Department of Toxic Substances Control

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TITLE 22

45-DAY PUBLIC NOTICE AND COMMENT PERIOD

Permit by Rule for Treatment of Aqueous Wastes Containing Cyanides

Department Reference Number: R-96-48

Office of Administrative Law Notice File Number: Z-07-0605-12

NOTICE IS HEREBY GIVEN that the Department of Toxic Substances Control (DTSC) proposes to amend California Code of Regulations, title 22, section 67450.11.

PUBLIC HEARING AND WRITTEN COMMENT PERIOD

A written comment period has been established commencing on June 15, 2007,and closing on July 31, 2007.. DTSC will hold a public hearing on the proposed regulations at 10:00 a.m. on July 31, 2007 in the Sierra Hearing Room, 2nd Floor, 1001 "I" Street, Sacramento, at which time any person may present statements or arguments orally or in writing, relevant to this proposal. Please submit written comments to the contact person listed at the end of this notice. Written comments on the rulemaking submitted no later than 5:00 p.m. on July 31, 2007 will be considered.

Representatives of DTSC will preside at the hearing. Persons who wish to speak are requested to register before the hearing. Pre-hearing registration will be conducted at the location of the hearing from 9:30 a.m. to 10:00 a.m. Registered persons will be heard in the order of their registration. Any other person wishing to speak at the hearing will be afforded an opportunity after the registered persons have been heard.

Due to enhanced security precautions at the Cal/EPA Headquarters Building located at 1001 I Street, Sacramento, all visitors are required to sign in prior to attending any meeting. Sign-in and badge issuance occur in the Visitor and Environmental Services Center. This Center is located just inside and to the left of the building's public entrance. Depending on their destination and the building security level, visitors may be

asked to show valid picture identification. Valid picture identification can take the form of a current driver's license, military identification card, or state or federal identification cards. Depending on the size and number of meetings scheduled on any given day, the security check-in could take from three to fifteen minutes. Please allow adequate time to sign in before being directed to your meeting.

If you have special accommodation or language needs, please contact Ms. Nicole Sotak, Chief, Environmental Analysis and Regulations Section, at (916) 322-2833 or by e-mail at regs@dtsc.ca.gov by July 16, 2007. TTY/TDD users may dial 7-1-1 for the California Relay Service. Speech-to-Speech services are available by calling (800) 735-0373 or via TTY at (800) 735-0193.

In accordance with the California Government Code and Americans with Disabilities Act requirements, this publication can be made available in Braille, large print, computer disk, or tape cassette (etc) as a disability-related reasonable accommodation for an individual with a disability. To discuss how to receive a copy of this publication in an alternative format, please contact the Reasonable Accommodation Coordinator Adrian Recio at (916) 324-3095 or by e-mail at arecio@dtsc.ca.gov.

AUTHORITY AND REFERENCE

These regulations are being proposed under the following authorities:

> Health and Safety Code section 25150. This section grants DTSC authority to adopt standards dealing with the management of hazardous waste.
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> Health and Safety Code section 58012 (Added by Gov. Reorg. Plan No. 1, §146, eff. July 17, 1991.) This section grants DTSC authority to adopt regulations to execute its duties.

These regulations implement, interpret, or make specific the following:

> Health and Safety Code section 25150 which allows DTSC to adopt regulations governing the management of hazardous wastes and establishes general criteria for the standards.
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> Health and Safety Code section 25200 which allows DTSC to establish conditions for permits.
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> Health and Safety Code section 25200.2 which directs DTSC to establish a permitting process for transportable treatment units.

Health and Safety Code section 25201 which requires facilities that treat, store, dispose, or transfer hazardous waste to obtain authorization from DTSC (such as a Permit by Rule (PBR).)

INFORMATIVE DIGEST/POLICY STATEMENT OVERVIEW

Existing Law

Wastes that are hazardous are subject to regulation under several sets of law:

1. Chapter 6.5 of division 20 of the California Health and Safety Code.

2. Title 22, division 4.5, California Code of Regulations.

3. Title 27, division 1, California Code of Regulations.

4. The Federal Resource Conservation and Recovery Act (RCRA), as amended, and its implementing regulations in title 40 Code of Federal Regulations parts 124 and 260 - 273.

Additionally, use of cyanides is also governed the following germane State laws:

1. California Occupational Safety and Health Administration (Cal/OSHA) industrial safety orders. California Code of Regulations, title 8, division 1, chapters 3.2 and 4.

2. The California Accidental Release Prevention Program. California Code of Regulations, title 19, division 2, chapter 4.5. California Accidental Release Prevention (Cal ARP).

Hazardous waste control laws: State and federal regulations contain standards for identifying waste materials and classifying them as hazardous or non-hazardous: California Code of Regulations, title 22, division 4.5, chapter 11 and title 40 Code of Federal Regulations part 261. They also contain rules managing hazardous wastes including exemptions for some wastes and activities, regulation of recycling, permitting of treatment, transfer, storage and disposal facilities, and other hazardous waste issues.

This project addresses treatment of wastewaters containing cyanides. These wastewaters are identified as hazardous wastes by exhibiting the characteristic of toxicity, found in California Code of Regulations, title 22, section 66261.24. Cyanide containing wastewaters can be hazardous due to the oral toxicity (LD_{50}) of the cyanide, the aquatic toxicity (24 hour Aquatic LC_{50}) of the cyanide, or the combined toxicity or aquatic toxicity of both the cyanides and the metals dissolved in the solutions.

In California, Health and Safety Code section 25201 requires a permit or other grant of authorization for all treatment of hazardous waste. The State regulations do not recognize the federal exemptions for treatment in generator accumulation tanks and containers or the wastewater treatment unit exemption.

There are several avenues open for obtaining authorization to treat hazardous waste in California:

1. Full hazardous waste facility permit: (Cal. Code Regs., tit. 22, div. 4.5, ch. 14 and 20) A permit required of most commercial offsite hazardous waste facilities and hazardous waste landfills.

2. Standardized hazardous waste facility permit: (Health & Saf. Code § 25201.6.) This permit is similar to the full hazardous waste facility permit but requires less information to be included in the application requiring pre-issuance DTSC approval. Both the full and standardized hazardous waste facility permits require document submission and review, a California Environmental Quality Act (CEQA) analysis, draft permit publication for public review and comment, and final issuance prior to the business commencing its treatment operations.

3. Permit by Rule: (Cal. Code Regs., tit. 22, div. 4.5, ch. 45.) This permit (proposed in these regulations for authorizing treatment of cyanide containing wastewaters) is self-implementing and is more closely matched to the environmental threat posed by most onsite treatment activities than the full or standardized hazardous waste facility permit. It applies only to treatment of hazardous waste carried out on the site where the hazardous waste was generated (“onsite”). This permit requires a facility to notify the local Certified Unified Program Agency (CUPA) (or other agency designated by the Secretary for Environmental Protection, where there is no CUPA) of the treatment activity. The business then must certify compliance with the numerous protective standards of a PBR. When the facility has notified, it receives authorization; compliance with the regulatory requirements is determined upon inspection. A PBR can only be issued for a specific list of wastestreams and treatment processes that DTSC has found to be both well characterized and capable of being operated safely.

4. Grant of conditional authorization: (Health & Saf. Code § 25200.3.) This authorization (not a permit) applies only to a specified list of wastestreams and treatment processes. It can authorize only treatment carried out onsite. It is a self-implementing authorization that operates similar to a PBR, but with lower hazard hazardous wastes and fewer regulatory requirements.

5. Grant of conditional exemption: (Health & Saf. Code § 25201.5.) This authorization, again, not a permit, applies only to the smallest quantity onsite treatment and the lowest

hazard wastestreams and treatment processes. It is also self-implementing and has even fewer regulatory requirements than the grant of conditional authorization.

6. Consent agreements: (Developed pursuant to Health & Saf. Code § 25187.) These are settlement agreements negotiated after DTSC charges a business for a violation or a threatened violation. These agreements allow continued treatment, but are meant to allow continuation of treatment activities only until the business can come into compliance with the standards for a normal grant of authorization. Consent agreements for cyanide treatment require compliance with the PBR regulatory standards. DTSC has issued consent agreements only to businesses treating wastes containing less than 1500 ppm cyanide.

7. Variances: (Health & Saf. Code § 25143.) Treatment can be authorized under a variance that allows a facility to vary from Health and Safety Code section 25201. Variances may only be issued under narrow conditions for short periods of time. They require individual analysis under CEQA.

Of all of these grants of authorization, the PBR is the most appropriate. The other types of authorization are all less appropriate for the reasons discussed below:

The consent agreement was never intended to authorize long term activities. It is an enforcement option intended to allow non-complying businesses to continue their activities while coming into compliance.

The variance option is environmentally protective because DTSC is allowed to place conditions on variances that mitigate any hazards. However, variances are individually issued and are very resource intensive for the business and DTSC. Additionally, the permissive nature of variance issuance makes each variance individually subject to a CEQA determination. Given that the lifespan of a variance is typically short term, the ongoing financial and resource burden on both the business and DTSC makes authorizing cyanide treatment by variance only a short term solution.

The two simplest self-implementing tiers of authorization, a grant of conditional exemption and a grant of conditional authorization, are inappropriate because these grants and the accompanying regulatory requirements were intended for lower risk waste treatment as is demonstrated by the concentration and hazard limits of the allowed wastestreams and treatment processes.

The remaining options other than PBR are the full hazardous waste facility permit and the standardized hazardous waste facility permit. The full permit is reserved for the most hazardous facilities such as land disposal facilities and incinerators regulated by the federal government under RCRA.

The standardized hazardous waste facility permit is the option considered in addition to PBR. Existing law would require that persons treating cyanide containing wastes onsite in tanks and containers obtain a standardized permit for that treatment. However, there are significant fees, a CEQA analysis, public review and comment and, if requested, a public hearing prior to formal issuance of a standardized permit. DTSC rejected this alternative because the risk posed by onsite cyanide treatment is not commensurate with the public and business resource needs for issuing standardized permits. Standardized permits are intended for offsite hazardous waste treatment and storage facilities and higher risk onsite hazardous waste treatment facilities.

Rather than require a standardized permit, DTSC is proposing to authorize treatment of lower concentration aqueous cyanide containing wastes under a PBR. The focus of this PBR authorization is the treatment of lower concentration wastewaters, with exceptions. Thus, California business will have access to inexpensive but protective authorization for frequently generated large volumes of relatively dilute cyanide containing wastewaters under PBR.

Federal laws: Federal regulations classify hazardous wastes in 40 Code of Federal Regulations part 261. Part 261, subpart C, commencing with section 261.20, establishes (among other provisions) which solid wastes are hazardous wastes due to extractable or dissolved hazardous contaminants, including metals. Subpart D establishes which solid wastes are hazardous wastes due to being listed as "listed hazardous wastes." Federal regulations classify most wastes containing cyanides as hazardous wastes. They establish listings for spent electroplating and stripping baths along with sludges from wastewater treatment and tank bottoms in section 261.31. Most cyanide solutions would also be classified as hazardous wastes due to the presence of one or more regulated metals above the toxicity characteristic thresholds in section 261.24.

Under federal law, aqueous wastes containing cyanides (at any concentration) may be treated onsite without obtaining a hazardous waste permit under most circumstances. This is allowed by the (uncodified) federal policy of allowing treatment in generator accumulation tanks and containers without a permit (51 Fed. Reg. 10174 (Mar. 24, 1986)) and the federal deferral of authorization for wastewater treatment to the Clean Water Act programs. The first exemption, treatment in tanks and containers within 90 days of generation, would require compliance with the standards applicable to all generators of hazardous waste (40 C. F. R., Part 262). The second exemption, treatment in a wastewater treatment unit, (40 C. F. R. § 264.1, 265.1, and 270.1) exempts persons treating cyanides (and other onsite hazardous wastes) in "wastewater treatment units" from all hazardous waste regulations for that activity.

Notification forms: Under existing law, title 27 California Code of Regulations contains the Unified Program Consolidated Form (UPCF) which is used by businesses to notify

of activities governed by the Unified Program. DTSC is amending the UPCF in title 27, California Code of Regulations to incorporate the new PBR cyanide waste stream and treatment process combinations.

Policy Statement Overview

Broad Objectives: The objective of this rulemaking action is to establish simple and protective authorization for treatment of certain cyanide containing wastes using specified technologies at the facility which generated the wastes. The authorization would be provided by extending the existing PBR authorization to avoid creating a new regulatory program requiring use of extensive business and government resources.

Proposed Regulations

The proposed rules would add five new waste streams and seven new treatment processes to the list of wastestreams and treatment processes under the PBR regulations (Cal. Code Regs., tit. 22, § 67450.11).

Wastestreams: The new wastestreams would be:

1. Wastewaters from 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 ppm[1]. Facilities that do not use efficient rinsing methods generate wastewaters with lower cyanide concentrations.

2. Cyanide containing wastes from the regeneration of ion exchange resins used for recycling water at facilities that have eliminated the discharge of wastewater (“zero discharge” facilities). These businesses recycle virtually all of their wastewaters periodically disposing only the effluent from the recycling operation itself.

3. Rinsate from pumps, containers, and hoses that have been used to transfer process solutions. All businesses must rinse solutions from transfer equipment prior to transferring a different solution.

4. Waste process solutions that are treated by electrowinning for metal recovery prior to shipment to a hazardous waste treatment facility. Many businesses electroplating with precious metals electrowinn process solutions prior to shipment offsite to recover precious metals.

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1 Verbal communication from Dominic Nole representing the Surface Treatment Association. Information from polling California Metal Finishers.

5. Waste process solutions added slowly to a rinse tank and treated in the wastewater treatment system: Spent process solutions would be allowed to be added very slowly to the rinse tanks until the cyanide concentrations in the rinse tank reaches 5,000 parts per million. The rinsewater is then required to be treated by cyanide destruction.

Treatment processes: The new treatment processes proposed for treatment of cyanide containing wastes under a PBR are:

1. Oxidation by addition of hypochlorite. In this process, one of the specified oxidizing agents is added to a cyanide bearing wastewater with the pH adjusted to about 10.5. The oxidizing agent 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.

2. Oxidation by addition of peroxide, or ozone, with or without the use of ultraviolet light. In this process, one of the specified oxidizing agents is added to a cyanide bearing wastewater with the pH adjusted to about 10.5. The oxidizing agent 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. Ultraviolet light is often used to break apart metal-cyanide complexes for faster cyanide destruction when treating cyanide wastewaters that contain metal ions that form strong complexes with cyanide.

3. Alkaline chlorination. This process is similar to the process 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 other hazardous properties prior to discharge to the sewers or the waters of the State.

6. 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.

7. Process solutions with cyanide added slowly to rinse tanks. The dilution of spent process solutions is necessary to reduce the risk associated with cyanide destruction of solutions with high cyanide concentrations. Slow addition of process solutions to the rinse tanks occurs until the cyanide concentrations in the rinse tank is reduced to 5,000 parts per million or less.

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) COMPLIANCE

DTSC is preparing an Initial Study and a draft Negative Declaration which indicates no significant effect from the project on the environment. These documents will be available for review at a later date and will be noticed and circulated for comment pursuant to the requirements of the CEQA Guidelines. A copy of the draft CEQA document will be posted on the DTSC Internet site at http://www.dtsc.ca.gov.

PEER REVIEW

Under the provisions of Health and Safety code section 57004, peer review is not required because the proposed regulations do not establish a regulatory level, standard, or other requirement subject to scientific peer review.

BUSINESS REPORT

DTSC has determined that this rulemaking will not require businesses to write a new report, as defined by Government Code section 11346.3(c).

FISCAL IMPACT ESTIMATES:

Mandates on Local Agencies and School Districts: DTSC has made a preliminary determination that adoption of these regulations will create no new local mandates.

Estimate of Potential Cost or Savings to Local Agencies Subject to Reimbursement: DTSC has made a preliminary determination that adoption of these regulations will not impose a local mandate or result in costs subject to reimbursement pursuant to part 7 of division 4, commencing with section 17500, of the Government

Code or other nondiscretionary costs or savings to local agencies. While the CUPAs will have additional inspection and enforcement work adding cyanide compliance assessment to existing PBR inspections, the CUPAs have authority to recover the "necessary and reasonable" costs of operating their programs (Health & Saf. Code § 25404.5).

Cost or Savings to Any State Agency: DTSC has made a preliminary determination that the proposed regulations will have no impact on State revenue or costs.

Cost or Savings in Federal Funding to the State: DTSC has made a preliminary determination that the proposed regulations will have no impact on Federal revenue or costs.

Effect on Housing Costs: DTSC has made an initial determination that there will be no impact on housing costs.

Cost Impacts on Representative Private Persons or Businesses: The agency is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with the proposed action.

Significant Statewide Adverse Economic Impact on Businesses: DTSC has made an initial determination that the proposed regulations will not have a significant statewide adverse economic impact directly affecting businesses, including the ability to compete with businesses in other states.

Effect on Small Businesses: DTSC has determined that provisions of this rulemaking may have an effect on small businesses.

Assessment Statements:

(A) Creation or elimination of jobs within California – DTSC has made a preliminary determination that no jobs will be created or eliminated in California as a result of the proposed regulations.

(B) Creation of new businesses or the elimination of existing businesses within California – DTSC has made a preliminary determination that no businesses will be created or eliminated in California as a result of the proposed regulations.

(C) Expansion of businesses currently doing business in California – DTSC has made a preliminary determination that no businesses in California will be expanded as a result of the proposed regulations.

CONSIDERATION OF ALTERNATIVES

DTSC must determine that no reasonable alternative it considered or that has otherwise been identified and brought to the attention of DTSC would be more effective in carrying out the purpose for which the action is proposed, or would be as effective as and less burdensome to affected private persons than the proposed action. DTSC invites interested persons to present arguments, with respect to the various options, at the scheduled hearing, or during the written comment period.

AVAILABILITY OF TEXT OF REGULATIONS AND STATEMENT OF REASONS

Copies of the Notice, Initial Statement of Reasons and the text of the proposed regulations are posted to DTSC's Internet site at http://www.dtsc.ca.gov or may be obtained from Ms. Nicole Sotak of DTSC's Environmental Analysis and Regulations Section as specified below. The information upon which DTSC relied is also available at the address listed below.

POST-HEARING CHANGES

After the close of the comment period, DTSC may adopt the proposed regulations. If substantial changes are made, the modified text will be made available for comment for at least 15 days prior to adoption. Only persons who request the specific proposed regulations, attend the hearing, or provide written comments on these specific regulations will be sent a copy of the modified text, if substantive changes are made. Once regulations have been adopted, DTSC prepares a Final Statement of Reasons which updates the Initial Statement of Reasons, summarizes how DTSC addressed comments and includes other materials, as required by Government Code section 11346.9. Copies of the Final Statement of Reasons may be obtained from Ms. Nicole Sotak at the address listed below. A copy of the Final Statement of Reasons will also be posted on DTSC's Internet site at http://www.dtsc.ca.gov, along with the date the rulemaking is filed with the Secretary of State and the effective date of the regulations.

CONTACT PERSONS

Inquiries regarding technical aspects of the proposed regulations or CEQA documents may be directed to Ms. Evelia Rodriguez of DTSC at (916)322-3810 or erodrigu@dtsc.ca.gov,. or, if unavailable, Ms. Sherri Lehman of DTSC at (916) 327-4509. However, such oral inquiries are not part of the rulemaking record.

Statements, arguments or contentions regarding the rulemaking and/or supporting documents must be submitted in writing or may be presented orally or in writing at the public hearing in order for them to be considered by DTSC before it adopts, amends or repeals these regulations. To be included in this regulation package's mailing list, and

to receive updates of this rulemaking, please visit http://www.calepa.ca.gov/Listservs/dtsc/ and subscribe to the applicable Listserv. You may also leave a message on the DTSC mailing list phone line at (916) 324-9933 or e-mail: regs@dtsc.ca.gov.

Please direct all written comments, procedural inquiries and requests for documents by mail, e-mail or fax to:

Ms. Nicole Sotak, Chief
Environmental Analysis and Regulations Section
Department of Toxic Substances Control

Mailing Address: P.O. Box 806
Sacramento, CA 95812-0806

E-mail Address: regs@dtsc.ca.gov

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Ms. Sotak's phone number is (916) 327-4508. If Ms. Sotak is unavailable, please call Ms. Laura Hayashi at (916) 322-6409.