specific conditions. The waste streams proposed for treatment under this project are relatively dilute aqueous solutions, air emissions from dilute aqueous solutions are negligible do not add significant amounts of cyanide compounds to the air. Furthermore, the cyanide in plating process solutions causes the process solution to act as if wetting agent/ fume suppressants are being used to prevent the metal toxic air contaminants from being emitted rather than plated and thus reduce the level of misting and metal emissions from the tank. Therefore, allowing cyanide treatment under Permit by Rule will not cause any air impacts nor will it cause any cumulative impacts.

The hazards and hazardous materials section stated that the cyanide destruction treatment activities for the waste streams addressed by this rulemaking are well known and well characterized. Being “well characterized” means that a treatment process is understood completely enough so that an operator can predict with surety both the progress
and the outcome of the treatment process and can design equipment and operating procedures that afford consistently safe and successful treatment of the waste.

There are many other agencies regulating different aspects of the use of cyanides. These agencies combine with DTSC to form a seamless web of regulatory oversight that, when complied with, protects workers, neighbors, and the environment from the hazards of cyanide

Cyanide compounds mostly present acute toxic hazards, but typically do not pose a significant chronic long term exposure hazards to offsite residents. Workers exposed to the routine handling of aqueous cyanide-containing waste are protected by hazardous waste regulations and Cal OSHA requirements. Offsite exposures to routine operations are not anticipated. Although there is a potential for accidental release risk, a search of the U.S. EPA hazardous materials incident databases revealed that serious cyanide incidents have not involved hazardous waste activities occurring under a permit authorization.

As discussed in the Hydrology and Water Quality and the Utilities sections, facilities choosing to treat cyanide-containing aqueous wastes under Permit by Rule must comply with cyanide discharge requirements set by the POTW prior to discharging to the sanitary system. In addition, facilities choosing to treat cyanide-containing aqueous wastes that include spent process solution would need to obtain this approval in writing.

When setting the effluent discharge limits, the POTW must consider the impacts to its NPDES permit and comply with California environmental laws prior to issuing a decision. Effluent guidelines restrict discharges of pollutants from identified waste streams based upon the pollutant reduction capabilities of available treatment technologies. Through the NPDES process, the RWQCB and POTW will have considered the collective impacts of discharges to the POTWs and of the consequent discharges to the receiving waters of the State.

c. The project ☑ has ☐ does not have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly.

Given that the environmental setting for this project includes release prevention through hazardous waste tank and container standards, water quality protection through POTW pretreatment requirements or waste discharge requirements, and analysis of potential upset conditions under offsite consequence analysis and mitigation through the Cal ARP program, there is no potential that changing the authorization mechanism for cyanide treatment can cause substantial adverse effects on human being, directly, or indirectly.

Determination of Appropriate Environmental Document:

Based on evidence provided in this Initial Study, DTSC makes the following determination:

☑ The proposed project COULD NOT HAVE a significant effect on the environment. A Negative Declaration will be prepared.

☐ The proposed project COULD HAVE a significant effect on the environment. However, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A Mitigated Negative Declaration will be prepared.

☐ The proposed project MAY HAVE a significant effect on the environment. An Environmental Impact Report is required.

☐ The proposed project MAY HAVE a “potentially significant impact” or “potentially significant unless mitigated” impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An Environmental Impact Report is required, but it must analyze only the effects that remain to be addressed.

☐ The proposed project COULD HAVE a significant effect on the environment. However, all potentially significant effects (a) have been analyzed adequately in an earlier Environmental Impact Report or Negative Declaration pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier Environmental Impact Report or Negative Declaration, including revisions or mitigation measures that are imposed upon the proposed project. Therefore, nothing further is required.
Certification:

I hereby certify that the statements furnished above and in the attached exhibits, present the data and information required for this initial study evaluation to the best of my ability and that the facts, statements and information presented are true and correct to the best of my knowledge and belief.

Evelia Rodriguez Hazardous Substances Engineer
Preparer's Signature Date
Preparer's Name Preparer's Title Phone #

Peggy Harris Regulatory Program Development Division
Branch or Unit Chief Signature Date
Branch or Unit Chief Name Branch or Unit Chief Title Phone #
ATTACHMENT A

REFERENCES

PERMIT BY RULE FOR TREATMENT OF AQUEOUS WASTE WITH CYANIDES


5. Google searches of the Internet for:
   - Cyanide release
   - Cyanide incident
   - Cyanide poisoning
   - Cyanide spill
   - Hydrogen cyanide release


9. United States Environmental Protection Agency incident reporting system.


http://www.epa.gov/compliance/resources/publications/assistance/sectors/notebooks/electronics.html


http://www.epa.gov/nscep/


http://www.epa.gov/ttn/chief/le/cyanide.pdf