Updated Informative Digest

UPDATED INFORMATIVE DIGEST/POLICY STATEMENT OVERVIEW

Summary of Existing Statutes and Regulations

1. Classification of Mercury-Containing Waste

Federal Criteria

Under the United States Environmental Protection Agency's (U.S. EPA's) regulations, a waste has any of four hazardous waste characteristics (ignitability, corrosivity, reactivity, or toxicity) is said to exhibit that characteristic and is generally classified as a hazardous waste. Additionally, a waste that appears on any of four lists of hazardous wastes is classified as a hazardous waste. Pursuant to section 25159.5 of the Health and Safety Code, the federal criteria for identifying hazardous wastes have been adopted in California, in subsection (a) of section 66261.24 of the California Code of Regulations, title 22.[1]

A waste with a leachable concentration of a toxic contaminant equal to or exceeding the regulatory level for that contaminant is a hazardous waste. Leachable concentrations are determined by the Toxicity Characteristic Leaching Procedure (TCLP), published by U.S. EPA in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)*. The TCLP regulatory level for mercury is 0.2 milligrams per liter. A waste with a leachable mercury concentration that equals or exceeds this value is classified as a hazardous waste.

California has also adopted U.S. EPA's four lists of hazardous wastes in article 4 of chapter 11. The four lists and their corresponding sections in the regulations are:

- The 'F' List—"Hazardous Wastes from Non-Specific Sources" (Cal. Code Regs., tit. 22, §66261.31);
- The 'K' List—"Hazardous Wastes from Specific Sources" (Cal. Code Regs., tit. 22, §66261.32); and
- The 'P' and 'U' Lists—"Discarded Commercial Chemical Products, Off-Specification Species. Container Residues and Spill Residues Thereof" (Cal. Code Regs., tit. 22, §66261.33).

Several mercury-containing wastes appear on the federal hazardous waste lists. They are:

- K071 Brine purification muds from the mercury cell process in chlorine production, in which separately prepurified brine is not used.
- K106 Wastewater treatment sludge from the mercury cell process in chlorine production.

[1] All subsequent regulatory references, unless otherwise indicated, are to the California Code of Regulations, title 22, division 4.5

- P065 Mercury fulminate.
- P092 Phenylmercury acetate.
- U151 Mercury.

A mercury containing waste that meets any of the above listing descriptions is classified as a hazardous waste.

California Criteria

California has adopted additional properties for the corrosivity and toxicity characteristics. Wastes that have only these properties (i.e., that do not have the properties found in the federal regulations), and do not appear on any of the four federal lists, are "California-only" or "non-RCRA" hazardous wastes.

Toxicity is generally the characteristic of concern with mercury-containing wastes. A mercury containing waste that is not identified as toxic under federal criteria is toxic under California's criteria if it has any of the following properties:

- Its extractable mercury concentration, as determined by the Waste Extraction Test (WET), equals or exceeds 0.2 milligrams per liter;
- Its total mercury concentration equals or exceeds 20 milligrams per kilogram of sample;
- It has an acute oral lethal dose $(LD)_{50}$ less than 2,500 milligrams per kilogram;[2]
- It has an acute dermal LD_{50} less than 4,300 milligrams per kilogram;[2]
- It has and acute inhalation lethal concentration $(LC)_{50}$ less than 10,000 parts per million as a gas or vapor;[2]
- It has an acute aquatic 96-hour LC_{50} less than 500 milligrams per liter;[2] or
- "It has been shown through experience or testing to pose a hazard to human health or environment because of its carcinogenicity, acute toxicity, chronic toxicity, bioaccumulative properties or persistence in the environment."

Appendix X of chapter 11 contains a list of nearly 800 chemicals that, if present in a waste, are presumed to make the waste hazardous. A number of the chemicals listed in Appendix X contain mercury. However, a waste that contains a chemical listed in Appendix X but does not exhibit a hazardous waste characteristic is not a hazardous waste.

2. Hazardous Waste and Universal Waste Management

Chapter 23, section 66273.1 *et seq.*, contains DTSC's Universal Waste Rule (UWR). The UWR allows certain hazardous wastes that are widely generated to be managed under standards that are appropriate for the hazards of the wastes and the types of entities that generate them. For persons who generate, consolidate, and transport

2. The LD_{50} and LC_{50} values are determined using animal toxicity tests. They represent the dose or concentration of a sample of waste that is required to kill half of a group treated animals.

universal wastes, these standards are easier to comply with than the requirements that govern the management of most hazardous wastes. These requirements will lead to higher rates of proper management and disposition of these widely generated, relatively low risk wastes and better protection of public health and the environment. The standards that generators, consolidators, and transporters of most hazardous wastes must comply with are summarized below, followed by summaries of the standards that apply to handlers and transporters of universal waste.

Hazardous Waste Generator Standards

Generators of mercury-containing hazardous wastes are subject to requirements found in chapter 6.5 of the Health and Safety Code and in chapters 12 and 15 of California Code of Regulations, title 22. Some important generator requirements are listed below. Generators must:

- Determine whether their waste is hazardous;
- Obtain an EPA identification number;
- Accumulate hazardous waste in compliance with the applicable time limits specified in the Health and Safety Code section 25123.3 (90 days, 180 days, 270 days or 365 days);
- Keep records;
- Label/mark containers in which hazardous waste is accumulated;
- Prepare and implement emergency procedures/contingency plans;
- Train all employees in proper waste handling and emergency procedures, relevant to their responsibilities;
- Ensure that shipments of more than 50 pounds or 5 gallons of hazardous waste are carried by transporters that are registered with DTSC and have obtained an ID number; and
- Submit a biennial report.

Hazardous Waste Consolidation Facility Standards

A facility that consolidates mercury-containing hazardous wastes generated at offsite locations is required, as a hazardous waste storage facility, to obtain a permit from DTSC. Depending on whether or not the waste is federally regulated, either a full RCRA permit or a standardized permit may be required. Household hazardous waste collection facilities may consolidate mercury-containing hazardous wastes generated by households and Conditionally Exempt Small Quantity Generators. These facilities do not require full or standardized permits; instead, they may operate under the less stringent Permit-by-Rule authorization tier, pursuant to chapter 45.

Hazardous Waste Transporter Standards

Transporters of mercury-containing hazardous waste (other than those regulated as universal wastes) are subject to the standards for hazardous waste transporters found in chapter 13, and in article 6 of chapter 6.5 of the Health and Safety Code. Hazardous

waste transporters must keep a valid registration issued by DTSC in their possession while transporting hazardous waste. Prior to transporting hazardous waste, a registered transporter must obtain an identification number and a registration certificate from DTSC. A transporter may only carry hazardous waste that is accompanied by a Uniform Hazardous Waste Manifest. The manifest must be signed by the generator and transporter, and must be kept in the transporter's possession.

Standards for Managing Elemental Mercury that is Non-RCRA Hazardous Waste

Section 66266.120 exempts persons who handle waste elemental mercury from some hazardous waste management requirements. However, these reduced management requirements apply only to elemental mercury that is non-RCRA hazardous waste. Waste elemental mercury that exceeds the TCLP of 0.2 micrograms per liter, and is not otherwise exempt under RCRA regulations, is subject to the full hazardous waste management standards outlined above. Up to 10 pounds of non-RCRA waste elemental mercury may be stored onsite without a permit; up to 10 pounds can be transported to a recycler without a registered hazardous waste hauler or uniform hazardous waste manifest.

Universal Waste Handler Standards

In lieu of the above requirements, handlers (generators and offsite consolidators) of universal waste (which currently includes lamps, batteries and thermostats):[3]

- Must obtain an EPA identification number only if they accumulate 5,000 kilograms or more of universal waste at any time;
- May accumulate universal wastes for up to one year without a permit;
- Must keep shipping records only if they accumulate 5,000 kilograms or more of universal waste at any time;
- Are subject to more flexible labeling/marking requirements;
- May train employees informally, (unless they accumulate 5,000 kilograms or more of universal waste at any time, in which case more formal training is required);
- Must contain any releases or residues of universal wastes, determine whether the resulting materials exhibit any hazardous waste characteristic and, if they do, manage the materials as hazardous wastes;
- May ship universal waste using a common carrier; and
- Are not subject to biennial reporting.

Cathode ray tube (CRT) materials are also universal wastes, pursuant to emergency regulations adopted by DTSC.[4] In addition to complying with the requirements for universal waste handlers listed above, CRT material handlers who accept more than

3 These universal wastes are managed pursuant to Articles 2 and 3 of chapter 23, section 66273.10, *et seq.*
4 CRT materials are regulated as universal wastes under Article 7 of chapter 23, section 66273.80, *et seq.*

five CRTs or more than 100 kilograms of CRT glass from offsite generators, or who generate more than 5,000 kilograms of CRT material per year, are required to notify DTSC and their local CUPA of their activities. The emergency regulations also allow CRT material handlers to treat or recycle CRT materials, provided they comply with a list of additional requirements. DTSC is recently submitted the permanent CRT regulations to the Office of Administrative Law.

Effective January 1, 2002, Health and Safety Code section 25201.16 designates hazardous waste aerosol cans as universal wastes. The requirements for generators and consolidators of intact aerosol cans are very similar to those for the handlers of batteries, lamps, and thermostats in chapter 23 of the regulations. In addition, the aerosol cans statute allows handlers who are not “offsite commercial processors” to puncture, drain, and/or crush universal waste aerosol cans, provided they comply with a list of additional requirements.

Universal Waste Transporter Standards

Persons who transport universal waste batteries, lamps, thermostats, or CRT materials are regulated as universal waste transporters. Universal waste transporter requirements, which are found in article 4 of chapter 23, are much reduced compared with general hazardous waste transportation requirements. A universal waste transporter is not required to register with DTSC, and is not required to obtain an EPA identification number. The Uniform Hazardous Waste Manifest is not required for universal waste transporters; instead, they may transport universal waste with a bill of lading.

POLICY STATEMENT

1. Background

A number of sites in California are contaminated with mercury to the extent that clean-up or other mitigation activities have been necessary. Similarly, some of the state’s waters exceed water quality standards for mercury, triggering a requirement for development of Total Maximum Daily Loads (TMDLs) under the federal Clean Water Act. The severity of California’s mercury contamination problem is further evidenced by fish advisories issued by California's Office of Environmental Health Hazard Assessment (OEHHA) for a number of California recreational waters. OEHHA has advised the public to restrict or eliminate consumption of sport fish from some of these water bodies because they contain unsafe levels of methylmercury. In spite of the contamination of California’s environment with mercury, certain mercury-containing wastes continue to be classified and managed as nonhazardous waste, resulting in the preventable release of more mercury. Other mercury-containing wastes that are widely generated by clinics, hospitals, laboratories, small businesses, and households are classified as hazardous waste and are subject to stringent requirements that are more appropriate for industrially generated wastes. These wastes are more likely to be properly managed and recycled as universal wastes.

Mercury-Containing Wastes Currently Classified as Nonhazardous

Under California's current waste identification criteria, some mercury-containing wastes are classified as nonhazardous, and may legally be disposed in (nonhazardous) municipal landfills. Based on one national estimate, the Department of Toxic Substances Control (DTSC) calculates that approximately 37.2 short tons of mercury were disposed in California's non-hazardous landfills in 1995. Although there have been decreased uses of mercury in products, DTSC calculates that approximately 17.3 tons of mercury were still disposed in 2000.

DTSC has identified several types of mercury-containing products that are frequently classified as nonhazardous wastes when discarded. While the mercury concentrations in these wastes are relatively low, their management and disposal contribute significant amounts of mercury to the State's environment, due to their large volumes. The wastes include some fluorescent lamps, certain novelty items, and vehicles and large appliances that contain mercury switches.

The mercury found in lamps and novelties can enter the environment when the products break during use, handling, or disposal. The mercury contained in switches is released when an appliance or vehicle is baled, sheared, crushed, or shredded for recycling. Some of the mercury is emitted directly to air, while some remains associated with the non-metallic fluff that is generated during shredding. Shredder fluff, which is produced after shredding both automobiles and appliances, is often used as daily cover in non-hazardous Class 3 landfills in California. Public Resources Code section 42175 already requires the removal of mercury switches from appliances prior to crushing them or transferring them to a baler or shredder for recycling. However, mercury switches generally are still not removed from vehicles prior to recycling.

Management Standards for Widely Generated Mercury-Containing Wastes

Many widely generated mercury-containing wastes are currently classified and fully regulated as hazardous wastes. Generators of these wastes must comply with numerous requirements, including labeling standards, accumulation time limits, manifesting, record retention, etc. Before they may accept them from offsite generators, consolidators of these wastes currently must comply with lengthy and relatively expensive permitting or authorization requirements.

Management standards have been adopted for several widely generated hazardous wastes in DTSC's Universal Waste Rule. Recent legislation [Senate Bill (SB) 633 (stats. 2001, ch. 656)] added section 25214.6 to the Health and Safety Code, which requires mercury light switches removed from motor vehicles to be managed under the Universal Waste Rule. However, waste-specific management standards for vehicle light switches, and for many other widely generated mercury-containing wastes, have yet to be adopted.

Large volumes of waste mercury-containing products discarded by certain businesses, government agencies and households in the State continue to be disposed in municipal landfills. In addition to vehicle light switches, these hazardous wastes include such common products as mercury fever thermometers, mercury-added novelty items, and products that contain mercury switches. DTSC believes that allowing these products to be managed as universal wastes will more effectively promote their proper management.

2. Objectives

The objectives of these regulations are to encourage the following:

1. pollution prevention through the use of non-mercury containing products,
2. development of products that use mercury alternatives, and
3. recycling of mercury containing waste.

These objectives will be accomplished by:

1. listing discarded products that contain intentionally-added mercury and can be recycled or have non-mercury alternatives as hazardous wastes
2. developing universal waste management standards to facilitate the collection, storage, and recycling of discarded mercury-containing products that are classified as hazardous wastes.

Currently, some widely generated products that contain mercury are not classified or regulated as hazardous waste. Consequently, the mercury they contain is more likely to enter the State's environment during management and disposal than would be the case if the products were regulated as hazardous wastes.

The regulations will designate a list of mercury-containing products as hazardous wastes when discarded. Products that met one or both of two criteria were chosen for listing: products for which recycling is feasible and/or for which mercury-free alternatives are available. These criteria are consistent with section 25179.4 of the Health and Safety Code, in which the Legislature directs DTSC to make promotion of source reduction and recycling its two top priorities for the hazardous waste management program.

In addition to listing these discarded mercury-containing products as hazardous wastes, DTSC proposes to adopt new standards for managing some of them. DTSC also proposes new universal waste management standards for several categories of discarded mercury-containing products that are already hazardous under existing criteria. DTSC's Universal Waste Rule, chapter 23, section 66273.5, already designates hazardous waste lamps as universal wastes, and sections 66273.13 and 66273.33 contain management requirements for handlers of universal waste lamps. Therefore, these regulations do not need to include universal waste management standards for the newly-listed lamps.

Designating these hazardous wastes as universal wastes will impose appropriate requirements for collection, storage, and transportation to a destination facility, where the mercury-containing wastes will be recycled. In some special instances, disposal is allowed in a hazardous waste landfill.

3. Regulations

Listing of Mercury-Containing Hazardous Wastes

These regulations will add a new article 4.1 to chapter 11. Article 4.1 contains a list of mercury-containing products that, when discarded, will be classified as hazardous wastes. Four waste types are listed in article 4.1: mercury-containing motor vehicle light switches, non-automotive mercury switches, lamps that contain mercury and mercury-added novelties. Mercury-containing wastes not appearing on the list will continue to be identified as hazardous or nonhazardous using the existing federal lists and the hazardous waste characteristics in chapter 11.

Universal Waste Management of Mercury-Containing Wastes

These regulations will establish new standards for the management of mercury-containing wastes as universal wastes. They include standards for both the wastes listed in article 4.1, and for several other widely generated wastes that are hazardous due to their mercury concentration. The new universal waste management standards for these wastes will be added to the existing standards for batteries, lamps, thermostats, and CRTs in chapter 23.

Under the regulations, generators will be required to properly dispose of or recycle their mercury-containing wastes, but will be subject to less restrictive storage and shipment requirements as universal waste handlers. In most cases, universal waste management will be conditioned on ultimately recycling the mercury contained in the discarded products. Currently, California's only mercury retorts (facilities that reclaim mercury) are limited to processing waste fluorescent lamps. All other mercury wastes for which recycling will be required will have to be sent to out-of-state facilities. Permitting requirements for these out-of-state facilities will depend on the individual state's hazardous waste permit requirements.

As with the current universal wastes, common carriers will be allowed to transport the proposed new mercury-containing universal wastes on bills of lading rather than hazardous waste manifests. In order to simplify transportation, the use of registered hazardous waste transporters will not be required. As is true for the current universal wastes, offsite facilities will be allowed to accumulate the new mercury-containing universal wastes for up to one year without authorization from DTSC.

4. Reason for Regulations

Why DTSC is Listing Mercury-Containing Wastes as Hazardous Wastes

Discarded mercury-containing products have been selected for designation as hazardous wastes based on the availability of non-mercury alternatives and on the feasibility of recycling the products' mercury. DTSC has determined that this designation will encourage the development and use of non-mercury substitutes, consistent with section 25179.4 of the Health and Safety Code. DTSC also believes that allowing management of these and other widely generated discarded mercury-containing products under the universal waste standards will maximize the rate of diversion from the nonhazardous waste stream to hazardous waste recycling and disposal. When recovery of the mercury in a discarded product is feasible, managing it as universal waste will be contingent on ultimately recycling it. This will provide a strong incentive for mercury recycling.

The regulations will list certain mercury-containing hazardous wastes in a new article 4.1 of chapter 11. The list is modeled after the RCRA hazardous waste lists, which have been adopted in article 4 of chapter 11. Each listed waste is assigned a unique 'M' number. Descriptions of each listed waste type give specific descriptions of the wastes that are and are not included. For some wastes, the listing description includes information on when they are considered generated.

The new listed wastes are:

- M001: Mercury-containing motor vehicle light switches and vehicles that contain them.

Mercury light switches are used in many makes and models of vehicles, both foreign and domestic. These switches are used to control lights in vehicle hoods and trunks. Each switch contains approximately one gram of mercury. Removed from a vehicle, the switches would currently be classified as hazardous wastes, because their total mercury concentration exceeds the Total Threshold Limit Concentration (TTLC) for mercury of 20 milligrams per kilogram. When the total mass of even a small vehicle is taken into account, however, the amount of mercury contained in its switches is generally below the thresholds that would make the vehicle hazardous waste. DTSC estimates that between 0.75 and 1.5 tons of mercury are contained in the vehicles scrapped annually in California. Little of this mercury is currently recycled or disposed as hazardous waste.

These regulations will designate discarded mercury-containing motor vehicle light switches, and discarded vehicles that contain them, as hazardous wastes, regardless of the total mass of the vehicle. Under the regulations, hazardous waste will be considered generated when a dismantler decides to crush, bale, shred, or shear a vehicle that contains mercury light switches. The entire vehicle will be a listed hazardous waste, unless and until the dismantler removes all of its mercury light switches. (Light switches that cannot be removed with reasonable effort due to *accidental* damage sustained by a vehicle will not cause the vehicle to be classified as a

hazardous waste. Waste derived from crushed or shredded vehicles from which all mercury-containing light switches have not been removed will not be in the listing description for 'M001' hazardous wastes. Such waste will be characterized as hazardous or nonhazardous using the existing hazardous waste characteristics.)

The scope of this listing has been changed since the 45-day public notice was issued. Only mercury-containing motor vehicle *light* switches are now included in the listing. As originally noticed, the M001 listing would have rendered a vehicle destined for crushing, baling, shearing, or shredding that contained any type of mercury switch as a hazardous waste. The listing has been revised in response to comments received during the 45-day public comment period. While mercury-containing motor vehicle light switches are fairly well characterized (i.e., information is available on the makes and models of vehicles that contain them),[5] neither vehicle recyclers nor DTSC has reliable information on which makes or models contain mercury switches in Antilock Braking Systems (ABS), ride stabilizer systems, alarm systems, etc. Absent such information, both compliance and enforcement would be exceedingly difficult. DTSC has determined that until such information is readily available, removal of mercury switches other than light switches from vehicles should remain voluntary (although persons who voluntarily remove non-lighting mercury switches may manage them as universal wastes).

- M002: Non-automotive mercury switches, and products that contain them.

Mercury switches are used in a variety of products besides vehicles. Smaller products that contain such switches are already hazardous wastes when discarded, because of their relatively small mass relative to the amount of mercury in the switches. Larger, heavier products that have only a single switch containing one gram of mercury (such as some washing machines) may not be hazardous under the current hazardous waste identification criteria. A product weighing more than 50 kilograms (or 110 pounds) and containing 1 gram of mercury would not exceed mercury's TTLC of 20 milligrams per kilogram (however, such a product could potentially exceed mercury's STLC or TCLP limits of 0.2 milligrams per liter).

These regulations will designate discarded non-automotive mercury switches, and products that contain these switches, as hazardous wastes. The entire product will be a listed hazardous waste, unless and until the generator removes all of the switches. DTSC's intention in designating discarded products with mercury switches as hazardous wastes is to ensure the removal of the switches prior to crushing or otherwise processing of products in ways that could cause mercury to be released.

- M003: Mercury-containing lamps and products that contain them.

[5] Subdivision (a) of section 25214.7 of the Health and Safety Code requires DTSC, in coordination with local agencies, to assist businesses that dismantle or crush motor vehicles to safely remove and properly dispose of mercury-containing light switches. This assistance is to include information on which makes and models contain mercury light switches and entities that provide mercury recycling services.

All fluorescent lamps, and some other lamp types, contain mercury. Often, discarded fluorescent, mercury vapor, and high intensity discharge (HID) lamps are hazardous wastes because they exhibit toxicity due to their mercury. However, samples of some currently available fluorescent lamps, while not free of mercury, were determined not to be hazardous wastes under the toxicity characteristic. These lamps may be discarded in the municipal (nonhazardous) waste stream in unlimited quantities. Anecdotal evidence suggests that sales of these low-mercury lamps have increased. If more of these low-mercury lamps are purchased because people wish to avoid managing them as universal wastes or recycling or disposing them as hazardous waste, the amount of mercury entering California's environment could actually increase. Also, the fact that some fluorescent lamps are currently hazardous and others are not causes confusion for municipal landfill operators attempting to identify and remove hazardous waste lamps from loads of garbage.

- M004: Mercury-added novelties.

SB 633 (Stats. 2001, ch. 656) added section 15027 to the Public Resource Code, which bans the manufacture and sale of mercury-added novelties, effective January 1, 2003. The bill defines a mercury-added novelty as "a mercury-added product intended mainly for personal or household enjoyment or adornment. A 'mercury-added novelty' includes, but is not limited to, any item intended for use as a practical joke, figurine, adornment, toy, game, card, ornament, yard statue or figure, candle, jewelry, holiday decoration, and item of apparel, including footwear." DTSC is aware of one novelty, a "quicksilver maze," that contained a ball of liquid mercury. Most other novelties likely contain mercury in switches, button cell batteries, or paint applied to their surface. The quicksilver maze would very likely exceed hazardous waste thresholds, if tested. Other novelties might not be classified as hazardous under current regulations. These regulations will designate all novelties meeting the listing description (which is repeated in the regulations, verbatim, from the definition in SB 633) as hazardous wastes.

Why DTSC is Allowing Universal Waste Management of Certain Mercury Containing Hazardous Wastes

The regulations include new universal waste management requirements for some discarded mercury-containing products.[6] As with the existing universal wastes, the standards will apply to these new universal wastes in lieu of full hazardous waste management requirements, provided the wastes are properly recycled, or in some cases, disposed of as hazardous waste. The existing general requirements for universal waste handlers, transporters, and destination facilities will also apply to persons managing these wastes. In developing their respective universal waste rules, U.S. EPA and DTSC used several criteria to determine whether a given category of hazardous waste should be included as universal waste. The criteria include:

[6] The Universal Waste Rule already includes management standards for hazardous waste lamps.

- The waste is commonly generated by a wide variety of types of establishments (including, for example, households, retail and commercial businesses, office complexes, conditionally exempt small quantity generators, small businesses, government organizations, as well as large industrial facilities);
- The waste or category of waste is generated by a large number of generators, frequently in relatively small quantities by each generator;
- Systems to be used for collecting the waste or category of waste (including packaging, marking, and labeling practices) will ensure close stewardship of the waste;
- The risk posed by the waste or category of waste during accumulation and transport is relatively low compared to other hazardous wastes; and
- Regulation of the waste or category of waste as universal waste will promote safe and effective collection and recycling.

DTSC has evaluated each waste it is proposing to include in an expanded Universal Waste Rule against these criteria. DTSC believes that each of the waste products it proposes to add to the Universal Waste Rule meets most or all of them.

Explanation of Each New Universal Waste Category Being Proposed

- Mercury-containing motor vehicle light switches, and vehicles that contain them (M001 Wastes)
- Non-automotive mercury switches and products that contain them (M002 Wastes)
- Mercury thermometers

The thermostats included in the existing universal waste regulations contain mercury tilt switches, which are mounted on bimetallic coils. Therefore, management of one category of mercury switches is already part of the Universal Waste Rule. The current regulations will broaden the rule's applicability to all mercury switches. As is the case with mercury thermostats, non-mercury alternatives to the mercury switches used in vehicles and other products are readily available. The risks posed by mercury switches in general are also very similar to those posed by those in thermostats. These facts support DTSC's decisions to add switches to the Universal Waste Rule and to establish very similar management standards to those for thermostats.

In order to encourage the removal of mercury switches, vehicles and other products that contain them will be listed hazardous wastes under the regulations, whether or not they exhibit toxicity for mercury. (The vehicle will not become hazardous waste until any person decides to crush, bale, shear, or shred it.) Removal of mercury switches from vehicles and other products will be allowed under new universal waste management standards. The switches covered by these two listings are essentially identical once they are removed. For this reason, management standards for vehicle and non-vehicle mercury switches are included in the same subsections (one covering small quantity handlers, the other large quantity handlers). Standards for management of mercury thermometers are also combined with those for switches because, while switches and

thermometers serve entirely different purposes, they contain similar amounts of encapsulated mercury (often in glass), and therefore their management poses very similar risks.

- Dental amalgam wastes

Dental amalgam is composed of approximately 50 percent mercury. Its mercury concentration exceeds the TTLC limit of 20 parts per million and it is normally classified as hazardous waste. Amalgam waste that is recycled and qualifies as scrap metal is exempt from hazardous waste regulations. Other amalgam wastes, such as fines, sludges, single-use traps, etc., are currently regulated as hazardous wastes. Under the regulations, all amalgam wastes could be managed as universal wastes. Dental amalgam waste meets DTSC's criteria for inclusion in the Universal Waste Rule: it is widely generated, it is recyclable, and non- mercury substitutes are available.

- Mercury-containing pressure or vacuum gauges (manometers, barometers, sphygmomanometers, etc.)

These products contain relatively large quantities of mercury and, when discarded, would generally be classified as hazardous wastes. They are also generated relatively widely, in relatively small quantities by each generator. The mercury in a vacuum or pressure gauge cannot be entirely encapsulated. In order to work, the surface of the mercury must be directly exposed to the gas whose pressure is being measured. While they meet the criteria for management as universal wastes, mercury gauges require extra care during handling due to their openings and the large amount of mercury they contain. The proposed management standards for mercury require that gauges be kept upright, that openings through which mercury could escape be closed, and that gauges be sealed in bags and packed to avoid breakage. Some handlers will also be allowed to drain the mercury from gauges, provided they comply with a number of requirements discussed later.

- Mercury-added novelties

This is a relatively broad, "catch all" category of products, whose definition has been taken directly from SB 633 (Public Resources Code section 15027). Many mercury-added novelties meet the descriptions in the "applicability" sections for other universal wastes. Novelties whose only mercury is contained in batteries can be managed under the standards for universal waste batteries; novelties whose only mercury is contained in switches can be managed under the standards for universal waste switches and thermometers. Specific management standards are established for novelties that contain liquid mercury, and for those that are painted with mercury-containing paint.

- Mercury counterweights and dampers

This new universal waste category includes products that take advantage of mercury's high density. Like the other new universal wastes DTSC proposes to add, these

products are widely generated and are more likely to ultimately be sent for hazardous waste recycling or disposal as universal wastes than as fully regulated hazardous wastes. In developing the proposed management standards for these products, it was assumed that they generally contain a relatively large amount of mercury, but that it is fully contained, and that the products are not especially fragile.

- Mercury dilators and weighted tubing[7]

The mercury contained in these medical devices is fully enclosed in flexible tubing. The dilators are widely used in hospitals and clinics, statewide. They contain a relatively large amount of liquid mercury, which should be readily recyclable. Further, tungsten powder has replaced mercury in the esophageal dilators manufactured in recent years. As with the other wastes for which DTSC is proposing universal waste management, mercury dilators meet the criteria for designation as universal wastes.

- Mercury containing rubber flooring

DTSC is aware of at least one brand of rubber flooring used in gymnasiums in the 1970s that contained mercury. DTSC believes that the manufacture of this material ceased in the 1970s, but it may continue to be replaced or disposed from time to time. Some of this flooring may contain sufficient mercury to exceed the TCLP threshold for mercury, and consequently, is classified as hazardous waste when discarded. These regulations will allow universal waste management of rubber flooring that is hazardous due to its mercury content.

- Mercury gas flow regulators

Some older residential gas meters (installed prior to 1961) contain mercury gas flow regulators, each of which can contain 100 grams of mercury. The handlers of these meters are, in most cases, gas company employees or their contractors. Due to the large amount of mercury these regulators contain, they would be classified as hazardous under the existing criteria, as would the meters in which they are found. The regulations will facilitate the proper removal, handling, transportation, and storage of mercury flow regulators by gas company personnel.

Universal Waste Management of Certain Hazardous Wastes Protects Public Health and the Environment

In the Initial Statement of Reasons for its original Universal Waste Rule, DTSC provided the rationale for regulating selected hazardous wastes less stringently to facilitate proper management, recycling and disposal. The arguments used for the original three wastes (lamps, batteries, and thermostats) apply equally to the wastes DTSC proposes

[7] The name of this new universal waste category has been changed since the original 45-day public notice. It was brought to DTSC's attention that some of the products in this category are not properly referred to as "dilators," but as "weighted tubing." The words "are weighted tubing" have been added to this universal waste category to correct this error in nomenclature.

to add in this rule. DTSC believes that regulating these products under universal waste standards will result in more recycling or proper disposal.

PEER REVIEW

DTSC has had the scientific basis of these regulations peer reviewed, pursuant to Health and Safety Code section 57004.

BUSINESS REPORT

DTSC has determined that this rulemaking will not require businesses to write a new report.

FISCAL IMPACT ESTIMATES

Estimate of Potential Cost or Savings to Local Agencies Subject to Reimbursement: DTSC has determined 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.

Local agency generators will incur estimated cumulative costs of less than $44,000 in fiscal year 2005/2006 and less than $110,000 each year thereafter for managing previous non-hazardous lamps as hazardous/universal waste, as adjusted for inflation. Certified Unified Program Agencies (CUPAs) will inspect businesses that generate the newly designated hazardous/universal wastes. However, these businesses generate other universal wastes and are already subject to inspection by CUPAs. CUPA inspections of generators of the new hazardous/universal wastes will be incorporated into their existing inspection programs. CUPAs will incur minor additional costs only when complaints specific to the new hazardous/universal wastes are received. CUPAs are authorized by Health and Safety Code section 25404.3 to assess fees to recover the costs of their programs.

Costs or Savings to Any State Agency: There is an increased cost impact to the State and local agencies of less than $44,000 in fiscal year 2005/2006 and a cost of less than $110,000 each year thereafter for managing previous non-previously nonhazardous lamps as hazardous/universal waste, as adjusted for inflation for local agencies. These costs are not reimbursable because they are incurred by agencies as regulated entities identical to costs incurred by other hazardous waste generators.

Costs or Savings in Federal Funding to the State: State agencies will incur estimated cumulative costs of less than $12,000 in fiscal year 2005/2006 and less than $30,000 each year thereafter, as adjusted for inflation, for managing previous non-hazardous lamps as hazardous/universal waste. DTSC will incur minor costs to train CUPAs and industry in the new regulations. These costs will be absorbable because the associated workload will be incorporated into DTSC's existing training on universal

wastes.

Effect on Housing Costs: DTSC has determined that there will be no impact on housing costs.

Cost Impacts on Representative Private Persons or Businesses: Many businesses in California generate some currently nonhazardous fluorescent lamps. These businesses will experience a minor cost increase for managing these low-mercury lamps as hazardous/universal waste rather than nonhazardous waste. A much smaller number of businesses generating the other wastes affected by these regulations will see a savings. They include medical and dental offices, hospitals and laboratories generating mercury devices, appliance repair companies, and some gymnasium operators.

All businesses generating fluorescent lamps that are currently classified as nonhazardous in California will incur minor costs under the regulations. Auto dismantlers and recyclers will incur the largest costs increases--approximately $2,650 per dismantler, at most. Distribution of costs for lamps is unknown since generation rates not known. Although difficult to quantify, businesses including medical offices, appliance repair and recycling, dental offices, and other firms will experience a minor savings compared with the full hazardous waste management system that would be required if the proposed regulations were not enacted.

Households will be subject to the reduced standards of the Universal Waste Rule instead of the more complex and extensive general standards of the Hazardous Waste Control Law. The major costs facing households are associated with potential increased trips for disposal of accumulated universal wastes. However, households will be expected to transport universal waste, along with other hazardous wastes, to existing household hazardous waste collection programs during the same trip. The number of trips will remain the same, which nullifies the cost impacts due to transportation. DTSC expects that universal waste handler provisions will make it easier for private businesses to begin offering consolidations services to households that do not have access to public facilities. These services are not currently available to most households because current requirements make these services unprofitable.

All generators of currently hazardous mercury containing devices that comply with universal waste management standards will incur lower costs than under hazardous waste management.

There may be small costs to businesses for managing newly listed wastes, but these are not expected to be significant. DTSC estimates, for example, that the cost to remove and recycle two mercury switches from automobiles will be about $6.50 per automobile.

Significant Statewide Adverse Economic Impact on Businesses: DTSC has determined that the regulations will not have a significant statewide adverse economic impact directly affecting businesses, including the ability to compete with businesses in

other states.

Assessment Statement:

(A) Creation or elimination of jobs within California: The regulations will not cause the elimination of jobs within California and will create a small number of jobs. Because the regulations allow universal waste generators to avoid the costs of full hazardous waste management, the regulations will not lead to the elimination of jobs within California. Because the transport and recycling fees paid by generators are low on a per-firm basis, no jobs are likely to be eliminated within these entities. It is expected that increased demand for transport and recycling services may lead to a small number of new jobs in those sectors.

(B) Creation of new businesses or the elimination of existing businesses within California: Because the regulations allow universal waste generators to avoid the costs of full hazardous waste management, the regulations will not lead to the elimination of existing businesses within California. The increased demand for transport and recycling services is expected to be met via an expansion of existing businesses.

(C) Expansion of businesses currently doing business in California: The increased demand for transport, consolidation, and recycling services is expected to be met via an expansion of existing businesses.

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

Final Statement of Reasons

FINAL STATEMENT OF REASONS
MERCURY WASTE CLASSIFICATION AND MANAGEMENT
Department Reference Number: R-02-04
Notice File Number: Z02-0806-09

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GENERAL INFORMATION

Two versions of the proposed regulation text are discussed in this Final Statement of Reasons:

The 45-Day Public Review and Comment Period:
This was the originally proposed language offered for public review and comment in August 2002. The public hearing was held on September 30, 2002, and the comment period closed on the same date.

The 15-Day Notice of Changes:
This document presents changes made, in two 15-day public notices, to the originally proposed text. The text in the first and second 15-day public notices was identical. The Department of Toxic Substances Control (DTSC) made the changes available a second time because 58 commenters from the 45-day public notice period were inadvertently not included on the mailing list for the first 15-day public notice. (There was also another 15-day public notice that made two external peer reviews of the scientific basis for the regulation available for review and comment.) The 15-day public notice periods were:

- Comments due November 20, 2002. This was the first 15-Day Public Review and comment period for changes to the text of the proposed regulations.
- Comments due December 5, 2002. This was the 15-Day Public Review period for the external scientific peer review documents, incorporated as documents relied upon.
- Comments due December 10, 2002. This was a re-issue of the first 15-Day Public Review and comment period. This comment period and the first 15-Day Comment Period are referred to collectively in this document as the "15-Day Notice of Changes."

EFFORT TO AVOID DUPLICATION OR CONFLICTS WITH FEDERAL REGULATIONS

These regulations change the way certain mercury-containing wastes are regulated in California. The regulations designate (list) four categories of discarded products as hazardous wastes. All four categories include products that would not be classified as hazardous wastes under existing federal and State criteria. By listing them, DTSC's intention is to ensure that all products in each category are identified as hazardous wastes when discarded.

The regulations also add universal waste management standards to the existing Universal Waste Rule for some of the newly listed hazardous wastes. The Universal Waste Rule already applies to and includes standards for hazardous waste fluorescent tubes, so no new standards were added for this newly listed category. The regulations also add universal waste standards for several waste categories that are already

hazardous wastes under current criteria. None of the new universal wastes are included in the federal Universal Waste Rule. However, the addition of these wastes to California's rule is allowed by the federal Universal Waste Rule. It allows states to add additional RCRA hazardous wastes [hazardous wastes regulated under the federal Resource Conservation and Recovery Act (RCRA)] to the list of wastes regulated as universal waste in those states.

STUDIES RELIED ON

DTSC used information from a variety of sources in developing these proposed regulations.

In preparing its *Draft Mercury Report*, released in October 2001, DTSC extensively researched the State's mercury problem. The draft report was finalized in August 2002 and made available to the public. The report discusses the nature and extent of mercury contamination in California, as well as the past and present sources of this contamination. It also reviews the toxicology and environmental behavior of important forms of mercury and outlines several options for reducing further contamination by changing the way mercury-containing wastes are classified and managed.

Sources consulted in the preparation of the *Draft Mercury Report* include reports by U.S. EPA and State agencies, Internet web sites of government and academic institutions, scientific journals and books, and related regulatory materials. The information compiled in DTSC's *Draft Mercury Report* was consulted during the development of these proposed regulations. Additional information on common mercury-containing devices was obtained from Purdue University's Internet web site at:

http://pasture.ecn.purdue.edu/-mercury/src/devicepage.htm.

DTSC also conducted four workshops, in various locations throughout the State, at which the report's findings and regulatory recommendations were presented. Many opinions and suggestions were received at the workshops, and they were taken into consideration in developing the current proposal.

Also relied on were:

- The State and federal Universal Waste Rules, found in chapter 23 of the California Code of Regulations, title 22, and in part 273 of the Code of Federal Regulations, title 40 (40 CFR), respectively;
- DTSC's final Mercury Report. This report was published by DTSC in August, 2002, and is posted on DTSC's web site (www.dtsc.ca.gov);
- 58 Federal Register (FR) 8102 (February 11, 1993): Proposed Universal Waste Rule;
- 59 FR 38288 (July 27, 1994): Proposed Universal Waste Lamps Rule;

- 60 FR 25492 (May 11, 1995): Final Universal Waste Rule;
- 64 FR 36466 (July 6, 1999): Final Universal Waste Lamps Rule;
- The Initial Study for these proposed regulations, prepared by DTSC under the authority of the California Environmental Quality Act (CEQA);
- The Health and Safety Code section 25150.6 analysis, which is part of this regulations package;
- The fiscal and economic impact analyses prepared for this regulations package;
- A Scientific Peer Review Report for the DTSC Mercury Report, California State University at Chico; and
- A Scientific Peer Review Report for the DTSC Mercury Report, University of California at Santa Cruz.

ALTERNATIVES CONSIDERED

Chosen Alternative: DTSC selected the option of designating a list of mercury-containing products as hazardous wastes when discarded. The products were chosen based on two criteria: the feasibility of recycling them, and/or the availability of mercury-free substitutes. These criteria are consistent with section 25179.4 of the Health and Safety Code, in which the Legislature directs DTSC to make promotion of source reduction and recycling its two top priorities for the hazardous waste management program. In addition to listing these discarded mercury-containing products as hazardous wastes, DTSC is adopting new standards for managing some of them as universal wastes. DTSC is also adopting new universal waste management standards for several categories of discarded mercury-containing products that are hazardous wastes under existing criteria. Hazardous waste lamps are already classified as universal waste and the existing Universal Waste Rule provides management standards for them. Thus, it is not necessary for these regulations to include new management standards for the newly listed lamps.

Rejected Alternatives:

1. *Do Nothing*. DTSC rejected this option because it would not support other efforts, in California and nationally, to limit further environmental contamination from mercury, nor would it promote source reduction and mercury recycling.

2. *Regulate all mercury-containing wastes*. Under this alternative, all mercury-containing wastes, regardless of their source or mercury concentration, would be classified as hazardous wastes. Discarded products containing mercury would be hazardous waste regardless of the feasibility of recycling their mercury or the availability of non-mercury substitutes.

DTSC rejected this alternative because it would lead to the classification of wastes with extremely low mercury concentrations (posing correspondingly low risks) as hazardous wastes, due to the sensitivity of modern analytical instruments. Also, similar to option 1,

this option would not effectively promote reduction in hazardous waste generation (product substitution) or mercury recycling.

3. *Regulate all wastes with intentionally-added mercury as hazardous wastes*. As with option 2, this option would not consider the feasibility of recycling the mercury contained in discarded products before designating them as hazardous wastes, nor would it consider the availability of non-mercury substitutes.

DTSC rejected this option because it would have required generators to determine whether any mercury in their waste was intentionally-added or naturally-occurring. Further, as with option 2, this option would include wastes that, arguably, pose insignificant risks when managed as nonhazardous waste, due to their very low mercury levels. The chosen alternative provides greater incentives for pollution prevention, the use of mercury-free or less-hazardous alternatives,[1] and recycling. As discussed earlier, these objectives are consistent with section 25179.4 of the Health and Safety Code.

4. *Update hazardous waste thresholds*. Under this alternative, the Soluble Threshold Limit Concentration (STLC) and/or the Total Threshold Limit Concentration (TTLC) regulatory thresholds would be updated based on current science. This alternative was also presented in comments during the 45-day comment period. Specifically, one commenter suggested lowering the TTLC for mercury to 15mg/kg.

DTSC rejected this option because it would not be effective at promoting the use of less-hazardous alternatives. Under this option, products would be classified as hazardous or nonhazardous waste when discarded, without regard to the feasibility of recycling or the availability of non-mercury substitutes.

A second reason for rejecting this alternative is that manufacturers could easily increase the mass of other portions of a product, such as the thickness of the glass envelope or the endcaps in fluorescent tubes, lowering the percentage of mercury in the product to non-hazardous levels without reducing the total amount of mercury in the lamp. Clearly, this alternative would not satisfy the foremost objective of this rule, which is to reduce emissions of mercury to the environment.

In evaluating this alternative, DTSC considered the possibility that revising the existing regulatory thresholds might provide an incentive for manufacturers of fluorescent lamps to further lower the mercury content of their products. Currently, only about 20 percent of the spent fluorescent lamps generated in the state are properly recycled. The remaining 80 percent continue to be land disposed. [Lamps generated by households and Conditionally Exempt Small Quantity Universal Waste Generators (CESQUWGs) are temporarily exempt from the Universal Waste Rule's prohibition on disposal as non-

[1] Pollution prevention and use of mercury-free or less hazardous alternatives cause a reduction in the generation of hazardous waste.

hazardous waste.] Evidence in the record and information DTSC gathered during preparation of the Universal Waste Rule demonstrate there is sufficient capacity to recycle all tubes generated in California.

DTSC has concluded that listing all mercury-containing lamps as hazardous waste would be more effective in reducing the amount of mercury going into our environment and would provide more of an incentive to recycle the lamps. Ongoing efforts to develop the state's infrastructure for collecting spent lamps from households and CESQUWGs will play a significant role in this improvement. The sunset of the current temporary disposal exemptions for households and CESQUWGs will also increase lamp recycling rates.

Under these regulations, all discarded lamps will be designated as hazardous wastes and none will be allowed to be managed as municipal (nonhazardous) solid wastes. If, instead, the hazardous waste thresholds for discarded lamps were lowered, all lamps with mercury concentrations below the lower thresholds could be managed as nonhazardous wastes. Thus, under option 4, there is no guarantee that disposal of mercury-containing lamps to the environment would actually be reduced. DTSC has concluded that designating all mercury-containing lamps as hazardous wastes will ultimately result in less mercury being released to the environment.[2]

5. *Allow removal of mercury light switches to be voluntary.* The automobile dismantlers association suggested, in a comment, that the removal of switches be voluntary with an emphasis on educational outreach to the dismantlers. DTSC rejected this alternative because a voluntary program would not result in removal of the maximum number of lighting switches. Although DTSC does not have enough information to precisely estimate of the efficacy of this alternative, mandatory removal and enforcing that mandate when necessary will result in a higher percentage of switches being recycled. Because removing and properly managing mercury-containing light switches costs money, and scrap metal recycling is a low margin activity, DTSC and CUPAs need to be able to enforce recycling to ensure switches are removed and recycled.

6. *Conditional Exemption.* This alternative was presented in several comments. Commenters suggested using the conditional exemption approach proposed by the U.S. EPA for cathode ray tubes to regulate products with mercury switches. Products would be conditionally exempt from regulation when recycled and regulated as hazardous waste when disposed.

DTSC has rejected this alternative for the following reasons:

[2] See the tables in the appendix to the 45-day written comment summaries and responses. The calculations in these tables demonstrate that less mercury will be released under the M003 listing than if the TTLC were retained for lamps.

- There is no regulatory control of wastes prior to disposal or recycling. Thus, wastes could be mismanaged by, for example, improper storage, which may release constituents to the environment. There would be no standards to prevent these releases, and enforcement would occur only after release to the environment. Although the performance standards of the Universal Waste Rule are streamlined and non-prescriptive, they do require prevention of release during storage and transportation.
- The conditional exemption approach fails to regulate the actual recycling operation as a hazardous waste facility. Regulation of hazardous waste recyclers is crucial to environmental protection as demonstrated by the large numbers of recycling facilities of all types on the federal Superfund list of severely contaminated sites.

7. Proposed Legislation. The recycling industries have suggested that DTSC support legislation that may be introduced in the next legislative session as an alternative to adopting these regulations. DTSC has rejected this alternative because there is no certainty that legislation will be passed, signed, and become law; in fact, the majority of bills introduced do not become law. Additionally, bills are modified many times during the Legislative process and there is no assurance that a given bill will still accomplish its originally intended purpose by the end of the session. However, adoption of these regulations does not rule out DTSC participation in future legislation. Any conflicting legislation that becomes law after these regulations are adopted will require that the standards adopted here be revised to be consistent with the legislation.

8. Continue the Use of the TTLC for Labeling and Marketing of Lamps. Californians Against Waste, in their written and oral comments on these regulations, proposed that use of the existing TTLC should be retained as a means of designating low mercury lamps for the purposes of product labeling, marketing, procurement, and other mechanisms, in order to minimize levels of mercury in lamps and encourage consumer purchases of those lamps. As discussed in the responses to comments, product labeling and marketing are beyond the scope of this rulemaking and beyond DTSC's authority. These regulations do not preclude lamp manufacturers from discussing the mercury content of their lamps in marketing them, nor from comparing the mercury content of the lamps produced by different manufacturers. However, any mention of the TTLC in such marketing should contain a caveat that, regardless of their mercury concentrations, all mercury-added lamps are hazardous wastes and must be managed appropriately.

DETAILED STATEMENT OF REASONS/NON-CONTROLLING PLAIN ENGLISH SUMMARY

Nonsubstantive Additions to the Table of Contents for Chapter 23 of Division 4.5:

- Add new sections 66273.21 and 66273.41 to the Table of Contents

These two new sections were added to Chapter 23 in the 45-Day Notice, but were inadvertently omitted from the Table of Contents.

- Add the words "and Weighted Tubing" to the title of section 66273.7.8.

The title of this section was changed in the 15-Day Notice of Proposed Post-Hearing Changes, but the corresponding change was inadvertently omitted from the Table of Contents.

Amend Section 66260.10:

This section contains most of the definitions applicable to the hazardous waste control regulations. It is amended to include a definition of "mercury-containing motor vehicle light switch". The definition addresses those switches found in the hood or trunk that turn on lighting when the hood or trunk is opened. The rationale for limiting the M001 listing to mercury-containing motor vehicle light switches is discussed in the statement of reasons for section 66261.50.

Add Section 66260.22 to Article 3 of Chapter 10:

California is a RCRA authorized state, which means that U.S. EPA has found the State's hazardous wastes regulatory program equivalent to, and no less stringent than, the federal RCRA program, and has authorized the State to implement its program in lieu of the federal program.

In adopting its final universal waste package in February 2002, DTSC decided not to include the federal rule's petition process for adding new universal wastes. This decision was based on the fact that the petition process found in California's Administrative Procedure Act (in Government Code section 11340.6) is essentially equivalent to that in the federal Universal Waste Rule. Although the Administrative Procedure Act's petition process is procedurally equivalent to the RCRA process, adopting a specific process for universal wastes that includes the federal petition process will facilitate U.S. EPA's determination that California's Universal Waste Rule is equivalent to, or more stringent than, the federal rule.

DTSC is adopting the federal process in this new section. It allows a person who seeks to add additional universal wastes to chapter 23 to petition DTSC's Director.

Subsection (b) enumerates the information that must be contained in a successful petition. This section parallels the language found in 40 Code of Federal Regulations (CFR) section 273.80, except that existing State provisions for petitioning State agencies to adopt, amend, or repeal regulations are included. These requirements are found in Government Code section 11340.6.

Add Section 66260.23 to Article 3 of Chapter 10:

As part of the RCRA authorization process, DTSC is required to complete authorization checklists. On the checklist for the Universal Waste Rule, several entries address the federal rule's criteria for deciding whether to designate a hazardous waste as a universal waste. These criteria are not currently part of the State's rule.

This new section lists the factors that DTSC's Director will use to evaluate petitions, submitted pursuant to proposed section 66260.22, for addition of new universal wastes to chapter 23. The factors are intended to ensure that proposed universal wastes are appropriate for management under less stringent standards than are other hazardous wastes. Petitions to add hazardous wastes that are generated by a variety of generators in a variety of industries, that are produced in relatively small quantities by individual generators, and that pose lower risk than other hazardous wastes are most likely to be successful. This section parallels the language found in 40 CFR section 273.81.

Amend Section 66261.1:

This section discusses the purpose and scope of chapter 11. Chapter 11 identifies the wastes subject to regulation as hazardous wastes. Section 66261.1 enumerates the articles contained in chapter 11 and briefly describes their contents. Because this package adds a new article 4.1, a new paragraph (5), which describes the new article, is added to section 66261.1. The former paragraph (5) is renumbered as paragraph (6).

Amend Subsection (a) of Section 66261.3:

This subsection contains the definition of hazardous waste. Subparagraph (D) of paragraph (2) is amended to reflect the addition of a new criterion for classifying wastes as hazardous waste to chapter 11 (namely, the list of mercury-containing hazardous waste in the new article 4.1). The former subparagraphs (D) and (E) are relettered accordingly.

Amend Subsection (b) of Section 66261.3:

This subsection enumerates the events that constitute the generation of a hazardous waste. Paragraph (2) is amended to address the generation of the mercury-containing wastes listed in the new article 4.1. As with the federally listed wastes, the wastes on

the State's new 'M' list will be considered generated when they first meet the listing descriptions in article 4.1 of this chapter. In most cases, the listing descriptions in article 4.1 state that the waste is generated "when discarded." The exception is waste M001, motor vehicles that contain mercury light switches. The listing description for waste M001 specifies that a listed hazardous waste is generated not when a vehicle that contains mercury light switches is discarded, but when the owner decides to crush it for transport, bale, or shred it for recycling. This provision was modified to include only mercury-containing motor vehicle light switches rather than the larger universe of all vehicle mercury-containing switches in response to comments received during the 45-Day Public Comment Period. This modification was made available for public review and comment during the 15-Day Notice of Changes. See the discussion of section 66261.50, below, for further discussion.

Nonsubstantive format changes were also made during the 15-Day Notice of Changes to paragraphs (1), (2), (3), and (4). The first word "in" was capitalized for consistency with other paragraphs, which is a change that makes no substantive changes to the regulation.

Paragraphs (3), (4), and (5) of this subsection address mixtures of hazardous and nonhazardous wastes. Under the existing paragraph (2) [which will be renumbered as (3)], mixtures of federally listed hazardous wastes and nonhazardous wastes are regulated as hazardous wastes, and are considered generated when first mixed. In proposed new paragraph (4) (since deleted in the 15-Day Notice of Changes), DTSC addressed a different issue. Under the deleted paragraph, a mixture of an otherwise nonhazardous waste with an intact, removable, mercury-containing listed waste would have become a hazardous wastes when the listed hazardous waste was first generated and could be, but was not, removed from the mixture. The concern was with vehicles or other products that are manufactured with removable mercury-containing components. Unlike some industrially generated hazardous wastes, which are uniformly hazardous, the only hazardous constituent of some of the products listed under this proposal is contained in a discrete, removable component (e.g., a switch). DTSC's intent in regulating mixtures of intact, removable 'M' listed wastes as hazardous wastes was to provide an incentive for dismantlers to remove mercury switches from vehicles prior to crushing, baling, or shredding them. By removing switches, dismantlers could have avoided managing entire vehicles as hazardous waste, and could have prevented the release of the mercury encapsulated in switches to the environment. Alternatively, dismantlers could have chosen to manage discarded vehicles containing mercury switches as hazardous wastes. Persons intending to crush, bale, or shred such vehicles would have needed to obtain a hazardous waste facility permit prior to doing so.

However, proposed new paragraph (4) was eliminated in the 15-Day Notice of Changes in response to comments from the automobile recycling industry. The provision was removed from the proposed regulations because it would have extended the listing beyond the actual application in cases where switches were inadvertently left in place

by error. Thus, an entire batch of scrap metal would be classified as hazardous waste because of one switch. Removal of this provision allows enforcement of the removal requirement for products (e.g., appliances) or automobiles, but it does not discourage recycling by labeling large volumes of processed scrap metal as hazardous waste due to the fact they include minor numbers of mercury switches. The altered regulation will still allow DTSC to enforce the regulation that requires removal of the switches or handling of the product (e.g., appliance) or vehicle as hazardous waste, because a permit or other grant of authorization would still be required to shred or crush a discarded product that is a listed hazardous waste.

Prior paragraphs (2) and (3) were renumbered to accommodate the addition of new paragraph (2).

Amend Subsection (c) of Section 66261.3:

Several changes are being made to this subsection. First, (c)(1) is being changed to conform both to an addition made to the regulation in a previous rulemaking and to conform to the addition of subsection (c)(5) in this rulemaking.

Paragraph (1) states that a hazardous waste remains a hazardous waste until it meets the criteria of subsection (d) (which establishes when a hazardous waste ceases to be classified as a hazardous waste). Paragraph (1) also states that a hazardous waste does not remain a hazardous waste if it meets the criteria for several exceptions listed in paragraphs (2) to (5). The subsection is being modified nonsubstantively to list paragraph (4), added in a previous rulemaking, and the newly added paragraph (5) to the list of paragraphs that establish exceptions to the general rule stated in paragraph (1).

Paragraph (5) was added in the 15-Day Notice of Changes in response to comments from lighting waste recyclers and vehicle recyclers. It states that waste derived from the recycling of the newly listed wastes, M001 (mercury-containing motor vehicle light switches and vehicles containing them), M002 (non-automotive mercury-containing switches and wastes containing them), M003 (lighting wastes with intentionally-added mercury), and M004 (mercury-containing novelties) is not a hazardous waste if it does not exhibit a characteristic of a hazardous waste. This addition is necessary to allow recovered materials such as glass, scrap metal, and phosphors to be managed as secondary materials rather than as hazardous wastes. Thus, for instance, glass recovered from recycled hazardous waste lamps can be reused as feedstock for new glass rather than disposed as hazardous waste. Note that this exit from classification as hazardous waste does not apply if the recovered materials continue to exhibit a characteristic of a hazardous waste or continue to meet a listing description in new article 4.1 of chapter 11.

Amend Subsection (d) of Section 66261.3:

This subsection enumerates the criteria that a waste must meet in order to be classified as nonhazardous. A new paragraph (3) is being added to clarify that a waste cannot be listed in the new article 4.1 of chapter 11 and be classified as nonhazardous. In order not to be classified as a hazardous waste, a waste must meet the two existing criteria (that is, cannot exhibit a characteristic of a hazardous waste and cannot be listed in article 4), and cannot be listed in the new 'M' list.

Grammatical changes were made to subsection (d) and paragraphs (1) and (2) to accommodate the addition of new paragraph (3).

Amend Subsection (a) of Section 66261.6:

Hazardous wastes that meet the criteria listed in paragraph (6) of this subsection are exempted from most of the management requirements in California Code of Regulations, title 22. Instead, these wastes are subject to special management requirements found in subparts C, F, G, and H of 40 CFR Part 266. The wastes to be listed in article 4.1 in this rulemaking may be managed as universal wastes under chapter 23 of the California Code of Regulations, title 22, not under 40 CFR Part 266. Therefore, new subparagraph (D) is added, to clarify that wastes listed in article 4.1 are ineligible for exemption under paragraph (6) of this subsection.

Amend Subsection (a) of Section 66261.9:

Subsection (a) lists the hazardous wastes that may be managed under the standards for universal wastes in chapter 23, in lieu of the general hazardous waste management requirements of the Health and Safety Code and title 22. Several changes are being made to this subsection.

The original regulations proposed in the 45 Day Notice amended subsection (a) to add the ten new universal waste categories to the list. This is necessary to inform the reader that these wastes have been incorporated into the wastes eligible for universal waste standards presented later in chapter 23.

The language of subsection (a) was modified to incorporate changes recently made by emergency regulations into these permanent regulations. When the original universal waste standards were adopted, the language of this subsection exempted universal wastes from "…chapter 6.5 of division 20 of the California Health and Safety Code…" DTSC did not intend to exempt universal wastes from <u>all</u> standards of that chapter. This intent was expressed in the Statement of Reasons and other supporting documents, including the Health and Safety Code section 25150.6 analysis. Recognizing that the existing wording was confusing and could be incorrectly interpreted to exempt persons managing or, more importantly, mismanaging universal wastes from the enforcement provisions of chapter 6.5, DTSC adopted emergency regulations (OAL File Number 02-

0912-02 E) that changed the wording to affirm that persons managing universal wastes remain subject to article 8 of chapter 6.5, the enforcement authorities. Further study of the exact wording of Health and Safety Code section 25150.6 clarifies that DTSC only has the authority to exempt persons managing universal wastes from the management requirements of the statute rather than all statutory provisions.

"Management" is defined in Health and Safety Code section 25117.2 as follows:

> "25117.2. "Hazardous waste management" or "management" means the transportation, transfer, recycling, recovery, disposal, handling, processing, storage, and treatment of hazardous waste."

Thus, Health and Safety Code section 25150.6 allows DTSC to adopt regulatory standards that vary from statutory provisions such as the hauler requirement, accumulation times, and the permit requirement, but does not allow the regulations to vary from non-management statutory provisions such as enforcement, hazardous waste source reduction plans, and fees. To clearly express this intent and authority, the regulations (in the 15-Day Notice of Changes) clarified the exemption to apply only to the "management requirements" of chapter 6.5 of the Health and Safety Code.

Another change to subsection (a) is the addition of the phrase "and shall be known as "universal wastes". This statement was formerly in paragraph (4), which was eliminated during a 15-Day Notice of Changes in favor of the simpler and clearer addition of the above statement to subsection (a).

Further changes were made to subsection (a)(4) to be consistent with changes made to the definition of M001 waste in the 15-Day Notice of Changes. (The M001 listing was changed; originally it included all mercury-containing motor vehicle switches, but now it covers only mercury-containing motor vehicle light switches.) The necessity for these changes is discussed in conjunction with the discussion for section 66261.50 below. Similarly, in response to comment, a change was made to subsection (a)(11)[3] to add "weighted tubing" to the entry for mercury dilators because weighted tubing is a separate class of mercury-containing medical device from dilators. The change was made to clarify that weighted tubing is also a universal waste in addition to similar devices known as "dilators".

Two new references are being added to the note at the end of the section (in the 15-Day Notice of Changes). Health and Safety Code section 25117.2 (definition of "management") is added because the new language in subsection (a) implements and brings consistency with this definition. Also, Health and Safety Code section 25214.5 is

[3] In the first 15-Day Notice of Changes, the paragraphs in subsection (a) were misnumbered; paragraphs that should have been numbered (11) through (13) were instead numbered (12) through (14). This error was corrected in the reissued 15-Day Notice, and in the final text of the regulations.

added because this section designated some of the mercury switches referred to in paragraph (4) as universal waste.

Other Nonsubstantive Amendments to Subsection (a) Section 66261.9:

- Paragraph (7):

Only mercury-containing pressure or vacuum gauges (pursuant to subsection 66273.7.4) are universal wastes. The words "mercury-containing" were inadvertently omitted from subsections (a)(7); the words were added to the final text.

- Paragraph (11):

Only mercury dilators and weighted tubing (pursuant to subsection 66273.7.8) are universal wastes. The word "mercury" was inadvertently omitted from paragraph (11) of subsection (a); the word was added to the final text.

Delete Subsection (d) of Section 66261.9:

Paragraph (4) was deleted because the phrase "and shall be known as "universal wastes" was moved to subsection (a) in the 15-Day Notice of Changes, as noted above.

Add Article 4.1:

Article 3 of chapter 11 contains the characteristics used to determine whether a waste is hazardous. Article 4 contains four lists of hazardous wastes that have been adopted from federal regulations. These proposed regulations will create California's first list of wastes that are hazardous regardless of whether they exhibit any of the hazardous waste characteristics in article 3 or whether they are federally listed and contained in Article 4. A new article 4.1 is added to chapter 11 to contain this new list, and other lists of hazardous wastes that may be adopted in the future.

Add Section 66261.50:

This new section 66261.50 enumerates the wastes that will be listed as hazardous wastes. Most wastes in each of the new listings would not be classified as hazardous waste for mercury under the toxicity characteristic. However, as discussed earlier, their (nonhazardous) management and disposal contribute significant amounts of mercury to the State's environment. The descriptions of some listed wastes include information on when they are considered generated.

M001

Most vehicles are so massive, relative to the weight of the mercury in their light switches, that they do not exceed mercury concentration thresholds for classification as hazardous wastes. This is because the thresholds apply to the whole waste, which is the entire vehicle being discarded, not just to the switch itself. DTSC is listing motor vehicles that contain mercury light switches as hazardous wastes to encourage handlers to remove the switches. DTSC estimates that the vehicles shredded annually in California contain between 0.75 and 1.5 tons of mercury. Refining the assumptions to estimate the amount of mercury from vehicle light switches yields approximately 1848 pounds of mercury. Of this amount, approximately 871 pounds finds its way into the nonmetallic waste ("fluff") generated by auto shredders. The remaining mercury is released to other environmental media (presumably, mainly to air). In light of the State's existing environmental contamination, the preventable release of almost one and a half tons of mercury from auto shredders is unacceptable.

In the original proposed regulations (45-Day Comment Period), this listing applied to all the mercury switches found in vehicles. It applied to tilt switches commonly used to activate trunk and hood lights, to mercury switches used in antilock brake systems (ABS), and to any other mercury switches found in motor vehicles. Vehicles and portions of vehicles from which mercury-containing switches had not been removed were also hazardous wastes under this listing. The listing description was changed in the subsequent 15-Day Notice of Changes in response to comments received from the automobile recycling associations. The change limited the listing to mercury-containing light switches in vehicle trunks and hoods, and vehicles from which such switches have not been removed. (A vehicle becomes a listed hazardous waste when any person decides to crush, shred, or bale the vehicle or sent it for crushing, shredding, or baling.)

Comments received from the automobile recycling/dismantling industry pointed out that there are readily available documents that provide very good descriptions of the locations and numbers of trunk and hood light switches and that these switches are readily accessible. The industry also commented that there is no clear guide to the presence or absence of the other types of mercury-containing switches, some of which are specific to certain parts suppliers and/or installed after sale of the vehicle (such as car alarm switches.) Because it is difficult or impossible to know the number and location of mercury switches in a vehicle and thus whether they have been located and removed, the recycling industry requested that the listing be limited to the clearly accessible and well documented mercury-containing lighting switches.

To avoid regulating intact vehicles as hazardous wastes, a vehicle that contains mercury light switches is considered "generated" as a listed hazardous waste only when someone decides to crush, bale, shear, or shred it. To encourage the removal of mercury light switches, vehicles from which all light switches have been removed are not included in the listing description. Discarded vehicles from which all mercury light switches are not removed are included in the listing, and could be managed as

universal wastes or as fully regulated hazardous wastes. Anyone intending to crush, bale, shred, or shear such vehicles without a hazardous waste facility permit would first need to remove all mercury-containing light switches.

The effective date of the listing is delayed until January 1, 2005, to be consistent with a deadline in Public Resources Code section 15029. This section prohibits the sale of vehicles containing mercury light switches manufactured after January 1, 2005. The delay will also allow time to educate the regulated community on the impending change in the hazardous waste status of vehicles that contain mercury switches, and on the advantages of and procedures for removing switches.

This listing may be expanded in a future rulemaking as information about the existence and location of other mercury switches in specific vehicle models becomes available. The vehicle recycling industry would need this information in order to find and remove the mercury switches.

M002

This listing covers all mercury switches other than those in vehicles. It also includes mercury flame sensors, which are used in some gas-powered household appliances to prevent the flow of gas when a flame is not present. A non-inclusive list of switch types is provided to help the regulated community identify the general types of switches covered by the listing. As with the M001 listing, this listing includes products that contain mercury switches and flame sensors, but excludes products from which all mercury switches and flame sensors have been removed. Again, DTSC's intent is to encourage the removal of intact switches from products before they undergo processing that may release their mercury to the environment. Discarded products from which all mercury switches are not removed could be managed as universal wastes or as fully-regulated hazardous wastes. Thus, anyone intending to treat a product that contains one or more mercury switches (for example, by crushing a used washing machine that contains a mercury tilt switch to facilitate recovery of the steel) without a hazardous waste facility permit would first need to remove all switches.

The effective date of the listing was originally (in the 45-Day Public Notice) delayed until February 9, 2004, which coincided with the date of the reduction in the quantity of batteries, lamps, and thermostats that a CESQUWG may dispose (pursuant to Cal. Code Regs., tit. 22, § 66273.8). The delay was extended until 2006 in the subsequent 15-Day Notice of Changes. The effective date was extended because comments indicated that, unlike with most vehicle switches, there is no comprehensive guidance available identifying specific models of appliances with mercury switches, identifying their location, and giving removal instructions for the switches. The additional two years will allow the recycling industry to develop such guidance so that the switches can be located and removed prior to crushing or shredding the appliances. The delay will also give generators time to prepare to properly manage, and ultimately recycle all products with mercury switches.

M003

This listing covers all lamps with intentionally added mercury, regardless of whether they exhibit a hazardous waste characteristic. A lamp's mercury content is not a reasonable basis for classifying it as hazardous or nonhazardous. One reason is that the weight of a lamp's glass and metal components can affect whether or not the lamp exceeds hazardous waste thresholds for mercury. For example, compared with the standard T8 fluorescent lamps, smaller diameter T5 lamps use less glass and aluminum in their manufacture. Consequently, a T5 lamp that contains the same amount of mercury as a T8 lamp is more likely to exceed hazardous waste concentration thresholds for mercury than is the T8 lamp. Further, variables other than a lamp's mercury content may affect its impact on the environment. For example, if one type of lamp contains less mercury than another, but also produces less light or has a shorter life, using more of the lower-mercury lamps may not result in a net decrease in the mercury entering the environment.

The originally proposed regulations (45-Day Comment Period) incorporated all "mercury-containing" lamps, with specified exceptions, into the listing. It was changed in the subsequent 15-Day Notice of Changes to lamps "with intentionally-added mercury," again with specified exceptions. This change was made in response to comments pointing out that the ever increasing sensitivity of modern analytical devices would eventually reveal small traces of mercury in all lamps, both naturally occurring mercury from the raw materials used to manufacture the lamps and trace amounts deposited from the air. The comments asserted that the original language would ultimately identify all lamps as M003 unless the listing was limited to intentionally-added mercury.

One alternative to using the current concentration thresholds to classify lamps would be to replace the thresholds with a formula that considers a lamp's mercury dose, light output, and length of life. However, in light of the State's serious mercury contamination problem, listing all mercury-containing lamps as hazardous wastes will be more protective of public health and the environment. Once it becomes effective, the listing will remove any confusion in the regulated community about which mercury-containing lamps are hazardous. It will also avoid the continued release of mercury to the environment that occurs when discarded lamps are broken during handling. The additional requirements for the generators of lamps not currently classified as hazardous wastes will be small; all newly classified hazardous waste lamps will be eligible for management under DTSC's universal waste management standards.

Most waste products that contain lamps are included in this listing description, but products from which all lamps have been removed are not. The listing also does not include liquid crystal displays (LCDs) that are backlit with mercury-containing lamps, or products that contain LCDs. These products are not included because the difficulty of separating a mercury-containing lamp from the rest of the display may make the

recycling of the lamps impractical, and also because mercury-free alternatives to the mercury-containing lamps in LCDs are not yet widely available. The 15-Day Notice of Changes clarified that vehicles that contain mercury-added lamps are not covered by the M003 listing (i.e., the presence of mercury-added lamps would not necessarily make a waste vehicle a hazardous waste). This change was made because information on the makes and models of vehicles that contain mercury-added lamps is not readily available to DTSC or to auto recycling firms. Persons who voluntarily remove mercury-added lamps from vehicles may manage the waste lamps as universal wastes, however.

Delay in Listing Effective Date

Under DTSC's existing Universal Waste Rule, all hazardous waste lamps, batteries, and thermostats generated by households and limited quantities generated by CESQUWGs are exempt from management as hazardous or universal waste. The exempt quantity for CESQUWGs will be reduced to 30 lamps and 20 pounds of batteries per month, effective February 9, 2004. Both the household and CESQUWG exemptions will be phased out after February 8, 2006. After that date, all hazardous waste lamps will be subject to management as universal waste under chapter 23.

Currently, one of the three major brands of fluorescent lamps is classified as non-hazardous waste under California's STLC/TTLC criteria. Regardless of who generates them, these waste lamps may be disposed in non-hazardous waste landfills in unlimited quantities. The two other major manufacturers produce lamps that are classified as hazardous waste in this state. Some of these waste lamps must be managed under the standards for universal waste lamps, while others (those produced by households and CESQUWGs) are temporarily exempt, and may be disposed in municipal landfills.

Non-hazardous waste landfill operators have instituted load checking programs, in which some incoming loads of garbage are checked for the presence of prohibited materials such as hazardous wastes. However, the landfill staff responsible for checking loads may not be able to determine the origin of a load of garbage that contains fluorescent lamps. Further, they may have difficulty distinguishing discarded lamps that are currently classified as hazardous wastes from those that are not. As a result, monitoring compliance by individual fluorescent lamp generators with the current requirements that apply to them is very difficult.

DTSC originally proposed to delay the effective date of the listing of mercury-containing lamps as hazardous wastes until February 9, 2006, to coincide with the sunset of the household and CESQUWG exemptions. On that date, all discarded mercury-containing lamps would have been classified as hazardous wastes. The delay of approximately three years was intended to allow time to educate the generators of lamps that currently are not hazardous about the change in their status.

In the 15-Day Notice of Changes, DTSC reduced the delay by making the listing effective in 2004. The date was changed in response to comments that the three-year delay was too long and was not needed to educate the public that every fluorescent tube was regulated as hazardous waste. Note that the effective date for the listing will precede the sunset of the household and CESQUWG exemptions. Thus, while currently nonhazardous lamps will become hazardous and eligible for the Universal Waste Rule standards in 2004, persons eligible for the household and CESQUWG exemptions will continue to be able to dispose of these lamps as nonhazardous solid waste until the 2006 sunset of the exemptions. Those exemptions will allow time for smaller generators to prepare for the proper disposition of all mercury-containing lamps and for the development of the collection infrastructure for smaller generators such as households and CESQUWGs. Evidence in the record and information DTSC gathered during preparation of the Universal Waste Rule demonstrate there is already adequate recycling capacity for the waste lamps generated in California.

M004

This listing applies to a range of mercury-containing products whose manufacture and sale are banned, effective January 1, 2003, by Public Resources Code section 15027. The listing becomes effective on January 1, 2004, one year after the effective date of the statutory ban on the manufacture and sale of these products. Some of the products banned by the statute may currently be classified as hazardous wastes, while others are already included in other listed waste categories. Listing M004 is intended to capture any mercury-added novelty that would not otherwise be identified as hazardous waste.

Mercury-added novelties fall into several categories:

- Novelties with liquid mercury;
- Novelties with mercury switches;
- Novelties with button-cell or other mercury-containing batteries;
- Novelties painted with mercury-containing paint; and
- Novelties with mercury-containing lamps.

Novelties with switches or lamps would be hazardous under listings M002 and M003, respectively; therefore, they are not included in this listing. Novelties with liquid mercury would likely fail the TTLC and be classified as hazardous wastes under the toxicity characteristic (unless they are quite large[4]). However, novelties that contain mercury button-cell batteries or mercury-containing lamps, as well as novelties painted with mercury-containing paint, may not have enough mercury to exhibit the toxicity characteristic.

[4] A novelty with a single switch containing one gram of mercury and weighing less than 110 pounds would fail the TTLC; a novelty with one mercury switch and weighing up to 1100 pounds could potentially fail STLC.

Delay in Listing Effective Date

This listing will become effective one year after sale, manufacture, and distribution of mercury-added novelties is banned. This one-year delay will not affect mercury-added novelties classified as hazardous wastes under existing hazardous waste identification criteria; it applies only to novelties with mercury concentrations below current regulatory thresholds. The delay will allow time to educate generators of discarded novelties not currently classified as hazardous waste (mostly households) about the coming changes in how they must classify and manage the novelties.

Chapter 11, Article 5: Categories of Hazardous Waste
Amend Subsection (a) of Section 66261.101:

This section lists the criteria a waste must meet to be classified as non-RCRA hazardous waste. Mercury-containing wastes listed in article 4.1 of chapter 11 that are not federally hazardous are classified by the regulations as non-RCRA hazardous wastes. Paragraph (4) of subsection (a) of this section is amended to include the listing of a waste in article 4.1 as a criterion for classification as non-RCRA hazardous waste.

Amend Subsections (b) and (c) of Section 66262.11:

This section specifies the procedure for determining whether a waste is hazardous. After determining, pursuant to subsection (a), that the waste is not excluded from the definition of hazardous waste, the generator is required to determine whether the waste is listed in article 4 or in Appendix X of chapter 11. If the waste is not excluded and does not appear on either list, the generator must then determine whether the waste exhibits any of the four hazardous waste characteristics.

These proposed regulations will classify wastes listed in article 4.1 of chapter 11 as hazardous whether or not they exhibit a hazardous waste characteristic. Therefore, subsection (b) is amended to require generators to determine whether a waste is listed in article 4 or article 4.1 prior to determining whether the waste exhibits a characteristic. Subsection (c) is also amended to make clear that the generator of a waste listed in article 4.1 will not be required to determine whether the waste exhibits a characteristic.

Amend Subsection (g) of Section 66264.1:

Chapter 14, section 66264.1, et seq., contains standards for owners and operators of hazardous waste transfer, treatment, storage, and disposal facilities. Subsection (g) lists persons who are not subject to the requirements of chapter 14. Paragraph (12) of subsection (g) of section 66264.1 exempts persons who manage hazardous wastes listed for this exemption from regulation under chapter 14. Instead, these persons are regulated under the universal waste requirements in chapter 23. The originally

proposed regulations (45-Day Public Notice) designated the ten new universal wastes, and included all mercury-containing lamps.

The format of this subsection was simplified to improve the clarity and readability of the regulations in the subsequent 15-Day Notice of Changes. Rather than present a long list of universal wastes, the section now refers the reader to section 66273.9, the list of definitions in the actual Universal Waste Rule regulations in Chapter 23. Not only does this change simplify the text of this section and sections 66265.1, 66268.1, and 66270.1, it also reduces the need for further modifications to these sections if new universal wastes are designated in the future.

The treatment, storage, and disposal facilities that receive these new universal wastes will remain subject to the requirements in chapter 14, but handlers (including generators and offsite consolidators) and transporters of these wastes will be exempt.

Amend the reference citation for section 66264.1.

Health and Safety Code section 25118 was added as a reference statute for this section. This statute was added because the exemptions in subsection (d) apply to "persons" as defined in Health and Safety Code section 25118.

Amend Subsection (d) of Section 66265.1:

Chapter 15, section 66265.1 et seq., contains standards for owners and operators of interim status hazardous waste transfer, treatment, storage, and disposal facilities. Subsection (d) of section 66265.1 lists persons who are not subject to the requirements of chapter 15. Paragraph (15) of subsection (d) exempts persons who manage hazardous wastes on a specified list from regulation under chapter 15. Instead, these persons are regulated under the universal waste requirements in chapter 23. Changes identical (other than numbering) to section 66264.1 were proposed to clarify and simplify this section and have been made in the final regulations. See the discussion of section 66264.1 for an explanation of the changes.

Nonsubstantive Amendment to Paragraph (15) of Subsection (d) of Section 66265.1:

The word "persons" was inadvertently added twice in the 15-Day Notice of Proposed Post-Hearing Changes. The first occurrence of "persons" is struck out in the final text.

Amend the reference for section 66265.1. Health and Safety Code section 25118 was added as a reference statute for this section. This statute was added because the exemptions in subsection (d) apply to "persons" as defined in Health and Safety Code section 25118. This section implements this definition.

Amend Subsection (g) of Section 66268.1, Purpose, Scope, and Applicability:

This section sets the basic applicability of the land disposal restrictions/treatment standards regulations of chapter 18. Existing regulations exempted specified wastes from this chapter, including universal wastes. The originally proposed regulations (45-Day Public Notice Period) listed the existing universal wastes and added descriptions of the newly added mercury-containing universal wastes. Changes identical (other than numbering) to section 66264.1 were proposed in the 15-Day Notice of Changes to clarify and simplify this section and have been made in the final regulations. See the discussion of section 66264.1 for an explanation of the changes.

Amend the Authority Citation for Section 66268.1.

Health and Safety Code 25150.6 was added as an authority citation in the 45-Day Public Notice. Section 25150.6 authorizes DTSC to exempt universal wastes, including the ones added in this rulemaking, from the requirements of chapter 18.

Amend the Reference Citation for Section 66268.1.

Health and Safety Code section 25118 was added as a reference statute for this section. This statute was added because the exemptions in subsection (d) apply to "persons" as defined in Health and Safety Code section 25118. This section implements this definition.

Amend Subsection (c) of Section 66270.1, Purpose and Scope of These Regulations:

This subsection is amended by revising paragraph (2) and subparagraph (E). The originally proposed regulations (45-Day Public Notice Period) listed the existing universal wastes and added descriptions of the newly added mercury-containing universal wastes. Persons who manage these wastes are exempt from the hazardous waste permit requirements of chapter 20 and are instead subject to the requirements of chapter 23. Changes identical (other than numbering) to those in section 66264.1 have been made to clarify and simplify this section in the final regulations. See the discussion for section 66264.1, above, for explanation of these changes.

Amend the authority reference for section 66270.1:

Health and Safety Code section 25118 was added as a reference statute for this section. This statute was added because the exemptions in subsection (d) apply to "persons" as defined in Health and Safety Code section 25118. This section implements this definition.

Amend Chapter 23, Standards for Universal Waste Management:

Amend Article 1:

Article 1, section 66273.1 et seq., contains the scope and applicability of chapter 23, as well as applicable definitions. These regulations amend article 1 by adding applicability sections for ten new mercury-containing universal wastes. In most cases, DTSC is requiring recycling of the designated mercury-containing wastes as a condition of universal waste management. (If the wastes are not recycled, they are subject to full hazardous waste management.) This requirement is included for several reasons:

- Recycling conserves the State's resources and avoids mining of new mercury with the attendant environmental impacts of mining.
- Mercury is very difficult to sequester permanently. It does not form stable long lasting, insoluble compounds. Thus, disposal of mercury-containing products in landfills can create long-term problems. The U.S. EPA treatment standard for mercury is recycling – implying that no effective technology in use can permanently sequester mercury from the environment.
- The California Legislature, in Health and Safety Code section 25179.4, states that the second priority for DTSC's hazardous waste regulatory program, after source reduction (not producing hazardous waste in the first place), is to encourage recycling of the hazardous waste.

Amend Subsection (a) of Section 66273.1, Scope:

This section discusses the scope of chapter 23, which contains standards for universal waste management. Ten new universal wastes are added by these regulations. Paragraph (3) of subsection (a), which lists lamps regulated under chapter 23, is amended to add a reference to mercury-containing lamps listed in the 'M' list in section 66261.50. This change clarifies the paragraph and makes it consistent with section 66261.50. Paragraphs (5) through (14) are added, listing the ten new universal wastes that will be regulated under chapter 23. Two changes were made to this list in the 15-Day Notice of Changes. Paragraph (5) (motor vehicle mercury-containing light switches) was changed to conform to the changes made in the 15-Day Notice of Changes to the listing for M001. Also, the term "weighted tubing" (mercury-containing medical devices separate from, but similar to, dilators) was added to paragraph (12), to clarify that weighted tubing is also a universal waste.[5] This change makes paragraph (12) consistent with section 66273.8.

[5] It was brought to DTSC's attention that the category of products referred to in the 45-Day Public Notice as "dilators" included products that are properly referred to as "weighted tubing." The phrase "and weighted tubing" was added to the name of this category, to correct this error in nomenclature.

Amend Subsection (a) of Section 66273.5, Applicability—Lamps:

This section lists the lamps that are covered under chapter 23. Section 66261.50 of these regulations will designate all mercury-containing lamps as hazardous wastes, and consequently, all mercury-containing lamps will be subject to regulation under chapter 23. Discarded products that contain mercury-containing lamps are also subject to chapter 23.

Several paragraphs and subparagraphs are added to subsection (a):

(a)(1): This subparagraph states that lamps that exhibit a characteristic of a hazardous waste are covered by chapter 23. This is an existing provision that was amended and separated from subsection (a) as paragraph (1). The change, made during the 15-Day Notice of Changes, clarifies that until the M003 listing takes effect, only lamps that exhibit a hazardous characteristic are eligible for universal waste management.

(a)(2)(A) and (B): These new provisions add both mercury-added lamps (meeting the listing description of M003 in section 66261.50) and products that contain these lamps to the list of objects covered by chapter 23. The provision clarifies that after the effective date of the M003 listing, February 9, 2004, all mercury-added lamps will be eligible for universal waste management. This change is necessary to be consistent with the operative date contained in the listing description for M003. See the discussion of section 66261.50 for an explanation of the necessity for the change to that date.

Amend Subsection (b) of Section 66273.5:

Subsection (b) establishes exceptions to the inclusion of lamps in chapter 23. It lists lamps that are not covered by chapter 23. Subsection (b) was modified in the 15-Day Notice of Changes to remove the word “lamps” after the word “following” because the exceptions below now address not only lamps, but also products containing lamps.

Currently, paragraph (2) exempts lamps that do not exhibit a hazardous waste characteristic from chapter 23. It is amended to clarify that a lamp must also not meet the M003 listing description (i.e., it must not contain mercury) to be exempt from chapter 23. This updates paragraph (2) to be consistent with the new M003 listing. Paragraph (3) is amended to clarify that lamps not destined for an authorized recycling facility are fully regulated hazardous wastes, and are not eligible for the streamlined universal waste management requirements in chapter 23.

A new paragraph (4) is added (during the 15-Day Notice of Changes) to clarify that vehicles that contain mercury-added lamps are not covered by chapter 23 unless the vehicles exhibit a characteristic of a hazardous waste. This exception is necessary because there is very little information available about which lamps in motor vehicles contain mercury and how to remove them prior to dismantling. However, this exception

may be removed in a future rulemaking if comprehensive information is developed showing the types and locations of mercury-containing lamps in vehicles and which vehicles contain these lamps.

Chapter 23 applies to a vehicle that contains mercury-added lamps only if the entire vehicle exhibits a characteristic of a hazardous waste. In other words, if the vehicle exhibits a hazardous characteristic, it is a hazardous waste and may be managed as a universal waste.

A new paragraph (5) has been added (during the 15-Day Notice of Changes), which states that vehicles that are crushed with mercury-containing lamps inside are not eligible for management under chapter 23. If they exhibit a characteristic of a hazardous waste, the crushed vehicles must be managed under the general hazardous waste control regulations. This paragraph is necessary to clarify that once it is crushed, a vehicle that exhibits a hazardous waste characteristic because it contains mercury-added lamps may not managed as universal waste.

Add Section 66273.7.1, Applicability—Motor Vehicles that Contain Mercury Switches and Switches Removed from Motor Vehicles:

This section discusses the applicability of chapter 23 to mercury-containing motor vehicle light switches and vehicles that contain them. It states that the universal waste management requirements of chapter 23 apply to discarded automotive mercury light switches and to discarded vehicles and portions of vehicles that contain mercury light switches. Both the switches and the vehicles that contain them are newly listed as hazardous wastes in listing M001 of section 66261.50. The vehicle becomes listed when any person decides to crush, bale, shear, or shred it. The listing originally incorporated all mercury-containing vehicle switches. It was modified in the 15-Day Notice of Changes to include only mercury-containing vehicle *light* switches. The necessity for that change was discussed earlier in the discussion of new section 66261.50. Changes are being made in subsections (a)(2)(A), (b)(3), (b)(5), (c), and (c)(2) to be consistent with the change in the listing description.

Subsection (a) specifies the switches that are subject to universal waste management. On January 1, 2005, the M001 listing will make discarded mercury-containing motor vehicle light switches, and vehicles that contain them, hazardous wastes. From the date these regulations become effective until December 31, 2004, universal waste requirements will apply to mercury light switches that are removed from motor vehicles and that exhibit a hazardous characteristic. After the M001 listing becomes effective, universal waste management standards will also apply to vehicles and switches covered by the listing. This will ensure that the handlers of the affected vehicles and switches will not be required to manage them under full hazardous waste management requirements, provided they comply with universal waste management standards.

Subsection (b) lists categories of vehicles and switches not covered under chapter 23. These include switches that are not wastes; switches that do not contain mercury; vehicles from which all mercury light switches have been removed; switches that will not be recycled; and vehicles from which all mercury light switches have not been removed that are crushed, baled, shredded, or sheared. Handlers are given a strong incentive to remove the mercury light switches from vehicles prior to processing them, and to recycle removed mercury switches: vehicles that are processed without having had all mercury light switches removed and switches that are not destined for recycling are fully regulated as hazardous wastes.

Subsection (b) discusses vehicles that are not subject to regulation as universal wastes; however, in order to be considered a candidate for universal waste, the waste must first be classified as a hazardous waste. Vehicles from which all mercury-containing light switches have been removed do not meet the listing description of M001. Therefore, they would not be eligible for management as universal waste. A vehicle with other mercury switches remaining would likely not contain enough mercury to exhibit a hazardous waste characteristic due to its mercury concentration. That is, the amount of mercury in the switches remaining in the vehicle is small in comparison to the weight of the vehicle, such that, if the mercury contained in the switch were distributed over the weight of the vehicle, it would most likely not exceed the current mercury regulatory threshold, TTLC.

A non-substantive change was made in response to a comment received from the 15-Day Notice of Changes. This change inserted the word “light” in front of “switches” in paragraph (3) of subsection (b). This change fixes an oversight by DTSC and conforms paragraph (3) with the changes presented in the 15-Day Notice of Changes to subparagraph (A), paragraph (2) of subsection (1), and the M001 listing in section 66261.50.

A change was made to paragraph (5) of subsection (b) in the 15-Day Notice of Changes, in response to comments. This change states that vehicles that have been shredded, crushed, or baled but still contain mercury switches must be managed as hazardous waste only if they exhibit a characteristic of a hazardous waste. The listing was adopted to provide an incentive for vehicle recyclers to remove the switches prior to recycling the metal. Light switches are removed by the automobile recycler prior to shipment to an “automobile shredder,” where the car is shredded and different metals recovered separately. The change was made so that entire batches of scrap metal would not be identified as hazardous waste simply because a single light switch had not been removed.

Under this approach, an auto recycler (one who dismantles the cars, selling usable parts and shipping the remainder to the auto shredder) must remove the switches or ship the vehicle as a hazardous waste. When the auto recycler complies with switch removal, the vehicle is then scrap metal and can be shredded. However, there is no way for the actual scrap metal recycler (the auto shredder) to tell if the lighting switches

on crushed or baled vehicles have been removed. This change allows the metal recycler to manage the crushed or baled vehicle and shredded scrap metal from the vehicles as scrap metal. However, if the resulting vehicle or shredded scrap metal has sufficient mercury (or other hazardous constituents) to exhibit a characteristic of a hazardous waste, it would pose a more direct and imminent threat and would have to be managed as a hazardous waste.

Subsection (c) discusses when vehicle switches and vehicles that contain them become universal wastes. A used mercury switch becomes a universal waste when a handler removes it from a vehicle and decides to discard it. A vehicle that contains mercury switches becomes a universal waste when a handler decides to crush, bale, shred, or shear it. An unused switch that is destined for recycling becomes a universal waste when the handler decides to discard it. The 15-Day Notice of Changes added the word "light" in front of "switches" to be consistent with the change in the M001 listing. The change was made to subsection (c) and paragraph (2) of subsection (c).

Add Section 66273.7.2, Applicability—Products that Contain Mercury Switches and Switches Removed from Products:

Non-automotive mercury switches and products that contain them are designated as hazardous wastes elsewhere in these regulations (waste 'M002,' in section 66261.50). As noted earlier, the shredding of large appliances and other mercury-containing products is a significant source of mercury in California's nonhazardous waste stream.

Subsection (a) specifies the non-automotive mercury switches subject to universal waste management. On February 9, 2006, the M002 listing will designate discarded non-automotive mercury switches, and discarded products that contain them, as hazardous wastes. From the date these regulations become effective until February 8, 2006, universal waste requirements will apply to mercury switches and products containing them that are hazardous wastes under existing criteria (i.e., that exhibit the toxicity characteristic). After the M002 listing becomes effective, universal waste management standards will apply to all non-automotive mercury switches and products with such switches.

In the 15-Day Notice of Changes, the year in paragraph (2) of subsection (a) was changed from 2004 to 2006. After February 8, 2006, products that contain non-automotive mercury switches and do not exhibit a hazardous characteristic become eligible for management as universal wastes. This change conforms this paragraph to the same change in the effective date of the M002 listing. For discussion of the necessity for this change, see the discussion of section 66261.50 above.

Subsection (b) lists categories of switches and products not covered under chapter 23. These include:

1) switches that are not wastes;
2) switches that do not contain mercury;
3) products from which all mercury switches have been removed;
4) mercury switches not destined for recycling; and
5) waste products that are crushed, baled, shredded, or sheared from which all mercury switches were not first removed.

State statute requires that mercury switches be removed from appliances, which are included as products in the M002 listing, prior to shredding, crushing, or baling. Mercury switches are identified as “materials requiring special handling” in Public Resources Code section 42167, subdivision (e). Public Resources Code section 42175 requires persons managing used appliances to remove all such materials prior to transfer to a person who shreds or bales them.

A change was made to subsection (b)(6) in the 15-Day Notice of Changes to eliminate baled or shredded appliances from regulation as universal waste even if one or more mercury switches had not been removed from products, such as appliances, prior to baling or shredding. Instead, if the resulting shredded or baled scrap metal exhibits a characteristic of a hazardous waste, it must be managed under the general hazardous waste standards rather than the universal waste standards. This change is parallel to that made for automobiles that are shredded or baled without removing all of the light switches and is made for the same reasons. Both changes were made to avoid classifying large amounts of shredded or baled scrap metal as hazardous waste because of a small number of switches that were not removed due to inadequate knowledge of which switches contain mercury or the removal was inadvertently missed prior to shredding or baling. However, if the scrap metal contains enough mercury (or any other hazardous constituent) to exhibit a characteristic of a hazardous waste, it must be managed as a hazardous waste. Thus, the regulation balances the need to recycle metals with the need to keep mercury out of the environment.

Handlers are given an incentive to remove mercury switches from products, such as appliances, that contain them prior to processing them, and to recycle non-automotive mercury switches: as with vehicle mercury light switches, non-automotive mercury switches not destined for recycling and appliances processed without having had all mercury switches removed are fully regulated as hazardous wastes. Crushed, baled, shredded, and sheared products are singled out from other products with mercury switches for full hazardous waste regulation because, like motor vehicles, they are commonly processed to recover their scrap metal.

Another non-substantive change was made in response to a comment received during the 15-Day Notice of Changes. This change replaced “2004” with “2006” in paragraph (3) of subsection (b). Failure to show this change during the 15-Day Notice of Changes was an oversight by DTSC. The change is non-substantive because it does not affect the duties of any person under these regulations and brings consistency with the M002 effective date in section 66261.50 and its applicability as a universal waste in subsection

(2) of paragraph (a). Subsection (2) of paragraph (a) allows management of waste products with non-automotive mercury switches as universal waste on or after February 9, 2006, whether or not they exhibit a hazardous characteristic, because these products become listed as M002 hazardous wastes on that date. [Until the M002 listing takes effect, discarded products that contain non-automotive mercury switches and that exhibit a hazardous characteristic may be managed as universal wastes, pursuant to subsection (a)(1).]

Subsection (c), which discusses when non-automotive mercury switches are considered generated, is based on similar language in the applicability sections for the existing universal wastes. The designation as universal wastes of discarded products from which mercury switches have not been removed is intended to serve as an incentive for handlers to remove the switches (when feasible), to avoid managing the entire products under chapter 23.

Nonsubstantive Amendment to Paragraphs (3) and (6) of Subsection (b) of Section 66273.7.2:

The term "non-automotive mercury switches" is used throughout subsection (b) of section 66273.7.2. Section 66273.7.2 deals only with non-automotive mercury switches. The word “non-automotive” was inadvertently omitted from paragraphs (3) and (6) of subsection (b). These omissions are corrected in the final text.

Add Section 66273.7.3, Applicability—Dental Amalgam wastes:

Silver amalgam restorations are widely used by dentists, and DTSC recognizes that the decision to use amalgam or another material is appropriately made by dentists and their patients. However DTSC does establish the standards for managing amalgam waste, because it is hazardous waste. Amalgam waste exhibits the characteristic of toxicity because it contains both mercury and silver above the respective TTLCs.

Currently, some amalgam waste is exempt from hazardous waste regulation, while other amalgam waste is fully regulated. Larger scraps of dental amalgam that are recycled are exempt, pursuant to section 66261.6, subsection (a), paragraph (3), subparagraph (B). Smaller amalgam fines (less than 100 microns in diameter) are not exempt, and currently may be subject to full hazardous waste regulation. In order to facilitate the proper management of amalgam wastes generated by dental offices, DTSC is designating dental amalgam wastes, as described in proposed section 66273.9, as universal waste. Chapter 23 does not apply to:

1) dental amalgam that is not waste as described in chapter 11,
2) empty amalgam capsules,
3) waste restorative materials that do not contain mercury,
4) dental amalgam wastes not destined for recycling (these are instead fully regulated as hazardous wastes).

Subsection (a) lists amalgam wastes that are covered under chapter 23's universal waste requirements; subsection (b) lists wastes to which chapter 23 does not apply. Subsection (c), which discusses when dental amalgam waste is considered generated, is based on similar language in the applicability sections for the existing universal wastes.

Add Section 66273.7.4, Applicability—Mercury-Containing Pressure or Vacuum Gauges:

This proposed section applies the requirements of chapter 23 to persons managing pressure or vacuum gauges, as described in section 66273.9, unless:

1) the gauges are not wastes as described in chapter 11;
2) the gauges do not contain mercury, or
3) the gauges will not be recycled.

This section parallels the language found in the applicability sections for the existing universal wastes.

DTSC proposes to make universal waste management of waste pressure or vacuum gauges contingent on recycling. Persons opting not to recycle waste gauges would be subject to full hazardous waste regulation. This is due to the large amount of mercury contained in each gauge—up to 100 grams or more (equivalent to the mercury in 100 fever thermometers or 10,000 fluorescent tubes). Further, gauges that are RCRA hazardous wastes generated by persons subject to the federal hazardous waste program would be subject to land disposal restrictions and would have to be treated prior to land disposal. One of the required treatment processes for high mercury wastes is retorting—the same process used by mercury recyclers.

Subsection (c), which discusses when waste pressure or vacuum gauges are considered generated, is based on similar language in the applicability sections for the existing universal wastes.

Add Section 66273.7.5, Applicability—Mercury-Added Novelties:

Public Resources Code section 15027 bans the sale of mercury-added novelties, effective January 1, 2003. Mercury-added novelties are being designated as hazardous wastes elsewhere in these regulations (waste 'M004,' in proposed section 66261.50). To encourage the proper management of these products, DTSC is designating mercury-added novelties, as described in proposed section 66273.9, as universal wastes.

Subsection (a) specifies the discarded mercury-added novelties that are subject to

universal waste management. On January 1, 2004, the M004 listing will designate all discarded mercury-added novelties as hazardous wastes. From the date these regulations become effective until December 31, 2003, universal waste requirements will apply only to discarded novelties that are hazardous wastes under existing criteria (i.e., that exhibit the toxicity characteristic). After the M004 listing becomes effective, universal waste management standards will apply to all mercury-added novelties when they become wastes.
Subsection (b) lists categories of novelties not covered under chapter 23. These include:

1) mercury-added novelties that are not wastes, as described in chapter 11,
2) waste novelties that do not contain mercury,
3) waste novelties that contain liquid mercury and are not destined for recycling (these are instead fully regulated as hazardous wastes).

Subsection (c), which discusses when mercury-added novelties are considered generated, is based on similar language in the applicability sections for the existing universal wastes.

Add Section 66273.7.6, Applicability—Mercury Counterweights and Dampers:

These products contain significant amounts of mercury and are currently classified as hazardous waste and subject to full hazardous waste regulation. This proposed section applies the requirements of chapter 23 to persons managing mercury counterweights and dampers, as described in section 66273.9. Chapter 23 does not apply to:

1) counterweights and dampers that are not wastes as described in chapter 11;
2) counterweights and dampers that do not contain mercury;
3) waste products from which mercury counterweights and dampers have been removed; or
4) counterweights and dampers that will not be recycled.

This section parallels the language found in the applicability sections for the existing universal wastes. Subsection (c), which discusses when counterweights and dampers are considered generated, is based on similar language in the applicability sections for the existing universal wastes.

Add Section 66273.7.7, Applicability—Mercury Thermometers:

Mercury thermometers contain a gram or more of mercury each—enough to significantly exceed the 20 milligrams per kilogram TTLC for mercury. Mercury thermometers are currently fully regulated as hazardous wastes when discarded. This proposed section applies chapter 23's requirements to persons managing mercury thermometers, as described in section 66273.9. Chapter 23 does not apply to:

1) thermometers that are not wastes as described in chapter 11;
2) thermometers that do not use the expansion and contraction of a column of mercury to measure temperature, or
3) thermometers that will not be recycled.

This section parallels the language found in the applicability sections for the existing universal wastes.

The second condition for management of thermometers as universal wastes (that the thermometer must "use the expansion and contraction of a column of mercury to measure temperature") is intended to exclude thermometers whose only mercury is contained in a button-cell battery. Button-cell batteries, when discarded, are already hazardous wastes under existing criteria and are already eligible to be managed as universal waste under chapter 23.

Subsection (c) is necessary, in order to specify when mercury thermometers become wastes. It is based on similar language in the applicability sections for the existing universal wastes.

Add Section 66273.7.8, Applicability—Mercury Dilators and Weighted Tubing:

Similar to mercury thermometers, mercury dilators and weighted tubing contain a relatively large amount of mercury and significantly exceed the TTLC for mercury. Also, mercury thermometers, mercury dilators and weighted tubing are currently fully regulated as hazardous wastes when discarded. This proposed section applies the requirements of chapter 23 to persons managing mercury dilators and weighted tubing, as described in section 66273.9. Chapter 23 does not apply to:

1) dilators and weighted tubing that are not wastes as described in chapter 11;
2) dilators and weighted tubing that do not contain mercury, or
3) dilators and weighted tubing that will not be recycled.

This section parallels the language found in the applicability sections for the existing universal wastes.

The term "weighted tubing" was added throughout this section in the 15-Day Notice of Changes. It was added because commenters stated that weighted tubing was not a dilator even though it is a similar medical device. Because the two types of devices are similar in construction and materials and pose the same threats when mismanaged, weighted tubing was added to the list of wastes eligible for universal waste management and was added to this section.

Subsection (c) is necessary to specify when mercury dilators and weighted tubing become wastes. It is based on similar language in the applicability sections for the

existing universal wastes.

In paragraph (1) of subsection (c), the word “thermometers” was deleted in the 15-Day Notice of Changes. This word was inadvertently left in place in the original notice. The preceding section, 66273.7.7, actually addresses universal waste thermometers.

Add Section 66273.7.9, Applicability—Mercury-Containing Rubber Flooring:

At least one brand of mercury-containing rubber flooring—used mainly in gymnasiums—was manufactured with intentionally-added mercury. (To DTSC’s knowledge, mercury is no longer used in the manufacture of rubber flooring.) Some of this flooring has been tested and found to exceed the TCLP threshold for mercury: 0.2 milligrams per liter. Presently, this flooring is fully regulated as hazardous waste when discarded. This proposed section applies the requirements of chapter 23 to persons managing mercury-containing rubber flooring, as described in section 66273.9. Chapter 23 does not apply to:

1) mercury-containing rubber flooring that is not waste, as described in chapter 11, and
2) rubber flooring that does not contain mercury.

Subsection (c), which discusses when mercury-containing rubber flooring is considered generated, is based on similar language in the applicability sections for the existing universal wastes.

Add Section 66273.7.10, Applicability—Mercury Gas Flow Regulators:

Mercury gas flow regulators significantly exceed the TTLC for mercury and are currently fully regulated as hazardous wastes when discarded. This proposed section applies the requirements of chapter 23 to persons managing mercury gas flow regulators, as described in section 66273.9. Chapter 23 does not apply to:

1) mercury gas flow regulators that are not wastes, as described in chapter 11,
2) waste gas flow regulators that do not contain mercury, and
3) Mercury gas flow regulators that are not destined for recycling (these are instead fully regulated as hazardous wastes).

Subsection (c), which discusses when mercury gas flow regulators are considered generated, is based on similar language in the applicability sections for the existing universal wastes.

Amend Section 66273.8, Exemptions:

This section covers exemptions for households and small-quantity generators. Subsection (a) currently exempts households from managing universal waste batteries, lamps, and thermostats under the requirements of chapter 23 until February 8, 2006; subsections (b) and (c) exempt Conditionally Exempt Small Quantity Universal Waste Generators (CESQUWGs) from managing limited quantities of universal waste batteries, lamps, and thermostats under chapter 23 until the same date. Until these exemptions expire, households and CESQUWGs may manage and dispose of hazardous waste batteries, lamps, and thermostats as nonhazardous waste. Under the current regulations, households and CESQUWGs will become subject to the labeling, training, and accumulation time requirements applicable to small quantity handlers of universal waste beginning on February 9, 2006.

Section 66273.8, as originally proposed in the 45-Day Public Comment Period, has been renumbered and reorganized to improve clarity. In the 45-Day Public Notice, existing subsections (a), (b), (c), and (d) were renumbered as paragraphs (1), (2), (3), and (4) of subsection (a). The 45-Day Public Notice added a new subsection (b) to section 66273.8, and 15-Day Notice of Changes added a new subsection (c). The former subsections (e) and (f) were relettered as (d) and (e), respectively.

New subsections (b) and (c) permanently exempt households and CESQUWGs, respectively, from most universal waste handler requirements. Households and CESQUWGs are prohibited from disposing of universal waste as non-hazardous waste (except under the temporary exemptions discussed above), and are required to transfer their universal waste only to a handler or a destination facility. Neither households nor CESQUWGs may dispose of most universal wastes, even in a permitted hazardous waste landfill, except that a CESQUWG may transport mercury-containing rubber flooring or mercury-added novelties that do not contain liquid mercury to a hazardous waste landfill for disposal. These changes make the requirements for households, and other very-small quantity generators of universal wastes consistent with the existing requirements for Electronic Product Generators (EPGs). EPGs are persons who generate five or fewer CRT devices (primarily televisions and computer monitors) per year. They are exempted by current emergency regulations from most handler requirements. EPGs are required to transfer CRT devices to a CRT material handler or household hazardous waste collection facility, and are prohibited from disposing of or disassembling them.

The rationale for exempting households and CESQUWGs from universal waste handler requirements is that handler requirements are geared toward larger businesses and their employees. It will be more effective (and more protective of public health and the environment) to give a single, simple, message to households and CESQUWGs about these wastes: “don’t throw them away—get them to an appropriate destination facility.”

The following additional changes were also made in the 15-Day Notice of Changes:

- Subsection (a) was changed by adding “for specific universal wastes” because not all universal wastes are eligible for the temporary exemption that allows households and small generators to dispose to solid waste landfills.
- Paragraph (1) of subsection (a) was changed to clarify that the wastes themselves are granted exemption. This change is needed because the wastes leave the householder and enter the solid waste management system. Without this change, it would not be clear that the household wastes remain exempt through the solid waste management system.
- The conditional phrase in paragraph (1) of subsection (a) that requires recycling by a destination facility or disposal in a solid waste landfill is altered by removing the reference to recycling by a destination facility. It is not necessary to refer to recycling by the destination facility because sending the wastes to be recycled by a destination facility would constitute universal waste management by a householder and thus, that person would not require exemption.
- In subsection (b), the description of what the householder is exempt from is changed to “this chapter” to clarify that the only duties for the householder managing the waste are to comply with the conditions in paragraphs (1) through (3) of subsection (b). The reference to the exemption from Chapter 6.5 of division 20 of the Health and Safety Code is removed because all persons managing hazardous waste as universal waste under chapter 23 are already exempted from the management requirements of chapter 6.5 of division 20 of the Health and Safety Code in section 66261.9. It is not necessary to duplicate that exemption in this section.
- Subsection (b), paragraph (1) is changed to make the subject (“wastes”) singular and conform the verb to the number of the subject. This change is necessary because a householder might manage only one waste at a time, or might simultaneously manage multiple wastes.
- Subsection (b), paragraph (2) is modified to allow a householder to treat universal wastes in the same manner as allowed for other universal waste handlers, as specified in the waste management standards for small quantity handlers of universal waste, section 66273.13. This change is necessary to allow simple treatment such as removal of dead fluorescent tubes from fixtures and the removal, separation and management of mercury capsules independent from the body of the thermostat.
- New subsection (c) adds a new exemption and subsequent subsections are relettered to reflect that addition. The new subsection establishes a simplified management system for the smallest non-household universal waste generators, which requires only proper recycling or disposal (both at destination facilities) and allows simple treatment such as removal of dead fluorescent tubes from fixtures and removal, separation, and management of mercury capsules independent from the body of the thermostat. The separate exemption is necessary because the smallest businesses will manage universal wastes in a manner more similar

to a household than a larger business. Formal training and special management systems needed for larger businesses generating larger amounts of universal waste are not necessary for the smaller amounts of universal waste produced by households and the smallest commercial generators. One of the conditions is that the waste be recycled rather than disposed, but that exceptions are made for novelties that do not contain liquid mercury and mercury-containing rubber flooring because those universal wastes are not technically feasible to recycle.

Amend Section 66273.9, Definitions:

This section defines the terms used in chapter 23. Definitions of the wastes for which this proposal is adding universal waste standards are added to section 66273.9.

Additionally, further changes were made the subsequent 15-Day Notice of Changes:

- The definition of "conditionally exempt small quantity universal waste generator" has been revised to improve clarity and remove duplicative text. [Subparagraph (1)(A) is relettered as subsection (a); Subparagraph (1)(B) is relettered as subsection (b). Subparagraphs (2)(A) through (2)(D) are deleted.] The changes are non-substantive because the deleted quantity limits on the amounts of batteries, lamps, and thermostats that may be disposed of by a CESQUWG, along with the stepped reductions in these limits, are also found section 66273.8. Under the revised definition, a conditionally exempt small quantity universal waste generator is a person who meets the generation levels for the federal conditionally exempt small quantity generator found in 40 CFR section 261.5. A person who meets the revised definition of a conditionally exempt small quantity universal waste generator continues to be subject to the disposal limits in paragraphs (2) and (3) of subsection (a) of section 66273.8.
- The definition of "dilators" is changed by the addition of "and weighted tubing" in response to the comment that, while weighted tubing is similar in construction and hazard level to dilators, it is used for different purposes and does not dilate. [Note that subsection (l) of the definition of "Universal Waste" inadvertently was not changed to read "…and weighted tubing." This oversight is corrected in the final text.]
- The definitions of "large quantity handler of universal waste" and "small quantity handler of universal waste" are altered by changing the list of wastes subject to the quantity threshold (5000kg) from a specific list to a non-inclusive list with examples given. This clarifies the definition and avoids including a long, repetitive recitation of the new expanded list of different universal wastes.

Amend Article 2, Standards for Small Quantity Handlers of Universal Waste, and Article 3, Standards for Large Quantity Handlers of Universal Wastes:

Articles 2 (section 66273.10 et seq.) and 3 (section 66273.30 et seq.) specify universal waste standards applicable to small and large quantity handlers of universal waste. The waste management standards for small (section 66273.13) and large quantity (section 66273.33) handlers are identical. Both articles are amended to add waste-specific management standards for each of the new universal wastes added by this proposal. All of the management standards added by this proposal require universal waste handlers to manage each waste "in a way that prevents releases of any universal waste or component of a universal waste to the environment."

Universal waste management standards for wastes that contain similar amounts of mercury and pose similar risks during waste management have been consolidated. For the purpose of developing universal waste management standards, wastes have been grouped into categories based on several criteria:

1) The amount of mercury they contain;
2) The physical state of the mercury they contain;
3) Whether the mercury they contain is fully encapsulated within the product, or whether the product contains openings through which mercury could escape; and
4) Whether the mercury is encapsulated in glass or another fragile material that, if broken, could result in the release of mercury to the environment.

Amend Subsection (c) of Sections 66273.13 and 66273.33:

A change was made to subsection (c) during the 15-Day Notice of Changes. This change [added as paragraph (3)] allows a handler to remove waste lamps from fixtures. This change was made in response to comments that, when a lamp fails or a fixture is removed and discarded, the lamp and fixture could be considered a waste and removal of the lamp from the fixture would constitute treatment. Because there is no environmental reason to manage the fixture as hazardous waste (unless it contains a PCB ballast or other hazardous constituents that would be separately regulated), the lamp itself can be removed provided it is properly managed. This will minimize the amount of material managed as universal waste and, potentially, free the fixture up for recycling.

Add Subsection (d) to Sections 66273.13 and 66273.33:

These new subsections contain management standards for universal waste mercury switches and thermometers. Two categories of discarded mercury switches are designated as hazardous wastes in proposed article 4.1 of chapter 11, while discarded mercury thermometers are already classified as hazardous wastes under existing criteria. Universal waste management standards for all three of these wastes are

consolidated in these two subsections, because mercury switches from vehicles, those from other products, and mercury thermometers all contain similar amounts of mercury and pose similar risks during management.

The standards are intended to prevent the release of mercury from switches and thermometers to the environment. Subsection (d), paragraph (1) requires a handler to contain broken, damaged, or leaking switches and thermometers in a closed, structurally sound, undamaged, and non-leaking container with packing materials sufficient to protect them from breakage. Similar requirements in paragraph (2) apply to containers used to accumulate mercury thermometers and mercury switches that have been removed from vehicles or other products. The container standards for mercury switches and thermometers are based on the existing standards for mercury thermostats, which are similar in size and contain similar amounts of mercury.

Removal of Mercury Switches from Vehicles and Appliances

Subparagraph (A) of paragraph (3) allows, and contains standards for, the removal mercury switches from vehicles and other products. Following are examples of the requirements:

- Remove switches in a manner designed to prevent breakage;
- Have a mercury clean-up system available;
- Transfer any spilled mercury to an airtight container; and
- Formally train employees who remove mercury switches in proper waste handling and emergency procedures.

These requirements are intended to prevent releases of mercury to the environment and to prevent worker exposure to mercury vapors.

Subparagraph (A)7. of paragraph (3) requires handlers who remove mercury switches from vehicles and products to keep basic records of switch removal for three years. The information that must be retained is as follows:

a. The number of vehicles destined for crushing, baling, shearing, or shredding;
b. The number of appliances destined for shredding;
c. The number of vehicles or appliances counted in a and b that contain mercury switches;
d. The number of switches removed from the vehicles and appliances counted in c; and
e. The number of vehicles counted in c that were damaged to the extent that switches could not be removed.

These requirements are intended to document that switches are properly removed. No specific forms or format are specified for the required information, to give maximum

flexibility to the universal waste handlers who remove switches in how to document the required information.

Requirement to Remove Switches and Certification of Removal of Switches

The original (45-Day Public Notice) version of the regulations would have required, in subsection (d), paragraph (3), subparagraph (A)4., that the mercury switches be removed in an area that was well ventilated and monitored to ensure compliance with OSHA and Cal-OSHA exposure levels for mercury. This provision, and a similar provision in subsection (f), paragraph (2), subparagraph (E) for draining gauges, was removed in the 15-Day Notice of Changes in response to comment that:

- Switches are normally removed from vehicles and appliances outdoors in scrap yards where it is unlikely that mercury vapor exposure will exceed the occupational limits.
- Switches are robust containers and are well protected from accidental breakage unless subjected to high forces such as auto shredders and heavy landfill equipment. They are very unlikely to break during removal making the monitoring requirement unnecessary.
- OSHA and Cal-OSHA standards already require ventilation or respiratory protection for persons managing exposed elemental mercury.
- OSHA and Cal-OSHA standards apply independently from these regulations and, absent the monitoring requirement, they will continue to apply and be enforceable.

The rest of subparagraph (3)(A) was renumbered to reflect the deletion.

On January 1, 2005, the M001 listing in proposed section 66261.50 will take effect. On and after that date, mercury-containing motor vehicle light switches and vehicles that contain them will be designated as hazardous wastes. This designation applies to a vehicle that contains mercury light switches only when someone decides to crush, bale, shear, or shred it. Effective on the same date, subsection (d), paragraph (3), subparagraph (B) will require that all mercury light switches must be removed from a vehicle that contains them prior to processing the vehicle by crushing, baling, shearing, or shredding it. The text in the 45-Day Public Notice would have required a handler intending to crush, bale, shear, or shred a vehicle containing mercury (light) switches to remove all such switches, or to “verify” that they had already been removed. The word “verify” was replaced with “ensure” in the 15-Day Notice of Changes, because DTSC wanted to avoid any confusion with the (now deleted) certification requirement discussed below. The word “verify” may have implied that a handler was required to keep records beyond those required by paragraph (3), subparagraph (A).

In the originally proposed regulations, subsection (d), paragraph (3), subparagraph (B) referred to all mercury switches; but was changed in the 15-Day Notice of Changes to

conform to the M001 listing change. Further, a handler who takes or sends a vehicle or vehicles to another person for crushing, baling, shearing, or shredding would have been required, by originally proposed subsection (d), paragraph (3), subparagraph (C), to certify that all switches have been removed or have been verified to have been removed. However, the certification requirement was removed in the 15-Day Notice of Changes in response to the following types of comments:

Commenters stated that an automotive recycler cannot certify that all mercury-containing switches have been removed because:

- They do not know where all of the switches are located in the thousands of different year, make, and model vehicles they receive.

- Some switches cannot be removed due to damage that prevents removal such as a crushed hood or trunk lid.

Therefore, the proposed regulations were modified in the 15-Day Notice of Changes to apply only to mercury-containing vehicle light switches.

When the M001 hazardous waste listing takes effect, crushing, baling, shearing, or shredding a vehicle that contains one or mercury light switches will be considered treatment of a hazardous waste, and will require a permit. These removal requirements will prevent the release of mercury during the processing of scrap vehicles. However, the resulting baled or shredded scrap metal may be managed (i.e. stored, transferred, recycled, disposed) as non-hazardous scrap metal unless it exhibits a characteristic of a hazardous waste.

Add Subsection (e) to Sections 66273.13 and 66273.33:

These new subsections contain management standards for waste dental amalgam. Because this material is solid at room temperature, it poses different risks than the liquid mercury found in switches, thermostats, and thermometers. These differences are reflected in this subsection's waste management standards for handlers of waste dental amalgam. The standards for amalgam do not require handlers to have a mercury spill kit on hand, for example.

Amalgam fines smaller than 100 microns (or 1/250 inch) in diameter are currently fully regulated as hazardous waste. Due to stringent discharge limits imposed by their Regional Water Quality Control Boards, the providers of sewerage services in some parts of the state are requiring dentists to install traps to capture amalgam fines that would otherwise enter the drain. These subsections would allow universal waste management of single-use amalgam traps, as well as amalgam fines and sludges removed from reusable traps, lateral lines, etc. They would also allow universal waste management of extracted teeth with amalgam restorations as universal wastes.

Due to mercury's volatility, subsection (e), paragraph (1) of these two sections requires handlers to accumulate amalgam waste in airtight containers. Two other prohibitions in the waste management standards are also intended to prevent the release of amalgam waste to the environment. Paragraph (2) prohibits handlers of universal waste amalgam from rinsing amalgam traps into a sink, and paragraph (3) prohibits them from placing amalgam waste into a medical waste container.

The proposed universal waste management standards for amalgam waste prohibit handlers from placing amalgam into medical waste containers because, in most cases, medical waste is incinerated. While medical waste incinerators are generally equipped with air pollution control devices designed to trap pollutants, some of the mercury in incinerated medical waste inevitably escapes to the atmosphere. Keeping it from being incinerated is a more effective strategy for preventing the release of mercury to the environment than is allowing it to be incinerated and then attempting to trap it.

Add Subsection (f) to Sections 66273.13 and 66273.33:

These new subsections contain standards for the management of universal waste gauges. These products may contain many grams of mercury, and they generally include openings through which mercury could potentially escape. Additionally, the mercury in a universal waste gauge is often found in a glass tube, which can easily be broken, allowing mercury to be released. The proposed management standards for handlers of universal waste gauges were developed with these factors in mind.

Handlers are required, by subsection (f), paragraph (1), subparagraph (A), to close all openings through which mercury could escape, in order to prevent spills or leaks of mercury. As a further precaution, subparagraph (B) requires that each gauge must be sealed in a plastic bag, which is then placed in a closed, structurally sound, compatible container that contains packing materials adequate to prevent breakage of gauges. Gauges must be kept upright during handling, accumulation, and transportation, in order to minimize the chance of mercury spills.

Subsection (f), paragraph (2) gives handlers the option of draining the mercury from universal waste gauges that they have generated (handlers may not drain the mercury from gauges that are received from other handlers, however). Because draining large numbers of gauges at a single consolidation site would increase the risk and potential size of mercury spills, only the handler who generates a universal waste vacuum or pressure gauge would be allowed to drain mercury from the gauge, and draining could occur only at the site where the universal waste gauge was generated.

Draining mercury from gauges is a fairly common practice. At least one manufacturer of mercury sphygmomanometers offers sphygmomanometer service kits, which include one or more one-pound bottles of mercury. As a part of maintenance, mercury is

drained from sphygmomanometers and replaced with fresh mercury from the kit. Because the sphygmomanometer will continue to be used after the mercury is changed, they are not considered wastes under current regulations and the draining activity is not considered hazardous waste treatment. However, a discarded sphygmomanometer would be classified as a hazardous waste, and draining mercury from it would currently be considered hazardous waste treatment requiring a permit.

The draining process itself poses risks of releases of mercury and of worker exposure to mercury vapors. For these reasons, subparagraphs (A) through (I) of paragraph (2) of subsection (f) of sections 66273.13 and 66273.33 require handlers who wish to drain mercury from gauges to comply with a number of requirements:

(A) Drain gauges over a containment device;
(B) Develop and follow written procedures for safely draining mercury;
(C) Keep a mercury spill clean-up kit on hand;
(D) Transfer drained mercury to an appropriate container;
(E) Train employees in draining procedures, waste handling, and emergency procedures;
(F) Store drained elemental mercury in an appropriate container;
(G) Place the container into a compatible secondary container;
(H) Keep records of the gauges drained; and
(I) Not accumulate more than 35 kilograms of drained mercury at any time.

Whether or not they drain liquid mercury from universal waste gauges, handlers are required [by subparagraphs (C) of paragraphs (1) and (2) of subsection (f)] to have a mercury clean-up system readily available, and to immediately transfer any spilled mercury to an airtight container. Handlers are required, by subsection (f), paragraph (3), subparagraph (A), to determine whether mercury that spills or leaks from universal waste gauges during management exhibits any hazardous waste characteristic. They must also determine whether absorbent materials used to clean mercury spills, and any other clean-up residues, exhibit a characteristic. If spilled mercury or cleanup residues are found to be hazardous, they are not universal wastes but are instead fully regulated hazardous wastes. However, drained universal waste gauges that exhibit a hazardous waste characteristic may continue to be managed as universal waste; drained gauges that are not hazardous may be managed accordingly.

Paragraph (2), subparagraph (E) was deleted in the 15-Day Notice of Changes for the reasons discussed for subsection (d), paragraph (3), subparagraph (A)4., above. The rest of the subparagraphs were relettered accordingly.

<u>Add Subsection (g) to Sections 66273.13 and 66273.33:</u>

These new subsections contain management standards for mercury-added novelties. As discussed earlier, the term “mercury-added novelty” is contained in Public

Resources Code section 15025. Public Resource Code section 15027 bans the manufacture and sale of these products, effective January 1, 2003. "Novelties" is a broad category encompassing products containing varying amounts of mercury, which may be in an elemental or an oxidized form. Some mercury-added novelties can appropriately be managed under the standards for one of the other types of universal waste.

These two subsections provide management standards for several categories of novelties:

- Novelties whose only mercury is contained in the battery or batteries;

Pursuant to subsection (g), paragraph (1), novelties whose only mercury is contained in batteries (and batteries removed from such novelties) will be subject to management under the standards for universal waste batteries in existing subsection (a) of 66273.13 and subsection (a) of 66273.33. After all batteries have been removed, if a novelty is not hazardous for any other reason, it may be managed as nonhazardous waste.

- Novelties that are painted with mercury-containing paint;

Spillage or leakage of liquid mercury is not an issue during the handling of novelties that are painted with mercury-containing paint. However, mercury could volatilize from painted novelties, causing potential inhalation risks and the release of gaseous mercury to the environment. Mercury-containing paint may also flake off of painted novelties. For these reasons, subsection (g), paragraph (2) of section 66273.13 and subsection (g), paragraph (2) of 66273.33 require universal waste handlers to accumulate mercury painted novelties in airtight containers.

- Novelties that contain free liquid mercury; and

Novelties that contain free liquid mercury (i.e., mercury that is not contained in a switch or other encapsulated device), may be fragile and may have openings through which mercury could escape. Because they pose risks similar to those of mercury gauges, the management standards proposed for this type of novelties in subsection (g), paragraph (3) are very similar to those for gauges. Handlers are required to pack them in undamaged, closed, structurally sound, and airtight containers with packing materials that are adequate to prevent breakage. Handlers must also keep a mercury cleanup system readily available while handling novelties that contain liquid mercury.

- Novelties that contain mercury switches.

Pursuant to subsection (g), paragraph (4), universal waste novelties whose only mercury is contained in a switch or switches are regulated under the standards for

universal waste switches and thermometers in proposed subsections 66273.13(d) and 66273.33(d).

Handlers are required, by subsection (g), paragraph (5), to determine whether mercury that spills or leaks from universal waste novelties during management exhibits any hazardous waste characteristic. They must also determine whether absorbent materials used to clean mercury spills, and any other clean-up residues, exhibit a characteristic. If spilled mercury or cleanup residues are found to be hazardous, they are not universal wastes but are instead fully regulated hazardous wastes. These requirements are similar to, and are based on, existing standards for handlers of universal waste batteries and thermostats.

Add Subsection (h) to Sections 66273.13 and 66273.33:

These subsections govern the management of universal waste mercury counterweights and dampers, which currently are fully regulated hazardous wastes. These items can contain large amounts of mercury, which is generally fully encapsulated within the product. Mercury counterweights and dampers are often less fragile than other types of mercury-containing products. However, due to the large amount of mercury that these products may contain, as well as the possibility that some may be breakable, a number of management requirements will be imposed on handlers of universal waste counterweights and dampers. Handlers will be required, by subparagraphs (1) through (4) of subsection (h), to:

- Recycle counterweights and dampers (no disposal will be allowed);
- Pack them with materials adequate to prevent breakage;
- Pack them in a closed, undamaged, structurally sound container that is compatible with mercury;
- Place leaking, spilling, or damaged counterweights or dampers in a sealed plastic bag in an airtight container; and
- Have a mercury clean-up system readily available.
- Manage spilled mercury and clean up residues that exhibit a hazardous waste characteristic as fully regulated hazardous waste.

These requirements are intended to prevent releases of mercury to the environment and to prevent worker exposure to mercury vapors.

Add Subsection (i) to Sections 66273.13 and 66273.33:

These subsections govern the management of universal waste dilators and weighted tubing. Several types of gastrointestinal and esophageal dilators and weighted tubing are used in certain medical procedures; some use mercury for weight. These devices may contain many grams of mercury, which is contained in a rubber tube. While not especially fragile, these tubes could rupture, releasing mercury. The standards for

universal waste dilators and weighted tubing are designed to minimize the possibility of such releases. Damaged or leaking dilators and weighted tubing are subject to additional packaging requirements, to ensure that liquid mercury and mercury vapors are contained. The requirements for small quantity handlers, in subparagraphs (1) through (4) of subsection (i) include:

- Packing dilators and weighted tubing with materials adequate to prevent breakage;
- Packing dilators and weighted tubing in a closed, undamaged, structurally sound container that is compatible with mercury;
- Placing leaking, spilling, or damaged dilators and weighted tubing in a sealed plastic bag in an airtight container; and
- Having a mercury clean-up system readily available.
- Managing spilled mercury and clean up residues that exhibit a hazardous waste characteristic as fully regulated hazardous waste.

All of these requirements are intended to prevent the accidental release of mercury to the environment during handling and transportation of dilators and weighted tubing. Note that the term “and weighted tubing” was added by the 15-Day Notice of Changes to this section and others in response to comment. The necessity for this change is explained in the discussion of the necessity for changes to section 66261.9 above.

Add Subsection (j) to Sections 66273.13 and 66273.33:

This subsection governs the universal waste management of discarded rubber flooring that contains mercury. Samples of such flooring, which was used in gymnasiums until the late 1970s, were tested and found to exceed the TCLP for mercury, making the flooring hazardous waste when discarded.

Mercury-containing rubber flooring is unlike the other mercury-containing wastes for which new management standards are proposed. Its mercury is not in a liquid form, and is not contained in a discrete component of the waste. Spillage of the mercury is, therefore, less of a concern than for the other new universal wastes. Further, pieces of waste flooring may be generated that are too large to fit in a drum or other common container. Consequently, the waste management standards in this subsection are minimal; they require only that flooring be managed “in a way that prevents releases of any universal waste or component of a universal waste to the environment. “

Add Subsection (k) to Sections 66273.13 and 66273.33:

These new subsections contain standards for the management of universal waste gas flow regulators. These devices, which were attached to older gas meters, may contain 100 grams or more of mercury. They generally include openings through which mercury could potentially escape. The mercury in a universal waste gas flow regulator

is usually found in a small cup, which can easily spill during removal. The proposed management standards for handlers of universal waste gas flow regulators were developed with the prevention of such spills in mind. Handlers are required by subsection (k), paragraph (1) to keep universal waste gas flow regulators upright during handling. As a further precaution, subsection (k), paragraph (2) requires that regulators must be sealed in a closed, structurally sound, compatible container.

Handlers of universal waste gas flow regulators are required, by subsection (k), paragraph (3), to have a mercury clean-up system readily available, and to immediately transfer any spilled mercury to an airtight container. Handlers are required by subsection (k), paragraph (4), subparagraph (A)1. to determine whether mercury that spills or leaks from universal waste regulators during management exhibits any hazardous waste characteristic. They must also determine whether absorbent materials used to clean mercury spills, any other clean-up residues, and drained gas flow regulators, exhibit a characteristic. If spilled mercury or cleanup residues are found to be hazardous, they are not universal wastes but are instead fully regulated hazardous wastes. If they are not hazardous, they may be managed accordingly.

Amend Sections 66273.14 and 66273.34:

These sections, which parallel language found in 40 CFR sections 273.14 and 273.34, specify waste-specific labeling requirements for universal wastes. Handlers of universal waste are required to label or mark universal waste or the containers of universal waste to clearly indicate the waste description with one of the following phrases: "Universal waste--___", "Waste ___", or "Used ___", with the blank filled in with the applicable type of universal waste such as battery(ies), thermostat(s), or lamp(s). These regulations add ten new categories of universal waste to chapter 23. New labeling standards, based on the existing standards for batteries, lamps, thermostats, and CRTs, are added for each new universal waste category. In addition to those for the ten new waste categories, labeling standards for the mercury drained from universal waste gauges are also added.

Subsection (f), paragraph (2) was added [and subsection (f) renumbered as subsection (f), paragraph (1)] during the 15-Day Notice of Changes to specify proper labeling for mercury drained from gauges. The language for the label parallels that language for labeling the other universal wastes.

The originally proposed regulation (45-Day Public Notice) had an additional subsection, (l). It applied to drained mercury. However, the only universal wastes from which mercury can be drained are gauges, so the language has been moved to subsection (f) paragraph (2), which establishes labeling language for gauges and provides consistency.

Subsection (i) was modified by adding “and weighted tubing” to “dilators.” The necessity for this addition is explained in the discussion for the changes to section

66273.7.8, which establishes the applicability of chapter 23 to mercury dilators and weighted tubing. The words “as appropriate” were added to this subsection because not all of the labeling options provided are applicable to all types of dilators and weighted tubing. Labeling a container of dilators as “weighted tubing” would not be appropriate, for example, nor would be labeling a container of weighted tubing as “dilators.”

Amend Section 66273.19:

DTSC is adding a requirement to section 66273.19, to require small quantity handlers of the 10 newly-added universal wastes to comply with the same recordkeeping requirements that already apply to large quantity handlers of batteries, thermostats, and lamps. Under California’s existing universal waste rules, small quantity handlers (persons who never accumulate 5,000 kilograms of universal waste) are not required to keep records of their shipments or receipts of universal waste batteries, thermostats, and lamps. Large quantity handlers are required to retain such records for three years from the date they ship or receive universal waste.

The requirement is added because most of the wastes in question contain relatively large amounts of mercury (several grams, or more). If even a small percentage of these products is improperly disposed, the mercury released would add to the State’s already unacceptable level of environmental contamination with mercury. DTSC believes that this minimal recordkeeping requirement will impose a very small additional burden on small quantity handlers, while making it easier for State and local officials to verify that the affected wastes are being managed properly. The recordkeeping requirement will provide an incentive for handlers to comply with the other requirements in this section.

Add Sections 66273.21 and 66273.41:

These new sections pertain to the siting of universal waste handlers that accumulate mercury-containing universal wastes received from other handlers. Due to potential risks associated with the accumulation of large volumes of mercury-containing wastes at non-permitted consolidation sites, these sections list several criteria for offsite accumulation of the wastes. A universal waste handler who accumulates any of the ten new mercury-containing universal wastes anywhere other than at the site of generation must meet these criteria. The criteria are:

- Compliance with all applicable requirements for handlers of hazardous materials;
- Disclosure that mercury is being handled in all applicable business and use permitting applications;
- Compliance with the standards in section 66265.18, which pertain to locating facilities in a 100-year floodplain;
- Compliance with the seismic precipitation design standards in section 66265.25;
- Accumulation of the wastes only in areas that are zoned for commercial or industrial

uses; and

- Accumulation of the wastes at a location that does not pose site specific land use hazards or contain sensitive habitat area, based on a review of state and local planning documents and constraints mapping.

The criteria are intended to prevent accumulation of mercury-containing universal wastes at locations that are inappropriate due to incompatibility of the activity with local land use or zoning, or that are not designed to withstand flooding or earthquakes.

Nonsubstantive Change to Paragraph (8) of Subsection (a) of Sections 66273.21 and 66273.41:

The name of the new universal waste category “dilators” was changed elsewhere in the text of these regulations to “dilators and weighted tubing” in the 15-Day Notice of Changes (Table of Contents, sections 66261.9, 66273.1, 66273.7.8, 66273.9, 66273.13, 66273.14, 66273.33, and 66273.14), but subsections (a)(8) of sections 66273.21 and 66273.41 inadvertently were not changed. This oversight is corrected in the final text.

45-Day Public Notice
Comment Summaries and Responses

Mercury Waste Classification and Management Regulations: R-02-04 – 45 Day Notice Comment Summaries and Responses

General

CALPIRG Charitable Trust

H-2 *Current mercury contamination should be cleaned up.*

Cleanup of historic mercury contamination is outside the scope of this rulemaking. However, the difficulty of cleaning up existing contamination reinforces the need to prevent additional contamination, one of the objectives of this rulemaking. The Department of Toxic Substances Control (DTSC), the State Water Resources Control Board (SWRCB), the United States Environmental Protection Agency (U.S. EPA), and other local agencies are cleaning up sites contaminated with mercury as rapidly as funding and staff allows. The State is contaminated with mercury in many diverse and diffuse locations and cleanup will be long, difficult, and expensive.

H-3 *Manufacturers of mercury-containing products should be held accountable for the costs of reclaiming mercury and managing mercury waste.*

While this approach would go far towards funding collection and recycling efforts for mercury-containing wastes, such requirements are outside the scope of this rulemaking and outside the scope of the statutory authorities granted to DTSC.

H-4 *Safer alternatives to mercury use should be encouraged with economic incentives.*

The only economic incentives that DTSC has authority to establish are “back end” incentives such as regulating discarded mercury-added products as hazardous waste. This is one of the objectives of this rule. One of the criteria used to determine which discarded products should be listed in the new mercury listed wastes was the availability of mercury-free substitutes which, when spent, would not carry the label of “hazardous waste” unless they were identified as hazardous waste for characteristics or constituents other than mercury. DTSC does not have the statutory authority to provide economic incentives directly to manufacturers of mercury-containing products.

H-5 *The public has the right to know about mercury pollution to which they are exposed and to participate in decisions that affect the public health.*

Notifying persons about the nature and extent of mercury contamination in both the environment and in products is beyond the scope of this rulemaking. However, DTSC and the SWRCB have extensive lists of contaminated and potentially contaminated sites in the State. These lists are available both as printed documents through the DTSC Site Mitigation Program and on the internet. Note that DTSC does not have authority to require specific product labeling.

There is already an extensive public review and comment feature for both changes to the State’s regulations and to plans for mitigation of contamination. This document represents the DTSC’s response to the public involvement in the regulatory process. For site

cleanup, both the remedial action plans and the environmental assessment documents for the cleanups have extensive public involvement.

H-6 *Environmental contamination in California continues to threaten human health, particularly children. Disposal of products contributes significantly to this contamination. We enthusiastically support DTSC's efforts to reduce mercury in the waste stream, but even more rigorous policies are needed to eliminate mercury from use.*

This rulemaking represents a step towards controlling disposal of wastes with intentionally added mercury. By creating a need to manage mercury-added products in a more complex and expensive manner than non-hazardous products, it also provides some disincentive for the use of intentionally-added mercury. Note, however, that DTSC could have created a stronger disincentive for using mercury by requiring full hazardous waste management, but chose not to in order to ensure that products with mercury generated by the vast numbers of universal waste generators would not be illegally disposed in significant numbers. Any efforts to ban mercury from products or forbid its use are outside of the authorities granted to DTSC to adopt regulations.

Center for Environmentally Advanced Technologies

I-27 *California missed a golden opportunity to promote mercury reduction when it recently awarded a very large contract for high-mercury fluorescent lights. The state should use its procurement power to purchase the lowest-mercury lamps as an example to consumers.*

Procurement of products by the State of California (or any other entity) is outside of the scope of this rulemaking, which is intended to address classification and management of waste products with intentionally-added mercury. However, DTSC will work with other State agencies as part of an interagency California Environmental Protection Agency (Cal/EPA) Universal Waste Infrastructure Workgroup. One of the tasks of this group will be to develop suggested guidelines for purchasing products with intentionally-added mercury. These guidelines will suggest buying substitutes for mercury products whenever possible and minimizing the mercury content when substitution is impossible or undesirable (for instance, in substituting incandescent lamps for fluorescent tubes with the high energy penalty attached to incandescent lamps).

Clean Water Action

J-7 *The proposed regulations need to be bolstered by comprehensive education for producers and consumers and need to include stringent labeling requirements.*

DTSC and the California Integrated Waste Management Board (CIWMB) are co-chairing an effort to develop a robust infrastructure to collect and properly manage universal wastes generated by households and small businesses. Aggressive educational outreach will be one of the products of this workgroup. Note that stringent labeling requirements, while

they may dissuade customers from purchasing mercury added products, are outside the authority granted to DTSC.

Consumers for Dental Choice

K-15 *Request an extension of the comment period on the regulations.*

There has been a 45-Day Comment Period and three 15-Day Notices of Changes to the original proposal, as required by California's Administrative Procedures Act, giving commenters sufficient time to review and comment on the proposal. Note also that DTSC must adopt these regulations before January 1, 2003 when the authority granted by Health and Safety Code section 25150.6 to vary from statute expires. This real deadline precludes extended comment periods.

Michael Pinkerton

EE-1 *The proposal is a positive step, but mercury-containing products must also be collected and contained in a manner protective of public health.*

This proposal applies the Universal Waste Rule standards to management of the subject mercury-containing wastes. The Universal Waste Rule applies less prescriptive performance standards to facilitate simple and inexpensive management of universal wastes, but requires that universal wastes be accumulated, stored, and transported in containers that can fully contain the wastes and protect them from damage. While these requirements are somewhat open-ended, the solutions chosen by persons managing universal wastes must meet essentially the standards suggested by the commenter.

Hazardous Waste Listing - M003 - Support - Phase-In Date

OSRAM Sylvania

V-1.5 *In the proposed regulations, the exposure pathway focused on for mercury from fluorescent lamps is generally limited to landfills. It is important to note that mercury from lamps occurs first at the dumpster where improperly managed lamps are typically broken. These initial exposure pathways are not emphasized in DTSC's analysis and should be considered as an additional impetus for making the listing effective as soon as possible.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC aggress that leaching from landfills is only one pathway by which the mercury in broken lamps can enter the environments. Some mercury from broken lamps is also volatilized directly to air, and some can contaminate dumpsters, from which it can be washed out and contaminate surface waters or enter storm drains. These other pathways are discussed in DTSC's Final Mercury Report.

V-8 *DTSC should clarify the relationship between the Regulations for the Mercury Waste Classification and Management (R-02-04) and the proposed Electronic Hazardous Waste Regulations (R-01-06).*

The Mercury Waste Classification and Management Regulations (R-02-04) and the Electronic Hazardous Waste Regulations (R-01-06) both establish management standards for specific products designated as universal wastes. Thus, they both affect the same sections of existing regulations while also adding and/or affecting other separate sections. Neither package shows the changes being proposed in the other package because presentation of all the proposed changes in one package would create an extremely complex document with multiple sets of underlines, strikeouts, and other indications of the changes in the two packages. Combined display would create a patently unclear presentation that would adversely affect the ability of the regulated community to understand and comment on the proposed changes. Both packages address different types of waste and both packages stand alone without the other. Thus, only it is not necessary to show both sets of changes, it would be unclear.

Note, however, that sections being changed that affect both regulations such as the exemptions found in section 66273.8 have been reconciled so that the sections, as adopted, will be consistent. There will be nonsubstantive changes required to each package upon approval by the Office of Administrative Law (OAL) to meld the regulations together into the printed version of the effective code. DTSC intends to supply OAL with copies of melded text to ensure that the final printing of the code is correct. Changes to each package to accommodate the language of the other package will consist exclusively of renumbering existing and newly adopted subsections without making any substantive changes that would require additional public notice.

Robyn Martin

BB-5 *I wish to see legislation and funding for the reclamation and cleaning up of rivers, lakes and streams contaminated with mercury during the gold rush.*

DTSC acknowledges that the “legacy” wastes from the Gold Rush constitute a major source of mercury pollution in California. However, DTSC cannot adopt legislation and cannot establish funding or impose fees, taxes, or other costs to supply funding for mercury cleanup. This comment is also outside the scope of there regulations.

Sara Waters

GG-3 *The amount of pollutants in our environment escalates daily, while the attempts to regulate or remove pollutants are a slow and lengthy procedure.*

DTSC agrees with the commenter. However, the comment does not present any suggestions or arguments that are germane to this rulemaking. This rulemaking does not change any of the processes or requirements for site cleanup activities. Such changes will require extensive discussion and involvement of all stakeholders in the cleanup process

and are beyond the scope of this regulation.

Sensient Technologies

AA-1 *The proposed mercury and CRT regulations amend some of the same sections, inconsistently with each other. The department should thoroughly review each proposal to reconcile the differences.*

As discussed in comment V-8 above, incorporated herein, the proposals both change many of the same sections. Because neither includes the text of the changes proposed by the other rulemaking project, there are conflicts in numbering in some sections. As discussed above, these conflicts will be resolved with non-substantive changes by OAL upon approval of both regulation packages.

General - Adding New Wastes

CALPIRG Charitable Trust

H-12 *DTSC should establish a process to list, with public input, other products over time.*

Note that Health and Safety Code sections 25140 and 25141 both give DTSC adequate authority to adopt new listings of mercury-containing wastes for management as hazardous wastes. This authority already exists and is not scheduled to sunset. A petitioner desiring to add new wastes to the lists of hazardous wastes would petition under the Government Code. If the petition were successful, DTSC would rely on the authority of Health and Safety Code sections 25140 and 25141 to establish the new listings. Because DTSC would adopt any new listing by regulation, there would be the well understood and effective public review and comment process of the Administrative Procedures Act to ensure public involvement in addition to DTSC's pre-regulatory workshops and other consultations with stakeholders.

The existing petition process of the Administrative Procedures Act (Government Code Section 11340.6) supplemented by the criteria of proposed sections 66260.30 and 66260.33 establish processes for adoption of new universal wastes. However, after January 1, 2003 the authority of Health and Safety Code section 25150.6 would need to be reestablished in order to allow universal waste management of other wastes.

Clean Water Action

J-5 *There should be a mechanism to add new wastes (to the hazardous waste listing?) to encourage R and D on mercury-free alternatives.*

As discussed in the response to comment H-12 above, incorporated herein, there are sufficient processes and authorities in place for DTSC to add new wastes to the newly adopted hazardous waste listings. New statutory authority would be necessary to allow

management as universal waste.

Onyx Environmental Services

U-1 *We support DTSC's proposal to expand universal waste regulations to cover other mercury-containing wastes and to regulate low level mercury devices (as hazardous waste).*

DTSC acknowledges the support.

General – Education

Physicians for Social Responsibility, Los Angeles

W-7 *DTSC must sponsor or provide assistance and resources for an aggressive education effort to publicize the new standards. Households and smaller medical facilities are largely unaware that mercury-containing products are hazardous waste and must be managed accordingly.*

DTSC and the CIWMB are co-chairing a Cal/EPA effort to develop a robust infrastructure to collect and properly manage universal wastes generated by households and small businesses. Aggressive educational outreach will be one of the products of this workgroup. As with most important new regulation packages, DTSC will offer to deliver speeches and training sessions to businesses and associations that request them, provide fact sheets and guidance materials, offer generator and handler training classes through the California Compliance School, and train Certified Unified Program Agency (CUPA) staff that work directly with generators of universal waste.

General - Class I Landfill Disposal

Imperial County Planning/Building Department

P-1 *Mercury-containing hazardous waste can be disposed in the Clean Harbors Hazardous Waste Facility and this department looks forward to working with DTSC, the LEA, generators, and Clean Harbors staff to ensure proper hazardous waste disposal that protects public health and the environment.*

DTSC acknowledges the comment and will work with Clean Harbors and other persons managing universal waste to ensure proper management and ultimate disposition of all universal waste generated in the State. However, for reasons detailed in the Initial and the Final Statement of Reasons (FSOR) for these regulations, DTSC is allowing disposal to land as universal waste for only those universal wastes that cannot easily be recycled. For instance, rubber flooring with intentionally-added mercury may be disposed at a hazardous waste landfill. All other wastes with intentionally-added mercury addressed by these

regulations must be recycled at a destination facility in order to be managed as universal waste.

General – Enforcement

1000 E-mails

CC-4 *We need to have an enforcement plan to make sure products containing mercury are properly disposed.*

Violators of the universal waste rule are subject to the same enforcement program as other hazardous waste generators, transporters, and facilities. Article 8 of Chapter 6.5 of the Health and Safety Code provides for administrative, civil, and criminal enforcement, fines of up to $25,000 per day, per violation, and imprisonment for persons criminally convicted. Enforcement will be carried out primarily by the CUPAs for generators and DTSC for offsite handlers and transporters. The U.S. EPA can also enforce those portions of the State's Universal Waste Rule that are not broader in scope than the federal Universal Waste Rule after the State becomes formally authorized for the Universal Waste Rule and the petition process. The degree of enforcement, the amount of resources devoted to universal waste enforcement, and actual penalties assessed will be determined by the enforcing agency's priorities when compared with other work needed to discharge its responsibilities.

500 Faxes

DD-4 *DTSC should have an enforcement plan with real teeth, to assure that mercury-laden wastes do not continue to pollute our land, air and water in violation of the regulations.*

As discussed above in response to comment CC-4, incorporated herein, violators of the universal waste rule are subject to the same enforcement program as other hazardous waste generators, transporters, and facilities. Article 8 of Chapter 6.5 of the Health and Safety Code provides for administrative, civil, and criminal enforcement, fines of up to $25,000 per day, per violation, and imprisonment for persons criminally convicted.

In addition, persons that release universal wastes to the land are responsible for cleaning up the resulting contamination. The high costs of remediating mercury contamination will serve as an additional disincentive to improper management of universal wastes.

J-1 *Many of the affected wastes are already hazardous, but continue to be disposed improperly. The regulations lack a strong enforcement program/component.*

Violators of the universal waste rule are subject to the same enforcement program as other hazardous waste generators, transporters, and facilities. Article 8 of Chapter 6.5 of the Health and Safety Code provides for administrative, civil, and criminal enforcement, fines of up to $25,000 per day, per violation, and imprisonment for persons criminally convicted.

The large number of generators and handlers of universal waste and higher priorities presented by large volume, riskier industrial hazardous wastes have consumed DTSC's inspection and enforcement resources for many years. With the advent of the CUPA program and the ongoing success of the traditional enforcement program in achieving compliance with the hazardous waste control regulations, DTSC has chosen to adopt special regulations for universal waste and will direct resources toward implementing the Universal Waste Rule, including performing inspections and enforcement, with both DTSC and CUPA staff.

J-2 *A compliance certification program is suggested. Handlers would have to sign an affidavit certifying compliance and there would be criminal liability for violations.*

For these regulations, DTSC has chosen to implement the same regulatory model as used for general hazardous waste management. In this model, the State establishes regulatory standards, uses educational outreach to publicize the regulatory standards, and uses inspection and enforcement to assure compliance. DTSC has not elected to use a certification program because of the administrative overhead required to obtain, track, and verify certifications. DTSC has chosen, instead, to focus scarce resources on educational outreach and inspection and enforcement to gain compliance. However, as the program matures and additional resources become available, DTSC may utilize a compliance certification or an environmental management system to supplement the inspection/enforcement program. Note: CUPAs may choose to supplement their individual universal waste inspection/enforcement programs with self-certification and verification programs. Note there is already criminal enforcement authority that can be used in both a universal waste inspection/enforcement program and a certification program.

J-4 *Without an effective enforcement program, the regulations' objectives (encouraging pollution prevention, development of alternatives to mercury- laden products, and promoting recycling) will not likely be met.*

DTSC agrees with this assertion. See the responses to comments DD-4, J-1 and J-2, incorporated herein, for further discussion.

Lucas Associates

R-2 *The penalties for violations of hazardous waste disposal requirements are too severe for products that were heretofore not hazardous waste and for which it may not be apparent whether they contain mercury switches.*

DTSC disagrees with the commenter's assertion(s). While the maximum penalties that can be assessed under Health and Safety Code Chapter 6.5 may be construed by many as too severe, the maximum penalties are rarely imposed on violators of the hazardous waste control regulations. DTSC and CUPAs have significant flexibility to set penalties to reflect the intent of the transgressor, the severity of the threat to human health and the environment, the recalcitrance of the violator, and other factors. In responding to violations of the state's Universal Waste Rule, DTSC and CUPA inspectors can apply the DTSC

regulations in the California Code of Regulations, title 22 chapter 22, article 3, to set initial penalties appropriate for the violation.

Nancy Richler

HH-2 *I am in favor of an enforcement plan to make sure products containing mercury are properly disposed.*

Both DTSC and the CUPAs, in enforcing the hazardous waste control regulations, including the Universal Waste Rule, establish workplans for addressing different classes of persons managing hazardous waste. These workplans reflect national, State, and local priorities in hazardous waste enforcement. These plans focus limited inspection and enforcement resources to best reduce imminent and long term threats to human health and the environment. These work plans are developed on at least an annual basis and remain flexible to allow response to changing conditions or new revelations. Establishing such plans is beyond the scope of this rulemaking and is generally not appropriate for the rulemaking process.

Naomi Trejo

FF-4 *Laws are great, but not effective without enforcement. We need a plan to enforce companies to make sure products [comment abruptly ends here].*

Violators of the universal waste rule are subject to the same enforcement program as other hazardous waste generators, transporters, and facilities. Article 8 of Chapter 6.5 of the Health and Safety Code provides for administrative, civil, and criminal enforcement, fines of up to $25,000 per day, per violation, and imprisonment for persons criminally convicted. See responses to comments CC-4, DD-4, J-1, J-2, J-4, R-2, HH-2, and public hearing comment HD-4, incorporated herein.

Robyn Martin

BB-4 *DTSC should have an enforcement plan with real teeth to ensure that mercury-laden wastes do not continue to pollute our land, air and water in violation of the regulations.*

Violators of the universal waste rule are subject to the same enforcement program as other hazardous waste generators, transporters, and facilities. Article 8 of Chapter 6.5 of the Health and Safety Code provides for administrative, civil, and criminal enforcement, fines of up to $25,000 per day, per violation, and imprisonment for persons criminally convicted. See responses to comments CC-4, DD-4, J-1, J-2, J-4, R-2, HH-2 and public hearing comment HD-4, incorporated herein.

General – Support

1000 E-mails

CC-1 *I think the current proposal is a step in the right direction, but more must be done to protect our health from mercury contamination.*

DTSC acknowledges that additional efforts will be needed to ultimately reduce mercury contamination below levels that impact human and environmental health. However, the focus of this project is to address contributions of mercury from waste materials disposed to non-hazardous landfills. Thus, other actions to reduce mercury contamination are outside the scope of this rulemaking. Each project that contributes to the reduction in mercury must have a limited scope and focus, given the pervasive nature of mercury contamination and the large variety of sources of mercury in the environment.

500 Faxes

DD-1 *I support the proposal by DTSC to improve safeguards for wastes containing mercury.*

DTSC acknowledges the support.

AERC Recycling Solutions

A-1 *Expresses support*

DTSC acknowledges the support.

County Sanitation Districts of Los Angeles County

O-1 *The districts support diversion of mercury-containing wastes from the municipal waste stream and believe DTSC's proposed regulations will target mercury at its source and divert it from the municipal waste stream.*

DTSC acknowledges the support.

Naomi Trejo

FF-1 *I support DTSC's proposal, but even more steps should be made.*

DTSC acknowledges the support.

Physicians for Social Responsibility, Los Angeles

W-1 *If implemented, the new standards will be more protective of public health.*

DTSC acknowledges the support.

Robyn Martin

BB-1 *I support the proposal by DTSC to improve safeguards for wastes containing mercury.*

DTSC acknowledges the support.

BB-2 *It is very important that the proposed regulation not be weakened. In particular, all discarded mercury-containing light bulbs should be considered hazardous, as should discarded vehicles and appliances unless mercury switches are removed.*

DTSC has changed the regulations in the 15-Day Notice of Changes, but the changes have not weakened the regulations. The salient changes are the elimination of mercury switches in vehicles other than lighting switches from the M001 listing and the removal of the certification requirement for vehicles and appliances. The FSOR explains the necessity for these changes. While on the surface these changes may seem to weaken the proposal, they actually make the proposal more workable for the recycling businesses. Without these changes, there would have been a large disincentive to recycle vehicles and appliances. This would have resulted in higher rates of disposal rates to nonhazardous landfills and the general environment.

Sara Waters

GG-1 *I commend DTSC's current proposal to more strictly regulate the disposal of many products containing mercury.*

DTSC acknowledges the support.

USHIO Lighting Edge Technologies

Y-1 *We support the changes to the proposal (possibly from the proposal in the Draft Mercury Report?).*

DTSC acknowledges the support.

Hazardous Waste Listing - M002

Waste Management

Z-1 *If properly implemented, we believe these regulations will be helpful in ensuring that mercury-containing items are not improperly managed when commingled with solid waste.*

DTSC acknowledges the support.

Z-4 *The primary responsibility for characterizing and properly managing an inappropriate waste should fall upon the manufacturer or person who first generates the waste.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. Pursuant to section 66262.11 of title 22 of the California Code of Regulations, division 4.5, the generator of a waste is required to determine if the waste is hazardous. These regulations do not affect this existing requirement.

General – Opposition

1000 E-mails

CC-2 *The proposal does not adequately encourage the elimination of mercury from use in consumer products and fails to ensure that mercury in disposed products is collected and contained in a manner protective of public health.*

DTSC does not have the authority to ban the use of mercury in products. However, regulation of discarded products as hazardous waste does provide a disincentive for the use of those products as compared with mercury-free products. By listing vehicle light switches and vehicles with the switches as well as appliances with mercury switches, DTSC is creating a disincentive for using mercury switches. Note that State statute prohibits the use of mercury vehicle light switches after a delay period and that these switches will be phased out of use.

Other wastes addressed by this rulemaking are also being replaced by mercury-free products. Virtually all hospitals and clinics in the State have programs to remove all mercury-containing devices and replace them with mercury-free substitutes. Mercury thermometers are being replaced by electronic ones, mercury in dilators and weighted tubing is being replaced by powdered tungsten, mercury switches are being replaced by ball bearing contactors, and rubber flooring with mercury is no longer sold. The one product that will continue to contain mercury in the short term is lamps. Fluorescent tubes and other highly efficient lamps require mercury for operation and will continue to require mercury until light emitting diode lamps or other new energy efficient technologies replace them in the coming decades. Given that the largest contemporary source of mercury in the environment is emissions from fossil fuel power plants, use of energy efficient lighting is vital to reduction of mercury in the environment even given their mercury content. Note that this is why proper recycling of the mercury is vital for lamps and other devices that will continue to use mercury.

DTSC disagrees with the commenter's assertion that the regulations do not assure that mercury in discarded products is collected and managed in a protective manner. While the Universal Waste Rule lacks the prescriptive standards of the general hazardous waste

regulations, it will, as explained in the Initial Statement Of Reasons (ISOR), FSOR, and the Final Analysis and Findings under Health and Safety Code section 25150.6, provide superior ultimate reduction in environmental release of mercury from the subject wastes because it encourages more proper disposal and less illegal disposal. This will reduce the attendant releases of mercury directly to the environment.

General - Elimination of Mercury from Use – Products

1000 E-mails

CC-3 *We need to stop putting mercury in products in the first place. Through economic incentives, like an advanced disposal fee, we need to encourage manufacturers to take mercury out of products and to use alternatives.*

This rulemaking provides incentives to eliminate mercury in products by designating mercury-containing products as hazardous waste at the end of their lifespan. However, DTSC has no statutory authority to either ban the use of mercury or to establish fees, require take back programs, or to control the make up of commercial products before they become waste.

CALPIRG Charitable Trust

H-1 *Mercury use and release should be reduced and eliminated over time.*

DTSC concurs and is taking steps with this rulemaking toward that objective. However, DTSC can neither exceed its statutory authority by banning mercury, nor address every mercury waste issue in one rulemaking. This rulemaking represents a step toward the goals expressed by the commenter and will go far toward reaching those goals. Further regulatory efforts may be needed to improve the system if experience with implementing these regulations so indicates. Other actions are outside the scope of DTSC's authority.

Clean Water Action

J-8 *Address the use of mercury at its outset (source reduction), not just when it becomes waste.*

DTSC does not have the authority to ban the use of mercury in the proposed regulations. The regulations represent DTSC's best judgement of the way to provide disincentives for the use of mercury in products that become the wastes addressed by this rulemaking and to establish standards to prevent release of mercury in these products when they are discarded.

Maki Hsieh-Leonard

LL-1 *Please provide a logical explanation of how the complete elimination of mercury in*

consumer products, and the clean-up of disposed mercury would NOT be a solution to a safer and more healthy environment.

Complete elimination of mercury in consumer products and cleanup of existing mercury contamination will be a major advance in protecting the environment. However, this is outside the scope of DTSC's jurisdiction. DTSC cannot require elimination of mercury in products. These regulations represent an incremental step toward this goal that is both within the authorities granted to DTSC and is feasible to accomplish. Further steps will be taken in the future including cleanup of mercury contaminated sites and, potentially, other regulations addressing mercury-containing wastes. Complete elimination of mercury has already been accomplished in many products. Other environmentally beneficial products such as energy efficient mercury-containing lamps await future scientific and technical advances before their mercury can be eliminated.

Nancy Richler

HH-1 *I am in favor of stricter regulations for disposal of products containing mercury I would also like to see policy to encourage manufacturers to take mercury out of products and to use alternatives.*

See the response to comments CC-3, H-1, J-8, LL-I, and public hearing comment HC-3, incorporated herein, for exhaustive discussion of this issue.

Naomi Trejo

FF-2 *The proposal focuses on reducing the amount of mercury waste, but does not adequately encourage the elimination of mercury from use in consumer products.*

See the response to comments CC-3, H-1, J-8, LL-1, and public hearing comment HC-3, incorporated herein, for exhaustive discussion of this issue.

Peter de Lijser

JJ-1 *Despite the availability of alternatives and the evidence of mercury's adverse effects on children, it continues to be used in many products which, when disposed in landfills, may contaminate the environment and people.*

The comment's assertion is partially true. Many uses of mercury in products have been eliminated. Mercury remains essential to other products (energy efficient lighting). See the response to comments CC-3, H-1, J-8, LL-1, and public hearing comment HC-3, incorporated herein, for exhaustive discussion of this issue.

Sara Waters

GG-2 *The proposal needs to include that mercury needs to be eliminated from consumer products in the first place. It needs to be collected and contained in a manner*

protective of public health.

See the response to comments CC-3, H-1, J-8, LL-1, and public hearing comment HC-3, incorporated herein, for exhaustive discussion of the issue of elimination of mercury from consumer products.

This rulemaking requires that most of the products addressed be ultimately recycled in order to qualify for the simple and inexpensive universal waste management standards. However, with the decrease in the use of mercury in products, there will ultimately be an excess of recycled mercury that must be permanently sequestered from the environment. Sequestration is outside the scope of this rule but discussions (including DTSC representatives) have begun with the U.S.EPA in Washington.

General - Elimination of Mercury from Use – Vehicles

Institute of Scrap Recycling Industries, Inc.

Q-2 *Manufacturers have promised to stop using mercury switches by 1995, but failed to do so.*

State statute bans the sale of automobiles containing mercury lighting switches after January 1, 2005. DTSC can only enforce those standards placed into statute or adopted into regulation by authority of statute. See the response to comments CC-3, H-1, J-8, LL-1, and public hearing comment HC-3, incorporated herein, for exhaustive discussion DTSC's authorities for banning the use of mercury.

General - Elimination of Mercury from Use

CALPIRG Charitable Trust

H-10 *The proposal doesn't adequately encourage the elimination of mercury from use and fails to ensure that mercury in disposed products is properly collected and contained. Without adequate enforcement, the desired effects are not assured.*

See the response to comments CC-3, H-1, J-8, LL-1, and public hearing comment HC-3, incorporated therein, for exhaustive discussion of the issue of banning mercury from products. DTSC

agrees that regulation without enforcement is not as effective; however, this rulemaking creates opportunity for such enforcement.

Michael Pinkerton

EE-2 *Manufacturers and consumers should be discouraged from creating and purchasing*

all products containing toxic substances.

See the response to comments CC-3, H-1, J-8, LL-1, and public hearing comment HC-3, incorporated herein, for exhaustive discussion of the issue of banning the use of mercury and other toxic substances from use. The waste listings will provide a disincentive for use of mercury and ultimate proper management and recycling of mercury.

General - Mercury in the Environment

Center for Environmentally Advanced Technologies

I-13 *Mercury is a neurotoxin, and biomagnifies in the food chain. Food fish can have several orders of magnitude higher mercury levels than the water. Ten percent of American women of childbearing age risks giving birth to a baby with neurological problems due to in-utero mercury exposure. Thus, even small mercury releases pose significant risks, and reducing releases can have significant benefits.*

DTSC concurs with this assessment of the risks of mercury and in this rulemaking is taking steps to reduce mercury release.

I-14 *To understand the full impact of mercury from lighting, one must look at the entire life cycle and not just disposal. Releases can occur due to breakage during use and transportation, during manufacture, and at recycling facilities. Regulators must monitor recyclers.*

DTSC concurs that the impacts of any product on the environment can only be understood by considering the entire lifecycle of the product. However, DTSC's authority is limited to developing standards for management of wastes. DTSC has considered the entire lifecycle impacts of those mercury-containing products addressed in this rule that are not being replaced by mercury-free substitutes, and has crafted regulations that aim to gain the lowest total release of mercury to the environment. For instance, mercury-containing lamps are currently the most energy efficient lamps in common usage and may actually reduce total mercury releases to the environment. Production of energy from fossil fuels is the greatest ongoing source of mercury release and some claim the mercury released in producing electricity to power less efficient lamps releases more mercury than discarded fluorescent tubes.

The regulations balance the need for prescriptive management standards to prevent releases against the need to make proper management simple and inexpensive. Making management of lamps too expensive or complex will drive even more harmful illegal disposal. DTSC believes that the performance standards of the Universal Waste Rule are the best achievable balance between control of the wastes and the need to get the majority of the waste recycled.

DTSC agrees with the commenter that the recyclers need the closest scrutiny. This is the

reason the regulations require destination facilities, the recyclers and hazardous waste landfills to obtain authorization and comply with strict requirements.

I-15 *The higher the mercury content of lights and the more mercury used, the more mercury is likely to be emitted to air and deposited in lakes, streams, and estuaries.*

DTSC concurs that mercury content of lamps should be minimized. However, the true measure of minimization considers mercury content, lamp life, light output, and recycling rates. DTSC does not have sufficient information reasonably available to come to defensible conclusions about the relative lifespan of different lamps and thus the ultimate mercury release per lumen-hour.

Lacking sufficient dispassionate information to differentiate between different lamps, DTSC has instead determined that mercury release can best be minimized by requiring proper management and ultimate recycling of all lamps with intentionally-added mercury. This will prevent release from even the lowest mercury lamps.

Peter de Lijser

JJ-2 *The CDC estimates ten percent of women are at increased risk of miscarriage and birth defects, due to mercury in their bodies. Human activity accounts for 2/3 of today's mercury pollution.*

The facts stated in this comment are among the reasons why DTSC is adopting these regulations.

Fees - Advanced Disposal

CALPIRG Charitable Trust

H-13 *A differential advanced disposal fee would encourage use reduction and the development of alternatives, and would encourage recycling of products for which there are no alternatives.*

DTSC concurs that an advanced disposal fee would be one of a number of powerful and effective approaches to maximizing the recycling rate for mercury-containing wastes. However, DTSC does not have authority to establish advanced disposal fees, mandatory take back programs, toxic content taxes or fees, and many other effective approaches to promoting recycling and reduction of toxic constituents. This rulemaking represents DTSC's understanding of the most effective alternative for promoting recycling and proper management of mercury-containing wastes within the authority granted to DTSC.

Clean Water Action

J-3 *Commenter encourages DTSC to work with the legislature to develop an advanced*

disposal fee program for mercury-containing wastes such as lamps, appliances, and cars. The legislation should require assessment of new mercury-containing products that enter the market; should require manufacturers of mercury-containing products to pay the cost of disposing of the mercury; and should require manufacturers to take back nonessential mercury-containing products used in automobiles, such as thermostats and switches.

See the response to comment H-13 above, incorporated herein.

Naomi Trejo

FF-3 *We can stop the use of mercury in products through economic incentives, like an advanced disposal fee.*

See the response to comment H-13 above, incorporated herein.

Fees - Taxation of Toxic Products

Michael Pinkerton

EE-3 *All products containing toxic substances must be taxed, in a similar fashion to cigarettes and alcohol, to make them more expensive than less toxic alternatives.*

See the response to comment H-13 above, incorporated herein.

Fees – Recycling

500 Faxes

DD-5 *I hope the state in the near future will establish recycling fees for mercury-containing products.*

See the response to comment H-13 above, incorporated herein.

Robyn Martin

BB-6 *I hope the state in the near future will establish recycling fees for mercury-containing products.*

See the response to comment H-13 above, incorporated herein.

Universal Waste Management - Air Monitoring for Mercury

Sensient Technologies

AA-5 *The requirement for draining and switch removal to be done in well ventilated areas monitored for OSHA and Cal-OSHA Hg levels should be dropped: it's duplicative of OSHA and Cal-OSHA regs; monitoring is sometimes unnecessary and a waste of resources.*

DTSC concurs with this comment and has eliminated this provision in the 15-Day Notice of Changes.

Universal Waste Management - General Support

Electronic Industries Alliance

L-3 *The organization supports the regulation of certain mercury-containing equipment as universal wastes.*

DTSC acknowledges this support.

Physicians for Social Responsibility, Los Angeles

W-2 *Mercury-containing medical devices are regularly added to waste streams that contribute to mercury contamination. The organization supports the classification of these products "as universal or hazardous waste.*

DTSC agrees with the commenter's assertions and acknowledges this support.

Universal Waste - Petition Process to Add New Wastes

Waste Management

Z-2 *How is the proposed new petition process consistent with the expiration of the statutory authority (HSC section 25150.6) to add universal wastes?*

DTSC is responsible for implementing the State's federally equivalent hazardous waste program in California. The universal waste regulations are an element of that program. DTSC must incorporate the petition process in these regulations if it is to add the additional hazardous wastes (i.e., CRTs and CEDs) to the group of wastes that are allowed to be managed as universal waste and seek authorization for the regulations. (see U.E. EPA authorization checklists 142a and 142E). Thus, the petition process is necessary for authorization of the State's universal waste regulations. Health and Safety Code section 25150.6 authorizes DTSC to exempt certain hazardous waste management activities from

one or more of the State's requirements in Chapter 6.5 of the Health and Safety Code. DTSC is only allowed to adopt regulations that exempt hazardous waste management activities from requirements of chapter 6.5 if the regulations govern the management of a group of wastes specified in section 25150.6, subdivision (f), paragraph (1). The authority granted by section 25150.6 expires January 1, 2003, pursuant to subdivision (g). If or when, in the future, the Legislature again authorizes DTSC to exempt wastes from management requirements of Chapter 6.5, the petition process can be used to possibly allow additional wastes to be managed as universal waste.

Universal Waste Management - Recordkeeping Requirement for Small Quantity Handlers

OSRAM Sylvania

V-6 *DTSC should reconsider the imposition of new recordkeeping requirements on small quantity handlers of universal wastes. These requirements may be a disincentive to recycling--consider the unintended consequences.*

DTSC has decided to impose minimal recordkeeping requirements on some small quantity handlers to facilitate auditing of generators and subsequent enforcement, if necessary. As pointed out in earlier comments, regulations must be enforced to be effective. Without some level of recordkeeping, DTSC and CUPA inspectors cannot verify that a business has or has not properly managed its universal wastes by sending them to another handler or a destination facility. Thus, DTSC has determined that minimal recordkeeping is necessary to ultimately achieve the objectives of this rulemaking.

However, the recordkeeping requirement is imposed only on large and intermediate sized handlers of universal waste and is not imposed on the smallest businesses and households. These smaller types of entities are exempt from all universal waste standards except the requirement that the wastes be sent to a proper destination facility.

Only large quantity handlers are subject to recordkeeping under the federal Universal Waste Rule. These handlers have more than 5,000 kg of universal waste on site at any one time or about 11 tons. Under the federal rule, virtually all universal waste generators are excused from recordkeeping. Thus, an inspector cannot verify that these generators have properly managed their universal wastes.

DTSC has determined that the majority of handlers are more likely to properly manage their universal wastes if they can be held accountable for proper management. By having to provide at least rudimentary documentation of proper management, they are more likely to properly recycle their universal wastes. The commenter is most likely correct that recordkeeping can be onerous for the smallest generators of universal waste, those identified as conditionally exempt small quantity universal waste generators. There are also too many of these businesses for DTSC and the CUPAs to carefully inspect. Therefore, in order to facilitate proper recycling by these generators, DTSC has exempted

them from all but the requirement to send their universal wastes to a proper destination facility.

Universal Waste Management - Conditional Exclusion as an Alternative

Electronic Industries Alliance

L-7 *All mercury-containing waste electronic devices should be conditionally excluded, as U.S. EPA has done in its proposed rules.*

DTSC does not intend to make the recommended change to the proposal because the change would not be as protective of public health and the environment. Under a conditional exemption, no protective standards are in place to foster proper management (to prevent releases), to track large shipments, and to regulate the destination facilities. Note that a large percentage of the federal Superfund (cleanup) sites are former hazardous waste recyclers. DTSC does not want to add more contaminated sites to the superfund list.

L-7.1 *If electronic products are subject to solid waste management requirements, instead of being conditionally excluded, the regulations could discourage development of economic recycling efforts.*

The pre-recycling standards of the Universal Waste Rule are very simple and inexpensive performance standards and will not serve as a significant disincentive for recycling. The standards will, instead, create rudimentary tracking standards that will allow DTSC and the CUPAs to ensure that universal wastes are sent to a proper destination facility. Under the conditional exemption model, there is no paper trail to allow verification of recycling of the conditionally exempted wastes. Thus, the wastes can be discarded to the general environment without serious jeopardy if all identifiers of the generator are removed prior to discard.

Likewise, under a conditional exemption system, there is no regulatory control over the actual recycling operation. Recycling operations work with large quantities of hazardous materials. The marginal profits of these recyclers are small or non-existent, thus giving the recycler little incentive for proper and clean operation. Hazardous waste recyclers make up a large percentage of U.S. EPA's superfund list of the nation's most contaminated sites. The federal proposal is clearly based on compromise rather than environmental stewardship and will result in passing environmental degradation to future generations.

L-7.2 *Regulating electronics as universal waste, rather than conditionally excluding them, could stigmatize them as hazardous waste and make leasing property and obtaining insurance more difficult.*

DTSC completely disagrees with this contention. First, almost every business and household in the country generates one or more of the universal wastes. If a landlord is

not willing to lease to a hazardous waste generator, his property will stand empty. If an insurer will not insure a hazardous waste generator, it will not sell any insurance.

While there may be an argument that regulating electronics (and other universal wastes) as hazardous waste will make siting and insuring recycling facilities more difficult, that difficulty will reflect the level of risk associated with the physical act of managing and processing large volumes of hazardous materials. The actual physical hazards of the materials and their processing should rightly be understood by the lessor and the insurer.

L-7.3 *Conditional exclusion of electronic products is preferable to designating them as hazardous/universal waste because common carriers may be reluctant to carry hazardous waste (due both to the stigma of transporting universal waste and to the burdensome requirements). Members of the commenter's organizations have already encountered such reluctance.*

The standards in the regulations for universal waste transporters are simply the pre-existing U.S. Department of Transportation (DOT) rules applicable to the hazardous materials class in which the universal wastes have been placed. The standards are appropriate for transporting such hazardous materials and the U.S. DOT has deemed these standards necessary to ensure safe transportation. The same standards would apply regardless of whether the wastes are classified as universal waste or conditionally exempted.

The only standards beyond the U.S. DOT standards that apply under the Universal Waste Rule are the requirements for cleanup of any released universal wastes or universal waste constituents. DTSC doubts that any jurisdiction would allow spills of hazardous materials to remain without requiring cleanup and/or compensation for cleanup by local emergency responders. Thus, these or similar standards will apply regardless of the classification of the waste materials.

In the United States, there is excess capacity for transporting goods; large transportation firms have failed recently. DTSC has no information indicating that the “stigma” of the universal waste label will dissuade transporters from shipping universal wastes.

L-7.4 *Conditional exclusion of electronic products is preferable to designating them as hazardous/universal waste because the universal waste rule has not been implemented uniformly in all states.*

See response to comment L-7 for reasons why DTSC has rejected conditional exclusion. Other states’ regulation of hazardous waste is not always consistent with California. DTSC must determine the best way to protect public health and the environment on a case-by-case basis.

Micro Metallics Corporation

S-3 *Conditionally excluding from classification as solid waste products that are free of*

mercury switches and lamps will ensure switch removal prior to crushing of cars and products, and promote removal and recycling.

Under California law "solid waste" is defined in section 40191, subdivision (b), paragraph (1) of the Public Resources Code as not including hazardous waste. The authority to implement the definition of "solid waste" rests with the CIWMB. Thus, DTSC has no authority to exclude products free of mercury switches and lamps from classification as "solid waste" and cannot accommodate this comment. If the comment refers to the federal definition of "solid waste", DTSC has rejected the concept of conditional exclusion for the reasons cited in response to comment L-7, incorporated herein.

Universal Waste Management - Lamps - Recycling Requirement

AERC Recycling Solutions

A-3 *Require recycling of all mercury- containing lamps*

DTSC partially concurs with this comment. The regulations require recycling of all lamps with "intentionally-added mercury". Ever more sensitive analytical techniques are approaching the point where small traces of mercury can be found as unintentional constituents in most objects on the planet. Thus, the regulations apply only to lamps with intentionally-added mercury and lamps with incidental mercury content above existing toxicity characteristic thresholds.

A-4 *Copy other states approaches to lamps: Require or encourage recycling.*

Although DTSC has not completely copied any other state's approach to lamps, these regulations incorporate features found in many states' regulations because they require recycling of most mercury-containing lamps.

Californians Against Waste

F-1.2 *We support the designation as universal waste when recycled because it gives an incentive for recycling.*

DTSC acknowledges the support.

F-6 *Large generators should be required to provide a "compliance certification" of recycling to DTSC. Targeting the largest generators would deal with 80% of the lamps.*

DTSC agrees that requiring a "compliance certification" that lamps have been recycled would be a good alternative method for regulating generators. However, there is a wide variety of alternatives available for managing universal wastes. Initially, DTSC has chosen management standards that are generally substantially equivalent to the federal Universal

Waste Rule management standards. DTSC will be monitoring both compliance with the existing Universal Waste Rule and complaints detailing illegal disposal. The actual recycling rate at the State's lamp recyclers will be an important measure of the success of the program.

If the State's experience with the existing Universal Waste Rule shows that more prescriptive standards or a greater ability to track and verify would be more effective at diverting lamps and other universal wastes from landfills, alternatives such as the suggested compliance certifications may be adopted by future rulemakings.

F-7 *Ultimately, a front end financing mechanism is needed to ensure development and participation in a recycling system. DTSC should provide leadership on this issue in the Legislature.*

See the response to comment H-13 above, incorporated herein. DTSC and the CIWMB are co-chairing a Cal/EPA project to develop solutions for management of universal waste by smaller commercial and household generators. Establishing a front end financing mechanism is outside the scope of this rulemaking and DTSC's authority.

Universal Waste Management - Mercury-Containing Motor Vehicle

Northern California Auto Dismantlers Association

HF-2 *This organization is not sure whether dismantlers are expected to remove the mercury from the switches, or "take these switches out as they are."*

The regulations allow universal waste management after the switches are removed. However, universal waste management standards do not allow dismantling of the actual switch because switches are very difficult to dismantle without release of the mercury. Thus, dismantlers are simply expected to remove intact switches and send them, intact, to another handler or a mercury recycler.

Universal Waste Management - Mercury-Containing Motor Vehicle Switches - Certification of Removal

Institute of Scrap Recycling Industries, Inc.

Q-7 *A similar Certification program for CFC removal has afforded little protection. One false step by a mistaken or untruthful supplier (of vehicles or appliances) would subject a recycler to full hazardous waste liabilities.*

DTSC removed the requirement for certification of switch removal in the 15-Day Notice of Changes. By removing the certification requirement and limiting the removal requirement necessary to exit the M001 listing to light switches, the regulations allow simple

compliance without the threat that incorrect certification will subject scrap metal recyclers to full hazardous waste management standards.

State of California Auto Dismantlers Association

D-5 *The regulations should clarify that switches that are part of an assembly intended for resale are not waste and are not covered by the rule and listing.*

DTSC has accommodated this comment in changes in the 15-Day Notice of Changes.

D-6 *The auto dismantler should only be required to certify that the switches have been removed to the best of his knowledge. He cannot know where all the mercury switches are located.*

See the response to comments Q-7 above, incorporated herein.

D-6.1 *The certification should be allowed to be on the bill of lading or other existing paperwork.*

In the 15-Day Notice of Changes, DTSC eliminated the certification requirement.

Universal Waste Management - Mercury-Containing Motor Vehicle Switches - Safe Removal

State of California Auto Dismantlers Association

D-7 *Switches must be handled in a manner consistent with OSHA. Spills would have to be hazardous waste. There are many unanswered questions about removal containers, removal methods, liability, fire issues, and safety.*

DTSC concurs that switches must be handled in a manner consistent with OSHA and Cal/OSHA standards, as must all workplace activities in the state. However, spill residues must be handled as hazardous waste only if they exhibit a characteristic of a hazardous waste. There may, indeed, be other questions that the commenter would like answered, addressing the topics listed, but DTSC cannot answer these questions unless the

questions are identified. Note that DTSC has considered the issues above and has determined there is no need for further changes to the regulations.

Universal Waste Management - Existing Universal Wastes

Peter Cornelius

MM-1 *A battery recycle cart in a local hardware store wasn't being used and a photo shop*

would not take back batteries.

This comment raises serious issues that are being addressed by DTSC, but the issues are outside the scope of this rulemaking.

MM-2 *Raise awareness within the construction workers and provide an incentive for them to collect the switches and send them to well-published collection places. Suggest installing a box at each County Planning office--this is where contractors often go.*

This comment raises serious issues that are being addressed by DTSC, but the issues are outside the scope of this rulemaking. DTSC will keep these suggestions in mind and consider them in the joint Cal/EPA Universal Waste Infrastructure Workgroup, one of whose tasks is educational outreach.

MM-3 *Here's my battery 3-step proposal: make and enforce a law guaranteeing those consumers can return batteries of all kinds to any store, free of charge; establish a program for stores to recycle batteries in bulk; fund recycling with a levy on each battery.*

Although the commenter's suggestions have clear merit, the actions suggested are all beyond the statutory authority granted to DTSC and/or outside the scope of this rulemaking.

Price Consulting, Representing Appliance Recycling Centers of America

X-9 *The proposed regulations, while very broad in many respects, do not include temperature control devices in appliances. ARCA urges the department to add these devices to the proposed rules.*

Temperature control devices containing-mercury in all types of devices and structures were incorporated into the State's original Universal Waste Rule as "thermostats." All mercury-containing thermostats are also mercury switches and all mercury-containing thermostats would be eligible for either or both classes of universal waste under these regulations.

Hazardous Waste Listing - M002 – Enforcement

X-10 *The proposed regulations regarding mercury switches in appliances will only have a beneficial effect if the real problem--adequate inspections and enforcement to implement the law--is solved.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. Please see the responses to comments X-2, X-3, and X-7.

Universal Waste Management - Mercury-Containing Rubber Flooring

Lucas Associates

R-3 *DTSC should reconsider including floor mats in their definition of hazardous waste. Unlikely these products would have appreciable free mercury that would leach or disassociate into the environment.*

The floor mats contain mercury above the pre-existing TTLC and have been classified as hazardous waste when discarded since the waste classification rules were adopted in the early 1980's. Various issues including the potential to leach and direct exposure to humans and the environment were considered in establishing the TTLC for mercury. If the floor mats do not exceed existing hazardous waste criteria, they do not need to be managed as universal waste.

J-9 *Ultimate disposition of mercury-containing wastes out-of-state, where laws are weaker, is a concern. This could present an environmental justice issue.*

DTSC can only control recycling and management of universal wastes inside the State of California and other states must control recycling within their own states. Each state must work independently and with the federal government to promote environmental justice. Requiring recycling of mercury corrects imbalances in mercury exposure for both environmental justice communities near solid waste facilities and those communities relying on fish from the State's fresh waters for sustenance.

Sensient Technologies

AA-4 *It seems irresponsible to require recycling, in light of the fact that all recycling facilities (aside from lamp recyclers) are out-of-State. California should do everything possible to encourage in-state mercury recycling facilities.*

While it is important to encourage in-state facilities to manage the State's waste, DTSC has no authority to forbid out-of-state shipment of mercury-containing wastes. DTSC also cannot create recycling facilities. However, creation of a sure market for recycling resources will provide encouragement for siting of mercury recyclers in California or in the west. Necessary efficiencies of scale probably prevent siting of a mercury recycler in every state.

Cal/EPA Universal Waste Management - Recycling Requirement – Infrastructure Workgroup

Center for Environmentally Advanced Technologies

I-24 *DTSC's proposal doesn't promote the major infrastructure that would be needed to achieve high recycling rates. Funding an infrastructure is likely to be a growing*

problem, due to dwindling budgets. Several cities have been cutting back their recycling programs to save money. The commenter questions whether California can fund a recycling infrastructure that will ensure even a modest gain in lamp recycling rates.

DTSC does not have the authority to create infrastructure. The regulations themselves, by establishing a certainty that the wastes will be regulated, do promote establishment of infrastructure.

Note, however, that the Cal/EPA Universal Waste Infrastructure Workgroup will explore all the ways that Cal/EPA can promote infrastructure and will work with other stakeholders to explore both private and public sector options for infrastructure development.

USHIO Lighting Edge Technologies

Y-3 *All mercury-containing products should be managed properly, through an infrastructure that provides economically viable recycling.*

DTSC agrees that all products with significant amounts of mercury should be properly managed. However, increasingly sensitive analytical equipment will ultimately detect even a few atoms of mercury in virtually any material on earth. Materials with very low mercury concentrations do not need to be managed specially due only to their mercury content.

DTSC agrees that a robust infrastructure is needed. However, it need not be independently economically viable in the same manner that recycling of steel and aluminum waste is today. Mercury should not be released into the environment and some cost is acceptable for properly managing mercury in the same manner that additional costs are required for managing hazardous waste when compared to non-hazardous waste. Clearly, however, someone must pay for recycling mercury-containing wastes and identifying both who should pay and how to do it most efficiently will be explored with all the mercury waste stakeholders in the Cal/EPA Universal Waste Infrastructure Workgroup.

Dental Amalgam – General

California Citizens for Health Freedom

E-1 *Amalgam fillings should not be referred to as "silver". This is a deceptive*

See response to comment HG-7, incorporated herein.

E-2 *The ADA has a gag order on member dentists regarding the mercury content of fillings.*

This comment is not germane to this rulemaking.

Clean Water Action

J-15 *We support the prohibition on the placement of amalgam waste into medical waste containers.*

DTSC acknowledges and agrees with this comment. Amalgam waste may not be placed into medical waste containers and still be eligible to be managed according to the streamlined standards of the Universal Waste Rule.

Consumers for Dental Choice

K-11 *The public is angry. The legislature shut down the California Dental Board (CDB) for failing to enforce the 1992 (Dental Fact Sheet?) law. Advocacy groups are paying attention too.*

This comment is not germane to this rulemaking.

K-16 *When it leaves the mouth, dental amalgam is hazardous waste.*

The commenter is mostly correct. Note that hazardous waste dental amalgam that is not exempt as “scrap metal” (bits and pieces) may be managed as universal waste under this rulemaking.

K-17 *Those who generate this hazardous waste should pay for its proper disposal or, better, should stop using it.*

DTSC concurs that the generator of the amalgam waste is responsible for proper management of the waste.

K-18 *"The best way to stop pollution is at its source."*

DTSC has no authority to ban the use of specific products. DTSC can only regulate management of the material after it becomes waste.

K-2 *Each filling has enough mercury to "ruin" a 10-acre lake.*

DTSC has not verified this calculation. However, there is sufficient mercury and silver in dental amalgam so that waste amalgam that is not “scrap metal” would be a hazardous waste.

K-3.2 *The California Dental Association is being given special treatment in these regulations.*

DTSC disagrees but cannot refute this argument in detail without specific facts that support the allegation.

K-8 *Generators of hazardous wastes should pay for it.*

DTSC acknowledges the comment. Generators are responsible under both State federal and local law for "cradle to grave" management of their hazardous wastes.

K-9 *Dentists don't have to use mercury. Alternatives are used for middle class whites, but not for poor, minority patients.*

This comment is not germane to this rulemaking.

Dental Amalgam – Enforcement

Dental Amalgam - Universal Waste

California Citizens for Health Freedom

E-3 *Calling any amalgam waste "Universal Waste" leaves a big loophole that will be exploited to allow casual discharge of huge amounts of highly bioactive mercury waste to the POTWs, into the waters of the State, and into the food chain.*

DTSC disagrees with the commenter's assertion(s). Universal waste dental amalgam is not allowed to be discharged to the drains or anywhere else other than another handler or a destination facility. There are no loopholes that would allow illegal disposal; such disposal would be illegal and subject to hazardous waste enforcement.

California Dental Association

G-1 *CDA supports the proposed regulations and believes that management as universal waste will help prevent disposal to the land and the waters of the State.*

DTSC acknowledges this support.

Consumers for Dental Choice

K-5 *Cal/EPA is "ducking" the problem by recategorizing dental mercury as universal waste, rather than hazardous waste.*

The commenter's assertion is incorrect. Universal waste is hazardous waste under the State's laws and is eligible for special management standards.

Dental Amalgam - Discharge to Sewer

American Academy of Biological Dentistry

B-2 *Dentists should not be exempted from rules about disposal of mercury to the sewers.*

DTSC acknowledges this comment.

Dentists are not exempt from regulations concerning disposal of hazardous wastes and have never been. This rulemaking will simplify management of amalgam wastes, but will require recycling and will not allow disposal under the Universal Waste Rule.

California Citizens for Health Freedom

E-5 *There should be stiff fines and jail for violators.*

Violators of the universal waste rule are subject to the same enforcement program as other hazardous waste generators, transporters, and facilities. Article 8 of Chapter 6.5 of the Health and Safety Code provides for administrative, civil, and criminal enforcement, fines of up to $25,000 per day, per violation, and imprisonment for persons criminally convicted. See also responses to comments CC-4, DD-4, J-1, J-2, J-4, R-2, HH-2, and public hearing comment HD-4, incorporated herein.

Consumers for Dental Choice

K-1 *Dentists are the largest source of mercury in wastewater.*

DTSC has no information that would corroborate or deny this assertion. However, as discussed in the response to public hearing comment HG-2, the regulations adopted today will provide an incentive for proper disposal and a reduction in sewer disposal of waste amalgam.

K-10 *Dentists have failed to comply with Proposition 65 for 16 years. Is DTSC going to wait that long to stop dentists from discharging mercury in the sewer?*

DTSC acknowledges this comment. However, it does not make suggestions germane to the regulations being adopted and is outside the scope of this rule making.

K-12 *ADA and CDA are protecting dentistry from enforcement of hazardous waste laws.*

This comment is not germane to this rulemaking.

K-14 *Unless there is a law exempting dentistry from hazardous waste requirements, DTSC has "no right to create this exemption."*

There is no statute exempting dentists from the hazardous waste control requirements. Upon adoption of these proposed regulations, amalgam will be eligible to be managed under streamlined universal waste standards if it is recycled. If the amalgam is not to be recycled, the generators will be required to continue to comply with the general hazardous waste control regulations.

K-4 *Regulators don't act against dentistry. Dental associations in San Francisco, Northern Virginia, and Seattle have said they would act voluntarily (to reduce the discharge of mercury to the sewer?) but have not.*

This comment is not germane to this rulemaking.

Dental Amalgam - Toxicity

O-3 *DTSC should investigate whether dental offices are illegally discharging hazardous waste to sewers. A recent study found mercury in excess of the STLC of 20 mg/kg in dental waste water, even with amalgam removal equipment installed.*

DTSC acknowledges this comment. As understanding of the extent of mercury contamination in California increases, State efforts and initiatives will address mercury contamination, both historic and ongoing. However, this rulemaking addresses classification and management and does not address enforcement issues. Thus, the comment is beyond the scope of the rule.

Dental Amalgam - Ban

American Academy of Biological Dentistry

B-1 *Amalgam fillings are toxic. Dental amalgam fillings should not be put into Humans.*

The comment's suggestions are beyond the scope of both this rulemaking and the authority granted to DTSC.

B-5 *Abolish the use of dental amalgam by a certain date.*

See response to comment B-1, incorporated herein.

Consumers for Dental Choice

K-24 *Commenter submitted a Reuter's article, reporting a US Senate vote on a bill that would ban the sale of mercury fever thermometers. The Senate passed the bill and sent it to the House of Representatives.*

Mercury fever thermometers can no longer be sold in this State without a prescription so California has already taken the actions described in this article. However, the comment makes no suggestion or objection to the subject rulemaking and is not germane.

K-3.1 *Regulatory agencies have required removal of Hg from batteries, regulated other mercury users, but gives dentists a "free ride."*

DTSC only has authority to regulate mercury-containing products when they become waste. DTSC has no authority to ban mercury-containing products; thus, this comment is not germane to this rulemaking.

Shannon Gaida

KK-7 *We need to outlaw the use of mercury in tooth fillings, as more far-sighted countries have already done.*

See response to comment B-1, incorporated herein.

500 Faxes

DD-3 *All dentists should be required to use state-of-the-art amalgam separators for each chair, and clean them regularly.*

Generally, the composition of discharges to the sewers is enforced by the inspectors of the sewer agency. However, discharge of hazardous waste to the sewers in California constitutes illegal disposal of a hazardous waste because the State has not excluded mixtures of hazardous waste and domestic sewage from the definition of hazardous waste as has the federal government. However, DTSC is not addressing standards for sewer discharge or for treatment of amalgam containing wastewaters in this rulemaking. Discharges of hazardous waste can be addressed by existing DTSC and CUPA inspection and enforcement staff and can be prevented under existing law with no changes to these proposed regulations.

American Academy of Biological Dentistry

B-3 *Require that all dentists use separators to trap amalgam.*

See response to comment DD-3 above, incorporated herein.

B-4 *Voluntary compliance will not work (for above).*

See response to comment DD-3 above. Note that compliance with existing prohibitions on disposal of hazardous waste to unauthorized places is not a voluntary issue.

California Citizens for Health Freedom

E-4 *DTSC should require separator equipment in every dental office. Require all sinks and vacuums to be attached. Voluntary compliance has failed.*

See response to comment DD-3 above, incorporated herein.

E-6 *There must be field inspections of dentist's equipment.*

DTSC concurs that inspection of dentists by DTSC and CUPA staff could determine the regulatory status and the legality of their discharges to the sewers. However, this rulemaking does not address enforcement or enforcement priorities and the comment is outside the scope of this rulemaking.

CALPIRG Charitable Trust

H-9 *DTSC should require dental offices to adhere to strict guidelines for the kind of amalgam separator or trap used to collect the waste.*

See the response to comment DD-3 above, incorporated herein.

Clean Water Action

J-13 *Amend the proposal to require dentists to install amalgam separators.*

See the response to comment DD-3 above, incorporated herein.

J-14 *Require dentists to keep records of installation of pollution prevention equipment and amalgam use.*

See the response to comment DD-3 above. Note that DTSC is requiring simple recordkeeping and tracking of universal waste dental amalgam. DTSC has no authority, however, to require records of amalgam use because amalgam is a product until discarded, when it becomes a waste and enters the scope of DTSC's authority.

Consumers for Dental Choice

K-13 *American Academy of Biological Dentistry supports a mandate for amalgam separators.*

See the response to comment DD-3 above, incorporated herein.

K-6 *Dentists don't have to buy equipment and are not subject to registration or Reporting.*

See the response to comments DD-3 and J-14 above, incorporated herein.

K-7 *Amalgam separators cost only $3000, their gross per chair per day.*

See the response to comment DD-3 above, incorporated herein.

Robyn Martin

BB-3 *All dentists should be required to use state-of-the-art amalgam separators for each chair, and to clean them regularly.*

See the response to comment DD-3 above, incorporated herein.

Dental Amalgam - Education

California Citizens for Health Freedom

E-7 *DTSC should have dental education programs.*

DTSC will educate dentists and other persons managing universal waste dental amalgam about the proper management of waste dental amalgam. However, the comment is outside the scope of this regulation and educating consumers about the hazards of amalgam fillings is outside the scope of DTSC's authority.

Dental Amalgam - Documents Submitted

American Academy of Biological Dentistry

B-6 *Commenter submitted a copy of a resolution, by the National Black Caucus of State Legislators. The resolution recommends that states should enact laws informing consumers about the composition of silver amalgam fillings and their potential health effects, and that states should enact laws to provide patients on Medicaid and those with moderate income the option to choose alternatives to silver amalgam fillings.*

DTSC interprets this document to be a suggestion that DTSC undertake the actions described in the resolution. However, the actions are outside both the scope of this rulemaking and DTSC's authority to adopt regulations. Also, dentists are required by Business and Professions Code section 1648.15 to provide a Dental Materials Fact Sheet to new patients.

B-7 *Commenter submitted a document printed from a web site called ToxicTeeth.org. The document alleges that the American Dental Association has not been forthcoming about the potential hazardous of dental amalgam. The document suggests links between silver amalgam*

fillings and a number of human illnesses, including autoimmune diseases, and states that federal legislation banning dental amalgam is needed. Until such legislation is adopted, the document says, the public "must have the right to know about the mercury before it is placed into their teeth" and should be given the option of non-mercury fillings at the same cost as

See the response to comment B-6, incorporated herein.

B-8 *Commenter submitted 24 pages of data on the cost of silver amalgam and composite resin fillings. The first page has the heading "Average Cost Of Dental Care In All US Cities (Average Values).' Each of the other 23 pages contains data for the average and high fees for various types of dental restorations in various cities and counties in California. These pages appear to have been printed from the URL: www.bracesinfo.com.*

See the response to comment B-6, incorporated herein.

California Dental Association

G-2 *Commenter submitted a copy of a technical presentation titled 'Dental Mercury: Pollution Prevention & Waste Management Practices For The Dental Office." The presentation compares the effect on mercury discharges of mercury to the sewer under several scenarios. Without BMPs or amalgam separators, an office doing 7 amalgam fillings per day would discharge 3.6 grams of mercury per day. Adding a vacuum separator would reduce this amount by 0.5 grams to 3.1 grams per day. BMPs without a separator would reduce the discharge by 2.8 grams to 0.8 grams per day. BMPs and a separator together would reduce the discharge to 0.4 grams per day, while doing all of the above in addition to replacing the "wet" cuspidor with a "dry" cuspidor would reduce the discharge to only 50 milligrams per day. The presentation suggests that absent BMPs, separators would cause only a modest reduction in the mercury going to the sewer.*

The information presented is very interesting and suggests that there are solutions to help dentists to reduce their mercury discharges. However requiring Best Management Practices (BMPs) and separators is outside the scope of this rulemaking. See also the response to comment DD-3, incorporated herein.

Consumers for Dental Choice

K-19 *Commenter submitted a copy of a press release from his organization, accusing Cal/EPA of adopting a "don't ask, don't tell" policy toward dentists who place amalgam fillings. The press release criticizes DTSC because the proposed mercury regulations do not require dentists to install amalgam separators, and cites a recent report entitled "Dentist the Menace?" that*

found dental offices to be the largest source of mercury in the nation's wastewater.

See the response to comment DD-3 above, incorporated herein. Cal/EPA does not have a "don't ask, don't tell" policy toward dentists and mercury discharges. The fact that there has not yet been aggressive enforcement of the prohibitions on illegal disposal by dentists, results from the distribution of scarce enforcement resources at the state and local level (CUPAs also regulate hazardous waste generators), not from any agency's policies.

K-20 *Commenter submitted a copy of a letter from the American Academy of Biological Dentistry, commenting on the proposed regulations. The letter was also received directly from this organization, and its comments are summarized and responded to separately.*

See the responses to comments from the American Academy of Biological Dentistry, commenter B.

K-21 *Commenter submitted a document with the heading "Information from Global Mercury Assessment." The document summarized requirements imposed in various countries to control the release of amalgam (primarily for installation of amalgam separators).*

DTSC interprets this comment to be requesting that DTSC incorporate similar standards into this rulemaking. See the response to comment DD-3, incorporated herein.

K-22 *Commenter submitted a press release from the United Nations Environmental Programmer, announcing a UN meeting on the environmental health impacts of mercury. The document briefly discusses the risks of mercury, its behavior in the environment, human use and release of mercury, and government regulation to control mercury. The meeting was held from September 9 through 15 in Geneva, Switzerland.*

DTSC acknowledges receipt of this information. Note that the facts referred to in this document are the same facts that form the scientific basis for this rulemaking.

K-23 *Commenter submitted an article from the Associated Press, discussing a UN meeting on the environmental health impacts of mercury. The document briefly discusses the risks of mercury, its behavior in the environment, human use and release of mercury, and government regulation to control*

See response to comment K-22 above, incorporated herein.

K-25 *Commenter submitted a report entitled "Dentist the Menace?" which finds those dental offices are the largest single source of mercury in wastewater treatment plant. The report recommends several measures to reduce the discharge of dental mercury, including Best Management Practices (BMPs) and requiring the use of amalgam separators.*

See the response to comment DD-3 above, incorporated herein.

K-26 *Commenter submitted copies of a petition to ban the use of mercury in dentistry, with 15 pages of signatures. The petitions appear to be in support of a bill in the U.S. Congress: "Watson-Burton Bill #4163."*

DTSC interprets this comment to be a suggestion to ban the use of mercury in fillings, an action which is beyond the scope of these regulations and DTSC's authority to adopt regulations.

Hazardous Waste Listing - General

1000 E-mails

CC-5 *We need to be able to add new products to the list, which is not inclusive of all mercury-containing products used in California. DTSC needs an established process for considering the addition of other products.*

DTSC is adopting a petition process for designating new universal wastes in this rulemaking. While the addition is necessary to allow the State to become RCRA authorized for wastes already added to the list of universal wastes, DTSC will not be able to allow management of additional wastes in a manner that varies from statute in the future without re-establishment of the statutory authority of Health and Safety Code section 25150.6.

500 Faxes

DD-2 *The regulations should not be weakened, particularly in regard to the listings of mercury-containing lamps and discarded appliances and vehicles with mercury switches.*

DTSC acknowledges these comments. However, as explained in the FSOR, DTSC removed the certification requirement (15-Day Notice of Changes) because it would require firms to certify that all switches have been removed when there could be switches that the dismantler was aware of left in the vehicle. For the same reason, the listing description was limited to only vehicle light switches. Switches whose presence or absence would not be apparent include original equipment switches such as some antilock brake switches and after-market switches such as theft alarm switches. Detailed guidance, equivalent to the type of guidance available for light switches, is not available for these other types of switches.

Californians Against Waste

F-1.1 *We support the proposal that virtually all mercury-containing products be*

managed as hazardous waste when disposed.

See the response to public hearing comment HC-2, incorporated herein.

Electronic Industries Alliance

L-1.1 *The organization is concerned that the proposed regulations will result in the imposition of new regulatory requirements on non-hazardous electronic products that are already being diverted from the municipal waste stream for recycling. Adding universal waste management requirements to these products could actually discourage recycling. Instead of listing these products, DTSC should pursue voluntary options, including generator education, development of collection events.*

DTSC is placing no new requirements on non-hazardous electronic products with the possible exception of large assemblies such as automobiles and very large appliances with only one or two mercury switches. Virtually all the other products addressed by these regulations are currently identified as hazardous wastes due to their intrinsic chemical makeup. That is, their mercury (or other constituents) make the hazardous wastes under existing law.

DTSC has determined that voluntary efforts will not succeed in diverting a significant amount of mercury from the solid waste stream because there is no economic incentive to do so and businesses are primarily motivated by profit.

Note that education and outreach are not proposed in these regulations, but will be part of DTSC's implementation of the regulations.

L-1.3 *DTSC should carefully consider the policy and precedential impacts that the new hazardous waste listings will have on the state's hazardous waste management program before finalizing these regulations.*

DTSC has considered all aspects of these regulations known to DTSC and to various stakeholders, including issues raised by the commenters for the regulations, and has determined that the chosen alternative, as modified by the 15-Day Notice of Changes, is the best alternative. As a precedent, the listing will act as a model for any future rulemakings that address wastes that pose a hazard and meet the criteria for designating universal waste.

Onyx Environmental Services

U-3 *All mercury-containing devices should be managed as hazardous wastes to reduce the estimated 17.3 tons of mercury disposed in non-hazardous waste landfills in 2000. DTSC should not allow disposal of low mercury lamps for another three years, as proposed, when recycling capacity and technology already exist. DTSC should consider a 6-month delay, instead.*

DTSC is adopting these regulations to reduce the amount of mercury going into, and being released from, non-hazardous waste landfills. However, as explained in the response to public hearing comment HC-2, DTSC is regulating discarded products with intentionally-added mercury under the new listings rather than all discarded products containing any mercury.

DTSC has carefully planned the activities necessary to develop infrastructure to handle universal wastes from households and smaller businesses and has determined that the February 9, 2006 date is appropriate. Six months delay would not allow sufficient time to even gain the interest and cooperation of the various stakeholders in mercury waste management, let alone come to conclusions and implement the chosen actions. Note that low mercury lamps would become hazardous wastes effective February 9, 2004 and large quantity handlers will be required to manage them as hazardous waste or universal waste. Households and small businesses will not be subject to the same requirements until 2006.

Waste Management

Z-3 *A solid waste facility or service provider who unknowingly receives hazardous waste items, including mercury-containing items, should have responsibility and liability limited to: load checks; customer notification of unacceptable wastes; gate signs.*

The liabilities of a solid waste facility or service provider for the inadvertent receipt of universal waste are no different than they are for the inadvertent receipt of hazardous waste. The rules that would address these liabilities are not being changed in this rulemaking; thus, the comment is outside the scope of this rulemaking.

Hazardous Waste Listing - M001- Support

J-16 *DTSC should consider an entire vehicle with switches inside as hazardous waste.*

DTSC acknowledges this support. Note, however, that this classification as hazardous waste has been modified so that vehicles are hazardous waste (based on mercury) only if all the mercury-containing light switches have not been removed. The reasons for these changes are detailed in the FSOR.

Hazardous Waste Listing - M001 - Opposition

California CUPA Forum Board/HW TAG

N-2 *In designating scrap automobiles as hazardous waste based on failure to remove mercury switches, the regulations are too inclusive. The listing seems to*

conflict with the scrap metal exemption and is too difficult for CUPAs to enforce.

DTSC has partially accommodated this comment by modifying the classification so that vehicles are hazardous waste only if all the mercury-containing light switches have not been removed. The reasons for these changes are detailed in the FSOR. The listing does not conflict with the scrap metal exemption because the listing is later enacted and would, where applicable, supersede the scrap metal exemption. Note that the scrap metal exemption is intended to apply to scrap metal that offers hazards only due to the metal being recycled rather than due to other constituents (e.g., free-flowing oil or mercury-containing switches). This regulation is consistent with and supplements the scrap metal exemption.

DTSC does not agree that this regulation is too difficult for the CUPAs to enforce. DTSC is developing (and many other organizations have developed) documents identifying which vehicles contain mercury-containing light switches, their location, and removal procedures for the switches. It will be simple for the CUPAs to verify whether or not switches have been removed from particular vehicles. Note that DTSC also gives (and will continue to give) extensive training to the CUPAs on new program directives.

Institute of Scrap Recycling Industries, Inc.

Q-10 *The proposal would not require automakers to disclose the uses and locations of mercury switches.*

The comment is correct. DTSC does not have authority to order auto manufactures to disclose the uses and locations of mercury switches because DTSC's authority extends to hazardous wastes, not products.

Q-11 *"The rulemaking also falls short of various administrative procedures, including reasonable estimates of implementation costs and negative effects on California businesses. . . .. Fortunately, the Department is required to consider alternatives, which (the commenter's) (proposed model) legislation provides. The model legislation would require auto manufacturers to establish a fund to replace mercury switches, collect, and properly manage them. It would also order a phase out of the mercury switches.*

DTSC has met all administrative requirements for these regulations, including estimating implementation costs and negative effects on California businesses. It has used all information reasonably available, as required by statute, to determine such impacts. The proposed model legislation could not be considered as an alternative because the solutions presented are beyond DTSC's authority to adopt regulations. Note that the legislature has already ordered a phase out of at least some of the mercury-containing switches (light switches).

Q-3 *U.S. automakers have shown that without facing any consequences for their poor design choices, they will not design products for recycling.*

Because DTSC can not adopt regulations governing products that are not yet waste, this comment is beyond the scope of DTSC's authority to adopt regulations.

Q-4 *The organization's adopted a policy last year that recommends that "to the maximum extent practical," mercury switches be removed from end-of-life vehicles before delivery to scrap recyclers.*

DTSC interprets this comment as stating that the actions detailed above are appropriate and should supplant or be duplicated in the regulation. DTSC has partially concurred with this suggestion by limiting the M001 listing to mercury-containing vehicle light switches that can be practicably removed (those in vehicles that cannot be removed due to accidental damage do not trigger this listing). However, DTSC has chosen to make the listing mandatory because it believes that voluntary recommendations will not achieve the objectives of this rulemaking, given the economic incentives to leave the switches in place.

Q-5.1 *Placing the financial burden for mercury switch recovery on consumers will not encourage manufacturers to avoid using hazardous materials in the future.*

DTSC finds that the comment is at least partially true. However, DTSC does not have authority to establish fees, deposits, mandatory take backs, and/or other incentives for eliminating the use of hazardous materials in vehicles and other products. DTSC has authority to establish classification and management standards for hazardous wastes and can only use those standards to act as incentives or disincentives for manufacturers to avoid hazardous material usage. Such incentives or disincentives occur because the product becomes a hazardous waste at the end of its lifetime and the consumer must manage the waste in a more expensive manner than the way non-hazardous products are managed. The incentive comes because the consumer can be expected to avoid products that will be more expensive to dispose, all other factors being equal.

Q-6 *The proposal would be unworkable and would harm the recycling industry by imposing unreasonably broad and burdensome classification requirements that wouldn't promote Design for Recycling.*

DTSC disagrees with the commenter's assertion. First, DTSC has partially accommodated the commenter's objections to the proposed regulations by limiting the scope of the M001 listing. See the response to public hearing comment HD-2 and the FSOR for the M001 listing, incorporated herein, for further discussion.

Q-8 *The listing would put scrap recyclers at a competitive disadvantage with companies that produce the same commodities from raw materials. Also, recyclers would be stigmatized as hazardous waste handlers, facing unfair suspicion and inappropriate community opposition.*

DTSC agrees that there will be slight increased costs for production of scrap metal to substitute for raw materials. The economic analysis that accompanies these regulations

indicates, that any increased costs for recycled metal would be minor and DTSC does not expect that these costs would upset the recycled metals market.

Note that all vehicle dismantlers are already generating and handling other hazardous wastes and would not be newly identified as hazardous waste handlers due to these regulations. Dismantlers handle waste oil, waste fuels, lead-acid storage batteries, air bag canisters, and other hazardous wastes outside of these regulations.

Note also that the auto shredder would not be handling hazardous waste unless they accept vehicles from which the mercury-containing light switches have not been removed, as required by these regulations. An auto shredder practicing due diligence would require that all dismantlers sending vehicles for shredding remove the subject mercury-containing light switches, along with the other hazardous materials found in waste vehicles.

Q-9 *No other state has taken the drastic and unwise step of inappropriately classifying end-of-life vehicles as hazardous waste.*

DTSC has not found another state that has duplicated the listing of end of life vehicles with mercury-containing light switches that are practical to remove. However, DTSC does not agree that this action is either unwise or drastic. The presence or absence, location, and removal methods for mercury-containing light switches in most vehicles are set forth in many documents, including documents that DTSC is preparing in response to the Legislature's mandate to do so. DTSC believes that it is simple and minimally burdensome to remove these switches and that the listing is the most effective means of ensuring removal within the authority granted to DTSC.

Physicians for Social Responsibility, Los Angeles

W-4 *The voluntary provision that mercury switches be removed from vehicles prior to crushing is not sufficiently protective of public health. We strongly support listing of vehicles containing mercury switches as hazardous waste.*

DTSC acknowledges this support. However, the requirement has been limited to removal of mercury-containing light switches as discussed in the FSOR discussion of the M001 listing.

Hazardous Waste Listing - M001 - Opposition - Documents Submitted

Institute of Scrap Recycling Industries, Inc.

Q-5 *Model legislation (submitted with the comment) requires vehicle manufacturers to establish and fund a system for removal and management of mercury switches and to ban sale of vehicles with any mercury component. The bill will provide fair compensation, and as a result would encourage high capture rates.*

DTSC acknowledges this comment. DTSC has reviewed the model legislation and determined that no regulatory change is necessary. While DTSC believes its goals are laudable, the scope of the model legislation is beyond that of these regulations. Further, DTSC lacks authority to adopt legislation or to regulate products before they become wastes. These regulations adequately address the aspects of the model legislation that are within their scope. The aspects of the model legislation that are included in this proposal are:

1. Ban on the Sale of Vehicles with Mercury-Containing Switches

In the August 9, 2002, 45-Day Public Notice of these regulations, the M003 listing description included any mercury-containing switch in a motor vehicle, including switches in antilock braking (ABS) systems, ride stabilization systems, after-market alarm systems, etc. The listing description was modified in the 15-Day Notice of Changes to apply only to mercury-containing motor vehicle light switches. This modification makes the M001 Listing consistent with Senate Bill (SB) 633. SB 633, (chapter 656, statutes of 2001) added section 15029 to the Public Resources Code, which states: "No person may sell or offer for sale in this state a vehicle manufactured on or after January 1, 2005, that contains a mercury-containing motor vehicle light switch, as defined in Section 25214.5 of the Health and Safety Code, mounted on the hood or trunk."

Other types of motor vehicle mercury switches were not included in SB 633 due to insufficient information as to which makes and models include such switches, and variability in the types of switches (mercury or non-mercury) used within the same year, make, and model of a vehicle. DTSC may revise the M001 listing to include other mercury-containing motor-vehicle switches in a future rulemaking, when more information is available on which vehicles contain them. While vehicles that contain mercury switches other than light switches will not be identified as a M001 listed hazardous wastes under the revised proposal, if such switches that are voluntarily removed from a vehicle, they may be

managed under new universal waste management standards for switches and thermometers.

2. System for the Removal and Management of Mercury-Containing Motor Vehicle Light Switches

These universal waste management standards provide a workable system for the removal and management of mercury-containing motor vehicle light switches. Their requirements are designed to protect public health and the environment from mercury releases, while imposing a minimal additional regulatory burden on persons who handle switches and vehicles that contain them. Although DTSC lacks authority to assess fees or provide other funding for the handling of removed mercury-containing motor vehicle light switches, universal waste management provides vehicle recyclers and other handlers of these switches with flexibility that will reduce the cost of proper management using universal waste standards rather than full hazardous waste standards while still enhancing

protection of public health and the environment.

Hazardous Waste Listing - M002

Price Consulting, Representing Appliance Recycling Centers of America

X-1 *It is unclear whether the proposed regulations address the mercury found in major appliances. We seek clarification on this basic point.*

The M002 Listing does apply to mercury found in switches (including switches in thermostats) and flame sensors in major appliances. Effective February 9, 2006, a discarded appliance that contains a mercury switch or flame sensor is a hazardous waste until said switch or sensor is removed.

X-6 *Do the proposed regulations cover appliances subject to the Metallic Discards Act? Does DTSC propose that a removed mercury switch can be managed as universal waste? How would we know that a crushed appliance should be managed as hazardous waste?*

The regulations do cover appliances subject to the Metallic Discards Act. Although the Metallic Discards Act requires the removal of mercury switches from an appliance "prior to crushing [it] for transport or transferring [it] to a baler or shredder for recycling," many appliances that contain mercury switches or flame sensors do not exceed hazardous waste concentration thresholds for mercury, due to their large mass. These regulations will designate any intact (i.e., not crushed, baled, sheared, or shredded) waste appliance that contains a mercury switch or flame sensor as a hazardous waste, whether or not its mercury concentration exceeds applicable concentration thresholds. Mercury switches that meet the M002 listing description (including appliances with mercury switches and the removed mercury switches) are eligible for universal waste management, pursuant to chapter 23 of the California Code of Regulations, title 22, division 4.5.

With regard to appliances that are crushed before all mercury switches have been removed, the regulations' text has been modified since the August 9, 2002, 45-Day Public Notice. In the original proposal, a product crushed without removal of all of mercury switches was classified as a hazardous waste. Subsection (b), paragraph (6) of section 66273.7.2 has been revised (15-Day Notice of Changes) to limit the applicability of the regulations to crushed appliances that exhibit a hazardous waste characteristic. It states that the regulations do not apply to: "Waste appliances and portions of appliances from which all mercury switches have not been removed and that are crushed, baled, sheared, or shredded. (<u>If they exhibit a characteristic of a hazardous waste in article 3 of chapter 11</u>, these appliances are regulated as hazardous wastes pursuant to chapters 10 through 16, 18, and 20 through 22 of this division.)"

X-8 *What additional requirements, if any, will be placed on persons who handle, transport, or store whole intact appliances that have been discarded by their owner*

under the Universal Waste Rule?

Persons who handle, transport, and store intact discarded appliances that contain mercury switches will be regulated as universal waste handlers, and universal waste transporters. The general standards for universal waste handlers are found in articles 2 and 3 of chapter 23 of the California Code of Regulations, title 22, division 4.5. In general, a universal waste handler must:

- Obtain an EPA Identification number (large quantity handlers only);
- Label universal waste with the date and identify of the waste;
- Contain releases;
- Perform only certain, limited treatment activities;
- Train employees;
- Transport universal waste using shipping papers (bill of lading);
- Send universal waste to a destination facility, another handler, or a foreign destination;
- Accumulate universal waste for no longer than one year;
- Not dispose of UW; and
- Retain records of shipments.

A universal waste transporter can be a common carrier, or a handler who self-transports his or her universal waste. In general, a universal waste transporter must:

- Use bill of lading;
- Comply with applicable Department of Transportation (DOT) labeling and placarding requirements for hazardous materials shipments;
- Clean up releases;
- Deliver universal waste to a destination facility, a handler, or a foreign destination; and
- Not treat or dilute waste, except in response to an emergency.

Specific requirements for handlers of universal waste mercury switches and thermometers are found in subsection (d) of sections 66273.13 (applicable to small-quantity handlers) and 66273.33 (applicable to large-quantity handlers).

Hazardous Waste Listing - M002 - Support

J-17 *I support considering an entire product with switches inside as hazardous waste.*

DTSC acknowledges this comment and agrees with the commenter's assessment of the impact of these regulations.

Hazardous Waste Listing - M002 - Opposition

State of California Auto Dismantlers Association

D-1 *Given the small amount of mercury in vehicle switches, the rule is not cost effective.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. While the mass of mercury in an individual mercury switch is only about one gram, DTSC does not concur with the commenter's assessment that this is a "small" amount of mercury. As documented in DTSC's recent Final Mercury Report (August, 2002) mercury is highly toxic. As the report shows, the U.S. Environmental Protection Agency has set its Reference Concentration (RfC) for elemental mercury at 0.3 micrograms (millionths of a gram) per cubic meter of air. The Agency for Toxic Substances and Disease Registry (ATSDR) has established Minimum Risk Levels (MRLs) for elemental mercury that are even lower than U.S. EPA's RfC.[1] Mercury is also very mobile in the environment and changes forms as it moves through different environmental media (soil, air, water). As documented in the Final Mercury Report, sulfate-reducing bacteria convert mercury to the highly toxic form methylmercury, which accumulates in the tissue of some fish and endangers the health of persons who consume contaminated fish. In addition, DTSC has calculated that between 0.75 and 1.5 tons of mercury are contained in the 700,000 vehicles that are shredded annually in California.[2] Some of this mercury is deposited in Class 3 (municipal) landfills; some is released to other environmental media during processing.

Given mercury's high toxicity, mobility in the environment, and tendency to accumulate in certain fish that are consumed by humans, the cost of removing mercury-containing motor vehicle light switches from end-of-life vehicles (which DTSC estimated at $6.50 per vehicle in the economic impact analysis for this rulemaking) is low. As noted in the response to comment Q-5, the M001 listing has been modified since the original 45-Day Public Notice to apply only to vehicle light switches and vehicles that contain them. Now, the listing does not apply to other types of automotive mercury switches, some of which are also the most difficult switches to remove. This change reduces the costs that would have been borne by the handlers of end-of-life vehicles.

D-2 *There are too many models with too many different switches to ensure that all switches have been removed. The rule should apply only to hood and trunk lighting switches.*

DTSC has reviewed this comment and has changed the scope of the M001 listing to include only hood and trunk switches, as suggested by this commenter. However, the prime reason for this change is due to the scarcity of information on which vehicles contain non-lighting mercury switches, and where such switches are located in vehicles that

[1] DTSC Final Mercury Report. August, 2002. Page 40.
[2] DTSC Final Mercury Report. August, 2002. Page 85.

contain them. If more complete data becomes available on the use and location of other (non-lighting) mercury switches in vehicles, DTSC may, in a future rulemaking, revise the M001 listing to include them.

D-3 *The costs of recycling the switches is a major problem with this rule. The costs come from removal of the switch, dismantling and removal of the mercury capsule or, alternatively, shipment of the entire assembly to a recycler, or handling the assembly as a hazardous waste.*

As discussed in response to comment D-1, DTSC estimates the average cost of mercury switch removal at $6.50 per vehicle. Notwithstanding the commenter's belief that the costs for managing mercury switches will be unreasonably high, DTSC believes they will be modest, due to the flexibility inherent in universal waste management. The light switches that are affected by these regulations can be accumulated at the generator's site for up to one year, or may be transported to another, intermediate handler, who may consolidate switches from many handlers at a single location without a permit. Auto dismantlers need not "dismantle" the mercury capsule (nor may they, without a permit). Also, shipping as a "hazardous waste" is not required by the regulations; neither is a uniform hazardous waste manifest nor a registered hazardous waste hauler required when transporting universal waste switches.

The cost of recycling mercury switches is also modest. In the economic impact analysis for these regulations, DTSC cites pricing information from the mercury recycling industry; the cost for retorting (recycling) one 55-gallon drum of mercury switches is estimated to be $750. A 55-gallon plastic container can hold tens of thousands of mercury switches—more than any individual dismantler will likely generate in many years. The inclusion of these switches in the Universal Waste Rule allows offsite consolidation of mercury switches from many dismantlers at a single location, without a permit. Such offsite consolidation will reduce the per-unit recycling cost for mercury switches drastically.

D-4 *A rebate program similar to the bottle bill is needed. SCADA recommends that switches go to municipal solid waste landfills until the rebate program is in place.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC lacks authority to institute a rebate program for mercury-containing motor vehicle light switches; only the legislature can do this. As discussed above in the response to comment D-3, the costs of removing and managing mercury-containing motor vehicle light switches will be modest. As discussed in the response to comment D-1, up to 1.5 tons of mercury are released to the State's environment through the shredding of vehicles that are shredded. Thus, the suggestion in this comment is not feasible and would not help achieve the goals of the regulations.

D-8 *DTSC should partner with SCADA to develop a SCADA run program to replace this regulation. Use a concept similar to the storm water rule that allows group permits.*

DTSC has reviewed this proposal and determined no regulatory change is necessary.

While the listing of mercury-containing motor vehicle switches, and vehicles that contain them, as hazardous wastes is necessary, due to "the immediate or persistent toxic effects to man and wildlife and the resistance to natural degradation or detoxification mercury,"[3] DTSC welcomes the opportunity to work with SCADA to develop a program that will assist its members in complying with the requirements of these regulations.

Hazardous Waste Listing - M002 - Enforcement

Price Consulting, Representing Appliance Recycling Centers of America

X-2 *Existing law requiring removal of mercury switches from appliances is routinely ignored. Reasons: complying makes one a hazardous waste generator; there is little or no inspection or enforcement.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. Compliance with the requirements of Public Resources Code section 42175 is beyond the scope of this rulemaking. However, the M003 listing should improve compliance with the requirement to remove mercury switches from major appliances prior to recycling or disposing them. Appliances that contain such switches will become hazardous wastes when they are discarded, and a person who crushes, bales, shears, or shreds one without first removing the mercury switches would be treating a hazardous waste—an activity that requires a permit from DTSC.

X-3 *Recent legislation clarifies and expands DTSC's responsibility to enforce Public Resources Code 42175. Failure to remove mercury switches prior to crushing or baling is a violation of chapter 6.5; enforcement is the responsibility of DTSC and the CUPAs.*

See response to comment X-2, above. Compliance with the requirements of Public Resources Code, section 42175 is beyond the scope of this rulemaking. However, these regulations should lead to an increased compliance rate.

X-4 *DTSC and CUPAS have little or no capacity to enforce Public Resources Code 42175.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. See response to comments X-2 and X-3, above.

X-5 *Existing laws (requiring removal of mercury switches from appliances before crushing or shredding) are not working. In the real world, mercury switches are not generally removed form appliances any more than they are removed from vehicles.*

DTSC has reviewed this comment and determined that no regulatory change is necessary.

[3] Health and Safety Code section 25140.

See response to comments X-2 and X-3, above.

X-7 *The regulations need to ensure inspection and enforcement. They should address: the kind of inspections, by whom, who should be inspected, how frequently, what to look for, and penalties.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. Persons who generate wastes that meet the M002 listing description will be hazardous waste generators. As such, enforcement of the applicable universal waste management standards will primarily be the responsibility of the CUPAs. The CUPAs have ample inspection and enforcement authority for hazardous waste generators, pursuant to article 8 of chapter 6.5 of the Health and Safety Code. Inspection frequency is outside the scope of this rulemaking.

Hazardous Waste Listing - M003

Association of Lighting and Mercury Recyclers

C-6 *Phillips markets their bulbs as "trashable"*

DTSC acknowledges this comment. As non-hazardous waste, Philips tubes currently may be managed and disposed of in the municipal waste stream. DTSC has viewed Philips Lighting Company's Internet site,[4] which mentions that Alto lamps may be disposed of "conventionally," but also states that recycling them is "always the preferred method" of managing waste Alto lamps. While Philips encouragement of voluntarily recycling of Alto lamps is laudable, admonitions to voluntarily recycle low-mercury lamps cannot be expected to achieve the same rate of recycling as designating all waste mercury-added lamps as hazardous wastes and requiring recycling under the Universal Waste Rule.

C-7 *ALMR customers report high failure rates for Phillips alto lamps - thus, more mercury enters the environment*

DTSC has reviewed this comment and determined that no regulatory change is necessary. The comment is beyond the scope of the rulemaking. The hazardous waste listings in these regulations affect mercury-containing products that are capable of being recycled or that have mercury-free alternatives. The relative longevity of lamps of different brands was not a factor in developing the M003 listing. Philips has submitted laboratory data showing that, in an ongoing test, samples of Alto lamps have lasted longer than the industry median life. Other commenters have cited anecdotes of shorter life for Alto lamps. DTSC has not been provided with definitive data showing that Philips Alto lamps fail at a significantly higher rate than other brands of fluorescent lamps.

C-8 *Phillips has asserted that DTSC has no information establishing adequate recycling*

[4] URL: http://www.lighting.philips.com/nam/feature/alto/tech.php

capacity for California fluorescent tubes - this is incorrect. The ALMR letter supports existence of adequate recycling capacity for the 60 - 80% of tubes EPA estimates will be recycled.

DTSC has reviewed this comment and agrees with the commenter. Two commenters on the 45-Day Public Notice, both involved in the lamp recycling industry, have stated unequivocally that recycling capacity is already available for California's fluorescent lamps. (See response to comment T-9.1.)

Californians Against Waste

F-2 *With only 20% of lamps recycled, meaningful enforcement of the disposal ban is needed. The disposal of 60% to 80% of the lamps through illegal disposal and exemptions is a significant environmental risk.*

DTSC agrees with the commenter that enforcement of the recycling requirement for universal waste lamps is necessary, and that illegal disposal poses significant environmental risks. These regulations will facilitate the detection of illegal disposal because, after February 8, 2006, no mercury-added lamp can be legally disposed in California unless in a hazardous waste landfill. Any person who places mercury added lamps in a dumpster, garbage truck, or municipal landfill will be in violation of the regulations and subject to enforcement action. Both the CUPAs and DTSC have ample authority to enforce this requirement, pursuant to article 8 of chapter 6.5 of the Health and Safety Code.

The disposal of lamps by households and Conditionally Exempt Small Quantity Universal Waste Generators (CESQUWGs) between now and 2006 will result in some additional mercury releases. However, the exemptions are necessary in order to allow time for the development and implementation of a collection infrastructure for lamps and other universal waste generated by these entities. However in order to reduce the release of mercury, the number of lamps that a CESQUWG may dispose will be reduced to 30 lamps per month, effective in 2004.

F-3.1 *The package needs source reduction incentives.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. The listing of all mercury-added lamps provides a strong incentive for source reduction. It will encourage manufacturers who wish to market lamps that can be disposed as non-hazardous waste to develop and produce new types of high-efficiency lamps that are entirely free of mercury. The use of the TTLC to classify waste lamps as hazardous or nonhazardous does not provide this incentive. See the response to comments T-5, T-18, and T-24, incorporated herein, for a more detailed discussion of this point.

F-3.2 *Use the TTLC for marketing, labeling, procurement preferences, and other source reduction incentives.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. As discussed in the response to comment T-47, these regulations do not preclude lamp manufacturers from discussing the mercury content of their lamps or comparing the mercury content of the lamps produced by different manufacturers in their marketing efforts, provided manufacturers make clear that all mercury-added lamps are hazardous wastes and must be managed appropriately.

F-5 *There is nothing in the proposed regulations establishing education and enforcement to ensure proper management.*

As discussed in the responses to comment F-2, incorporated herein, DTSC and the CUPAs have ample authority to enforce the requirements of these regulations. In addition, DTSC plans education and outreach to the public and the regulated community, which will include fact sheets, presentations, and postings on the Department's Internet site.

Center for Environmentally Advanced Technologies

I-28 *We are not opposed to a recycling requirement, as long as it is combined with a strong mandate for source reduction. Examples: bans on products that exceed time diminishing thresholds, fees on high-mercury lamps to fund recycling, procurement specifications for low-mercury lamps, etc.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. As discussed in the responses to several earlier comments (notably, comments T-5, T-18, and T-24), incorporated herein, the regulations provide a strong incentive for source reduction. The commenter's specific suggestions are, however, beyond the scope of the rulemaking. DTSC has no authority to regulate the composition of products that are not wastes, nor to assess fees on products or adopt procurement specifications.

GE Lighting

M-2 *The listing should be limited to mercury-containing lamps with intentionally-added mercury.*

DTSC has reviewed this comment and agrees with it. It is not the intent of these regulations to classify lamps that contain minute amounts of mercury that are inadvertently introduced from raw materials, etc., as hazardous wastes. The words "intentionally-added" have been added to the M003 listing description in response to the comment. (See the 15-Day Notice of Changes)

M-5 *DTSC should highlight in the Final Statement of Reasons that most lamps purchased after the rule is finalized, but prior to the lamp listing going into effect, will be subject to the new listing.*

DTSC has reviewed this comment and determined that no regulatory change is needed. The ISOR stated that a lamp purchased today would likely not reach end-of-life until after

the effective date of the M003 listing.[5] The effective date of the listing was moved forward two years in the 15-Day Public Notice of Changes to February 9, 2004—less than one year after the date the regulations will take effect. Consequently, it is even less likely that a low-mercury lamp sold today would become a waste prior to the effective date of the listing.

OSRAM Sylvania

V-2 *DTSC should list "mercury-added" lamps, rather than "mercury-containing" lamps. As written, the listing would arguably cover lamps with trace amounts of mercury present in glass, metal, or other components.*

DTSC has reviewed this comment and agrees with it. The suggested change has been made in the final text of the regulations (See the 15-Day Notice of Changes). Please see the response to comment M-2, incorporated herein.

V-3 *DTSC should clarify that removal of "mercury-added" lamps from products does not constitute treatment of a hazardous waste, either in the final text or FSOR.*

DTSC has reviewed this comment and agrees with the commenter's suggestion. A new subsection (c), paragraph (3) has been added to sections 66273.13 and 66273.33, to clarify that removing lamps from structures or products is a universal waste handler activity, rather than a treatment activity.

V-7 *DTSC should highlight in the Statement of Reasons that the vast majority of mercury-added lamps currently being purchased will be subject to the new rules at their end-of-life, despite the delayed effective date of the listing.*

DTSC has reviewed this comment and determined that no regulatory change is needed. Please see the response to comment M-5, incorporated herein.

Hazardous Waste Listing - M003 - Support

AERC Recycling Solutions

A-2 *Include all mercury-containing lamps in the rule.*

DTSC has reviewed this comment and determined that no regulatory change is needed. The M003 listing applies to all lamps with *intentionally-added* mercury. The listing was not intended to apply to lamps with minute amounts of mercury that was not intentionally added. Please see the response to comment M-2, incorporated herein.

Association of Lighting and Mercury Recyclers

[5] Mercury Waste Classification and Management Regulations, ISOR, August 9, 2002. Page 11.

C-1 *The Association supports inclusion of all mercury-containing lamps in the regulations. The STLC, TTLC, and TCLP do not accurately assess the environmental threat of mercury.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. The regulations apply to all lamps with intentionally-added mercury. DTSC concurs that the unique properties and high toxicity of mercury, in addition to the fragility of mercury-

added lamps necessitate the listing of all such lamps as hazardous wastes when discarded, in order to minimize the release of their mercury to the environment.

C-2 *Lamps will break in dumpsters and the mercury will wash into the waters of the State. Mercury released from lamps prior to landfill will affect the State's ability to meet TMDLs. Mercury released from lamps prior to landfill will accumulate in waters, fish, and people.*

DTSC concurs with the commenter's assertions about the risks of disposal of mercury-added lamps in dumpsters. The Final Mercury Report discusses the environmental mercury cycle in some detail. Mercury's high vapor pressure, mobility in the environment, and bioaccumulation in fish and humans are some of the factors upon which DTSC's based its decision to develop and adopt these regulations.

C-5 *Phillips has presented misleading data asserting that ALTO lamps are recycled at a high rate. ALMR members report much lower levels of recycling for Phillips bulbs.*

DTSC has reviewed this comment, as well as Philips' assertions regarding the rate at which ALTO lamps are recycled, and concurs with the commenter that Philips' interpretation of the data provided by one lamp recycler is misleading. Please see the response to comment T-31, incorporated herein.

CALPIRG Charitable Trust

H-8 *We recommend against the delayed listing of mercury-containing lamps.*

DTSC has reviewed this comment, and others addressing the delay in the M003 listing. Statements by Onyx/Superior Special Services and the Association of Lighting and Mercury Recyclers in their respective comments on these regulations indicate that adequate capacity to recycle California's lamps, including low-mercury lamps, already exists. Therefore, in order to prevent the unnecessary release of mercury from the nonhazardous management and disposal of lamps that can be recycled today, DTSC has shortened the delay in the listing of mercury-added lamps from three years to one year. This change, which was part of the first 15-Day Notice of Changes, means that all waste lamps with intentionally-added mercury will be classified as hazardous waste in 2004, rather than 2006 as originally proposed.

Clean Water Action

J-10 *We support listing lamps and DTSC should not amend this component of the regulations.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. The scope of the M003 listing is unchanged from the original 45-Day Public Notice. The only modification to the listing is the addition of the words "intentionally added," to clarify that the listing does not apply to lamps containing tiny amounts of inadvertently incorporated mercury that is not necessary for the lamps' function. DTSC also reduced the delay of the effective date of the listing in the 15-Day Notice of Changes.

GE Lighting

M-1 *DTSC should act swiftly to finalize this proposal regardless of whether there are delays in finalizing the listing of other mercury-containing products.*

DTSC acknowledges this comment. DTSC must, by necessity, adopt these regulations by December 31, 2002 because its authority to adopt the universal waste portion (provided by Health and Safety Code section 25150.6) will expire. The regulations are being adopted in their entirety, before the expiration of this authority.

M-6 *We support DTSC's decision to regulate all mercury-containing lamps generated in California consistently.*

DTSC has reviewed this comment and determined that no regulatory change is necessary.

DTSC appreciates the commenter's support.

Osram Sylvania

V-1 *Commenter believes that the M003 listing meets the authority, consistency, and necessity standards in the APA.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC concurs with the commenter's assessment that the regulations meet all applicable requirements of the Administrative Procedure Act. See the response to comments T-22, T-23, T-24, and T-25, incorporated herein.

V-5 *DTSC should quickly finalize the rule for mercury-added lamps, even if the rule for other mercury-added products is delayed.*

DTSC concurs with this comment. Please see the response to comment M-1, incorporated herein.

Paul Hastings, representing OSRAM Sylvania

NN-3 *DTSC has shown the necessity for the proposed regulations. DTSC has concluded that nonhazardous status of some lamps creates an incentive for consumers to go to all nonhazardous lamps that are thrown away in the trash. California's experience with required recycling under the used oil program and Health and Safety Code section 25175 is that very high recycling rates can be obtained, especially by industry.*

DTSC concurs with this comment. Please see the response to comment V-1, incorporated herein.

NN-4 *Source reduction efforts will continue under the proposed rules. To the extent Philips calculated its mercury content to escape regulation "is not source reduction, but only regulation reduction."*

DTSC concurs with this comment. As discussed in the responses to several earlier comments (notably, comments T-5, T-18, and T-24), incorporated herein, the regulations provide a strong incentive for source reduction.

NN-5 *The TTLC is not required for classifying waste. The Department is free to use the TTLC, the STLC, the TCLP, the fish bioassay, or any other test it determines to be appropriate in determining what is hazardous waste.*

DTSC concurs with this comment. Section 25140 of the Health and Safety Code states: "The department shall prepare, adopt and may revise when appropriate, a listing of the wastes which are determined to be hazardous, and a listing of the wastes which are determined to be extremely hazardous." Subdivision (a) of section 25141 requires DTSC to "develop and adopt by regulation criteria and guidelines for the identification of hazardous wastes and extremely hazardous wastes." The hazardous waste listings in Appendix X of title 22 of the California Code of Regulations, division 4.5 (as well as the new hazardous waste listings included in these regulations) were adopted under the authority of section 25141. The hazardous waste characteristics in article 3 of title 22 of the California Code of Regulations, division 4.5 were adopted under the authority of Health and Safety Code section 25140. The commenter is correct that the legislature gives DTSC latitude in determining how wastes are classified as hazardous or nonhazardous.

NN-6 *The Department has adequately considered alternatives. Lowering the TTLC was rejected because listing lamps is clearer to consumers. Keeping the status quo provides no incentive to eliminate mercury altogether, and the TTLC promotes regulatory avoidance.*

DTSC has reviewed this comment and agrees with it. DTSC has adequately considered alternatives to these regulations, and has determined that none would be as effective in achieving the three objectives of the regulations:

- To encourage pollution prevention through the use of mercury-free alternatives to mercury-added products, when they exist;
- To encourage the development of mercury-free alternatives to mercury-added products when they are not already available; and
- To encourage the recycling of mercury-added products when they become wastes.

Please see the responses to comments T-4, T-15, T-19, T-26, and T-28, incorporated herein.

Physicians for Social Responsibility, Los Angeles

W-3 *PSR-LA strongly supports the classification of all fluorescent lamps as universal or hazardous waste, including low-mercury fluorescent lamps.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. The regulations will classify all intentionally-added fluorescent lamps as hazardous wastes or universal wastes. DTSC appreciates the commenter's statement of support.

USHIO Lighting Edge Technologies

Y-2 *The marketplace has been confused by recent attempts to differentiate some types of "low mercury content" fluorescent lamps--confusion we have had to overcome with our customers and prospects.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC agrees that the current disposal exemptions for fluorescent lamps generated by households and CESQUWG, combined with the fact that low-mercury lamps are currently not classified as hazardous waste, may lead to confusion among the purchasers of lamps, and the generators of waste lamps, as to the applicable management requirements. These regulations will regulate all mercury-added lamps consistently, removing the confusion about which requirements are applicable.

Hazardous Waste Listing - M003 - Support - Documents Submitted

Association of Lighting and Mercury Recyclers

C-9 *Commenter submitted a copy of November 1, 2001 letter to Peggy Harris, Chief of DTSC's State Regulatory Programs Division. This letter states: "the infrastructure is in place to recycle all lamps that can be diverted from landfills."*

DTSC has reviewed this comment, and a similar comment from Onyx/Superior Special Services (please see comment U-2). Both commenters are involved in the lamp recycling industry, and both state unequivocally that adequate capacity already exists to recycle California's fluorescent lamp waste. Based on these statements, and the State's

significant mercury contamination problem, DTSC is moving the implementation date for the M003 listing ahead by two years, to February 9, 2004. The existing temporary disposal exemptions will remain unchanged: until February 9, 2006, households and CESQUWGs may dispose of mercury-added lamps in the nonhazardous waste stream.

GE Lighting

M-7 *Supplemental comments submitted. GE calculates that 1081 pounds of mercury from lamps are landfilled annually in California. Under GE's assumptions, if all lamps had Philips' mercury levels and were landfilled, 1052 lbs. of mercury would be landfilled. If all lamps are classified as hazardous waste, 93 lbs. of mercury would be landfilled.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC has made its own calculations of the amount of mercury that would be released to the State's environment under various scenarios (see the tables in the appendix). DTSC's calculations are based on different assumptions than the commenter's, and consequently, the calculated amounts of released mercury also differ. However, DTSC's calculations and those of the commenter support the same conclusion: that regulating all mercury-added fluorescent lamps as hazardous wastes will reduce the release of mercury in California's environment more successfully than would retaining the use of the TTLC for classification of waste lamps. This is true even if all lamp manufacturers were to lower the mercury content of their products to match Philips' mercury levels.

M-8 *Commenter submitted a list of "Four Flaws in Philips Presentation Materials" [Referring to the written comments submitted by Nielsen-Merksemer on behalf of Philips].*
"1. The national number does not include Compact Fluorescent Lamps (CFLs) but the estimated number of lamps in California does include CFLs.
2. Philips solution will drive the recycling rate to 0%, not 50%.
3. Other states have achieved a 70% recycling rate, California can go at least this high if not higher.
4. Long Life Products were purposely not evaluated.
(Commenter includes a table showing the average amount of mercury in lamps sold in California, based on data for the sales of CFLs.)

DTSC has reviewed this comment and determined that no regulatory change is necessary.

1. It is unclear to DTSC what effect the inclusion of compact fluorescent lamps would have on the calculations to which this commenter refers.

2. DTSC agrees with the commenter that, to the extent lamp manufacturers reduce mercury content in order to escape the regulation as hazardous waste, the rate of (voluntary) recycling for the resultant "nonhazardous" lamps is likely to be lower than the rate of (mandatory) recycling of hazardous waste lamps.

3. The comments submitted by Nielsen-Merksamer on behalf of Philips Lighting Company cite a 70 percent recycling rate in the State of Minnesota, and DTSC believes that California will attain a similar rate through the combination of several ongoing efforts:

   - Enactment of these regulations, which will designate all mercury-added lamp waste as hazardous waste;
   - Establishment of the universal waste collection infrastructure workgroup, made up of representatives of DTSC, and the California Integrated Waste Management Board. The group was created to develop an infrastructure for the collection of universal wastes from households and Conditionally Exempt Small Quantity Universal Waste Generators. This infrastructure will be in place by February 9, 2006, when the current temporary disposal exemptions for small generators expire. The workgroup will be expanded in the future to include other stakeholders; and
   - DTSC's planned education and outreach activities that will begin immediately upon approval of these regulations.

4. The (Roux Associates, Inc.) data attached to the comments submitted by Nielsen-Merksamer does not make any distinctions between "long-life" and standard fluorescent lamps. It is not clear what the impact on Roux' calculations would be if longer-lived lamps were included.

Hazardous Waste Listing - M003 - Opposition - Adequacy of the Rulemaking File

Nielsen Merksamer, representing Philips Lighting

T-26.2 *The Department's Economic and Fiscal Impact Statement is deficient in its assessment of alternatives. Namely, there is no analysis of the most obvious alternative - reduction of the TTLC. What is the reason for this omission?*

DTSC has reviewed this comment and determined that no regulatory change is necessary. In adopting these regulations, DTSC made an initial determination, pursuant to subsection (a)(8) of section 11346.5 of the Government Code, that the regulations "would not have a significant, statewide adverse economic impact …." Pursuant to subsection (a)(13) of section 11346.5, DTSC must declare 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 has determined that the commenter's preferred alternative—lowering the TTLC would not be as effective at carrying out the purpose for which these regulations were proposed. The objectives of these regulations are as follows:

- To encourage pollution prevention through the use of mercury-free alternatives to mercury-added products, when they exist;

- To encourage the development of mercury-free alternatives to mercury-added products when they are not already available; and
- To encourage the recycling of mercury-added products when they become wastes.

DTSC has seen no convincing evidence that the commenter's preferred alternative would be as effective as the M003 listing at achieving these objectives. Lowering the TTLC may encourage the use of very-low mercury lamps, but would do nothing to encourage the development of new types of mercury-free high efficiency lamps, nor would encourage the use of such lamps should they be developed. It is highly improbable that the retaining or lowering TTLC would promote the (voluntary) recycling of low- and very low-mercury lamps as effectively as will requiring all mercury-added universal waste lamps to be recycled. Further, the tables in the appendix show that more mercury would be released to the environment if the TTLC were retained than if it is replaced (for lamps only) by the M003 listing. If a TTLC of 15 milligrams per kilograms were adopted for lamps, and it resulted in very low-mercury lamps garnering a 100 percent market share (an improbable scenario), the release of mercury would only be less than under the M003 listing if the current 20 percent recycling rate (with most commercially-generated universal waste lamps required to be recycled) could be maintained on a strictly voluntary basis.
Given that lowering the TTLC for mercury would be less effective at achieving the objectives of these regulations, DTSC is not required to compare the fiscal and economic impacts of this alternative to those of listing all mercury-added lamps as hazardous wastes.

T-44 *A commenter submitted a press release from the U.S. Attorney's office in New Hampshire, announcing the conviction and sentencing of an operator of a sham lamp recycling company, which claimed to be complying with state and federal laws but was not.*

DTSC has reviewed this document and determined that no regulatory change is necessary. The Universal Waste Rule does not allow transfer of universal waste lamps to a recycler who does not have a hazardous waste facility permit. The Universal Waste Rule prohibits handlers and transporters of universal waste from taking it "to a place other than a universal waste handler, a destination facility, or a foreign destination." A universal waste handler or transporter who violates this requirement is subject to enforcement action by DTSC or the local CUPA.

Paul Hastings, representing OSRAM Sylvania

NN-10.1 *Commenter incorporated as a comment a 9-page document that appears to have been printed from GE's web site. The document is a press release, announcing GE's earnings for the first quarter of 2002. The company earned $3.518 billion, of which $540 million was from lighting.*

DTSC has reviewed this document and determined that no regulatory change is necessary. According to the document's figures, lighting represented approximately 15

percent of GE's revenue during the first quarter of 2002. DTSC has no information on whether or how the classification of low-mercury fluorescent lamps as hazardous wastes will affect the earnings of GE's Lighting Division. The submitted document is not germane to and is outside the scope of the rulemaking.

NN-10.2 *Commenter submitted a press release from the U.S. Attorney's office in New Hampshire, announcing the conviction and sentencing of an operator of a sham lamp recycling company, which claimed to be complying with state and federal laws but was not.*

DTSC has reviewed this document and determined that no regulatory change is necessary. The Universal Waste Rule does not allow transfer of universal waste lamps to a recycler who does not have a hazardous waste facility permit. Please see the response to comment T-44, incorporated herein.

NN-11 *Commenter incorporated as a comment a 4-page document titled "The Truth about TCLP-Passing Lamps." The document, on Osram Sylvania stationery, states that "currently available fluorescent lamps that pass the TCLP do not do so simply by lowering the mercury dose. Such lamps instead rely on the properties of other unique lamp components . . ." which reduce ionized mercury to the elemental form (which is much less soluble in the TCLP extracting solution). "Removal of the unique components will generally cause the lamp to fail the TCLP." The document argues that the use of additives that allow lamps to pass the TCLP is "permissible." The document claims that iron cathode shields used only in Philips lamps are not necessary for lamp operation and are not used by GE or Osram Sylvania in their lamps; these shields could, arguably, be considered "additives." The fourth page of the document contains three graphs of TCLP results for various types of lamps, with and without iron shields.*

DTSC acknowledges receipt of this document; however, it is not germane to this rulemaking. Higher-mercury fluorescent lamps are currently classified as hazardous waste in California due to their total mercury concentration, even when they have a leachable mercury concentration below 0.2 milligrams per liter, as determined by the TCLP or California's Waste Extraction Test (WET). Under the proposal, all mercury-added lamps will be classified as hazardous wastes when discarded, even when their total mercury concentration is below the TTLC and their leachable mercury concentration is below the TCLP and/or STLC. The use of iron shields, ascorbic acid, or any other additive designed to affect its TCLP or WET results will not change the hazardous classification of mercury-added lamp waste under these regulations.

NN-12.1 *Commenter incorporated as a comment a bar graph showing mercury concentration in TCLP extracts, titled "TCLP With and W/O Cathode Guards F32T8/TL835."*

DTSC acknowledges receipt of this document; however, it is not germane to this rulemaking. The use of iron shields, ascorbic acid, or any other additive designed to affect

its TCLP or WET results will not change the hazardous classification of mercury-added lamp waste under these regulations. Please see the response to comment NN-11 above, incorporated herein.

NN-12.2 *Commenter incorporated as a comment a photocopied photograph of a truck trailer with a large sign on the side reading "California's only non-hazardous fluorescent lamp." The lamp is labeled 'ALTO' on its left end, and part of the name 'Philips' can be seen on the lower right side of the page.*

DTSC has reviewed this document and determined that no regulatory change is necessary. The photograph shows that Philips has touted, in its marketing efforts, the fact that Alto lamps are currently not classified as hazardous wastes in California. Presumably, Philips has determined that the nonhazardous status of waste Alto lamps in California will enhance sales of these lamps. Three types of potential customers might be influenced to purchase Alto lamps by the sign shown in the photograph:

- Persons who have an "environmental ethic" that impels them to buy the lowest mercury lamps available, in order to minimize the use and release of mercury; these persons would be very likely to voluntarily recycle Alto lamps;
- Persons who wish to avoid compliance with universal waste management standards, but who may voluntarily recycle Alto lamps if it is convenient to do so; and;
- Persons who lack an "environmental ethic," but wish to avoid universal waste management requirements, including the requirement for lamp recycling.

Philips suggests that many of its customers fall into the first two categories, but DTSC has not been provided with compelling evidence to support that presumption. Philips has submitted data from a lamp recycler suggesting that Philips Alto lamps are recycled at a disproportionately high rate, as compared to competing lamps. The Association of Lighting and Mercury Recyclers has cited a letter from another recycler suggesting that Philips lamps are underrepresented in the population of lamps it recycles. Please see the response to comment T-31 and T-45, incorporated herein.

NN-12.3 *Commenter incorporated as a comment a graph with the heading "T8 PHILIPS ALTO Fluorescent Lamps Mortality Curve - Weibull." 'Percent surviving' is plotted against 'Operating Hours." A dark line labeled "Industry Standard Median Life 20,000 Hours' crosses the intersection of 50% surviving on the Y-axis and 20,000 hours on the X-axis. A horizontal line labeled "Philips Production Lamps" shows no lamp failures at 16,262 hours. Some hand written notes are also on the page.*

DTSC has reviewed this document and determined that no regulatory change is necessary. Lamp life is not currently considered in the classification of waste lamps as hazardous or nonhazardous, nor will it be under the M003 listing. Please see the responses to comments T-21 and T-43, incorporated herein.

NN-12.4 *Commenter incorporated as a comment a bar graph with the heading "Competitive Lamp Testing Median Life 35 lamps per each Mfg." The bar for OSI (presumably Osram Sylvania) shows the shortest median life; the bar labeled GE shows a longer median life, and the bar labeled PLC (presumably Philips lighting Company) reaches the top of the scale on the Y-axis. The caption reads: "OSI 3 lamps still burning, GE all lamps failed, PLC 11 Lamps still burning (21212 hrs), Test Started 1998."*

DTSC has reviewed this document and determined that no regulatory change is necessary. Lamp life is not currently considered in the classification of waste lamps as hazardous or nonhazardous, nor will it be under the M003 listing. Please see the responses to comments T-21 and T-43, incorporated herein.

NN-12.5 *Commenter submitted a partially illegible copy of a newspaper article, the subject of which appears to be the financial performance of General Electric. A legible portion of the article states that GE's lighting business has performed poorly and speculates that the company might divest itself from its lighting and major appliance businesses.*

DTSC has reviewed this document and determined that no regulatory change is necessary. DTSC has no information on whether or how the classification of low-mercury fluorescent lamps as hazardous wastes will affect the financial and is outside the scope of performance of GE's Lighting Division. The submitted document is not germane to and is outside the scope of the rulemaking. Please see the response to comment NN-10.1 above, incorporated herein.

NN-12.6 *Commenter submitted a document that is mainly in German. It appears to be a patent for a low-pressure discharge lamp. An English abstract reads in part: "The invention relates to a low-pressure discharge lamp with at least one supporting element (12) placed inside a discharge vessel (10). Said supporting element is provided with a mercurial coating…."*

DTSC acknowledges receipt of this document; however, it is not germane to this rulemaking. The use of ascorbic acid or any other additive designed to affect its TCLP results will not change the hazardous classification of mercury-added lamp waste under these regulations. Please see the responses to comments NN-11 and NN-12.1, incorporated herein.

NN-13 *Commenter submitted a press release by the National Electrical Manufacturers Association (NEMA) dated April 26, 2002. The document states that a recent survey of its members by NEMA's lamp section found that the use of mercury in lamps and the average mercury level in a standard four-foot fluorescent lamp have been reduced to 8.9 tons and 8.3 milligrams, respectively.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. The reduction in the use of mercury in lamps by all manufacturers is documented in

DTSC's Final Mercury Report. However, in spite of this reduction, hundreds of kilograms of mercury continue to be released to the environment annually through the nonhazardous management and disposal of waste fluorescent lamps. Please see the response to comment T-5, incorporated herein.

NN-14 *Commenter submitted a document titled "Maine Fluorescent Lamp Study Final Report." The report summarizes the results of testing of new and used samples of 10 models of fluorescent lamps produced by the three major lamp manufacturers. Lamps were subjected to the Toxicity Characteristic Leaching Procedure (TCLP) and were also analyzed for their total mercury content. The TCLP results for each lamp model (passing or failing) were compared with manufacturer claims. The lamps' TCLP results were also evaluated to determine whether they were predictive of total mercury content. "Results indicated that lamps that are represented as TCLP-compliant have total mercury results similar to their non-compliant counterparts. These results suggest that the disposal ban on all mercury-added lamps is appropriate."*

DTSC has reviewed this document and determined that no regulatory change is necessary. In California, a waste that does not exceed the TCLP for any hazardous constituent (or the STLC, as determined by the WET) nevertheless exhibits the toxicity characteristic (and is classified as a hazardous waste) if the total concentration of any hazardous constituent exceeds the TTLC.[6] Consequently, whether or not the leachable mercury concentration in a fluorescent lamp is predictive of its total mercury concentration is less important in California than in other States, where the TCLP is the only basis for the toxicity characteristic. Nevertheless, the recommendation of this report is consistent with the approach taken in these regulations: to classify all waste mercury-added lamps as hazardous wastes and require the generators of such lamps to be recycle them in order to take advantage of the reduced management standards of the Universal Waste Rule.

NN-15 *Commenter incorporated as a comment a June 14, 1999 letter from Ronald Pilorin of DTSC's Human and Ecological Risk Division (HERD) to Peter A Bleasby of Osram Sylvania. The letter states that the nonhazardous concurrence for Philips ALTO lamps issued by DTSC in 1997 does not constitute an endorsement of that brand of lamps, and that any use of the concurrence as an endorsement for ALTO lamps would be inappropriate and beyond the scope of the concurrence, and not condoned or approved by DTSC. A copy of DTSC's June 24, 1997 letter to Philips Lighting Company, concurring that the ALTO lamps sampled were not hazardous waste, was attached to Mr. Pilorin's 1999 letter.*

DTSC has reviewed the two letters submitted by the commenter and determined that no regulatory change is necessary. The nonhazardous concurrence issued to Philips Lighting Company for its waste is not, and was never intended to be, an endorsement of Philips Alto lamps. As stated in Mr. Pilorin's 1999 letter, any implication that DTSC endorses

[6] Pursuant to article 3 of title 22 of the California Code of Regulations, division 4.5.

Philips Alto lamps would be beyond the scope of the nonhazardous concurrence, and would not be condoned by DTSC.

NN-7 *Commenter incorporated a 4-page document titled "Lamp Recycling in California" as a comment. The document describes changes in the regulation of fluorescent lamps in California and the reduction in the use of mercury in the manufacture of lamps. It argues for the abolition of the use of the TTLC for classification of lamps as hazardous or nonhazardous waste, in favor of a requirement that all non-residentially generated lamps be recycled. The document argues that the current use of the TTLC to classify lamps leads to arbitrary classification and creates a "perverse" regulatory incentive for consumers to purchase lamps that can be thrown away. The document also argues that the current system will lead to shorter-lived, less efficient lamps that will not be recycled, and will harm the lamp recycling industry.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. In general, DTSC concurs with this document's assessments of the advantages of requiring the recycling of all mercury-added lamps over allowing low-mercury lamps to be disposed of as nonhazardous waste. DTSC agrees that lamps marketed as "nonhazardous" (and therefore, as legal to throw away) are likelier to be disposed of in the municipal waste stream at end-of-life than are lamps that are required to be recycled.

In the appendix, DTSC calculates the amount of mercury that would be released under various scenarios using data submitted by Phillips. The calculations show that, if waste lamps were to continue being classified as hazardous or nonhazardous using the TTLC, and if the other two major manufacturers reduced their lamps' mercury content to Philips' levels, the amount of mercury released to the environment would still be approximately 240 kilograms per year. This value is based on the unlikely assumption that the current 20 percent recycling rate would not fall (although recycling would be strictly voluntary, as all three manufacturers' lamps would be nonhazardous waste when discarded). If, instead, all mercury-added lamps were classified as hazardous waste when discarded, all lamps were manufactured with the higher mercury level currently found in Osram-Sylvania and GE lamps, and the lamp recycling rate were to increase to 62 percent (not an unreasonable scenario, given that at least one State has attained a recycling rate of 70 percent), mercury releases would be reduced to approximately 240 kilograms per year—less than if all lamps were manufactured to Philips' specifications. DTSC expects to achieve a recycling rate of 70 percent or more, in part through education and outreach to the regulated community and the CUPAs, in part through enforcement, and in part through its ongoing collaboration with other stakeholders to develop a collection infrastructure for lamps and other universal wastes generated by households and CESQUWGs. Even if the lamp recycling rate did not surpass 70 percent, the amount of mercury released would be reduced to approximately 187 kilograms per year.

DTSC does not necessarily agree that the current system will lead to shorter-lived, less efficient lamps. While some commenters have alleged that Philips lamps are plagued by short life due to their low mercury content, Philips has provided data in its comments

showing that samples of its Alto lamps exceeded industry standards for median lamp life. While not definitive, this data suggests that Alto lamps' longevity may not be adversely affected by their reduced mercury content. Also, no commenters provided data demonstrating that the TTLC has led to reductions in the efficiency of lamps. However, to the extent that their non-hazardous classification under the TTLC provides an incentive for consumers to purchase lamps that they may throw away, retaining the TTLC for lamps would encourage the preventable release of mercury to the environment through non-hazardous waste management and disposal. Note that the recycling requirement will not be limited to non-residential generators of mercury-added lamp waste, as the document recommends; the requirement will also apply to household generated lamps. Households will be exempt from the other management standards applicable to universal waste handlers, provided they recycle their lamps at a permitted facility. Other household-generated hazardous wastes are similarly exempted from most management requirements, but may not be disposed of in the non-hazardous waste stream.

NN-8 *Commenter incorporated as a comment a 1-page document titled "Land Disposal Policy Mercury-Containing Lamps." The document, on Osram Sylvania letterhead, argues that all non-residentially generated fluorescent lamps should be recycled. Four reasons for the recommendation are provided: fewer lamps will break when packaged for recycling than when lamps are disposed; several states have already partially or totally banned lamp disposal as solid waste, and other states are considering similar measures; most states "have expressed a preference that all mercury-containing lamps be recycled"; and generators of legally-disposed lamps may become liable for cleanup of landfills that later become Superfund sites. The document also recommends that households use household hazardous waste collection programs to discard lamps.*

DTSC has reviewed this comment and determined that no regulatory change is required. DTSC generally agrees with the commenter's rationale for suggesting that all waste mercury-added lamps be recycled. These regulations, for the most part, are consistent with the document's recommendation. The exception is that recycling will also be required for residentially-generated lamps (please see the response to comment NN-7, above).

Household hazardous waste collection programs will likely be an element of the universal waste collection infrastructure currently being developed.

NN-9 *Commenter incorporated as a comment a 14-page document that appears to be part of a catalog of Osram-Sylvania lamps. Various data is provided in seven "Product Information Bulletins," for seven lamp categories. Data includes information on lamp life, light output, wattage, size, color, etc. Products included are compact fluorescent lamps, high-pressure sodium lamps, and fluorescent tubes.*

DTSC has reviewed the submitted document and has determined that no regulatory change is necessary. The document illustrates the variety of lamps available on the market, many of which contain mercury. It shows that a lamp's mercury content is not a

reasonable basis for classifying it as hazardous or nonhazardous. As discussed in the ISOR, factors such as lamp life, size, color, and light output are not taken into account when concentration is the only basis for making a hazardous waste determination. (Please see the response to comment T-18, incorporated herein.)

Hazardous Waste Listing - M003 - Support - Phase-In Date

Californians Against Waste

F-4 *The commenter objects to extending the exemption for M003 out to 2006. This time period will provide a disincentive for manufacturers and other stakeholders to work together on legislation to establish a funding mechanism to ensure recycling.*

DTSC has reviewed this and other similar comments, and has decided to make the M003 listing effective in 2004, rather than 2006. (Please see the responses to comments HB-3 and HB-4, incorporated herein.) As discussed in the response to public hearing comment M-8, DTSC has formed a workgroup to develop and implement a collection infrastructure for universal wastes generated by households and Conditionally Exempt Small Quantity Universal Waste Generators. This workgroup is composed of representatives of DTSC and the CIWMB, and will be expanded to include other stakeholders in the future. The collection infrastructure the workgroup develops could recommend fees to fund recycling, but such fees would have to be imposed by the legislature, because neither DTSC nor CIWMB has authority to impose such fees.

General - Enforcement

F-8 *Incentives and enforcement are needed to promote source reduction, recycling and aggressively enforce existing/proposed disposal ban.*

<u>Incentives</u>

DTSC has reviewed this comment and determined that no regulatory change is necessary. The hazardous waste listings in section 66261.50 of these regulations promote source reduction and recycling:

- When mercury-free substitutes for listed products already exist, the proposal encourages their use, because mercury-free products are not subject to the hazardous waste listing;
- When mercury-free alternatives are not yet available, the proposal encourages their development because, these alternatives would not be subject to the hazardous waste listing; and
- When a listed mercury-containing waste is generated, the proposal encourages recycling over disposal by allowing simpler, less stringent management as universal waste.

See the responses to comments T-5, T-24, and several others, for further discussion.

Enforcement

By designating discarded mercury-added products as hazardous wastes, these regulations make these wastes subject to the enforcement provisions of California's Hazardous Waste Control Law. These provisions are found in article 8 of chapter 6.5 of the Health and Safety Code. Persons who fail to manage the new mercury-containing universal wastes pursuant to chapter 23 of title 22 of the California Code of Regulations, division 4.5, are also subject to enforcement provisions of article 8. Please see the responses to comments CC-4, DD-4, J-1, J-2, J-4, R-2, HH-2, FF-4, and BB-4.

Both DTSC and the local Certified Unified Program Agencies (CUPAs) have authority to enforce the requirements applicable to persons who manage the universal wastes added by these regulations, including the newly-listed wastes. One requirement for most of these new universal wastes is that they ultimately be recycled. Handlers who manage these wastes under the reduced requirements of chapter 23 and then fail to recycle them are in violation of chapter 23, and are subject to enforcement.

Clean Water Action

J-11 *Phase in listings immediately for large quantity generators.*

DTSC has reviewed this and other similar comments, and has decided to make the M003 listing effective in 2004, rather than 2006. Both small and large quantity handlers of universal waste will be required to manage low-mercury lamps pursuant to the requirements of chapter 23 of title 22 of the California Code of Regulations, division 4.5, including the requirement that universal waste lamps be recycled. Please see the responses to public hearing comments HB-3 and HB-4, incorporated herein.

Onyx Environmental Services

U-2 *There is no reason to delay the listing of lamps until 2006. Buyers of low mercury lamps already know that other brands are Hazardous Waste; the collection infrastructure and capacity already exist; all tubes should be Hazardous Waste within 6 months of regulation's adoption.*

DTSC has reviewed this and other similar comments. DTSC believes that making the M003 listing effective six months after the adoption of the regulations would not provide sufficient time for education and outreach on the change in the regulatory status of low-mercury fluorescent lamps. However, a one-year delay will provide adequate time for these activities. Therefore, DTSC has decided to make the M003 listing effective in 2004, rather than 2006. Please see the responses to public hearing comments HB-3 and HB-4.

Hazardous Waste Listing - M003 - Support - Authority to Adopt, Necessity

Paul Hastings, representing OSRAM Sylvania

NN-1 *DTSC has ample authority to adopt the proposed regulations, vis-à-vis lamps, pursuant to HSC sections 25140 and 25141.*

DTSC has reviewed this comment and agrees with the commenter's statement. Please see the response to T-25.

NN-2 *The priorities mandated by HSC 25179.4 support, rather than constrain, DTSC's proposal. The proposed rule creates an incentive for the elimination of the use of mercury: listing lamps as hazardous waste.*

DTSC has reviewed this comment and strongly agrees that the regulations are fully consistent with the priorities of section 25179.4 of the Health and Safety Code. Please see the response to comment T-24.

Hazardous Waste Listing - M003 - Opposition

California CUPA Forum Board/HW TAG

N-1 *The proposed zero tolerance designated for mercury in fluorescent bulbs is too inclusive and would remove the incentive for businesses to switch to low mercury bulbs.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. As shown in the tables in the appendix, more mercury would be released to the State's environment if all of the lamps sold had Philips' reduced mercury levels than would be released under the M003 listing.

Center for Environmentally Advanced Technologies

I-1 *DTSC should delay adoption of the M003 listing to ensure the final regulations include effective mandates for mercury source reduction, as well as recycling.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. The regulations contain strong incentives for both source reduction and recycling, as discussed in the responses to comments T-5, T-24, and (briefly) several others. Therefore, no delay is needed to incorporate these elements.

I-10 *At best the proposal will likely stop further reduction in the level of mercury in lamps, because the incentive will be gone. At worst, it may cause mercury use in lamps to rise.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC has seen no evidence to suggest that the M003 listing will lead the manufacturers of lamps that already exceed the TTLC to increase the mercury content of their lamps, nor that Philips, the manufacturer of the low-mercury lamps that pass the TTLC, will increase the mercury content of Alto lamps to the point that they will fail the TCLP for mercury. As discussed in the ISOR and in the responses to comments T-19 and NN-9, a lamp's mercury concentration is not the only factor that determines its environmental impact. The number of lamps used and the frequency of lamp replacement are also critically important in the equation. Furthermore, as the tables in the appendix show, even if low-mercury lamps disappear from the California market, the increase in lamp recycling that will result from the designation of all waste fluorescent lamps as hazardous wastes will lead to a greater reduction in the release of mercury than would occur if all manufacturers were to reduce the mercury content of their lamps to Philips' level and the recycling rate remained unchanged (please see the response to comment NN-7).

I-11 *Recycling can reduce mercury releases, but there must be very high recovery rates, infrastructure, and enforcement--provisions for which the proposal does not provide. The burden for the large investments that would be needed would fall on financially strained state and local governments. Without these investments, the regulations have little chance to achieve their goal.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC agrees that the lamp recycling rate must be maximized in order to minimize the release of mercury to the State's environment. Through a combination of efforts, DTSC expects to achieve a recycling rate of 70 percent or more (please see the responses to comments M-8 and NN-7). Under these regulations, the generators of waste lamps will bear the modest costs of lamp recycling. The main costs to State and local governments will not be for implementing these regulations, but for complying with them by recycling their own low-mercury lamps when discarded. (Please see the fiscal and economic analyses prepared for this rulemaking.) Any noncompliance will be subject to enforcement.

As for the infrastructure, lamp recycling industry representatives have stated in their comments that the infrastructure and/or capacity to recycle California's waste fluorescent lamps, including its low-mercury lamps, is already in place (please see the responses to comments C-9 and U-2); DTSC is working to develop a collection infrastructure for lamps and other universal wastes generated by households and CESQUWGs (see responses to comments F-4 and M-8).

As discussed in response to comments F-2 and X-7, these regulations do not address enforcement, because DTSC and the CUPAs already have ample authority to enforce their requirements, pursuant to article 8 of chapter 6.5 of the Health and Safety Code.

I-12 *In order to be successful, the regulations should rely, first, upon source reduction, by getting manufacturers to use the lowest-mercury lighting technology available. This places the burden on the manufacturer, rather than the state and public.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. As discussed in the response to comment I-11, above, the costs of recycling lamps will be borne primarily by the generators of lamps, not by State or local government agencies. The M003 listing, first and foremost, promotes source reduction by providing an incentive to manufacturers to develop new types of high-efficiency mercury-free lamps. Manufacturers who succeed in developing and marketing such lamps will enjoy a marketing advantage over manufacturers of mercury-added lamps that are classified as hazardous wastes and subject to universal waste management and recycling. (Please see the responses to comments T-8 and T-24.)

I-17 *Commenter and "the entire environmental community" agree that source reduction must be first priority.*

DTSC has reviewed this comment and has determined that no regulatory change is necessary. These regulations promote source reduction by providing lamp manufacturers with an incentive to develop and produce new types of high-efficiency mercury-free lamps. See the responses to comment I-12, above, and comments T-8 and T-24.

I-18 *Reducing the use of mercury in products is the best way to prevent its release, especially in fluorescent lights that are subject to breakage. Source reduction should be the centerpiece of the new regulations.*

DTSC has reviewed this comment and has determined that no regulatory change is necessary. DTSC agrees that reducing the mercury used in lamps will reduce the release of mercury when lamps break. This is one reason why these regulations will be more environmentally protective than retaining the use of the TTLC for classifying waste lamps. The M003 listing will provide an incentive to all lamp manufacturers to develop new types of mercury-free lamps that will not be classified as hazardous waste at end-of-life; the TTLC provides no incentive for manufacturers to reduce their lamps' mercury concentration below 20 milligrams per kilogram. Also note the Statement of Reasons for the adoption of the TTLC did not mention reducing the concentration of contaminants as a goal. The TTLC may have led one lamp manufacturer to reduce the mercury content of its lamps to approximately 4 milligrams, but 70 percent of lamps sold continue to exceed the TTLC. These lamps are classified as hazardous waste and subject to the management standards of the Universal Waste Rule. These standards require that lamps be managed "in a way that prevents releases of any universal waste or component of a universal waste to the environment." Low mercury lamps that are not currently classified as hazardous wastes are not subject to this requirement. The M003 listing will require all mercury-added lamps to be managed "in a way that prevents releases of any universal waste or component of a universal waste to the environment." Consequently, fewer lamps will break and less mercury will be released.

As discussed in the responses to comments T-8 and T-24, these regulations provide a stronger incentive for source reduction than the TTLC does; as such, source reduction is the "centerpiece" of these regulations.

I-19 *Since the adoption of the TTLC in 1991, mercury use in lamps has dramatically declined (67 percent since 1990, according to NEMA data). Philips has taken a leadership role in this reduction, marketing lamps to take advantage of the fact that they pass TTLC. The TTLC is good public policy because it has encouraged Philips to do this--to "head the pack."*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC's Final Mercury Report documents the reductions in the average mercury content of lamps over the past 20 years.[7] However, DTSC does not agree with the commenter's attribution of these reductions to the adoption of the TTLC. (Note that the TTLC was promulgated in 1984, not 1991 as the commenter states). In the ensuing years, only one manufacturer (Philips Lighting Company) has produced fluorescent lamps with mercury concentrations below the TTLC; the other major lamp manufacturers, which account for approximately 70 percent of the fluorescent lamp market, have not followed suit. Assuming that the objective of the TTLC was to motivate manufacturers to reduce the mercury concentration in their lamps below 20 milligrams per kilogram (which is not the case---nowhere in the FSOR for the TTLC are fluorescent lamps even mentioned), then it has not been particularly successful, notwithstanding the commenter's assertion that it is "good public policy." It does appear that all three major lamp manufacturers have reduced the mercury dose in their lamps in order to meet U.S. EPA's TCLP for mercury. A check of their Internet sites reveals that all three major lamp manufacturers produce lamps that are marketed as "TCLP passing" or "TCLP compliant." Please see the response to comment T-5.

I-2 *These regulations replace the use of the TTLC for lamps with the M003 listing. The listings' reliance on recycling but not source reduction could inadvertently lead to an increase in the use of mercury in California.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC has not abandoned the TTLC for non-mercury lamps and many other hazardous wastes. However, DTSC has decided to list all mercury containing lamps as hazardous. These regulations do not rely on recycling to the exclusion of source reduction. They promote source reduction by providing manufacturers with an incentive to develop and market new types of highly energy efficient lamps that use no mercury and promote recycling by requiring it as a condition of universal waste management. Please see the response to comment T-24 for further discussion of how the regulations promote source reduction and support the priorities of Health and Safety Code section 25179.4.

Listing mercury-added lamps as hazardous wastes in California will not cause lamp manufacturers to drastically increase the mercury content of their products, because doing so may make the lamps exceed the TCLP. Most States use the TCLP to classify waste lamps as hazardous or nonhazardous. Even if the mercury content of some fluorescent lamps were to be increased somewhat, lamps that contain more mercury may not have a

[7] DTSC Final Mercury Report, page 51.

greater adverse impact on the environment if the increased mercury results in longer life (and consequently, less frequent disposal). See the response to comment T-16 for further discussion of why these regulations will not result in large increases in the use of mercury in the manufacture of fluorescent lamps.

I-20 *Philips lamps have less than half the mercury of their competitors. They have offered to share their technology with competitors. The new regulations should spur these competitors to lower their mercury to Philips' level.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. Despite Philips' offer to share its technology with its competitors, and despite the fact that the TTLC for mercury has been in place for almost 20 years, Philips' competitors have opted not to reduce the mercury content of their lamps to match Philips' (see the response to comment T-6). As shown in the appendix, even if all lamps were manufactured with Philips' mercury levels, approximately 240 kilograms would be released to the State's environment through the nonhazardous management and disposal (assuming that the voluntary recycling rate would not fall below the current value of 20 percent).
These regulations do, in fact, "spur" all lamp manufacturers to develop and produce new types of high-efficiency; mercury-free lamps that will not be subject to hazardous waste classification or universal waste management. See response to comment T-5.

I-21 *If the other manufacturers lowered their mercury to Philips' levels, mercury use could be reduced by nearly 3000 lbs over ten years.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC does not know how the commenter derived the 3,000 lbs figure; if the commenter's assertion is correct it is, nevertheless, misleading. More meaningful than the possible reduction in mercury use by lamp manufacturers is the reduction in mercury releases to the State's environment that will result from these regulations approximately 4,686 lbs, based on the tables in the appendix. The tables in the appendix show that approximately 400 kilograms of mercury per year are currently released through the nonhazardous management and disposal of fluorescent lamps. These regulations and other ongoing efforts are expected to significantly increase the lamp recycling rate. Assuming that California's recycling rate rises to that of Minnesota—70 percent—and even if low-mercury lamps were to disappear from the market, the annual release of mercury would be reduced to approximately 187 kilograms. The annual reduction in the release of mercury would be approximately 213 kilograms; the reduction over ten years would be approximately 2,130 kilograms (4,686 lbs).

I-23 *Roux Associates' study concludes that source reduction is far more effective in reducing mercury releases than recycling. If Philips' competitors lowered their mercury content to equal Philips', California could reduce mercury releases by 43 percent, assuming no change in recycling rate. If mercury levels remained the same as today, recycling would have to increase by 57 percent to achieve the same reduction.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. By DTSC's calculations (see tables in the appendix), the amount of mercury released to California's environment would be reduced by approximately 39 percent if all lamp manufacturers were to reduce the mercury content of their lamps to Philips' levels. However, Philips' competitors are not likely to match Philips' mercury levels. In the more than 5 years since its Philips introduced its TTLC-passing lamps, no other manufacturer has been induced to make the mercury reductions that Philips has. DTSC sees no reason to expect that these manufacturers would make such reductions in the future if mercury-added lamps were to continue to be classified using the TTLC.

Through a combination of efforts, DTSC believes that a recycling rate of 70 percent or higher is attainable. These regulations, which will require recycling of all mercury-added lamps that are managed as universal wastes, are critical to achieving a high lamp recycling rate. Several other factors will help to increase lamp recycling:

- Public education and outreach by DTSC;
- The collection infrastructure for universal wastes generated by households and CESQGs, which is currently being developed; and
- The sunset of the current household and CESQUWG temporary disposal exemptions.

As the tables in the appendix show, even if Philips were to leave the California market or increase the mercury dose of its lamps to that of its competitors, significantly less mercury would be released in a scenario where 70 percent of lamps are recycled (approximately 186.53 kilograms) than in the scenario where all lamps are manufactured with Philips' mercury levels and the current 20 percent recycling rate remains unchanged (approximately 240.60 kilograms).

I-25 *Source reduction places the burden on manufacturers to invest in technology, whereas recycling burdens the state and consumers.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. These regulations promote both source reduction and recycling. They promote source reduction by encouraging manufacturers to develop new types of highly efficient mercury-free lamps; manufacturers will bear the costs of developing and producing these lamps, but these costs will be passed on to lamp purchasers. They promote recycling by requiring lamps that are managed under the reduced requirements of the Universal Waste Rule to be recycled. The costs of recycling will be borne by the generators of mercury-added lamp waste.

I-26 *DTSC should include rules and incentives to require all manufacturers to use the lowest-available mercury technology and credit and encourage further reductions.*

DTSC has reviewed this comment and determined that no regulatory change is needed. DTSC has no authority to regulate the formulation of products, or the technology used to manufacture products. However, DTSC can provide indirect incentives to manufacturers

to eliminate the use of hazardous substances such as mercury. These regulations provide such an incentive. Please see the response to comment T-24, incorporated herein.

I-29 *The regulations should be withdrawn and replaced with a program with source reduction as its centerpiece. The current proposal says "mercury content really doesn't matter." By promoting mercury reduction in lamps, California can be a positive model for the nation. The commenter offers to "work with the Department to achieve this aim."*

DTSC has reviewed this comment and determined that no regulatory change is needed. The listing of mercury-added lamp waste as hazardous waste will promote source reduction as the top priority waste management practice by promoting the development of high-efficiency, mercury-free lamps. Until such lamps are available, the regulations require mercury-added lamps that are managed under the Universal Waste Rule to be recycled. These regulations say, "low-mercury lamps that are disposed of in the nonhazardous trash are more harmful to the environment than higher mercury lamps that are recycled."

I-3 *Source reduction will achieve the greatest benefit at the lowest cost. DTSC should take the time to develop a set of source reduction measures, with input from stakeholders.*

DTSC has reviewed this comment and determined that no regulatory change is needed. The listing of mercury-added lamp waste as hazardous waste will promote source reduction. Please see the response to comments I-25, I-29, and T-24, incorporated herein.

I-4 *2400 lbs. of mercury are contained in lamps sold annually in California. Mercury is highly toxic, due to its tendency to biomagnify in food fish. Thus, it is imperative to reduce the use of mercury as much as possible.*

DTSC has reviewed this comment and determined that no regulatory change is needed. DTSC does not have the authority to regulate the use of mercury in products.

DTSC calculates that approximately 1,156 lbs of mercury are contained in the lamps sold annually in California.[8] Nearly 200 lbs of this mercury is contained in low-mercury lamps. DTSC discusses the toxic and bioaccumulative nature of mercury in some detail in its Final

[8] Seventy-five million lamps are consumed per year in California [2.2 lamps per capita, per year (source ALMR) times 33.8 million people (source: US Census 2000)]. Thirty percent of these lamps are Philips Alto, which contain 4.01 milligrams of mercury each, on average (see tables in the appendix; source of data used in calculations: Roux Associates). The remaining 70 percent are other brands, and contain 8.29 milligrams of mercury each, on average (see tables in the appendix; source of data used in calculations: Roux Associates).

Philips Alto: 75 Million lamps x 30% x 4.01e-6 kilograms/lamp x 2.2 pounds/kilogram = **198.5 pounds**
Other Brands: 75 Million lamps x 70% x 8.29e-6 kilograms/lamp x 2.2 pounds/kilogram = **957.5 pounds**
Total: 198.5 lbs + 957.5 lbs = **1,156 lbs**

Mercury Report. Philips Lighting Company has stated that the TTLC for mercury induced it to develop low-mercury lamps. The argument that retaining the TTLC will lead to lower mercury levels in all lamps is weak, because the other major lamp manufacturers have not followed Philips' lead for more than five years after Philips TTLC-passing lamps were introduced. Even if one accepts the argument that the TTLC provides an incentive for all lamp manufacturers to lower the mercury concentration in their lamps below 20 parts-per-million (or below a revised TTLC of 15 parts-per-million), once they did so, manufacturers would have no incentive to make further reductions in mercury use.

These regulations provide manufacturers with an incentive to develop new types of high efficiency lamps that eliminate the use of mercury altogether. If one's goal is to reduce the use of mercury "as much as possible," reducing its use to zero would be the ultimate measure of success.

I-5 *Minimizing the levels of mercury in products prevents releases to the environment throughout the life cycle of the product (from "cradle to grave").*

DTSC has reviewed this comment and determined that no regulatory change is needed. As discussed in the response to comment I-4, these regulations encourage the eventual elimination of mercury from high efficiency lamps. As discussed in the response to comment I-29, until such mercury-free lamps are available, allowing low-mercury lamps to be disposed of in the nonhazardous trash will cause the release of more mercury than requiring them to be recycled as universal waste.

I-6 *Due to its emphasis on source reduction, California's regulatory program has resulted in dramatic reductions in the use of mercury in lamps--67 percent since 1990.*

DTSC has reviewed this comment and determined that no regulatory change is needed. DTSC noted the reductions in the use of mercury in lamps in its Final Mercury Report. All three major lamp manufacturers have lowered the mercury content of their products, in order to avoid having them classified as hazardous waste under the TCLP, when discarded. The TCLP is, and will continue to be, the basis for determining whether fluorescent lamps are hazardous wastes in most states. The M003 listing provides an incentive for the development of new mercury-free lamps that, if they eventually supplant mercury-added fluorescent lamps, will lead to a total elimination in the use of mercury in high-efficiency lamps.

I-7 *If all manufacturers adopted Philips' low-mercury lamp manufacturing technology, the State could reduce the mercury used in lamps by nearly 3000 pounds over 10 years.*

DTSC has reviewed this comment and determined that no regulatory change is needed. This comment is essentially the same as response to comment I-21, incorporated herein.

I-8 *The TTLC encourages consumers to buy low-mercury lamps, knowing they can*

throw them in the trash. This incentive, which the listing would replace, has driven the reduction in mercury used in lamps in California.

DTSC has reviewed this comment and determined that no regulatory change is needed. See the discussions in the ISOR, FSOR and the responses to comments I-10, NN-9, and T-18 for discussion of the problems with relying on a lamp's mercury concentration as the sole factor for assessing its environmental impact.

I-9 *The regulations don't replace the TTLC with other source reduction mandates or incentives.*

DTSC has reviewed this comment and determined that no regulatory change is needed. The responses to many comments illustrate the ways in which these regulations provide a stronger incentive for source reduction than does the current use of the TTLC for classification of lamps. See, in particular, the responses to comments T-18 and T-24, incorporated herein.

Mid-West Wholesale Lighting Corporation

PP-1 *We purchase Philips Alto lamps because they are the only ones that pass the TTLC.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. If the commenter chooses Alto lamps out of concern for the environment, DTSC presumes that it will continue to use them, whether or not they are hazardous wastes at end-of-life. If the commenter purchases Alto lamps because they can be disposed of as nonhazardous waste, the disposal of each low-mercury lamp causes the release of approximately four milligrams of mercury that would not be released if the lamps were recycled, as these regulations will require. If all of the approximately 22.5 million Alto lamps sold annually in California were managed and disposed of as nonhazardous waste, nearly 200 lbs of mercury would be released to the State's environment per year.[9]

PP-2 *Philips is essentially being punished for its innovation, and we are being penalized for being environmentally responsible.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. These regulations are being adopted to prevent the release of mercury into California's already contaminated environment, not to "punish" Philips. The calculations in the tables in the appendix illustrate that the classification of all mercury-added waste lamps will prevent the release of thousands of grams of mercury to the State's environment.

Hazardous Waste Listing - M003 - Opposition

Nielsen Merksamer, representing Philips Lighting

[9] See the footnote to the response to comment I-4 for the calculation.

T-1 *Philips Lighting Company strongly opposes the proposed regulations, insofar as the proposal lists all mercury-containing fluorescent lamps as hazardous.*

DTSC has reviewed this comment and has determined that no regulatory change is necessary to address it. The Initial Statement of Reasons and Final Statement of Reasons (ISOR and FSOR) for these regulations demonstrate their necessity. Briefly, DTSC has determined that all mercury-added waste lamps should be classified as hazardous waste and diverted from nonhazardous waste management and disposal. This determination is based on the following facts, which are documented in DTSC's Final Mercury Report:

- California's environment is heavily contaminated with mercury in some locations;
- Mercury is a persistent, bioaccumulative, and toxic substance;
- The high levels of mercury in some waters in California have led to the contamination of sport fish with methylmercury, a highly toxic organomercuric compound;
- The levels of methylmercury in some fish species in some of the State's waters are so high that the Office of Environmental Health Hazard Assessment has advised the public to limit or eliminate the consumption of these fish;
- The disposal of products with intentionally-added mercury contributes additional mercury to the State's already contaminated environment; and
- Of the mercury-added products that are managed and disposed as non-hazardous waste, lamps are one of the largest contributors of mercury to the State's environment;

Based on information and data submitted by the commenter regarding the volumes of lamps and the concentrations of mercury currently in lamps, DTSC determined, as summarized in the tables located in the appendix:

- The non-universal waste management and disposal[10] of mercury-added lamps results in the preventable release of several hundred kilograms of mercury to California's environment annually;
- Approximately 70 kilograms of mercury is released to the State's environment from the waste management and disposal of low-mercury lamps that are currently classified as nonhazardous waste.

Additionally, DTSC determined that sufficient capacity exists to recycle all mercury-containing fluorescent lamps and that classifying all mercury-containing waste lamps as hazardous waste will promote source reduction, product substitution and recycling.

[10] Non-universal waste management and disposal includes disposal of exempt household and small quantity generator fluorescent lamps disposed in municipal landfills; illegal disposal of fluorescent lamps into municipal landfills; and disposal of lamps into hazardous waste landfills.

Hazardous Waste Listing - M003 - Opposition – Consistency with Health and Safety Code section 25179.4

T-2: *The proposed listing contradicts Health and Safety Code section 25179.4, which requires DTSC to promote source reduction before recycling in new programs it develops and in carrying out Chapter 6.5.*

DTSC has reviewed this comment and has determined no regulatory change is necessary. The proposal is consistent with Health and Safety Code section 25179.4. The proposal promotes source reduction and recycling. It also discourages disposal of hazardous waste to land. The consistency of this proposal with section 25179.4, and the overall Health and Safety Code, is discussed below in detail.

For reasons explained in the Initial and Final Statement of Reasons and response to comment T-24, incorporated herein, DTSC has complied with Health and Safety Code section 25179.4. Regulating all mercury containing fluorescent tubes as hazardous waste will encourage further efforts to develop hazard-free alternatives. From this standpoint, the regulations will achieve the Legislature's primary objective of protecting public health and the environment while also promoting eventual source reduction.

The commenter misconstrues the meaning and application of Health and Safety Code section 25179.4 to limit classification (listing) of waste. Section 25179.4 states:

"In ... *carrying out this chapter*, the department shall promote the following waste management practices in order of priority:..."

(a) Reduction of hazardous waste generated.
(b) Recycling of hazardous waste.
(c)Treatment of hazardous waste.
(d) Land disposal of residuals from hazardous waste recycling and treatment.

To give meaning to the term "reduction of hazardous waste generated" in subdivision (a) of section 25179.4, DTSC must first carry out Chapter 6.5 of the Health and Safety Code and determine what is a hazardous waste as defined and governed by Health and Safety Code section 25117, 25140 and 25141.

Philips incorrectly interprets section 25179.4, subdivision (a) to override all other provisions, including mandates, of Chapter 6.5. Carried to its logical conclusion, this interpretation would require (or authorize) DTSC to de-regulate or fail to regulate, as hazardous waste, all waste that meets the hazardous waste listing criteria (see Health and Safety Code sections 25117, 25140 and 25141) merely because the product (*prior* to becoming a waste) is the least hazardous of the available options for its intended use. This interpretation would clearly undermine and run counter to the Legislature's primary objective in enacting Chapter 6.5-- protection of public health and the environment from potential hazards posed by the management of hazardous waste.

DTSC must first and foremost carry out the mandates of the chapter. To the extent there is flexibility to choose between various options and strategies and still meet the mandates, DTSC is required by section 25179.4 to promote all four listed practices, with source reduction as the preferred option, land disposal as the last resort, and recycling and treatment falling in-between.

Adoption of regulations that list fluorescent tubes and other mercury-containing waste as hazardous waste and specifying standards for their management are a fulfillment of the mandates found in sections 25140, 25141 and 25150, subdivisions (a) and (e). Health and Safety Code section 25179.4 does not allow DTSC to use any of the four listed priority practices to ignore or override any of the goals or mandates specifically spelled out in Chapter 6.5.

The overall intent of Chapter 6.5 of the Health and Safety Code is articulated in Health and Safety Code section 25101(a), which states:

" In order to protect the public health and the environment and to conserve natural resources, <u>it is in the public interest to establish regulations and incentives</u> which ensure that the <u>generators</u> of hazardous waste <u>employ</u> technology and <u>management practices</u> for the <u>safe handling, treatment, recycling</u> and destruction of their hazardous waste prior to disposal." (Emphasis added.)

Health and Safety Code section 25140 states:

The department <u>shall</u> prepare, adopt and may revise when appropriate, <u>a listing</u> of the <u>wastes which are determined to be hazardous</u>, and a listing of the wastes which are determined to be extremely hazardous... (Emphasis added.)

Health and Safety Code section 25141 states, in part:

(a) The department <u>shall</u> develop and adopt by regulation <u>criteria and guidelines for the identification of hazardous wastes</u> and extremely hazardous wastes.

...
...

(Emphasis added.)

Health and Safety Code section 25150 states, in part:

(a) The department <u>shall</u> adopt, and revise when appropriate, <u>standards and regulations for the management of hazardous wastes</u> to protect against hazardous to the public health, to domestic livestock, to wildlife, or the environment.

...
...

(e) The department shall adopt, and revise when appropriate, regulations for the recycling of hazardous waste to protect against hazards to the public health, domestic livestock, wildlife or the environment, and to encourage the best use of natural resources.

(Emphasis added.)

The commenter's interpretation of Health and Safety Code 25174.9 also contradicts section 25105, which states:

"No provision of this chapter shall limit the authority of any state or local agency in the enforcement or administration of any provision of law which it is specifically permitted or required to enforce or administer." (Emphasis added.)

Philips' interpretation of section 25179.4 would essentially nullify the various other provisions of Chapter 6.5 discussed above. Indeed, by treating subdivision (a) as a virtual absolute, rather than a preference, it nullifies subdivisions (b), (c) and (d) of section 25179.4. This would violate a long established cannon of statutory construction, which is that a statute should not be interpreted to bring out an absurd result. (*See*, *e.g*. Santa Clara County Local Transp. Authority v. Guardino (Howard Jarvis Taxpayers' Ass'n) (1995) 11 Cal.4th 220, 12 Cal.4th 344d, 45 Cal.Rptr.2d 207, 902 P.2d 225, as mod. on rehg. (Dec. 14, 1995); Re-Open Rambla, Inc. V. Board of Sup'rs (1995) 39 Cal.App.4th 1499, 46 Cal.Rptr.2d 822, review den. (Jan. 24, 1996))

Interpreting section 25179.4 to nullify, rather than harmonize with, other provisions of Chapter 6.5 would also violate the rule that whenever possible, potentially conflicting provisions should be reconciled in order to carry out the *overriding legislative purpose* as gleaned from a reading of the entire act. (*See, e.g.* Russell v. Stanford University Hosp. (1997) 15 Cal.4th 783, 64 Cal.Rptr.2d 97, 937 P.2d 640; Viking Ins. Co. V. State Farm Mut. Auto. Ins. Co. (1993) 17 Cal. App.4th 540, 21 Cal.Rptr.2d 590).

In conclusion, DTSC is authorized by sections 25140 to list mercury containing tubes as hazardous waste. Listing the tubes will create an incentive for manufacturers to develop mercury-free tubes (thus reducing the amount of hazardous waste generated). Allowing the listed tubes to be managed under the streamlined universal waste requirements (as opposed to full hazardous waste requirements) if the generator recycles will promote recycling. Both of these outcomes are consistent with Health and Safety Code section 25174.9. Philips' claim that section 25174.9 bans listing of lower mercury tubes is not supported by the plain language of the statute and conflicts with the Legislature's stated intent of Chapter 6.5 and the mandates within Chapter 6.5. This type of conflict contradicts well established rules of statutory construction. DTSC rejects the comment's assertion that the regulation package is not consistent with Health and Safety Code section 25174.9.

Hazardous Waste Listing - M003 - Opposition – Compliance with the Administrative

Procedure Act (APA)

T-3: *The proposed regulations do not meet some of the six APA standards for regulations.*

DTSC has reviewed this and other similar comments and responds to them in detail, below in response to comments T-22, T-23, T-24, T-25, T-26, T-26.1 and T-48 incorporated herein by reference.

Hazardous Waste Listing - M003 - Opposition – Consideration of Alternatives

T-4: *DTSC has failed to seriously review and consider fully authorized, consistent, and necessary alternatives to its deficient proposal*.

DTSC has reviewed this comment and has determined no regulatory change is necessary. DTSC has the authority to adopt regulations to list hazardous waste pursuant to Health and Safety Code section 25140. In addition, DTSC has determined that no 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 actions are proposed, or would be as effective as and less burdensome to affected private persons than the proposed regulations.

Hazardous Waste Listing - M003 – Opposition

T-5: *Philips' use of "source reduction manufacturing processes" is the main reason that the mercury content of lamps has been so dramatically reduced. DTSC's proposal will stop rewarding these processes. Without the TTLC, Philips would never have invested in source reduction technology and the amount of mercury in all manufacturers' lamps would not have been reduced as it has. All efforts to develop and deploy "technology to achieve greater source reduction" will "immediately halt" if DTSC makes the TTLC inapplicable to fluorescent lamps.*

DTSC has reviewed this comment and determined no regulatory change is necessary. The commenter claims the TTLC has caused reductions in the amount of mercury used in lamps and "investment in source reduction technology" would never have occurred if not for California's TTLC for mercury. DTSC believes the TCLP, rather than the TTLC, has led lamp manufacturers to lower the mercury content of their products, in order to avoid having them classified as hazardous waste under federal law.

Other evidence introduced by Philips also contradicts this comment. An attachment to the comment (a January 28, 2002 letter from Mr. Paul Walitscky, C.H.M.M., Manager of Environmental Affairs for Philips Lighting contradicts the commenter's assertions. On the first page of the letter, Mr. Walitsky states: "Philips' commitment to producing a product safer for the environment *predates* government regulation of mercury lamps." He further

states that Philips' ALTO lamps were introduced "years before" hazardous waste lamps were regulated under the federal Universal Waste Rule.

These regulations will not remove the incentive for manufacturers to develop and deploy "source reduction technology." The listing of discarded mercury-added lamps as hazardous wastes will, in fact, provided a stronger incentive for source reduction than does the current mercury TTLC. Manufacturers wishing to market lamps that will not be subject to universal waste management when they become wastes will have a new "bright line" of zero parts-per-million at which to aim. If the 20 parts-per-million TTLC has encouraged one lamp manufacturer to lower the mercury content of its products in order to escape hazardous waste classification, the new hazardous waste listing will provide a strong incentive for manufacturers to develop classes of energy efficient lamps that are entirely free of mercury. Development of new, mercury-free lamps ("product reformulation") is source reduction, as envisioned by the legislature in the Hazardous Waste Source Reduction and Management Review Act of 1989 (Health and Saf. Code, section 25244.14(e)(2)(D).

DTSC's support for, and encouragement of, source reduction remains strong. Pursuant to the Hazardous Waste Source Reduction and Management Review Act of 1989, any hazardous waste generator who routinely generates more than 12,000 kilograms (26,400 pounds) of hazardous waste during a calendar year is, and will continue to be, required to prepare and implement a source reduction plan, which includes selection of source reduction measures and setting of numerical source reduction goals. The proposed regulations in no way affect these requirements.

Lamps are consumable products that have a finite life. When lamps ultimately become waste, the amount of mercury used in their manufacture currently determines whether they are classified as hazardous or nonhazardous waste. These regulations will designate low-mercury lamps that do not exceed the TTLC for mercury as hazardous wastes. The regulations will not change the volume of waste lamps generated – only how lamps are classified and managed. The proposal promotes research and development on high efficiency mercury-free lamps; the eventual development and marketing of such lamps will yield a real reduction in the generation of hazardous waste.

DTSC acknowledges that the reduced use of mercury in lamps by the major lamp manufacturers has reduced the amount of mercury that enters the environment when lamps are managed and disposed of as nonhazardous waste[11]. All three major lamp manufacturers have stated that they have made large investments in manufacturing technology, which have allowed them to achieve these reductions. However, as documented in DTSC's Final Mercury Report, in many areas of the State, California's environment is unacceptably contaminated with mercury. Allowing fluorescent lamps,

[11] The majority of the fluorescent lamps not being recycled as universal waste are disposed to a municipal landfill either (1) under the temporary disposal exemptions for households and small quantity generators or (2) illegally disposed. However, DTSC does not have detailed information that would allow definitive conclusions.

even those with reduced mercury levels, to be managed and disposed of as nonhazardous waste will allow the preventable release of thousands of grams of mercury to the State's environment.

The fact that the majority (approximately 80 percent) of fluorescent lamps are disposed of in the nonhazardous waste stream highlights the inadequacy of the current regulatory scheme at reducing the preventable release of mercury from this source. A multifaceted strategy is needed if the amount of mercury released to the environment through the disposal of lamps is to be significantly reduced. The listing of all mercury-added lamps as hazardous wastes is one element of such a strategy. The other elements include the sunset of the existing disposal exemptions for lamps generated by households and very small quantity generators, the requirement that all universal waste lamps be recycled, the establishment of a lamp collection infrastructure and public education.

Hazardous Waste Listing - M003 – Opposition

T-6: *Philips' manufacturing process that enables its lamps to pass the TTLC "is neither proprietary nor secret." Manufacturers in Europe employ similar technology. "Has the Department made any effort to ascertain the reason for this dissimilar behavior?"*

DTSC has reviewed this comment and has determined that no regulatory change is necessary. As discussed above, all of the major lamp manufacturers have stated that they have invested in manufacturing technology to reduce the amount of mercury used in their lamps. While DTSC acknowledges that these reductions are environmentally beneficial, the final Mercury Report and response to comment T-5 above document that California still has a very serious mercury contamination problem. Also, DTSC has no authority to regulate the use of hazardous materials in manufacturing processes. Lamps fall under DTSC's regulatory purview only when they become wastes. This comment is beyond the scope of the rulemaking.

Hazardous Waste Listing - M003 - Opposition - Suggested Alternative

T-8: *If the TTLC is kept in place for lamps, and is lowered to 15 parts-per-million, "99% of our lamps will pass the revised standard."*

T-27*: Instead of the M003 listing, the TTLC for mercury should be lowered from 20 to 15 ppm.*

The commenter makes this comment to support an alternative proposal for the classification of mercury-added lamps. Rather than designating all lamps with added mercury as hazardous wastes, the commenter proposes to lower the TTLC for mercury from the current value of 20 parts per million to 15 parts per million as an alternative the M003 listing. DTSC considered and discussed this alternative in the ISOR. DTSC has determined that this alternative would not be as effective at promoting reductions in the amount of mercury entering the environment, the use of mercury-free alternatives to

mercury-added products, or recycling. Development of mercury-free alternatives, which these regulations promote, will yield a real reduction in the amount of hazardous waste generated.

Data included in the commenter's submittal indicate that TTLC-passing Philips ALTO lamps have a 30 percent market share. The other lamp manufacturers, taken together, represent 70 percent of the fluorescent lamp market. Because Philips ALTO lamps are the only TTLC-passing fluorescent lamps, these percentages show clearly that most lamps currently sold do not meet even the current TTLC for mercury, 20 milligrams per kilogram. DTSC does not share the commenter's confidence that lowering the TTLC for mercury by 25 percent will induce the manufacturers of higher-mercury lamps to further lower their products' mercury content. If these manufacturers will not (or cannot) reduce their use of mercury to meet the current 20 parts-per-million threshold, there is little reason to expect that they would do so if the threshold were lowered to 15 parts-per-million.
DTSC is not discarding the TTLC. The commenter's suggestion does not take into consideration its impact on generators of waste streams other than discarded lamps. Lamps represent a very small fraction of the total mass of waste generated annually in California. Lowering the TTLC for mercury would affect many other waste streams, some of them very large. These wastes would be classified as hazardous or nonhazardous based on the lowered TTLC value and many would exceed it. These wastes (including soils, sludges, ash, etc.) would become subject to full hazardous waste regulation.

Regulating these diverse waste streams could tax the State's hazardous waste transportation, treatment, recycling, and disposal capacity without supporting the three objectives of these regulations: encouraging pollution prevention through the use of mercury-free products; encouraging development of products that use alternatives to mercury; and encouraging mercury recycling.

The regulations' intent is to curtail the preventable release of mercury during the management and disposal of products that meet one or both of the two following criteria: they can be recycled and/or have mercury-free alternatives available. Classifying high-volume, low mercury waste streams other than the products identified by DTSC as meeting these criteria would not support the regulations' objectives.

If a lower TTLC value applicable only to waste lamps were established, the inclusion of other low-mercury wastes that are not products, have no alternatives, and cannot be recycled would be avoided. However, even if this alternative proposal were modified to apply only to lamps, preventable releases of mercury would occur (70 kilograms according to the commenter's data. See the response to comment T1). DTSC's conclusion that the alternative would be less effective at promoting the goals of this rulemaking than the proposed hazardous waste listing would remain unchanged.

Lowering the TTLC would not require lamp manufacturers to lower the total concentration of mercury in their lamps. Listing all mercury-containing lamps and allowing them to be managed as universal waste only if recycled will promote manufacturers to develop

mercury-free alternatives and increased recycling. Because recycling technologies and capacity already exists, the proposed approach better promotes recycling, thus reducing the amount of mercury entering the environment much more effectively than simply lowering the TTLC.

Hazardous Waste Listing - M003 - Opposition

T-9: *DTSC relies exclusively on recycling of lamps to reduce mercury releases. This reliance contradicts two of three stated objectives of the regulations: encouraging the use of mercury-free products, use of mercury alternatives, and recycling.*

DTSC disagrees with the commenter's assertion that the proposal does not promote its stated objectives. In the case of lamps, the proposal promotes recycling (objective 3) by requiring it for lamps that are managed as universal wastes. The somewhat higher cost and compliance with universal waste management standards provide an incentive for lamp manufacturers to develop new types of high efficiency, mercury-free lamps (objective 2). If and when they are developed, the fact that such lamps would not be subject to the proposal's hazardous waste listing will motivate the users of electric lighting to purchase the newly developed mercury-free lamps (objective 1).

DTSC believes that the regulatory approach contained in this proposal strikes a balance that will promote proper management and recycling of waste fluorescent lamps while preserving the incentive to use energy efficient forms of lighting. For some of the listed wastes, mercury-free substitutes that meet all of the performance specifications of their mercury-containing counterparts are already available (e.g., mercury-free switches). By contrast, while mercury-free lamps are currently available, they are not equivalent in performance to fluorescent lamps. These regulations will provide an incentive that does not now exist for the development of new types of mercury-free lamps that meet all of the requirements of users of fluorescent lamps.

Hazardous Waste Listing - M003 - Opposition

T-9.1: *The Department proposes to exchange quantifiable reduction in mercury use for the unsupported promise of a 'robust' recycling marketplace.*

The adequacy of the lamp recycling marketplace is not an "unsupported promise," but a reasonable expectation based on available information and the ongoing efforts of DTSC and other State agencies. As discussed earlier, the regulations do not replace or de-emphasize reductions in the use of mercury in lamps in favor of recycling. The proposal promotes source reduction above recycling (as discussed in response to comment T-5), but also promotes recycling above disposal; both will reduce releases of mercury into the environment.

The classification of all mercury-added lamps as hazardous wastes, in conjunction with the

requirement that hazardous waste lamps be recycled in order to be eligible for management as universal waste will provide a powerful incentive for recycling of waste lamps, rather than disposing of them. This incentive for recycling will, in turn, lead to an increase in demand for the already available lamp recycling services. The Universal Waste Rule provides handlers with flexibility in managing hazardous waste lamps, and lowers barriers to the growth of the existing lamp collection and recycling infrastructures. DTSC believes that these infrastructures will expand and new businesses will be established in response to the increased demand for recycling services, such as collection, storage, and transportation, which will result from the adoption of these regulations.

Representatives of the lamp recycling industry have stated that their industry already has the capacity to recycle all fluorescent lamps generated in California[12,13]. Because the industry's capacity is already ample, larger-quantity handlers are already required to recycle universal waste lamps. The collection infrastructure for lamps produced by households and very-small quantity generators still needs to be developed, to feed the existing recycling infrastructure. For this reason, under the Universal Waste Rule, households and Conditionally Exempt Small Quantity Universal Waste Generators (CESQUWGs) are temporarily exempt from the requirement to recycle their hazardous waste lamps (including the low mercury lamps affected by these regulations). During the period of time these temporary exemptions are in effect, DTSC is working with other State agencies (notably, the California Integrated Waste Management Board) to develop and implement the needed collection infrastructure for smaller generators.

Hazardous Waste Listing - M003 - Opposition

T-10 *The proposal does nothing to promote 'nonmercury-containing products' or 'the development of products that use mercury alternatives.' The objectives could be met if the Department promoted the use of low-level lamps and discouraged the used of needlessly high-level lamps.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. The proposed listing of all mercury-added lamps as hazardous wastes promotes the development of mercury-free lamps; the existing protocol for classifying waste lamps does not. The response to comments T-8 and T-24, incorporated herein, demonstrate how the proposal promotes mercury-free alternatives more effectively and better meets the objectives.

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[12] ". . . The infrastructure is in place to recycle all lamps that can be diverted from landfills." (Source: November 1, 2001 letter from Mr. Paul Abernathy, Executive Director of the Association of Lighting and Mercury Recyclers to Ms. Peggy Harris, Chief of the State Regulatory Programs Division of the Department of Toxic Substances Control.)

[13] ". . . Current technology and capacity exist to recover the mercury from [low level mercury lamps]." (Source: September 27, 2002, letter from Mr. Kevin D. McGrath, Senior Manager of Environmental Affairs, Onyx Environmental Service, L.L.C., to Ms. Joan Ferber, Regulations Coordinator, Environmental Analysis and Regulations Section of the Department of Toxic Substances Control.)

T-11 *The State has failed to enforce the Metallic Discards Act (Chapter 849, Statutes of 1991). The commenter is aware of no enforcement actions pertaining to this program. "On what basis does the Department believe its proposed recycling program will flourish when a similar program has foundered?"*

DTSC has reviewed this comment and has determined that it is not germane to the rulemaking. DTSC and the CUPAs have extensive, effective, inspection and enforcement programs. Hazardous waste generators are inspected periodically, primarily by the CUPAs in whose jurisdiction they operate. The CUPAs and DTSC also conduct inspections in response to complaints.

The commenter has identified the Metallic Discards Act recycling requirement as a program that has floundered. It should be noted, however, that there is an important difference between the Metallic Discards Act and these regulations: the authority for enforcement. The requirement to remove mercury switches (and other "materials that require special handling") from major appliances is found in section 42175 of the Public Resource Code, which was, until recently, enforced by the California Integrated Waste Management board and its Local Enforcement Agencies. Only when a mercury switch (or other hazardous material) was removed from a major appliance would it become a hazardous waste and the person removing the switch would become a hazardous waste generator. Only then did the person enter the enforcement jurisdiction of the CUPAs and DTSC. Under these regulations, the listed wastes are hazardous wastes; failure to manage them in accordance with applicable requirements (either as universal waste, pursuant to chapter 23 of division 4.5 of Title 22 of the California Code of Regulations or the full hazardous waste management requirements) would subject persons generating and managing them to enforcement by DTSC or the CUPAs.

T-12 *The Legislature has twice rejected the proposal the Department now advances: AB 751 (Jackson) in 2001 and AB 712 (Migden) in 2002. "It is inconceivable that the Department would adopt a policy that has been twice discarded by the Legislature."*

DTSC has reviewed this comment and determined that it is not germane to this rulemaking. Regulations are governed by the Administrative Procedure Act and dictate the rulemaking adoption process. Bills introduced by members of the Legislature follow a different process to become law. DTSC has demonstrated that the regulations meet the requirements of the Administrative Procedure Act. The responses to comments T-19, T-22, T-23, T-24, T-25, T-26 and T-26.1 provide some details regarding the Administrative Procedure Act and these regulations.

The commenter has mischaracterized these two bills. The regulations, as they affect fluorescent lamps, are very similar to AB 751, but distinctly different from AB 712. The commenter may be suggesting that M003 is not consistent with the intent of the Legislature. However, DTSC must base its regulations on the Legislature's intent as expressed in legislation that is successful; it would be unreasonable to attempt to ascertain the Legislature's intent from bills that were never fully voted on, such as the ones

submitted by the commenter. Furthermore, the legislature's actions on bills, which address similar subjects (lamps), but differ substantially in content and requirements (e.g., establishment of fees), are not relevant to DTSC's decisions in this rulemaking. The M003 listing is being adopted under the authority provided by Health and Safety Code section 25140, which clearly does reflect the intent of the Legislature.

Hazardous Waste Listing - M003 - Opposition - Suggested Alternative

T-13: *Keeping the TTLC for lamps will prevent more mercury from being released than will requiring all lamps to be recycled, particularly if the TTLC is reduced to 15 ppm.*

DTSC has calculated the amount of mercury that would be released to the State's environment under various scenarios, including the one proposed by the commenter. Because they pass the current TTLC of 20 milligrams per kilogram, the concentration of mercury in the Philips ALTO lamps was used as a starting point in DTSC's calculation of the hypothetical impact of reducing the mercury content of all fluorescent lamps to meet a revised TTLC of 15 milligrams per kilogram. These calculations show that even under the optimistic assumption that all lamp manufacturers would reduce the amount of mercury to 75 percent of the current average dose used in Philips ALTO lamps, approximately 180 kilograms of mercury would nevertheless be released to the State's environment (assuming that the current 20 percent lamp recycling rate remained unchanged). DTSC's calculations are summarized in the tables in the appendix. Please note there is no evidence that all manufacturers would actually lower mercury content to 15 ppm.

Additionally, the existing TTLCs were established based on applying risk assessment models available at the time, not on hazardous waste objectives. There is no scientific risk-based assessment for reduction of the TTLC to 15 parts per million, which would be subject to an external scientific peer review in accordance to Health and Safety Code section 57004. Also see response to comment T-8.

T-14: *TTLC is a foolproof test upon which customers rely to distinguish truly low-level mercury lamps from needlessly high-level mercury lamps.*

As discussed earlier, the proposed regulations do not preclude lamp manufacturers from referring to the mercury content of their products in their marketing programs. See the response to comment T-20, incorporated herein. The total amount of mercury released to the environment by "low-level" lamps is not low.

T-15 *DTSC's first two objectives (pollution prevention through use of nonmercury products and development of products that use mercury alternatives) are inappropriate for lamps. Source reduction should come first.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. The proposed listing of all mercury-added lamps as hazardous wastes promotes source reduction through the development of mercury-free lamps; the TTLC does not. The

response to comments T-8 and T-24, incorporated herein, discuss in some detail the ways in which the proposal supports the objective of the regulations.

Hazardous Waste Listing - M003 - Opposition - Suggested Alternative

T-16: *Without a TTLC-like threshold, lamps manufacturers will compete based on characteristics such as longevity; they will produce longer-lived lamps by adding more mercury. "Thereafter, one can hope the extremely high-level mercury lamp may be recycled."*

DTSC has concluded that listing mercury-added lamps as hazardous waste in California will not cause lamp manufacturers to drastically increase the mercury content of their products, because doing so would make the lamps exceed the TCLP regulatory limit and become a federally regulated universal waste in all states. All three major manufacturers produce lamps that pass the TCLP and most States use the TCLP to classify waste lamps as hazardous or nonhazardous. It would not be cost effective for manufacturers to produce higher mercury lamps for sale only in California, when a large majority of fluorescent lamps are sold in other states. Furthermore, even if the mercury content of some fluorescent lamps were to increase, lamps that contain more mercury would not necessarily have a greater adverse impact on the environment if the increased mercury content is offset by increased lamp life and, consequently, less frequent disposal.
DTSC will not simply “hope” for recycling. The proposed regulations will require recycling if waste lamps are to be managed under the reduced requirements of the Universal Waste Rule. Persons who fail to properly recycle universal waste lamps will be subject to enforcement by their CUPA or DTSC.

Hazardous Waste Listing - M003 - Opposition

T-17 *DTSC's proposal has led lamp manufacturers to claim that the TTLC is being discarded. "How would the marketplace and other manufacturers respond if the Department proposed a reduction in the TTLC? Would such an announcement induce other manufacturers to modernize their manufacturing processes? The Department must seriously investigate this alternative."*

DTSC has no knowledge of such claims. Generators are responsible for classifying their waste and managing it properly. As mentioned earlier in the response to T-8, incorporated herein, the TTLC is not being “discarded”—only its use for classification of four categories of discarded mercury-containing products is being eliminated. As discussed in response to comment T-5, classification of mercury-added lamps as hazardous wastes will serve as an incentive for the development of new types of very efficient mercury-free lamps; by contrast, DTSC has no reason to conclude that lowering the TTLC would induce the manufacturers of lamps that already exceed the existing TTLC of 20 milligrams per kilogram to further lower the mercury content of their lamps. Notwithstanding the commenter’s presumption that they have not yet done so, these manufactures claim that

they have invested substantial sums of money to modernize their production processes, and that further reductions in their lamps' mercury dose would compromise their performance and reliability.

In the original August 16, 2002, 45-Day Public Notice, DTSC considered the alternative of lowering the TTLC for mercury. DTSC concluded that this option would be less effective at promoting the objectives of the regulations than would the designation of discarded mercury-added products as hazardous waste. See the responses to comments T-8 and T-27 for a more detailed discussion.

T-18 *The TTLC has induced Philips "to produce a remarkably low-level lamp." Lowering the TTLC for mercury would induce Philips to lower the mercury level in its lamps even more. "On the basis of this evidence, the Department must continue to give top priority to source reduction. It has no authority to abandon a demonstrably successful program."*

As discussed in the ISOR, mercury concentration does not, by itself, determine the environmental impact of the mercury in a fluorescent lamp. Other variables (e.g., the lamp's life, fragility, and light output) affect the number of lamps used, the likelihood of breakage, and the frequency of disposal. The most environmentally protective approach is to prohibit the non-hazardous waste management and disposal of all mercury-added lamps, as this proposal does. To date, the TTLC has not induced the manufacturers of most lamps sold in California to make the mercury reductions that Philips has. Listing all mercury-added lamps as hazardous waste will promote the development of new types of highly efficient mercury-free lamps. This will be an incentive for source reduction, as envisioned by the Legislature.

Contrary to the commenter's assertion, the listing of mercury-added lamp waste as hazardous waste will promote—not abandon—source reduction as the top priority waste management practice. As discussed in more detail in the responses to comments T-5 and T-8, incorporated herein, the listing of mercury-added lamps provides an incentive for the development of mercury-free high efficiency lamps that does not exist under the existing system, while reducing the release of mercury into the environment.

T-19 *[The ISOR states that "DTSC believes a lamp's mercury content is not a reasonable basis for classifying it as hazardous or nonhazardous." Reasons given include that the weight of the lamp's non-mercury components determine whether or not it exceeds mercury concentration thresholds; and that other factors, such as differences in lamp life and light output are not taken into account when concentration is the only basis for making a hazardous waste determination.] This discussion is 'extraordinarily cursory' and "a modest adjustment to the TTLC would address this purported problem." The rationale for listing discarded lamps as hazardous wastes given in the ISOR is, "as a matter of law, . . wholly inadequate . . .."*

DTSC has reviewed this comment and determined that no regulatory change is necessary.

The discussion in the ISOR clearly and succinctly describes DTSC's rationale for replacing the existing concentration-based system for classifying discarded mercury-added lamps with a listing that designates all such lamps as hazardous wastes. The commenter has not provided information that DTSC's conclusion to list mercury-added lamps rather than using a mercury concentration threshold is an inadequate basis for classifying discarded mercury-added lamps as hazardous or nonhazardous. As to the adequacy of the ISOR: it complies with the requirements of subdivision (b), paragraph (1) of Government Code section 11346.2, in that it states "…the specific purpose of each adoption … and the rationale for the determination … that each adoption … is reasonably necessary to carry out the purpose for which it is proposed." Pursuant to subsection (b), paragraph (3) of section 11346.2, "reasonable alternatives to the regulation" (including the one favored by the commenter) and DTSC's "reasons for rejecting those alternatives," are also adequately discussed in the ISOR.

T-20 *Ending the use of the TTLC for lamps will create confusion. The TTLC has precise and growing meaning in the marketplace and is achieving quantifiable results.*

DTSC has reviewed this comment and has determined that no regulatory change is necessary to address it. DTSC disagrees with the commenter's assertion that the listing of discarded mercury-added lamps as hazardous waste will create confusion. In fact, for determining the management requirements that apply to lamps, the current situation is more confusing than the proposal. Currently, some of the lamps on the market are classified as hazardous wastes when they reach end-of-life, while others are not. Some generators (non-household generators of more than 100 kilograms of hazardous waste per month) are required to manage and recycle hazardous waste lamps as universal wastes, others (households and Conditionally Exempt Small Quantity Universal Waste Generators) are not. Under the proposal, the current confusion will be removed: management requirements for all mercury-added lamps will in the long term be the same.

Regarding the meaning of the TTLC in the marketplace: although all waste low-mercury lamps will be classified as hazardous waste under the proposal, lamp manufacturers will not be precluded from using the mercury content of their lamps for marketing purposes. Manufacturers of low mercury lamps could continue to market their lamps as such, provided they make clear that lower mercury levels do not exempt their lamps from the applicable universal waste management and recycling requirements.

The commenter does not elaborate on what "quantifiable results" mean within the context of the TTLC. DTSC assumes that the "quantifiable results" to which the commenter refers are increased sales of TTLC-passing Philips lamps. To the extent that some customers purchase these low-mercury lamps in order to avoid managing and recycling them as universal wastes, these "results" are of dubious environmental benefit, as compared with DTSC's proposal, which would prohibit the disposal of any mercury-added lamp as of February 9, 2006. DTSC has calculated that even if the mercury content of all of the lamps sold in California were reduced to meet the TTLC, approximately 240 kilograms would be released to the State's environment through the management and disposal of

lamps (assuming the current lamp recycling rate of 20 percent remained constant).[14]

T-21 *Suggestions that Philips lamps have shorter lives due to their lower mercury content is false, refer to attached laboratory test data. "Allegations to the contrary are false and should not be directly or indirectly incorporated into the record, absent independent verification. The record contains no evidence that any such effort has* been made."

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC has made no allegations regarding the longevity of Philips lamps. Any such assertions made by commenters on the proposal must be included in the record, pursuant to subdivision (b), paragraph (6) of Government Code section 11347.3.

Hazardous Waste Listing - M003 - Opposition – Necessity Standard

T-22: *The proposed regulations don't meet the necessity standard, vis-à-vis Health and Safety Code section 25179.4. Rather than being necessary to "effectuate the purpose" of this section, they contravene it.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. Pursuant to Government Code section 11349, to demonstrate "necessity," "the record of the rulemaking proceeding demonstrates by substantial evidence the need for a regulation to effectuate the purpose of the statute … that the regulation implements, interprets, or makes specific, taking into account the totality of the record. For purposes of this standard, evidence includes, but is not limited to, facts, studies, and expert opinion." The commenter asserts that the listing of mercury-added lamps contradicts Health and Safety Code section 25179.4, and therefore cannot effectuate the purpose of that statute. However, as shown in the responses to earlier comments (refer to response to comment T-5, incorporated herein), the proposal to list mercury-added lamps as hazardous wastes promotes, first and foremost, source reduction, and is therefore fully consistent with the priorities in section 25179.4. The proposal is also consistent with section 25179.4 for the reasons stated in response to comment T-2, incorporated herein.

The listing of mercury-added lamps also meets the necessity standard for Health and Safety Code section 25140. The listing implements Health and Safety Code section 25140, which requires DTSC to prepare and adopt a "listing of the wastes which are determined to be hazardous…." Section 25140 also authorizes DTSC to revise this listing "when appropriate." When identifying wastes to be listed pursuant to section 25140, DTSC is required to consider "the immediate or persistent toxic effects to man and wildlife and the resistance to natural degradation or detoxification of the wastes." DTSC's Mercury Report documents mercury's toxicity and persistence in the environment, and discusses the State's mercury contamination problems. The "facts, studies, and expert opinion" cited in the report fully satisfy the Administrative Procedure Act's "necessity" standard.

[14] See the tables in the appendix for calculations.

T-23: *The proposed regulations don't meet the authority standard. DTSC doesn't have the authority to replace the classification of lamps pursuant to TTLC, which supports Health and Safety Code section 25179.4, with a hazardous waste listing that opposes section 25179.4.*

DTSC has reviewed this comment and has determined that no regulatory change is necessary. First, Philips has not produced evidence that classification of lamps pursuant to the TTLC supports section 25179.4. Second, as discussed in response to comments T-2 and T-22, Health and Safety Code section 25140 requires DTSC to list wastes as hazardous wastes and authorizes DTSC to revise the list as appropriate. As discussed in the response to comment T-24, the proposed listing of mercury-added lamps as hazardous wastes is consistent with and promotes Health and Safety Code section 25179.4, rather than contradicts it. As discussed in response to comment T-2, even if the proposal did not promote source reduction, section 25179.4 does not nullify DTSC's obligations to carry out

other mandates within Chapter 6.5 of the Health and Safety Code, such as the mandate to list waste in section 25140.

Hazardous Waste Listing - M003 - Opposition – Consistency Standard

T-24: *The proposed M003 listing doesn't meet the APA's consistency standard, because it conflicts with Health and Safety Code section 25179.4 by promoting recycling over source reduction.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC disagrees with the comment. The listing of mercury-added lamps as hazardous waste is, in fact, completely consistent with section 25179.4's hierarchy of waste management practices.

Designating all discarded mercury-added lamps as hazardous waste will provide a stronger incentive for source reduction (reduction in generation of hazardous waste) than exists currently under the TTLC. Philips Lighting Company has stated that it has lowered the mercury content of it fluorescent lamps in direct response to California's TTLC for mercury. Other statements by Philips contradict this claim (See response to comment T-5). However, the other two major lamp manufacturers have failed to make similar reductions. The listing of all mercury-added waste lamps as hazardous waste will provide an incentive to all lamp manufacturers to develop and produce mercury-free high efficiency lamps as alternatives to mercury-added fluorescent lamps.[15] Provided mercury-free high efficiency lamps do not meet any other hazardous waste criteria, such lamps would not be hazardous wastes when discarded, and therefore would not be subject to hazardous waste or universal waste management requirements. By developing such lamps, manufacturers

[15] DTSC is aware of at least one company that is working to develop a mercury-free, energy efficient lamp: a Swedish company called LightLab AB (information available at URL: http://www.lightlab.se/index.htm).

would gain a valuable marketing advantage with both environmentally conscious consumers and those who simply wish to avoid having to comply with hazardous or universal waste management requirements.

After source reduction, recycling is the waste management practice that would be promoted next by the listing of mercury-added lamps as hazardous wastes. Handlers of waste mercury-added lamps would be required to recycle them in order to take advantage of the reduced requirements of universal waste management, including longer waste accumulation time limits, exemption from use of a registered hazardous waste hauler and hazardous waste manifest, and offsite consolidation of waste without a hazardous waste facility permit. Persons wishing to dispose of mercury-added lamps as hazardous waste rather than recycling them would be subject to the more stringent and more numerous requirements for fully regulated hazardous wastes—a strong incentive to recycle waste lamps rather than dispose of them.

DTSC's objectives for these regulations are fully consistent with Health and Safety Code section 25179.4, and all of the following objectives are met by the proposal:

- When mercury-free substitutes for listed products already exist, the proposal encourages their use, because mercury-free products are not subject to the hazardous waste listing; [reduction in generation of hazardous waste]
- When mercury-free alternatives are not yet available, the proposal encourages their development because, these alternatives would not be subject to the hazardous waste listing; [reduction in generation of hazardous waste] and
- When a listed mercury-containing waste is generated, the proposal encourages recycling over disposal by allowing simpler, less stringent management as universal waste.[recycling]

Hazardous Waste Listing - M003 - Opposition - Authority to Adopt

T-25: *The proposal conflicts with subdivision (f) of section 25150.6 of the Health and Safety Code, which gives DTSC the authority to modify waste management practices for 'hazardous waste lamps.' "Clearly, the statutory reference embraces (and codifies) the distinction between hazardous and nonhazardous lamps. The Department has no authority to subsequently erase the distinction."*

DTSC has reviewed this comment and determined that no regulatory change is necessary. Health and Safety Code section 25150.6 does not preclude DTSC from adopting additional lists of hazardous waste under the authority of section 25140. Health and Safety Code section 25140 requires DTSC to adopt "a listing of the wastes which are determined to be hazardous . . ." and authorizes DTSC to revise the listing "when appropriate."

Subsection (f) of section 25150.6 authorizes DTSC to exempt the management of certain specific hazardous wastes from the requirements of chapter 6.5 of the Health and Safety Code and instead regulate the management activity under the universal waste

management standards in Chapter 23 of Division 4.5 of Title 22 of the California Code of Regulations. DTSC may regulate as universal waste an eligible waste that is hazardous because it appears in a listing adopted pursuant to section 25140. In this case, low-mercury waste lamps will be identified as hazardous wastes in a listing adopted pursuant to section 25140 and, because they will be classified as hazardous wastes, these lamps will be eligible to be classified and managed as universal wastes. Sections 25140 and 25150.6 provide separate and distinct authorities. Section 25140 requires DTSC to list wastes as hazardous wastes and authorizes DTSC to revise the lists; section 25150.6 authorizes DTSC to exempt eligible hazardous wastes from certain management requirements.

DTSC is not "erasing the distinction" between hazardous and nonhazardous waste lamps. These regulations identify waste lamps with intentionally-added mercury as hazardous wastes, but waste lamps that do not meet the M003 listing description (i.e., those that contain no intentionally-added mercury) and do not meet any of the criteria adopted pursuant to Health and Safety Code section 25141 will continue to be classified as nonhazardous wastes. The distinction between hazardous and nonhazardous waste lamps will continue to exist.

T-26: *DTSC didn't adequately consider alternatives, including lowering the TTLC threshold for mercury, "the alternative compelled by Health and Safety Code section 25179.4." One of the criteria used to evaluate alternatives—availability of mercury-free substitutes—is not applicable.*

DTSC considered several alternatives to this proposal, including the one favored by the commenter, and concluded that none would be as effective in achieving the three objectives of the regulations listed in response to comment T-24, incorporated herein.

The response to comment T-8, incorporated herein, discusses why the listing of mercury-added lamps as hazardous wastes will be more effective at achieving these objectives than lowering the TTLC for mercury from 20 to 15 milligrams per kilogram, as the commenter proposes.

T-26.1: *DTSC's discussion of the rejected alternative of revising hazardous waste thresholds is legally deficient, not supported by rigorous analysis.*

DTSC has reviewed this comment and has determined that no regulatory change is necessary. The rationale for rejecting the commenter's preferred alternative—lowering the TTLC for mercury—remains valid: this alternative would not be as effective at achieving the objectives of the regulations. The ISOR and FSOR fully and adequately analyze the alternative. The response to comment T-8 discusses why the listing of mercury-added lamps as hazardous wastes will be more effective at achieving these objectives. The tables in the appendix illustrate that less mercury will be released to the State's environment if all mercury-added lamps are listed as hazardous wastes than would be released under the rejected alternative of lowering the TTLC. All of these documents demonstrate the rejection of the alternative is legal and supported by thorough, rigorous

analysis.

Universal Waste Management - Recycling Requirement - Infrastructure

T-28: *"There is no evidence in the record, including the discussion of alternatives, about the status of California's nascent recycling infrastructure or the ability, or inability, of the Department to enforce recycling."*

There is evidence in the record (statements by two commenters involved in the lamp recycling industry—see response to comment T-9.1) that the capacity to recycle California's fluorescent lamps already exists. Additionally, in preparing the Universal Waste Rule (UWR), DTSC found there are several firms operating fluorescent tube recycling facilities in California. Additional firms broker tubes to out-of-state facilities. Also, in preparation of the UWR, industry sources indicated to DTSC that existing facilities could expand capacity to accommodate the increased number of tubes that would be sent for recycling once the full UWR regulations came into effect. The recycling facilities have been reported as operating well below capacity due to the number of exemptions afforded to generators under existing regulations. The recyclers can expand capacity by adding equipment and workers, so expansion of supply of recycling services could be accomplished without increases in recycling fees (See, Economic and Fiscal Analysis for R-97-08: Universal Waste Rule, November 16, 2000).

Article 8 of Chapter 6.5 of the Health and Safety Code provides DTSC and the CUPAs with authority to enforce the requirements applicable to universal waste handlers, including the requirement to recycle lamps. The current proposal does not affect the existing administrative, civil, or criminal enforcement authorities; therefore, the comment is beyond the scope of the rulemaking.

Hazardous Waste Listing - M003 - Opposition

T-29 *DTSC 'concludes' that designating discarded mercury-containing lamps as hazardous waste will 'ultimately' result in the release of less mercury. "Use of the word 'ultimately' is curious and legally suspect." DTSC "believes that mere 'designation' will 'ultimately' achieve greater benefit. When? Why? The law does not permit conjecture of this nature, particularly when the alternative is specifically measurable progress."*

By "ultimately," DTSC means that the reduction in the amount of mercury released to the State's environment will not be fully realized immediately. The statement that the listing of mercury added lamps will ultimately lead to the release of less mercury is not based on conjecture, but on the delayed implementation dates of key elements of the proposal: 1) the listing for large quantity generators does not become effective until January 1, 2004; and 2) households and Conditionally Exempt Small Quantity Universal Waste Generators will be allowed to continue managing and disposing of some mercury-added lamps as non-

hazardous wastes until February 9, 2006, while the State's lamp collection infrastructure for smaller generators is developed. The tables in the appendix show the net amount of mercury that would be released through the nonhazardous management and disposal of mercury-added lamps under different scenarios. The calculations show that if California achieves the 70 percent lamp recycling rate that already exists in Minnesota[16], the net amount of mercury released to the State's environment (approximately 186.5 kilograms) would be less than under the optimistic scenario that the mercury dose in all of the lamps disposed of in California could be reduced to Philips' levels (assuming the current 20 percent recycling rate remained unchanged).

The effect of designating all mercury-added waste lamps as hazardous wastes will not be insubstantial. Currently, many lamps can be, and are, discarded in the nonhazardous trash and are subject to minimal management requirements. As hazardous waste, improper management and disposal of all mercury-added lamps will be illegal. Generators of hazardous waste lamps will be required to choose from one of two management options: full hazardous waste management, including recycling or disposal at a permitted hazardous waste facility, or management under the reduced requirements of the Universal Waste Rule, including mandatory recycling at a permitted lamp recycling facility. DTSC presumes that most lamp handlers will opt for the reduced universal waste management requirements, which include recycling. Philips has not produced, and DTSC is not aware of, any other evidence of an alternative that is "specifically measurable progress" toward reducing mercury contamination caused by disposal of florescent tubes.

Hazardous Waste Listing - M003 - Opposition - Suggested Alternative

T-30: *Manufacturers of lamps that are below 15 ppm mercury should be required to actively assist their customers in recycling their very low-level lamps.*

DTSC has reviewed this comment and has determined that it is beyond the scope of this rulemaking. DTSC lacks the authority to require manufacturers to assist their customers in recycling low-level mercury lamps, although DTSC agrees that the manufacturers of lamps with any amount of added mercury should be encouraged to do so. Such assistance could be in the form of product labels, educational signage at retail establishments, retail take-back, etc.

Hazardous Waste Listing - M003 - Opposition - Documents Submitted

T-31: *In a letter submitted by the commenter, a lamp recycler "reveals that Philips' lamps are recycled at a rate - 36% - that nearly doubles the 20% figure identified in the record." The commenter attributes this statement to "Philips active promotion of recycling" and the "environmental ethic" of its customers. "Clearly the combination of*

[16] January 28, 2002 letter from Mr. Paul Walitsky, C.H.M.M., Manager of Environmental Affairs for Philips Lighting Company to Mr. Ed Lowry, Director of the Department of Toxic Substances Control, page 3.

source reduction and recycling is a very successful program." The commenter states DTSC "must investigate this phenomenon, before it decides to abandon such a program."

The "phenomenon" to which the commenter refers is misleadingly characterized. The reported 36% at one recycler cannot be directly compared to the 20% discussed in the rulemaking record. Furthermore, this observation by a single lamp recycler does not reflect the recycling industry as a whole, as can be seen in the comments submitted by Mr. Paul Abernathy of the Association of Lighting and Mercury Recyclers. In his letter, Mr. Abernathy quotes a different lamp recycler as saying that only five percent of the lamps it handles are Philips Alto lamps. Despite the commenter's claim that the purchasers of Philips lamps have an "environmental ethic" that the buyers of other lamps lack, it is not clear whether the nonhazardous status of Philips Alto lamps, combined with Philips' efforts to promote recycling, have led to a higher recycling rates for Philips lamps than for those classified as hazardous waste in California.

DTSC does not find that maintaining the nonhazardous status of low-mercury lamps and encouraging voluntary recycling would be more protective of the State's environment than listing all mercury added waste lamps as hazardous waste and mandating recycling as a requirement for universal waste management. Nor does DTSC share the commenter's view that, in encouraging the development of mercury-free high efficiency lamps, this proposal provides less of an incentive for source reduction than retaining the use of the TTLC for classifying waste lamps. Rather than "abandoning" source reduction and recycling, this proposal strengthens the incentives for these activities.

T-32: *Commenter submitted a list of awards received by Philips for environmental stewardship.*

DTSC acknowledges receipt of this document. DTSC has reviewed the document submitted and has determined that no regulatory change is necessary.

T-33: *The commenter submitted a copy of an earlier letter from Mr. Paul Walitsky, C.H.M.M, Manager of Environmental Affairs for the Philips Lighting Company, to Mr. Ed Lowry, Director of the Department of Toxic Substances Control, dated January 28, 2002. The letter was submitted to comment on DTSC's Draft Mercury Report. It supports statements in the report that fluorescent lamps cannot be manufactured without mercury, that the use of mercury in lamps has been reduced in recent years, etc.*

DTSC acknowledges receipt of this document. DTSC has reviewed the document submitted and has determined that no regulatory change is necessary. The comments contained in the letter are summarized and responded to below.

Paul Walitsky, C.H.M.M., Manager, Environmental Affairs, Philips Lighting Company

T-33.1 *Philips thanks DTSC for the opportunity to testify at the November 19, 2001*

Mercury Workshop and recognizes DTSC staff for their "excellent work" on the Draft Mercury Report. This letter is intended to supplement the hearing testimony of Ms. Patricia Becker of Philips "with further comment on the report's recommendations and on several statements made in the report. We look forward to continue to work with the department on the most effective measures to reduce mercury release to the environment from fluorescent lamps."

DTSC thanks Philips for participating in the mercury workshops and acknowledges and appreciates Philips' supportive statements. Each of Philips' comments is responded to individually, below. DTSC welcomes the opportunity to work with Philips on proposals to reduce pollution.

T-33.2 *The Draft Mercury Report notes the reductions in the use and release of mercury. The use of mercury in lamps has also steadily dropped, mainly due to Philips, which has reduced the mercury content of it lamps by over 90 percent since the mid-1980s. ALTO lamps now have one-third as much mercury as the 1999 lamp industry average.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC has documented the reductions in mercury use cited by the commenter.

T-33.3 *Philips commitment to producing a product safer for the environment predates government regulation of mercury in lamps. Years before the USEPA added non-TCLP compliant lamps to the Universal Waste Rule, Philips developed and introduced the ALTO family of lamps." Philips developed machinery for encapsulating mercury, allowing accurate dosing of lamps and minimizing worker exposure to mercury; Philips coats its tubes to prevent mercury starvation. Philips has offered to share these methods with other lamp manufacturers. One East Coast specialty lamp manufacturer has accepted and has lowered its lamps' mercury content by 80 to 90 percent.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. The comment does not directly address these regulations. Philips may be submitting it as a comment on this rulemaking to support its position that the TTLC should be retained because, arguably, it promotes source reduction.

DTSC documented the reductions in mercury use cited by the commenter in its Draft and Final Mercury Reports. DTSC has concluded that the TTLC does not provide a strong incentive for further reductions in the use of mercury in lamps. Now that Philips has developed lamps that pass the TTLC, the TTLC no longer serves as an incentive for Philips to make further mercury reductions (although they may choose to do so for other reasons). The TTLC has not motivated the other two major lamp manufacturers to lower their products' mercury content in order to produce non-hazardous lamps; in the more than

five years since Philips introduced TTLC passing lamps, its major competitors have chosen not to follow Philips lead.[17]

The tables in the appendix show that using the M003 listing to classify waste lamps will reduce the release of mercury to California's environment more than continuing to use the TTLC.[18] Further, the M003 will be more effective at promoting the objectives of these regulations than retaining use of the TTLC for lamps.[19]

T-33.4 *Philips lamps meet all industry specifications including lamp life, as shown in data from ongoing tests; Philips will update DTSC on test results. None of the 60 test lamps has failed after 12,500 hours; 8 to 10 percent failure rate is expected.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. More recent data from the same lamp life tests was submitted with Mr. Erbin's comments on the 45-day public notice for theses regulations and again with his comments on the 15-day notice of proposed changes. As discussed in the responses to several other comments,[20] lamp life is not currently considered in the classification of waste lamps as hazardous or nonhazardous, nor will it be under the M003 listing.

T-33.5 *"It is impossible to make a fluorescent lamp without using some amount of mercury." Fluorescent lamps are energy efficient, which helps lower California's electricity demand; some of this demand is met by burning coal, which causes mercury releases. Philips objects to the proposal to regulate all mercury-containing waste as hazardous waste. [Note: This was the regulatory recommendation made in the Draft Mercury Report, upon which Mr. Walitsky was commenting. These regulations designate only four categories of discarded mercury-containing products as hazardous wastes.] Regulating all mercury-containing waste as hazardous wastes would not emphasize source reduction's benefits and would create unintended consequence, which might include increased lamp mercury content.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. The Draft Mercury Report accurately stated that fluorescent lamps cannot be made without some mercury. However, other types of high efficiency lamps may be developed in the future that do not use mercury. As discussed in the response to comment T-24, DTSC is aware of at least one company that is working to develop a mercury-free, energy efficient lamp. While high-efficiency mercury-free lamps are not yet widely available, the modest requirements and costs of universal waste management have not dissuaded people from using fluorescent lamps already classified as hazardous in California. Most of the lamps sold are already subject to these costs and requirements.

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[17] See responses to comments I-4, I-19, and T-36.
[18] See responses to comments I-10, I-21, I-23, M-7, N-1, PP-2,T-13, T-26.1, T-26.2, T-29, and T-52.
[19] See responses to comments H-7, NN-6, Q-1, T-17, T-26, T-26.1, and T-27.
[20] See responses to comments NN-12.3, NN-12.4, T-40, and T-43.

The responses to comments T-5 and T-24 illustrate that the M003 listing promotes source reduction. Classifying waste lamps using the M003 listing in place of the TTLC would not likely lead to significant increases in the mercury content of fluorescent lamps, because such increases would cause lamps to fail the TCLP for mercury, which is used in many states to classify lamps as hazardous or nonhazardous. See the response to comment T-16 for discussion.

T-33.6 *Any regulatory structure for mercury in fluorescent lamps should focus on source reduction because source reduction is readily achievable, as shown by Philips. "We believe other manufacturers have not adopted these low-mercury processes simply because they prefer not to incur the expense of process changeover."*

DTSC has reviewed this comment and determined that no regulatory change is necessary. The responses to comments T-5 and T-24 illustrate that, notwithstanding the commenter's suggestion to the contrary, the M003 listing does focus on source reduction. If lamp manufacturers "prefer not to" change their manufacturing processes to allow them to use less mercury in their lamps, DTSC lacks the authority to require them to do so. DTSC's authority extends to products when they become wastes, but not to the products themselves.

T-33.7 *Recycling is unlikely to achieve reductions equal to source reduction. It is unlikely that California's recycling rate could go from the current 25 percent to Minnesota's 70 percent, "even with a serious and funded effort."*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC has determined that the M003 listing, in conjunction with other ongoing efforts, will reduce mercury releases more than retaining the use of the TTLC for classifying lamps, even if the TTLC were lowered. See the response to comment T-29 for discussion. DTSC does not share the commenter's pessimism about the possibility of achieving a lamp recycling rate of 70 percent, or higher, in California. The factors that will enable California to match—and even surpass—Minnesota's lamp recycling success are enumerated in the response to comment I-23.

T-33.8 *Due to their fragile and unwieldy nature, fluorescent lamps are more vulnerable to breakage than most waste products. "If other lamps were required to meet DTSC's TTLC threshold, California would enjoy a 66 percent source reduction in mercury content in the two-thirds of the market not served by Philips products, at no expense to the state or its consumers.*

DTSC agrees that fluorescent lamps are fragile, and release their mercury when they break. This fact supports the M003 listing, which would designate all mercury-added lamps as hazardous wastes and as universal wastes if recycled. Lamps that are managed in compliance with these requirements will be much less likely to break than lamps that are managed and disposed of as nonhazardous wastes. Existing universal waste management standards require universal waste lamps to be managed "in a way that prevents releases of any universal waste or component of a universal waste to the

environment." Universal waste lamps must be contained in containers that are closed, structurally sound, and adequate to prevent breakage.

As discussed in the response to comment T-36.6, above, DTSC cannot require lamp manufacturers to reduce their lamps' mercury content to Philips' levels.

T-33.9 *The designation of all mercury-containing waste as hazardous waste [the now-abandoned proposal to which this letter was addressed] will have "serious unintended consequences." "For fluorescent lamps, there is no viable alternative to mercury even for creative manufacturers to adopt…. The change proposed by DTSC will do absolutely nothing to encourage source reduction, recycling, ore compliance with the rules for managing hazardous waste. If fact it will remove any incentive they might have to reduce their end-of-life handling costs by meeting the TTLC standard."*

DTSC has reviewed this comment and determined that no regulatory change is necessary. These regulations are substantially different from the proposal in Section 6 of the Draft Mercury Report. Any "serious unintended consequences" that may have resulted from a proposal abandoned before these regulations were proposed are not germane to this rulemaking.

Rather than regulating all mercury-containing wastes as hazardous wastes as noted in the Draft Mercury Report, these regulations designate four categories of discarded products as hazardous wastes. The products were chosen based on two criteria: they have a mercury-free substitute available, or they are capable of being recycled. Mercury-added lamps meet the second criterion: they are capable of being recycled. In comments addressed specifically to this rulemaking, other commenters have raised the concern that these regulations do not adequately promote source reduction. DTSC has addressed each of these comments separately.

T-33.10 *Simply put, there are two ways for Philips' competitors to erase the market advantage we have earned by producing a low-mercury lamp: reduce the amount of mercury they use and meet the TTLC, or try to get all lamps treated equally, regardless of their mercury content. Last year, they supported unsuccessful legislation that, while seemingly well-meaning, took them of the hook for any further reductions by requiring all lamps to be handled as hazardous waste. We are very concerned that DTSC's proposal to regulate all mercury-containing wastes as hazardous waste will have the same unintended effect.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC does not endorse products, and these regulations were developed without regard to any marketing advantages or disadvantages that they might confer on any brand of products. DTSC has determined that the M003 listing would be the most effective means

to achieve the objectives of these regulations and would reduce the release of mercury more than continuing the use of the TTLC to classify lamps.[21]

T-33.11 *DTSC should investigate the likelihood that a major lamp manufacturer is now considering marketing a lamp that will achieve longer life (36,000 hours compared to 20,000 hours) by significantly increasing the amount of mercury in the lamp. The calculation is simple: if all lamps are hazardous waste no matter how little mercury they contain, then a company will have no incentive to reduce mercury content and instead will choose to market its product based on the consumer-friendly standard of lamp life, even if it means putting more mercury in the lamp.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. As discussed in the response to comment T-33.5, the majority of lamps are purchased in states other than California, where the TCLP continues to be used to classify lamps as hazardous or nonhazardous. As discussed in the response to comment I-2 increasing the mercury content of a lamp may not cause the release of more mercury to the environment if the added mercury results in longer life (and consequently, less frequent disposal). Companies will also have an incentive to keep mercury content low enough to pass the TCLP. See response to comment T-33.5, incorporated herein. Also see the response to comment T-16 for further discussion.

T-33.12 *Philips urges the department to give stronger consideration to source reduction as the most effective way to reduce mercury release to the environment from discarded fluorescent lamps. DTSC should reconsider the value of a "bright line" threshold like the TTLC, which creates an incentive for companies to pursue source reduction. Philips believes a review of the TTLC is justified, but if a more stringent standard is determined necessary, we hope the department will use it as a technology-forcing prod to industry… rather than a clearly unattainable goal that creates a disincentive to source reduction—a Best Attainable Control Technology (BACT) standard that companies should be required to meet.*

DTSC has reviewed this comment and determined that no regulatory change is needed. As discussed in the response to comment T-33.3, DTSC has concluded that the TTLC does not provide a strong incentive for further reductions in the use of mercury in lamps. In contrast, as discussed in the response to comment T-5, the M003 listing does provide an incentive for source reduction. Manufacturers wishing to market lamps that will not be subject to hazardous or universal waste management when they become wastes will have a new "bright line" of zero parts-per-million at which to aim.

DTSC interprets the commenter's suggestion for a BACT standard for lamps as a suggestion to ban, in California, the sale of lamps that use more mercury than Philips ALTO lamps, or that are manufactured by processes other than those employed by Philips. As noted in the responses to several other comments, DTSC lacks authority to take such action. DTSC cannot dictate how lamps are manufactured or whether they may be sold in

[21] See responses to comments I-10, I-21, I-23, M-7, N-1, PP-2,T-13, T-26.1, T-26.2, T-29, T-33.3, and T-52.

California. Through mechanisms like the M003 listing, however, DTSC can provide incentives for the development of new products that are more environmentally benign than currently available products.

T-33.13 *Philips supports universal waste management of fluorescent lamps, but believes it should be available only to those lamps that meet a BACT-like performance standard. Again, source reduction will not be achieved unless an incentive exists for manufacturers to reduce mercury content. Philips would not object to having its lamps subject to the Universal Waste Rule, provided that other lamps not manufactured to Philips' specifications were ineligible for universal waste management [and therefore would be fully-regulated as hazardous wastes].*

DTSC has reviewed this comment and determined that no regulatory change is needed. The Universal Waste Rule applies only to lamps that are hazardous wastes. Limiting the applicability of universal waste management to low-mercury lamps would very likely result in greater releases of mercury through the illegal disposal of higher mercury lamps. The situation would be similar to the years prior to the adoption of the federal and state Universal Waste Rules—most lamps would be fully regulated as hazardous wastes, but the requirement to manage them as such would be widely ignored.

T-33.14 *Philips would welcome greater recycling of fluorescent lamps. In our experience, Philips lamps are recycled at a slightly higher rate than other lamps, partly because we encourage and assist our customers to do so, partly because they choose them for their low-mercury content and are motivated to handle them in an environmentally responsible manner. DTSC could increase lamp recycling by enforcing current rules; many more lamp changeout vendors and building managers would recycle, because it would be cheaper than hazardous waste disposal. Absent enforcement, we caution DTSC against assuming that recycling will occur. A recycling infrastructure and a commercial and household customer outreach program will be needed and an effective recycling program will not occur without funding.*

DTSC has reviewed this comment and determined that no regulatory change is needed. DTSC agrees that regulation without enforcement is not as effective; however, this rulemaking creates opportunity for such enforcement. No generator of a mercury-added lamp will be permitted to dispose of the lamp in the nonhazardous trash, regardless of the type of lamp or the type of generator. Consequently, DTSC and CUPA enforcement staff who find lamps in a dumpster or garbage will know that a violation has occurred.

It is currently difficult to detect violations against persons who manage universal waste lamps because some classes of generators (households, CESQUWGs) may legally temporarily dispose of any type of lamp in the trash (until 2006).

DTSC has been working with CIWMB to develop an infrastructure for collection of universal wastes, including lamps, from households and CESQGs. This workgroup will be expanded to include other stakeholders in the future. The collection infrastructure the

workgroup develops could involve fees to fund recycling, but such fees would have to be imposed by the legislature, because neither DTSC nor CIWMB has authority to impose such fees.

T-33.15 *Technical comments specific to the Draft Mercury Report: On page 4 (Executive Summary) and Page 76, the report cites Air Resources Board data to show that 450 pounds of mercury emission into the air in 2000 came from broken fluorescent tubes. The number is too high. It appears that the Air Resources Board assumes that about 10 percent of the mercury vaporizes when a lamp is broken, when in fact, at room temperature, only about one percent of mercury is in the vapor state and the rest is liquid. In considering that there is 75 million fluorescent tubes disposed in 2000, an average 22.8 milligrams of mercury per lamp, and the rate of 24 percent of the tubes recycled, the 450 pounds equals 15.7 percent, that is 15.7 times more than the vapor pressure of mercury would create.*

DTSC has reviewed this comment and determined that no change to the regulations is necessary. The purpose of the Draft (and Final) Mercury Report is to established the scientific basis for the regulations. Debating the derivation of emissions of mercury due to fluorescent lamps would not change the fact that there are mercury releases, whether to air, land or water, due to fluorescent lamp breakage. Nor would the conclusion of the report and the scientific basis of the regulations change; that is, mercury is a toxic, persistent and bioaccumulative chemical substance. The regulations will prevent additional releases of mercury from certain wastes from entering the environment. Thus, no change to the regulations is necessary.

Note that the Air Resources Board collects, estimates, and forecast emission inventory data throughout California. These data are used to estimate the quantity of emissions from different types of emission sources such as point sources, area sources, and mobile sources. In addition to the emission inventory data itself, this includes methodologies to derive emissions. The Air Resources Board has developed the emission data for DTSC's Draft Mercury Report and refined the emission data in the Final Mercury Report according to their criteria.

T-33.16 *Technical comments specific to the Draft Mercury Report: Based on newer numbers, there is 10 to 20 pounds of mercury discharged into the San Francisco Bay that may be attributed to lamps rather than 22 to 286 pounds per year of mercury, both airborne and waterborne, from breakage of fluorescent tubes in landfills in the region that was cited from the San Francisco Regional Water Quality Control Board study (pages 4 and 77 of the Draft Mercury Report).*

DTSC has reviewed this comment and determined that no change to the regulations is necessary. The purpose of the Draft (and Final) Mercury Report is to established the scientific basis for the regulations. Debating the derivation of emissions of mercury due to fluorescent lamps in this region would not change the conclusion of the report or the scientific basis of the regulations; that is, mercury is a toxic, persistent and

bioaccumulative chemical substance. The regulations will prevent additional releases of mercury from certain wastes from entering the environment. Thus, no change to the regulations is necessary.

Note that the commenter has not provided any basis for its newer numbers, nor the assumptions used to generate them and how they would differ with the study done by the San Francisco Regional Water Quality Control Board.

T-33.17 *Technical comments specific to the Draft Mercury Report: Disagrees with the statement regarding the rate of decrease has slowed in the use of mercury in lamps, but has increased based on the National Electrical Manufacturer's Association (NEMA). Philips believes that it is possible to reduce the industry average of 11.6 milligrams mercury per lamp by more than 50 percent.*

DTSC has reviewed this comment and determined that no change to the regulations is necessary. DTSC acknowledges this information; however, it would not change the fact that there are preventable releases of mercury in the environment from fluorescent tubes as shown in the tables in the appendix. The purpose of the Draft (and Final) Mercury Report is to established the scientific basis for the regulations. This information would not change the conclusion of the report or the scientific basis of the regulations; that is, mercury is a toxic, persistent and bioaccumulative chemical substance. Thus, no change to the regulations is necessary.

T-33.18 *Technical comments specific to the Draft Mercury Report: The 25 percent market share of nonhazardous lamps cited in the report is not unreasonable and may be low. It is confusing and misleading to put the word nonhazardous in quotation marks. DTSC should qualify the word rather than suggest it with punctuation.*

DTSC reviewed this comment to the Draft Mercury Report and determined that no change to the regulations is necessary as it is not germane to the rulemaking. Note that the purpose of the Draft (and Final) Mercury Report is to established the scientific basis for the regulations. This information would not change the conclusion of the report or the scientific basis of the regulations; that is, mercury is a toxic, persistent and bioaccumulative chemical substance. Thus, no change to the regulations is necessary.

T-34: *Commenter submitted laboratory data documenting that mercury dosing in Philips T8 and T12 lamps is very precise.*

DTSC acknowledges receipt of this laboratory data. The data submitted is not germane to the rulemaking.

T-35: *Commenter submitted copies of 3 bills: AB 751 (2001), which would have designated all mercury-added lamps as hazardous waste; AB 712 (2002) which would have assessed a fee on lamps at point of sale to fund recycling; and SB 1922 (2002), in which the legislature refers to the STLC/TTLC.*

The first two of these three bills (AB 712 and AB 751) were submitted to support the commenter's assertion that the Legislature has "twice defeated" legislation that contains the same proposal as these regulations. The third, SB 1922, is submitted to support the commenter's assertion that the Legislature supports and "statutorily relies" on the TTLC. See the response to comment T-12 for discussion of AB 712 and AB 751. SB 1922 does not directly address mercury-containing fluorescent tubes. As stated elsewhere in these regulations, DTSC is not discontinuing use of the TTLC for a variety of wastes.

T-36: *Commenter submitted analysis by Roux Associates, Inc. of the impact of listing all tubes as hazardous waste vs. not listing them and lowering the mercury TTLC. Based on its assumptions, the analysis shows not listing would reduce mercury release to the environment.*

DTSC has reviewed the submittal from Roux Associates, Inc. Dr. Lock's comments on the proposed regulations are responded to separately.

In general, DTSC does not agree with the assumptions used in calculating the impact of these regulations on environmental mercury loading in California, and in comparing the impact of DTSC's proposal with that of the commenter's preferred alternative. Specifically, the commenter has not supported the assumptions that 1) lowering the TTLC for lamps to 15 parts-per-million would induce Philips' competitors to reduce their use of mercury to meet it; and 2) that a significantly higher lamp recycling rate can be achieved without a recycling requirement for all lamps.

T-36.1: *Commenter submitted US Census 2000 population data and data on California's share of the US GDP, to support it calculations of mercury releases in California.*

DTSC acknowledges receipt of these documents. They were submitted to support the statements in the Roux Associates, Inc., document that California has 12 percent of the U.S. population and 13.5 of the U.S. Gross Domestic Products (GDP). The latter figure was used in Roux's calculations of fluorescent lamp usage in California.

T-37: *Commenter submitted copies of letters from States of Delaware and New Jersey, addressing the addition of ascorbic acid into lamps to help them pass TCLP. A Washington Post article on GE's use of ascorbic acid in its lamps was also submitted.*

DTSC acknowledges receipt of these documents; however, they are not germane to this rulemaking. The fluorescent lamps in question are currently classified as hazardous waste in California due to their total mercury concentration, not their concentration of leachable mercury as determined by the TCLP. Under the proposal, all mercury-added lamps will be classified as hazardous wastes when discarded, whether or not they contain ascorbic acid or other additives that affect the results of the TCLP.

T-38: *Commenter submitted copies of a patent obtained by GE for the addition of ascorbic acid to its lamps to reduce the formation of leachable mercury that can lead to failure*

of TCLP.

DTSC acknowledges receipt of these documents; however, they are not germane to this rulemaking. The fluorescent lamps in question are currently classified as hazardous waste in California due to their total mercury concentration, not their concentration of leachable mercury as determined by the TCLP. Under the proposal, all mercury-added lamps will be classified as hazardous wastes when discarded, whether or not they contain ascorbic acid or other additives that affect the results of the TCLP.

T-39: *Commenter submitted marketing documents from GE touting its low mercury, TCLP-passing lamps, claiming longer life and lower TCLP results than ALTO, DTSC's 25 tubes policy, etc.*

DTSC acknowledges receipt of these documents. However, they are not germane to the rulemaking. DTSC does not regulate the marketing of products. Generators are responsible for classifying their waste, using either their knowledge or testing. If a generator is misinformed by a manufacturer (or by anyone else) that a hazardous product is nonhazardous, the generator is not relieved of the responsibility to manage the waste as hazardous waste or as universal waste. Generators who fail to do, even as the result of misinformation about the hazardous status of the waste, are subject to enforcement action. The proposed regulations will remove any question about which lamps are hazardous and which generators may dispose of them in the nonhazardous trash. All mercury-added lamps will be required to be recycled as universal waste, or disposed in a permitted hazardous waste landfill as fully-regulated hazardous waste.

T-40: *Commenter submitted GE Lighting "Selling guide" (used by Grainger Industrial Supply Company) which insinuates that Alto lamps are plagued by short life.*

DTSC acknowledges receipt of the documents. The commenter has submitted data to refute claims that Philips Alto lamps have shorter life than competing brands. Lamp life is not a factor in the classification of waste lamps currently, nor will it be under this proposal. Therefore, the accuracy of the GE claims is beyond the scope of this rulemaking.

T-41: *Commenter submitted a copy of a Stipulation and Order in a lawsuit by Philips against OSRAM Sylvania, in which OS agrees to stop saying its lamps have the lowest mercury, change its advertisements that say so, etc., and a press release announcing it.*

DTSC has reviewed the document submitted and has determined that no regulatory change is necessary. Under the proposal, all discarded mercury-added lamps will be classified as hazardous wastes. Claims by OSRAM Sylvania about the mercury content of its lamps are not germane to the rulemaking.

T-42: *Commenter submitted two letters (addressed as separate comments), from wholesale electric companies, objecting to the proposed replacement of the TTLC for lamps with the M003 listing.*

DTSC acknowledges receipt of the two letters. The comments contained in each letter are responded to separately.

T-43: *Commenter submitted laboratory testing report for lamp life testing of ALTO lamps, all 60 of which were still working after 17,904 hours. Charts provided showed ALTO lamps failing at much lower rate than industry standard median lives.*

DTSC has reviewed this comment and has determined that no regulatory change is necessary, as longevity of fluorescent lamps is not germane to this rulemaking. As stated the response to T-40, lamp life is not a factor in the classification of waste lamps currently, nor under this proposal.

T-44: *Commenter submitted a press release from the U.S. Attorney's office in New Hampshire, announcing the conviction and sentencing of an operator of a bogus lamp recycling company, which claimed to be complying with state and Federal laws but was not.*

DTSC has reviewed this document and determined that no regulatory change is necessary. The press release concerns an out-of-state recycling facility that was not authorized. State and federal officials investigated the case and federal agencies prosecuted. The operator was sentenced to prison. The press release demonstrates that U.S. EPA, the U.S. Attorney and state agencies can cooperate and successfully enforce environmental laws.

Under California's Universal Waste Rule, a destination facility is a facility that treats, disposes of or recycles universal waste. (Cal. Code Regs., tit. 22, § 66273.9). A destination facility that recycles universal waste must comply with the operating standards and permitting requirements of chapters 14 or 15 and 20 of the California Code of Regulations, title 22. (Cal. Code Regs., tit. 22 § 66270.60, subd. (b)) This means the Universal Waste Rule does not allow transfer of universal waste lamps to a California recycler that does not have a hazardous waste facility permit. A universal waste handler or transporter who violates this requirement is subject to enforcement action by DTSC or the local CUPA. Permitted facilities are inspected on a fairly regular basis by DTSC and are cited for violations if they are not in compliance with applicable laws, regulations and their permit. DTSC also instigates enforcement actions against facilities operating without proper authorization. Thus, systems are in place in California that should prevent an unauthorized facility similar to the one described in the press release from operating.

T-45: *Commenter submitted a letter from EPSI, a lamp recycler, stating that Philips ALTO lamps represented 36 percent of the lamps they processed.*

DTSC acknowledges receipt of the letter from Earth Protection Services, Incorporated (EPSI). In DTSC's opinion, the statement by EPSI that 36 percent of the lamps it recycles are Philips Alto lamps (which are currently not classified as hazardous wastes) is not a sufficient basis from which to conclude that low-mercury lamps are generally recycled at a

higher rate than higher mercury lamps. In a September 30, 2002 letter commenting on this proposal, Mr. Paul Abernathy, Executive Director of the Association of Lighting and Mercury Recyclers, states that Philips lamps represent a larger share of EPSI's business because its clients include firms that provide "group relamping" services and require recycling of all lamps they collect. Refer to response to comment T-31 and T-9.1 for additional discussion.

T-46 *Testimony at the hearing shows that many are dissatisfied with a requirement for lamp recycling without addressing recycling capacity and enforcement issues. The rulemaking record "is devoid of evidence regarding these two issues."*

The recycling capacity issue has already been resolved to DTSC's satisfaction. As discussed in response to comment T-9.1, two commenters have stated that the lamp recycling industry already has capacity for all of California's lamps if they were diverted from disposal today. Similarly, enforcement is not addressed in this proposal because violations of the requirements for universal waste are already subject to the enforcement of Article 8 of Chapter 6.5 of the Health and Safety Code. Persons who fail to properly manage universal waste are subject to civil or criminal penalties of up to $25,000 per day per violation. The CUPAs and DTSC have responsibility for enforcement of the universal waste requirements as they apply to generators of universal waste; DTSC has jurisdiction over universal waste transporters and destination facilities, as well as universal waste handlers who accept universal waste generated offsite. See response to comment T-28, incorporated herein.

T-47 *Many hearing participants want a bigger focus on source reduction, as HSC section 25179.4 requires. Philips supports the proposal by Californians Against Waste to retain the TTLC "for some useful purpose."*

As shown in these responses to comments, the M003 listing will provide a strong incentive for the development of high efficiency mercury-free lamps while preventing release of mercury to the environment through improper handling and disposal of mercury-added lamps. Although the TTLC will no longer be applicable to the classification of waste lamps as hazardous or nonhazardous, the TTLC will continue to be used in the classification of other (non-listed) wastes. These regulations do not preclude lamp manufacturers from discussing the mercury content of their lamps in marketing them, nor from comparing the mercury content of the lamps produced by different manufacturers (however, any mention of the TTLC in such marketing should contain a caveat that, regardless of their mercury concentrations, all mercury-added lamps are hazardous wastes and must be managed appropriately).

T-48: *"It is not possible to repair a deficient record by facile use of different words." The commenter has submitted "uncontradicted evidence" of the inadequacy of the proposal and record. Health and Safety Code Section 25179.4 is not permissive, as suggested by Mr. Weiner.*

DTSC has reviewed this comment and has determined that no regulatory change is

necessary to address it. The rulemaking record supports DTSC's regulatory proposals and complies with the requirements of the Administrative Procedures Act. As shown in the responses to earlier comments, the proposal is consistent with the priorities of Health and Safety Code section 25179.4. Pursuant to Government Code section 11346.9 subdivision (a) paragraph (3), DTSC has responded adequately to all of the "evidence" submitted as comments by the commenter to support his assertion that the record is deficient. DTSC does not agree the record is deficient. The commenter has not submitted "uncontradicted evidence" of the inadequacy of the proposal and the record. In fact, numerous items of evidence in the record contradict the commenter's claims. DTSC disagrees with the commenter's interpretation of Health and Safety Code Section 25179.4 and DTSC finds this proposal is clearly consistent with Section 25179.4. DTSC's analysis of section 25179.4, in relation to other statutes, is in response to comment T-2, incorporated herein.

Hazardous Waste Listing - M003 - Opposition - Suggested Alternative

T-49: *The commenter is willing to work with DTSC in devising a "proposal that meets the requirements of law" and prevents mercury pollution. Such a proposal must comply with Health and Safety Code Section 25179.4.*

DTSC has reviewed this comment and has determined that no regulatory change is necessary to address it. The proposal meets the requirements of law, promotes pollution prevention (reduction in generation of hazardous waste), and is fully consistent with Health and Safety Code section 25179.4. (See the responses to comments T-2, T-5, T-22, T-23, T-24, T-47, and T-48, incorporated herein, for more detailed discussion.)

T-50*: The current proposal abandons the most commonly used method of regulating environmental contaminates by a variety of state and federal agencies – prescriptive standards. The state's and nation's air and water quality laws are built on the foundation of establishing acceptable standards for exposure to contaminants…. Ironically, the record of this proceeding … demonstrates the [ubiquity] of this approach, which the Department proposes to abandon for lamps.*

DTSC has reviewed this comment and has determined that no regulatory change is necessary. A hazardous waste listing is, essentially a prescriptive standard. In the case of the M003 listing, if a manufacturer intentionally adds any mercury to its lamps, the lamps will be classified as hazardous wastes when they become wastes—the numerical standard is zero. Some of the numerical standards for mercury to which the commenter refers are currently being exceeded in California. As documented in DTSC's Final Mercury Report, the San Francisco Bay is, in some places, contaminated with mercury above the Ambient Water Quality Criterion of 50 nanograms (billionths of a gram) per liter. As documented in the Final Mercury Report, mercury is mobile in the environment. Lamps that break during management or that are disposed of as nonhazardous wastes release mercury that can be transported to parts of the State that already exceed "acceptable exposure standards" for mercury. The improper management and disposal of mercury-added lamps elsewhere in the State may, therefore, contribute additional mercury to already-contaminated regions of

California such as the San Francisco Bay.

T-51*: DTSC's record contains an egregious factual error. It states that Philips low-mercury lamps sell at premium price of 1.25 to 1.5 times the cost of other lamps. This is false! This fundamental error renders the Department's economic analysis deeply and, perhaps, irreparably flawed…. An elementary analysis of the industry would immediately reveal the magnitude of this error. It is utterly capricious to proceed on the basis of this error.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC's statement in the economic analysis for these regulations to the effect that Philips Alto lamps were more expensive to purchase than competing lamps was based on a spot check of the prices of various brands of lamps at a large home improvement retail store. Lamp prices were not a basis for the M003 listing, and the price of mercury-added lamps was not used in any calculations of the fiscal or economic impact of these regulations. Therefore, if the commenter's assertion that Philips lamps generally cost no more to purchase than the other major brands is true, DTSC's analysis of the economic impact of these regulations would, nevertheless, remain unchanged.

T-52: *Knowing there is no non-mercury alternative to fluorescent lamps, the Department may not simply "throw up its hands" and renounce the value of source reduction.*

DTSC has reviewed this comment and has determined that no regulatory change is necessary. With these regulations, DTSC is embracing, not abandoning, source reduction. These regulations promote the development of new types of high-efficiency lamps that do not use mercury; this type of source reduction—product reformulation—will, in the longer term, lead to the elimination of releases of mercury from the management and disposal of lighting waste. Until these new categories of lamps are available, maximizing the lamp recycling rate will minimize the release of mercury. This is another reason that the M003 listing is needed: in addition to the incentive it will provide for source reduction, it will help ensure the highest recycling rate possible. The tables in the appendix illustrate that reducing the mercury content of lamps without increasing recycling will reduce the release of mercury to approximately 240 kilograms per year, but increasing recycling rate to the 70 percent seen in the State of Minnesota will reduce mercury releases substantially more (to approximately 186.5 kilograms per year). See the response to comment T-5 for further discussion of how these regulations promote source reduction.

Hazardous Waste Listing - M003 - Opposition - Suggested Alternative

Roux Associates

QQ-1 *Classification of all fluorescent tubes as regulated mercury waste is both burdensome to the commercial consumer and unwarranted if the mandates of source reduction in the Resource Conservation and Recovery Act were more vigorously asserted.*

DTSC has reviewed this comment and determined, incorporated herein, that no regulatory change is necessary. Low mercury lamps that are destined for recycling are eligible for management under the Universal Waste Rule. The requirements for managing universal waste lamps are far from "burdensome." As discussed in the 45-Day Public Notice for these regulations, universal wastes (including lamps) may be managed under simple, reduced standards (as compared with full hazardous waste management requirements) that are appropriate for the hazards posed by the wastes. DTSC has determined that these regulations are necessary (see the responses to comments T-1 and T-22, incorporated herein, for discussion). The regulations also strongly support source reduction and pollution prevention (see the responses to comments T-5, T-18. and T-24, incorporated herein).

QQ-2 *This regulation would require every commercial establishment that uses fluorescent light fixtures to design, build and maintain a hazardous waste storage area, causing a financial and administrative burden.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. Contrary to the commenter's assertion, the Universal Waste Rule does not require handlers to design or build a hazardous waste storage area. The requirements that apply to handlers of universal waste lamps are found in subsections (c) of sections 66273.13 and 66273.33 of title 22 of the California Code of Regulations, division 4.5. The extent of these requirements is to: "contain any lamp in containers or packages that are structurally sound, adequate to prevent breakage, and compatible with the contents of the lamps. Such containers and packages shall remain closed and shall lack evidence of leakage, spillage or damage that could cause leakage under reasonably foreseeable conditions."

QQ-3 *The entire burden of environmental protection is placed unfairly on the consumer rather than holding the manufacturers accountable for responsible care of their products.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC lacks authority to adopt legislation or to regulate products before they become wastes. The commenter's statement that the "entire burden" of environmental protection is "unfairly" paced on consumers is a gross overgeneralization. In the particular case of lamps, DTSC has demonstrated the necessity to regulate all lamps with intentionally-added mercury as hazardous wastes, as it is authorized to do pursuant to section 25140 of the Health and Safety Code. Generators are, in general, responsible for classifying and managing hazardous waste properly; the existing requirements that give generators these responsibilities are unaffected by the proposed regulations.

QQ-4 *The benefits of source reduction . . . are totally ignored and all the emphasis is placed on a program that would be expensive to administer and police for compliance.*

DTSC has reviewed this comment and determined that no regulatory change is necessary.

With regard to mercury-added lamps, the benefits of source reduction will be more fully realized under these regulations than they are when lamps are classified under the TTLC. See the responses to comments T-5, T-18. and T-24 for discussion of how these regulations promote source reduction.

QQ-5 *The commenter's analysis "clearly illustrates that the proposed compulsory fluorescent tube recycling mandate is not an effective mechanism" for reducing the release of mercury. The effectiveness of recycling is questionable, and puts a significant burden on consumers. Manufacturers should bear responsibility for reducing the release of mercury to the environment.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. The commenter's analysis is based on highly implausible assumptions that:

- Dramatically higher recycling rates could be achieved if all lamps were nonhazardous and recycling were voluntary;
- Retaining the applicability of the TTLC to waste lamps would result in all lamps being manufactured with mercury concentrations below 20 milligrams per kilogram; and

- If the TTLC were lowered to 15 milligrams per kilograms, all manufacturers could (and would) produce lamps with mercury concentrations below this value.

In addition to basing his calculations on these speculative and unsupported assumptions, the commenter fails to take into account the effects of lowering the mercury content of lamps on lamp life (and the increase in lamp disposal that would result if lamp life were shortened by reductions in mercury dosage). Even if one assumes that the data submitted by Philips to support its assertions that Alto lamps last as long as their higher-mercury competitors, other major lamp manufacturers have stated that further reductions in mercury would compromise their lamps' performance and reliability.

DTSC disagrees with the assertion that the effectiveness of recycling is "questionable." The calculations in the appendix illustrate that if California attains the 70 percent recycling rate that is seen in the State of Minnesota, less mercury will be released to the State's environment than if all waste lamps were manufactured with Philips' mercury levels and the current 20 percent recycling rate remained unchanged. Nor does DTSC agree that recycling lamps places a "significant" burden on consumers. As discussed in the fiscal and economic analyses for these regulations, the costs for recycling are modest. Most lamps sold in the State are already subject to the Universal Waste Rule's recycling requirement. If the commenter is arguing that consumers should dispose of lamps as nonhazardous wastes to avoid these modest costs, DTSC strongly disagrees. The latter argument conflicts with the commenter's presumption that voluntary recycling would produce significantly higher recycling rates than would be by the Department's chosen alternative.

The M003 listing promotes pollution prevention by providing manufacturers with a strong incentive to develop new types of high-efficiency, low-mercury lamps. Manufacturers will

bear the costs of developing these lamps, which they will recover from the consumers who purchase them.

QQ-6 *The commenter requests that all sections of DTSC Regulation R-02-04 pertaining to any requirement for the recycling of all fluorescent tubes be vacated and replaced with language that focuses on source reduction as the most effective tool for reducing mercury releases to the environment.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. As discussed in the responses to comments T-5 and T-24, the M003 listing provides strong incentives for the development of new types of efficient, mercury-free lamps.

Sensient Technologies

AA-3 *We oppose the listing of all mercury-containing lamps as hazardous waste. Facilities pay more for low-mercury lamps so that they may dispose of them in the trash. Fewer will be sold if hazardous; since many lamps are improperly disposed, more mercury will go to environment.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. Even if low-mercury lamps were to be eliminated from the market in California, the increase in the lamp recycling rate that these regulations (along with other efforts discussed elsewhere—see the response to comment I-23) will produce will lead to greater reductions in the release of mercury to California's environment than would occur if the TTLC continued to be used to classify waste lamps (see the response to comment I-23), incorporated herein. Mercury-containing lamps that are illegally disposed are subject to enforcement action, fines and penalties.

Walters Wholesale Electric

OO-1 *TTLC is the best standard I know of by which I can buy truly low-level mercury lamps.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC presumes that Philips Lighting Company, which encourages the "environmental ethic" of its customers, will continue to advertise its lamps' low mercury content after the M003 listing becomes effective in 2004. The commenter will likely continue to have ample information on which to base lamp purchasing decisions. Any new classes of mercury-free, high-efficiency lamps developed as a result of the source reduction incentive provided by these regulations will undoubtedly be marketed as "mercury-free" and or "nonhazardous." Once such lamps become available in the market, environmentally concerned lamp purchasers such as the commenter will have a clear standard to use in deciding which lamps to purchase.

OO-2 *Recycling of mercury-containing materials is important, but in the event that it is*

overlooked, the acceptance of only truly low-level mercury lamps, such as Philips Alto is important in the state of California.

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC has no authority to "accept" one brand of lamps but not the others. As discussed in response to comment OO-1, Philips will be free to continue to provide its customers with information on which lamps have the lowest mercury content. As discussed in comment I-23, these regulations are part of an ongoing effort that will ensure that the recycling rate is achieved.

Hazardous Waste Listing - M003 - Opposition - Documents Submitted

Center for Environmentally Advanced Technologies

I-30 *The commenter provided documents describing his organization: it mission statement, and brief biographies of its president and Board of Directors.*

DTSC has reviewed these documents and has determined that they are not germane to the rulemaking. No regulatory change is necessary.

I-31 *The commenter provided a copy of a U.S. EPA Waste Minimization newsletter, touting Philips' development of the Alto lamp, describing the lamps' innovations, and stating that Alto lamps are sold for the same price as competitors' lamps, in spite of their higher cost to produce.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. The document provided is not germane to the rulemaking. Lamp prices were not a basis for the M003 listing, and the incorrect information about the price of Philips lamps was not used in any calculations of the fiscal or economic impact of these regulations.

I-32 *The commenter submitted a copy of an article from the Washington Post's web site, dated Sunday, September 22, 2002. The article describes the increases in the nation's recycling rate over 15 years, recent drops in aluminum recycling, and cutbacks in the recycling programs of a number of cities across the country.*

DTSC has reviewed this article and determined that it is not germane to the rulemaking. No regulatory change is necessary. A lamp recycling rate of 70 percent or higher is attainable, as is already seen in Minnesota. The response to comment I-23 discusses the factors that will allow California to match or exceed Minnesota's success, incorporated herein.

Hazardous Waste Listing - M003 - Opposition - Suggested Alternative

Center for Environmentally Advanced Technologies

I-22 *Philips has proposed reducing the TTLC from 20 to 15 ppm. Philips would sell 15 ppm lamps throughout the nation, not just in California. Philips also has research and development underway to develop fluorescent lamps with only trace amounts of mercury. We cannot fathom why DTSC would not take advantage of Philips' progress, or why it would propose to impede further progress.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. Revising the TTLC is an option that was considered in the 45-Day Public Notice and was rejected, because it would not be as effective at promoting the objectives of these regulations: encouraging pollution prevention through the use of mercury-free products; encouraging development of products that use alternatives to mercury; and encouraging mercury recycling. (The first two objectives will reduce generation of hazardous waste. The third obviously promotes recycling.) The listing of all mercury-added lamp waste as hazardous waste provides an incentive for the development of new types of high-efficiency mercury-free lamps that revising the TTLC would not.

DTSC has no authority to regulate the formulation of lamps, nor is DTSC aware of the nature of Philips research and development efforts. The trace-mercury lamps that the commenter reports Philips is developing might or might not reduce the releases of mercury to the environment associated with currently-available lamps, depending on several of variables discussed in the response to comment T-18. The TTLC cannot be the reason that Philips is developing these lamps, because the existing Alto lamps are already manufactured with mercury concentrations below 20 milligrams per kilogram and therefore are not currently classified or regulated as hazardous wastes. Further reductions in mercury would not change the nonhazardous status of these trace-mercury lamps under the TTLC, nor would they change the status of the lamps under the M003 listing. Whatever Philips' motivation is for working on these new lamps, DTSC applauds their efforts. It is unclear, however, how the commenter proposes that DTSC should "take advantage of Philips' progress" in developing such lamps, nor how replacing the use of the TTLC for lamps with the M003 listing will remove a regulatory incentive where one does not currently exist.

Hazardous Waste Listing - M003 - Opposition - Authority to Adopt

Center for Environmentally Advanced Technologies

I-16 *Section 25197.4 (sic) says DTSC must promote specified waste management practice in order of priority. Source reduction is given top priority. The proposal not only fails to promote source reduction, but completely removes it.*

DTSC has reviewed this comment and has determined that no regulatory change is

necessary. Far from failing to promote source reduction, these regulations provide a stronger incentive for source reduction than exists currently. Please see the responses to comments T-5 and T-24 for discussion.

Hazardous Waste Listing - Questions for Clarification

Electronic Industries Alliance

L-5 *Will listings apply to products with trace amounts of mercury not intentionally added?*

No, the listings apply only to products with intentionally-added mercury, as discussed in the FSOR.

L-6 *Does the weight of the entire listed product apply toward thresholds (e.g., SQG/LQG threshold)?*

No, DTSC intends that only the items that will be managed as universal wastes (i.e., the removed switches, lamps, etc.) be counted toward applicable thresholds. Once the listed wastes have been removed from a vehicle or other product, the products are no longer subject to the listing description.

Hazardous Waste Listing - General Opposition

Electronic Industries Alliance

L-1 *We oppose listing currently nonhazardous mercury-containing waste as hazardous and universal waste. This is arbitrary, unsubstantiated by science, beyond DTSC's authority and is illegal. The listing would regulate products that do not pose a significant environmental risk, setting a "dangerous precedent."*

DTSC has reviewed this comment and determined that no regulatory change is necessary. Far from being arbitrary, the new hazardous waste listings are being adopted in response to a serious and well-documented problem: the contamination of California's environment with mercury. See the response to comment T-1 for discussion of the facts that led DTSC to develop these hazardous waste listings.

The facts upon which these regulations are based are well substantiated by science: the persistent, bioaccumulative, and toxic properties of mercury, as well as its mobility in the environment, are well characterized. In his review of the scientific basis for these regulations, Dr. A. Russell Flegal, Professor and Chair of the Department of Environmental Toxicology at the University of California, Santa Cruz, states that these regulations' listing of mercury-added products as hazardous wastes "is predicated upon extensively documented scientific evidence that (a) 'mercury is a toxic, persistent, and bioaccumulative

chemical substance' and that (b) there are substantial, on-going releases of industrial mercury through the consumption of consumer products in California. … Both of those predications have been affirmed at the national and international levels by numerous studies."

Adoption of the new hazardous waste listings is legal; DTSC is authorized to adopt these hazardous waste listings pursuant to section 25140 of the Health and Safety Code. See the response to comment T-23 and T-25 for discussion.

The management and disposal of mercury-added products as nonhazardous wastes definitely pose significant environmental risks. See DTSC's Mercury Report, the scientific peer review reports, the first paragraph of this response, and the response to comment T-1 for discussion.

L-1.2 *If DTSC considers electronic products that aren't currently hazardous to pose a significant risk, it should "revise the hazardous waste tests to better measure environmental risk through a formal rulemaking."*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC has determined that the management and disposal of certain electronic products as nonhazardous waste definitely do pose significant risks to public health and the environment. Consequently, DTSC is designating those products as hazardous wastes in these regulations. DTSC has authority to revise the existing hazardous waste thresholds, pursuant to Health and Safety Code section 25141, and also has authority to prepare lists of wastes that are determined to be hazardous, pursuant to Health and Safety Code section 25140. The hazardous waste listings that are part of this rulemaking are adopted under the authority of section 25140. DTSC has opted for the listing option, rather than revising the thresholds, because listing more effectively supports the three major objectives of these regulations: encouraging pollution prevention through the use of mercury-free products; encouraging development of products that use alternatives to mercury; and encouraging mercury recycling.

Institute of Scrap Recycling Industries, Inc.

Q-1 *The Department should defer the proposed regulations, at least the M001 and M002 listings, in favor of a legislative solution. The proposal would not achieve the Department's stated goals, and would have a detrimental impact on recycling and recycling companies.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC has determined that the listing will promote the objectives of the regulations (see the response to comment L-1.2, above). In response to comments received on the 45-Day Public Notice, DTSC has modified the regulations to retain the additional environmental protection they were intended to provide, while reducing their impact on recyclers. The auto dismantling industry commented that information on the location of mercury switches other than those in hood and trunk convenience lighting, is lacking, and proposed that the

M001 listing be limited to light switches; DTSC has incorporated this suggestion into the final text of the regulations. The dismantling and shredding industries commented that the certification of switch removal that was an element of the original proposal was problematic, because it would be difficult, if not impossible, to be certain that all mercury switches had been removed; DTSC incorporated the suggestion that the certification requirement be deleted. Other comments objected to the fact that vehicles and appliances crushed with switches inside would have been classified as hazardous wastes, citing cost and liability concerns; DTSC modified the regulations to clarify that only those crushed vehicles or products that exhibit a hazardous waste characteristic in article 3 of title 22 of the California Code of Regulations, division 4.5 will be hazardous wastes. DTSC has incorporated these suggestions from the recycling industry.

Lucas Advocates

R-1 *It may be impossible to identify the products and the switches covered by the regulations.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. As discussed in the response to comment Q-1, above, the scope of the M001 listing has been reduced to include only vehicle light switches that contain mercury. Some information on makes and models of vehicles that contain these switches, as well as information on switch locations, is available. Furthermore, DTSC is undertaking efforts to provide vehicle recyclers with “information about vehicle makes and models that contain mercury light switches and entities that provide mercury recycling services,” as required by subdivision (a) of section 25214.7 of the Health and Safety Code.

Persons who crush major appliances for transport, or transfer them to balers or shredders for recycling are required by existing law (section 42175 of the Public Resources Code) to remove all “materials that require special handling,” a category that includes mercury switches. The handlers of major appliances are already required to identify the appliances and switches that are subject to this existing requirement.

Information about other mercury-containing products is also available. The Internet contains information on many mercury-containing products, including switches covered by the M002 listing. Product manufacturers will also be an important resource for identifying affected products and switches.

Micro Metallics Corporation

S-1 *These listings will have serious adverse effects on recycling--both direct and indirect. Indirect: the stigma of hazardous waste classification; landlords and lenders often restrict hazardous waste activities, common carriers may not want to accept these waste for transport.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. The regulations will enhance, not hinder, recycling, by making it a condition for managing listed products under the reduced requirements for universal wastes. The ISOR for these regulations demonstrates their necessity. Any "stigma" associated with designation of a discarded mercury-added product as a hazardous waste is outweighed by the environmental benefits of diverting the product from nonhazardous waste management and disposal. Many handlers of the newly listed wastes already manage other hazardous wastes as part of their business activities. Many wastes generated in the recycling of vehicles (batteries, used oil, antifreeze, etc.) are already classified as hazardous, for example. DTSC believes that the commenter's concerns about landlords and lenders are overstated, in light of the fact that almost all businesses generate at least a small amount of hazardous waste.

Common carriers are free to accept or refuse to haul specific cargoes for a variety of reasons, but DTSC is not aware of any widespread instances of common carriers refusing to accept universal wastes for transport, either in California or nationally. Universal waste management allows many more transportation options than are available for other hazardous wastes; one option available to handlers who comply with applicable transporter requirements is to transport their own universal wastes.

See related discussions in response to comment L-7.2 and L-7.3.

S-2 *The proposal will increase the complexity and cost of managing products with mercury switches and lamps. Generator removal of switches will increase the risks of mercury release and worker exposure.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. As discussed in the 45-Day Public Notice for these regulations, universal waste management requirements are reduced from those that apply to other hazardous wastes. They are neither complex nor costly to comply with. The economic impact analysis for these regulations show that the costs to handlers is modest (see the response to comment D-1 for discussion of the costs associated with removal and recycling of mercury light switches from vehicles).

The standards for universal waste handlers in sections 66273.13 and 66273.33 of title 22 of the California Code of Regulations, division 4.5, require that mercury switches be removed "in a manner designed to prevent breakage." Several other requirements, designed to prevent and control accidental releases of mercury during switch removal are included in sections 66273.13 and 66273.33. These are:

- Ensuring that a mercury clean-up system is readily available;
- Immediately transferring spilled or leaked mercury to an airtight container;
- Thoroughly familiarizing employees who remove mercury switches with proper waste mercury handling and emergency procedures, including transfer of spilled mercury to appropriate containers;

- Accumulating removed mercury switches in closed, non-leaking containers that are in good condition;
- Packing removed mercury switches in the container with materials adequate to prevent breakage during storage, handling, and transportation; and
- Keeping records of the removal of mercury switches from vehicles and household appliances for three years from the date of removal.

Handlers who remove mercury switches from vehicles and appliances are also subject to applicable OSHA and Cal-OSHA requirements.

Sensient Technologies

AA-2 *Commenter disagrees with the designation of vehicles and appliances that contain mercury switches as hazardous wastes. Instead, DTSC should simply mandate that all mercury containing switches be removed prior to processing. This would be much simpler…*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC has no authority to establish standards for products or for wastes that are not hazardous wastes. Pursuant to Health and Safety Code section 25140, DTSC has prepared a listing of wastes (including mercury switches and products that contain them) that it has determined to be hazardous, based on the "immediate or persistent toxic effects to man and wildlife and the resistance to natural degradation or detoxification" of their mercury. The requirements to remove mercury switches from vehicles and other products are appropriate for the hazards that these switches pose to public health and the environment, particularly when they are left inside vehicles and appliances that are crushed, baled, sheared, or shredded.

Hazardous Waste Listing - Mixtures and Derivatives of Listed Wastes

Electronic Industries Alliance

L-4 *Would mixture and derived-from rules apply to newly listed wastes?*

DTSC has revised section 66261.3 of title 22 of the California Code of Regulations from the original proposal in the 45-Day Public Notice. The revised subsection (c)(3) of section 66261.3 states: "Waste consisting of only material derived from the treatment or recycling of one or more hazardous wastes listed in article 4.1 of this chapter is not a hazardous waste, provided the material does not exhibit any of the Mercury Waste Classification and Management characteristics identified in article 3 of this chapter, and does not meet any listing description in article 4.1 of this chapter." Pursuant to this subsection, materials derived from treatment or recycling of wastes listed in section 66261.50 would not automatically be classified as listed hazardous wastes, as is the case with federally-listed hazardous wastes.

However, in cases where a mixture meets one of the new listing descriptions added by these regulations (e.g., a vehicle that contains mercury-containing motor vehicle light switches, prior to treatment or recycling), the mixture (in this case the entire vehicle) is a listed hazardous waste. A vehicle from which all mercury-containing motor vehicle light switches have been removed would not be a listed hazardous waste, nor would a vehicle that is crushed, baled, sheared, or shredded with listed switches still inside [pursuant to revised subsection (c)(5) of section 66261.3]. However, crushing, baling, shearing, or shredding a vehicle with mercury light switches still inside is treatment of a listed hazardous waste, and as such would require a hazardous waste facility permit.

GE Lighting

M-3 *DTSC should clarify that the residuals from the recycling of mercury-containing lamps are not covered by the listing or subject to the derived from rule.*

DTSC has clarified this provision in the final text. See the response to comment L-4, incorporated herein.

OSRAM Sylvania

V-4 *DTSC should clarify in the regulations that the new listing does not trigger regulation of mixtures and derivatives of lamps. Commenter suggests language to add to the M003 listing.*

DTSC has clarified this provision in the final text. See the response to comment L-4, incorporated herein.

Generation of Hazardous Waste

GE Lighting

M-4 *DTSC should clarify the point of generation for mercury-containing lamps and that the removal of lamps from products or structures does not constitute treatment.*

DTSC has clarified this provision in the final text. A new subsection (c)(3) has been added to the standards for Small Quantity Handlers of Universal Waste in section 66273.13 and the standards for Large Quantity Handlers of Universal Waste in section 66273.33. It reads: “A small quantity handler of universal waste may remove universal waste lamps from a product or structure, provided the handler removes the lamps in a manner designed

to prevent breakage.” This clarifies that removal of lamps is a handler activity and not a treatment activity (handlers are precluded from treating universal wastes).

Exemptions – General

Clean Water Action

J-12 *End the household and CESQG exemptions sooner.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. These regulations reorganize section 66273.8 to make the exemptions for households and CESQUWGs from universal waste handler requirements permanent; however, the changes to section 66273.8 do not affect the temporary disposal exemptions that currently apply to these persons. The temporary disposal exemptions were established in the original Universal Waste Rule in order to provide time for development of a collection infrastructure for universal wastes batteries, lamps, and thermostats generated by households and CESQUWGs. While DTSC has been working with the CIWMB on a workgroup to develop this infrastructure, the existing disposal exemptions are still necessary.

Physicians for Social Responsibility, Los Angeles

W-5 *The timeline for sunset of disposal exemptions should be revised to July 1, 2004. CIWMB has surveyed each county and reports that no household hazardous waste (HHW) collection capacity shortfall currently exists.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. Household Hazardous Waste (HHW) collection events will likely be part of the collection infrastructure currently being developed by a workgroup composed of DTSC and CIWMB representatives; however work remains to be done before the infrastructure is developed and implemented. Please see the response to comment J-12 above, incorporated herein.

Exemptions – Lamps

AERC Recycling Solutions

A-5 *Do not allow temporary exemptions.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. See the response to comment J-12, above, for discussion.

Association of Lighting and Mercury Recyclers

C-3 *Lamps break in dumpsters and become an instant threat to human health and the environment. The M003 Listing should not be delayed until 2006.*

DTSC has reviewed this comment and similar comments (see comments C-8, C-9, and U-2, and responses). In these comments, lamp recycling industry representatives state that

their industry already has adequate capacity to recycle of California's fluorescent lamps that can be diverted from disposal. By DTSC's calculations, at the current rate of nonhazardous management and lamp disposal (approximately 80 percent, according to the Association of Lighting and Mercury Recyclers), approximately 420 kilograms of mercury enter the State's environment (see Table 1 in the appendix). For these reasons, the phase-in date for the M003 listing is being changed from February 9, 2006 to February 9, 2004.

C-4 *Exemptions will allow another 100 + million lamps to go to non-hazardous disposal.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. The phase-in date for the M003 listing is being changed from February 9, 2006 to February 9, 2004. See the response to comment C-3, above, for discussion.

Mercury Retirement

1000 E-mails

CC-6 *As we eliminated mercury's use in products, we need to have a concrete plan to collect used mercury, "retire" and contain it, taking it out of our environment and preventing future human exposure.*

DTSC agrees that the ultimate solution to prevent further environmental contamination with mercury is to take it out of commerce. While the uses of mercury in products is decreasing (and these regulations will provide incentives for further reductions), mercury is still needed in certain applications. DTSC is participating in an effort by the Environmental Council of States (ECOS) to address the issue of long-term storage (retirement) of mercury. This issue is national in scope and is beyond the scope of this rulemaking. However, before the mercury in discarded products can be retired, it must be reclaimed (recycled). Elemental mercury that is recycled as a consequence of these regulations will be ready for retirement, once a solution to the long-term storage of this toxic metal is developed.

500 Faxes

DD-6 *I hope the state in the near future will establish a process for the safe retirement and isolation of mercury that has been recaptured.*

Please see the response to comment CC-6, above.

CALPIRG Charitable Trust

H-11 *The language should reflect the intention to retire the mercury reclaimed from products. California should act quickly to ensure an effective collection infrastructure is in place (for mercury that is to be retired)…*

Please see the response to comment CC-6, above. It has been suggested (in comment W-6) that DTSC allow retirement as an alternative to recycling of mercury. However, as noted in the response to comment CC-6, reclamation of the mercury in products that contain it is a necessary before it can be retired. The Universal Waste Rule provides the handlers of these discarded products with flexibility in accumulating, transporting, and consolidating waste mercury-containing products prior to recycling. This flexibility allows use of existing infrastructures for some of these activities (existing businesses may accumulate universal waste, for example, and existing carriers—or handlers themselves—may transport universal waste). As noted above, DTSC and CIWMB are collaborating to develop an infrastructure to collect universal wastes (including mercury-containing wastes covered by these regulations) generated by households and CESQUWGs. Please see the response to comment CC-6, above, for discussion of mercury retirement.

J-6 *While recycling is preferable disposal, DTSC should focus on retirement in the long term.*

Please see the response to comment CC-6, above.

Physicians for Social Responsibility, Los Angeles

W-6 *DTSC should add retirement as an alternative to recycling to the text of each applicability section. Retirement will be explored under federal legislation (S. 351, Collins).*

Please see the response to comment CC-6, above. The commenter suggests that DTSC allow retirement as an alternative to recycling of mercury. However, as noted in the response to comment CC-6, reclamation of the mercury in products that contain it is a necessary before it can be retired. Recycling the mercury in products is, therefore, a necessary predicate to retirement, rather than an alternative.

W-8 *DTSC should place more emphasis on manufacturer responsibility and retirement. California should support S. 351. Manufacturer take-back should be mandatory. Nonessential mercury-added products should be banned. High capture rates should be required.*

Please see the response to comment CC-6, above, for discussion of mercury retirement. DTSC has no authority to regulate the formulation of products, to ban the use of mercury, or to require manufacturers to take back mercury-containing products. DTSC can require that mercury containing hazardous waste be recycled as a condition of universal waste management, which is what these regulations do.

Robyn Martin

BB-7 *I hope the state in the near future will establish a process for the safe retirement and isolation of mercury that has been recaptured.*

Please see the response to comment CC-6, above, for discussion of mercury retirement.

Hazardous Waste Classification

CALPIRG Charitable Trust

H-7 *Support classifying all mercury-containing waste as hazardous waste, with even more stringent standards for specific waste categories.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. In the Draft Mercury Report, DTSC proposed a regulatory approach similar to the one advocated by the commenter. In response to comments from a series of public workshops on the report and regulatory approach, DTSC narrowed the scope of the regulations to designate as hazardous waste discarded products with intentionally-added mercury that meet either or both of the following conditions: they are capable of being recycled, or have a mercury-free alternative available. These criteria support the three objectives of the regulations: encouragement of pollution prevention through the use of mercury-free products; development of products that use mercury alternatives; and recycling of mercury containing waste. See also the discussion of alternatives considered in the ISOR and FSOR.

Electronic Industries Alliance

L-2 *DTSC should clarify that unused products that contain mercury switches or lamps destined for recycling . . . are not subject to the proposed regulations.*

Unused products that become wastes are not categorically exempt from these regulations. If they are “discarded materials,” as defined in chapter 11 of title 22 of the California Code of Regulations, division 4.5, and meet one of the four listing descriptions in new section 66261.50, they are listed hazardous wastes. All four categories of listed wastes in the new hazardous waste listings added in these regulations are eligible to be managed as universal wastes, provided that they will be recycled.

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Appendix to 45-Day Public Notice
Comment Summaries and Responses

The Effect of Market Share of Low-Mercury Lamps and Lamp Recycling Rate on Release of Mercury in California

Total Number of Spent Lamps*	Mercury Content of a Low-Mercury Lamp (kilograms) (Weighted average of T12 and T8 tubes)**	Mercury Content of a Higher-Mercury Lamp (kilograms) (Weighted average of T12 and T8 tubes)**
75,000,000	4.01E-06	8.29E-06

TABLE 1--Scenario 1: 20 percent recycling Rate for all lamps; Varying Market Share for Low-Mercury Lamps

Market Share of Low-Mercury Lamps	Market Share of Higher-Mercury	Mercury released annually from Low-Mercury Lamps (Kilograms)	Mercury released annually from Higher-Mercury Lamps (Kilograms)	Mercury Released from All Lamps (Kilograms)	
100.00%	**0.00%**	**240.60**	**0.00**	**240.60**	**<= This row shows the approximate amount of mercury that would be released if all lamps were manufactured with Philips' mercury concentrations (assuming 20% of all lamps recycled).**
90.00%	10.00%	216.54	49.74	266.28	
75.00%	25.00%	180.45	124.35	304.80	
50.00%	50.00%	120.30	248.70	369.00	
30.00%	**70.00%**	**72.18**	**348.18**	**420.36**	**<= This row shows the approximate amount of mercury released currently, with: 30% market share for Phlips (assuming 20% of all lamps recycled).**
10.00%	90.00%	24.06	447.66	471.72	
0.00%	100.00%	0.00	497.40	497.40	

*"The consumption rate of fluorescent tubes has been determined to be 2.2 tubes per year, per person. This factor has been widely used by U.S. EPA and others, and is consistent for California and nationally." (Source: Personal communication with Paul Abernathy, Executive Director of the Association of Lighting and Mercury Recyclers, April 26, 2001.) California's population of 33.87 million (Source: 2000 U.S. Census) was multiplied by 2.2 to calculated the approximate number of waste lamps generated annually in the State.

**Weighted averages for the mercury levels in Philips (low-mercury) fluorescent lamps and lamps produced by other manufacturers were calculated using data submitted by Roux Associates Inc. to comment on these regulations. According to table 1:A of Roux' submittal, on average: Philips 4-foot T-12 lamps contain 4.44 milligrams of mercury each; Philips 4-foot T-8 lamps contain 3.52 milligrams of mercury each; other manufacturers' 4-foot T-12 lamps contain 8.45 milligrams of mercury each; and other manufacturers' 4-foot T-8 lamps containt 8.10 milligrams of mercury each. The calculation of weighted average mercury levels in low-mercury lamps and higher-mercury lamps are shown in Table 4.

The Effect of Market Share of Low-Mercury Lamps and Lamp Recycling Rate on Release of Mercury in California

Total Number of Spent Lamps*	Mercury Content of a Low-Mercury Lamp (kilograms) (Weighted average of T12 and T8 tubes)**	Mercury Content of a Higher-Mercury Lamp (kilograms) (Weighted average of T12 and T8 tubes)**
75,000,000	4.01E-06	8.29E-06

TABLE 2--Scenario 2: Varying Lamp Recycling Rate for Higher-Mercury Lamps; No Market Share for Low Mercury Lamps

Rate of Recycling of Higher Mercury Lamps	Rate of Nonhazardous Disposal of Higher Mercury Lamps	Mercury released annually from Low-Mercury Lamps (Kilograms)	Mercury released annually from Higher-Mercury Lamps (Kilograms)	Mercury Released from All Lamps (Kilograms)	
20.00%	80.00%	0.00	497.40	497.40	
32.40%	67.60%	0.00	420.30	420.30	
61.40%	**38.60%**	**0.00**	**240.00**	**240.00**	**<= This row shows that *even if low-mercury lamps disappeared from the market*, less mercury would be released to the environment with a 61.4% lamp recycling rate than if the average mercury content of all lamps were equal to Philips' current average mercury content and were recyled at the current rate (approx. 20%). Minnesota reportedly has a 70 percent recycling rate.**
70.00%	30.00%	0.00	186.53	186.53	
80.00%	20.00%	0.00	124.35	124.35	
100.00%	0.00%	0.00	0.00	0.00	

*"The consumption rate of fluorescent tubes has been determined to be 2.2 tubes per year, per person. This factor has been widely used by U.S. EPA and others, and is consistent for California and nationally." (Source: Personal communication with Paul Abernathy, Executive Director of the Association of Lighting and Mercury Recyclers, April 26, 2001.) California's population of 33.87 million (Source: 2000 U.S. Census) was multiplied by 2.2 to calculated the approximate number of waste lamps generated annually in the State.

**Weighted averages for the mercury levels in Philips (low-mercury) fluorescent lamps and lamps produced by other manufacturers were calculated using data submitted by Roux Associates Inc. to comment on these regulations. According to table 1:A of Roux' submittal, on average: Philips 4-foot T-12 lamps contain 4.44 milligrams of mercury each; Philips 4-foot T-8 lamps contain 3.52 milligrams of mercury each; other manufacturers' other manufacturers' 4-foot T-12 lamps contain 8.45 milligrams of mercury each; andother manufacturers' 4-foot T-8 lamps containt 8.10 milligrams of mercury each. The calculation of weighted average mercury levels in low-mercury lamps and higher-mercury lamps are shown in Table 4.

The Effect of Market Share of Low-Mercury Lamps and Lamp Recycling Rate on Release of Mercury in California

Total Number of Spent Lamps*	Mercury Content of a Low-Mercury Lamp (kilograms) (Weighted average of T12 and T8 tubes)**
75,000,000	3.01E-06

TABLE 3--Scenario 3: Varying Lamp Recycling Rate; All Lamps Manufactured with 75 Percent of Philips' Current Mercury Levels

Rate of Recycling of "Extra Low"-Mercury Lamps	Rate of Nonhazardous Disposal of "Extra Low"-Mercury Lamps	Mercury released annually from "Extra Low"-Mercury Lamps (Kilograms)	Mercury Released from All Lamps (Kilograms)	
20.00%	**80.00%**	**180.45**	**180.45**	**<= This row shows that only in the improbable scenario that all lamps are manufactured to meet a revised mercury TTLC of 15 milligrams per kilogram and the current lamp recycling rate of approximately 20% does not drop, would less mercury be released to the environment than under the M003 listing (assuming California attans Minnesota's 70% lamp recycling rate).**
25.00%	75.00%	169.17	169.17	
50.00%	50.00%	112.78	112.78	
70.00%	30.00%	67.67	67.67	
80.00%	20.00%	45.11	45.11	
100.00%	0.00%	0.00	0.00	

*"The consumption rate of fluorescent tubes has been determined to be 2.2 tubes per year, per person. This factor has been widely used by U.S. EPA and others, and is consistent for California and nationally." (Source: Personal communication with Paul Abernathy, Executive Director of the Association of Lighting and Mercury Recyclers, April 26, 2001.) California's population of 33.87 million (Source: 2000 U.S. Census) was multiplied by 2.2 to calculated the approximate number of waste lamps generated annually in the State.

**The weighted average mercury level in Philips Alto low-mercury fluorescent lamps--4.01 milligrams per lamp--was multiplied by 0.75 to derive the average mercury content of lamps under a hypothetical scenario in which all lamps are manufactured with 75% of the mercury currently used in Alto lamps to meet a revised mercury TTLC of 15 milligrams per kilogram. The calculation of weighted average mercury levels in low-mercury lamps and higher-mercury lamps are shown in Table 4.

TABLE 4:
Calculation of Weighted Averages for the Mercury Content of Philips Lamps and non-Philips Lamps

A. Percentage of Tubes That Are T-8***	B. Percentage of T-8 Tubes That Are 4-Foot***	C. Percentage of Tubes that are 4-Foot T-8 (A x B)	D. Percentage of Tubes That Are T-12***	E. Percentage of T-12 Tubes That Are 4-Foot***	F. Percentage of Tubes that are 4-Foot T-12 (D x E)
40.62%	90.00%	36.56%	57.84%	73.00%	42.22%

Of the 4-Foot tubes sold, T-8 and T-12 Tubes have the following market share

G. Percentage of lamps that are 4-foot (C + F)	78.78%	H. Percentage of 4-Foot Tubes that are T-8 [(C/G) x 100 %]	46.41%	I. Percentage of 4-Foot Tubes that are T-12 [(F/G) x 100 %]	53.59%

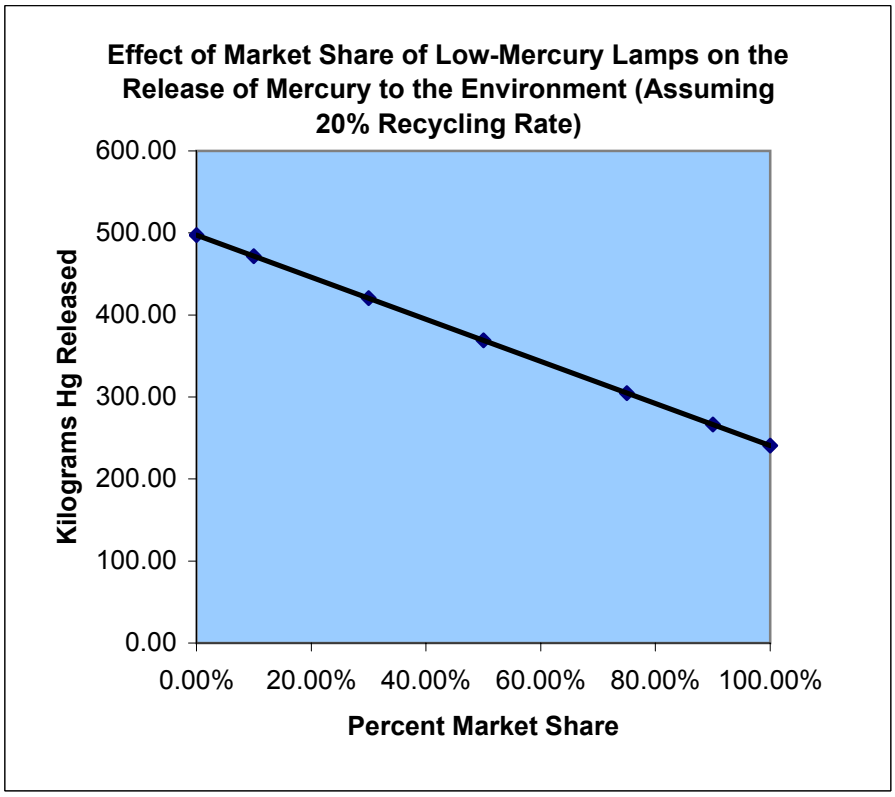
For the purpose of this approximation, it is assumed that the above percentages are the same for the three major manufacturers. The weighted averages of the mercury content of lamps are calculated below, using data on the mercury content of T-8 and T-12 lamps submitted by Roux Associates Inc. The majority of tubes sold (98.46 percent, according to Table 1:A of the Roux Associates, Inc., submission) are either T-8 or T-12 tubes, and the majority of T-8 tubes (90 percent) and T-12 tubes (73 percent) sold are 4 feet in length.

Other lamp configurations account for 21.22 percent of the lamps sold, according to the Roux Associates data. Of this percentage, 15.64 percent are T-12 tubes other than the 4-foot size, 4.06 percent are T-8 tubes other than the 4-foot size, and 1.54 percent are other sizes. For the purposes of this approximation, it is assumed that the weighted averages calculated based on T-8 and T-12 tubes are roughly representative of all lamps sold, including non-4-foot tubes.

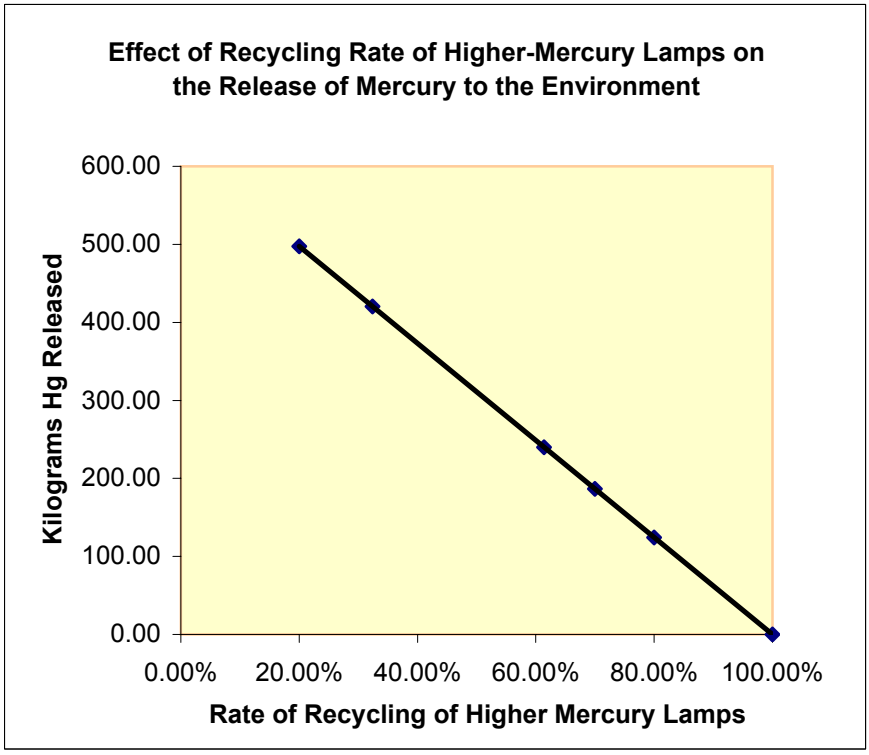
J. Average mercury content of Philips 4-foot T-8 Lamps	K. Average mercury content of Philips 4-foot T-12 Lamps	L. Weighted Average for Philips Tubes (J x H) + (I x K)	M. Average mercury content of non-Philips 4-foot T-8 Lamps	N. Average mercury content of non-Philips 4-foot T-12 Lamps	O. Weighted Average for Philips Tubes (M x H) + (N x I)
3.52	4.44	**4.01**	8.10	8.45	**8.29**

***Market share data for T-8 and T-12 lamps were obtained from the submittal by Roux Associates, Inc.

Market Share of Low-Mercury Lamps	Kilograms released from all lamps
100.00%	240.60
90.00%	266.28
75.00%	304.80
50.00%	369.00
30.00%	420.36
10.00%	471.72
0.00%	497.40



Rate of Recycling of "Higher Mercury"	Kilograms released from all lamps
20.00%	497.40
32.40%	420.30
61.40%	240.00
70.00%	186.53
80.00%	124.35
100.00%	0.00



Public Hearing Comment Summaries
And Responses

Mercury Waste Classification and Management Regulations: R-02-04 - Public Hearing Comment Summaries and Responses

HA *Osram Sylvania*

HA-1 *I'm here to support the proposed regulations as they apply to mercury-added lamps.*

DTSC acknowledges the commenter's support.

HA-2 *One of the reasons that recycling is stalled in the 20 to 25 percent range is the exemptions offered in various federal and state rules. Several states have recently swept away those exemptions, and California is now set to do the same*.

DTSC concurs with this comment. The State currently exempts households and the smallest commercial generators while collection and transport infrastructure is being built. These exemptions end in 2006.

Other lamps escape regulation by being classified as non-hazardous. In 2004, these lamps will also be classified as hazardous waste and will be required to be recycled. In this manner and using education and enforcement, DTSC expects to maximize the recycling rate for mercury-containing lamps to prevent release of any of their mercury into the environment.

HA-3 *The proposed regulations are supported by the sound research contained in DTSC's Draft Mercury Report.*

DTSC acknowledges the commenter's support for the findings of the Mercury Report.

HA-4 *Osram Sylvania supports recycling for all mercury-added lamps.*

DTSC acknowledges this support. All mercury-containing lamps must be recycled under these rules after February 8, 2004.

HA-5 *Osram Sylvania submitted separate written testimony supporting the regulations and pointing out seven areas for clarification*.

See the response to the written comments for the 45-Day Public Review and Comment Period for responses to Osram Sylvania's comments.

H-B *Association of Lighting and Mercury Recyclers*

HB-1 *We support these proposed regulations and are pleased that DTSC is considering factors that affect water quality, fish consumption, and human health.*

DTSC acknowledges the support and reiterates that these factors, as discussed in the Draft and Final Mercury Reports, are the factors that have led to these regulations.

HB-2 *We support inclusion of all mercury-containing lamps in this regulation without exception and without exemptions.*

DTSC acknowledges the support for the listing for all lamps with intentionally-added mercury. However, as discussed in further detail in the Final Statement of Reasons and the Final Analysis and Findings Required by Health and Safety Code section 25150.6, DTSC is allowing the existing household and small quantity exemptions to apply to all hazardous waste lamps. The exemptions exist to allow time for infrastructure to develop for collection and transportation of lamps from households and the smallest commercial generators. DTSC has determined that the delay is needed because requiring proper management (recycling) prior to development of infrastructure would, when households and small commercial generators were faced with few and expensive options for managing their wastes, lead to habitual and difficult to reverse illegal disposal in the solid waste stream or, worse, into the general environment.

DTSC is also delaying the effective date of the listing for lamps (M003) to allow time for educational outreach to persons currently using non-hazardous lamps. At least some of the persons using currently non-hazardous lamps purchased these lamps with the understanding that they could be disposed as non-hazardous solid waste. DTSC will need time to educate both these generators and the solid waste management industry that the lamps are regulated as hazardous waste under the M003 listing and that proper recycling is the required management technique.

HB-3 *We do not agree that the new listing of mercury lamps should be delayed until 2006. DTSC has not moved quickly enough on diverting mercury lamps from the garbage.*

DTSC disagrees that the listings should become immediately effective. However, this comment is being partially accommodated by moving the date forward by two years to 2004. DTSC has incorporated the delay because education is needed for both these generators and the solid waste management industry, about regulation of the lamps as hazardous waste under the M003 listing and that proper recycling is the required management technique. To immediately regulate these lamps without education outreach would brand many persons trying to properly manage their wastes as illegal disposers because the non-hazardous lamps were purchased, in at least some cases, with the understanding that they could be disposed as non-hazardous waste. Therefore, DTSC will retain the ultimate 2004 effective date to allow DTSC and the CUPAs time to educate generators and solid waste management facilities about the regulated status of these lamps.

HB-4 *If DTSC delays the M003 listing until 2006, "there is little hope of keeping another hundred million or so lamps out of the environment. We think this is unacceptable and we think you can do something about it."*

DTSC acknowledges that delay in the effective date of the M003 listing will allow numerous lamps to go legally to non-hazardous waste landfills. However, as discussed above in the response to Public Hearing comment HB-3, DTSC believes that the environment will ultimately be better protected with a delay in the M003 effective date. However, DTSC is shortening the delay period as discussed in Public Hearing comment HB-3 above.

H-C *California Public Interest Research Group*

HC-1 *We strongly support the department's assessment of the mercury problem.*

DTSC acknowledges the commenter's support on the mercury problem assessment.

HC-2 *Strongly supports "the department's proposal to classify all mercury-containing waste as hazardous waste."*

DTSC acknowledges the commenter's support for the general direction of these regulations. However, DTSC is only addressing a manageable subset of mercury containing wastes for several reasons:

> Each rulemaking must have a limited and defined scope to allow the rulemaking to be completed in a manageable timeframe. DTSC has limited the scope of this rulemaking to the objectives stated in the Final Statement of Reasons.
>
> The rulemaking is intended to identify as new hazardous wastes those mercury-containing wastes for which recycling is technically and economically feasible and/or for which mercury-free alternatives exist.

The rulemaking is limited to wastes with "intentionally-added" mercury because increasingly sensitive analytical techniques will find small traces of mercury in every object on the planet, while very small traces of mercury do not pose a significant hazard to human health and the environment.

HC-3 *The proposal does not adequately encourage the elimination of mercury from use in consumer products.*

See the response to comments CC-2 and CC-3, incorporated herein, for a discussion of DTSC's approach toward creating disincentives for mercury use and the limitations on DTSC's authority to force elimination of mercury from consumer products.

HC-4 *The proposal lacks adequate oversight and enforcement to ensure that mercury in disposed products is collected and contained in a manner most protective of public health.*

DTSC's and the CUPAs inspection and enforcement authorities are granted by Chapter

6.5 of the California Health and Safety Code and are not found in the implementing regulations. As discussed above in the response to comment DD-4, DTSC and the CUPAs have extensive authorities to enforce the Universal Waste Rule standards.

HC-5 *As an incentive for use reduction and the development of alternatives, the commenter recommends an advanced disposal fee. The fee would promote recycling of products with no alternatives and would help fund oversight and education. Generators of hazardous waste should be held financially accountable for its management.*

DTSC concurs that an advanced disposal fee would be one of a number of powerful and effective approaches to maximizing the recycling rate for mercury-containing wastes. However, DTSC does not have authority to establish advanced disposal fees, mandatory take back programs, toxic content taxes or fees, and many other effective approaches to promoting recycling and reduction of toxic constituents. This rulemaking represents DTSC's understanding of the most effective alternative for promoting recycling and proper management of mercury-containing wastes within the authority granted to DTSC.

HC-6 *A concrete plan for the collection and storage of retired mercury is necessary. Reclaimed mercury should be taken out of the environment as much as possible. The department's proposal and its language should reflect the intention to retire reclaimed mercury and take it out of commerce.*

Please see the response to comment CC-6.

HC-7 *California should act quickly to ensure an effective collection infrastructure is in place for mercury that is destined for retirement.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. To be eligible for management as universal waste, the waste mercury-containing products covered by these regulations must be recycled. The universal waste rule provides the handlers of these discarded products with flexibility in accumulating, transporting, and consolidating waste mercury-containing products prior to recycling. This flexibility allows use of existing infrastructures for some of these activities (existing businesses may accumulate universal waste, for example, and existing carriers—or handlers themselves—may transport universal waste). As noted above, DTSC and the CIWMB are collaborating to develop an infrastructure to collect universal wastes (including mercury-containing wastes covered by these regulations) generated by households and CESQUWGs. Please see the response to comment CC-6, incorporated herein, for discussion of mercury retirement.

H-D *Clean Water Action*

HD-1 *We're very pleased that the department has opted to bring all mercury-containing light bulbs, even those with low mercury content, into the regulatory domain.*

DTSC acknowledges the commenter's support.

HD-2.1 *I strongly support the decision . . . To consider an entire car to be hazardous waste until mercury-containing elements have been removed. This provides shredders or crushers with incentives to remove mercury switches and vehicle manufacturers an incentive to phase out mercury switches.*

DTSC acknowledges this support. Note, however, that this classification as hazardous waste has been modified so that vehicles are hazardous waste only if all the mercury-containing light switches have not been removed. The reasons for these changes are detailed in the FSOR.

HD-2.2 *I strongly support the decision . . . To consider an entire appliance to be hazardous waste until mercury-containing elements have been removed. This provides shredders or crusher's incentives to remove mercury switches and appliance manufacturers an incentive to phase out mercury switches*.

DTSC acknowledges this comment and agrees with the commenter's assessment of the impact of these regulations

HD-3 *The proposed regulations lack enforcement embedded into the regulations. Without strong enforcement mechanisms, there is little reason to believe the program will be realized.*

As discussed in the responses to comment DD-4 and Public Hearing comment HC-4, incorporated herein, the statutory authorities granted to DTSC and the CUPAs by Chapter 6.5 of the Health and Safety Code are sufficient to ensure compliance with the Universal Waste Rule.

HD-4 *A compliance certification program, like those used in other regulatory settings can ensure real reductions in mercury-containing wastes.*

DTSC has chosen to implement the same regulatory model as used for general hazardous waste management to implement these regulations. In this model, the State establishes regulatory standards, uses educational outreach to publicize the regulatory standards, and uses inspection and enforcement to assure compliance. DTSC has elected to not use a certification program because of the administrative overhead required to obtain, track, and verify certifications. DTSC has chosen, instead, to utilize

resources for educational outreach and inspection and enforcement to gain compliance.

HD-5 *I urge the department to proactively work with the State Legislature to develop an advanced disposal fee program for applicable products as soon as possible.*

See the response to Public Hearing comment HC-5 above, incorporated herein. Note that DTSC will work with the Legislature, as the Legislature requests, on any proposed legislation that offers improvements to prevention of mercury release to the environment.

HD-6 *Recycling has to be coupled with effective source reduction strategies and a permanent capture and retirement program for the mercury in products.*

Please see the response to comment CC-6, incorporated herein.

HD-7 *By focusing regulations solely on products that already have non-mercury alternatives, DTSC is creating a disincentive for the creation of new alternatives for other products in the future.*

DTSC is not creating a significant disincentive for development of alternatives to mercury use. Many other factors continue to provide strong incentives for mercury free alternatives to current mercury-containing products. Among other factors, worker safety and hazard communication, liability insurance, product stigmatization (as a “toxic” product), cost of managing mercury-containing hazardous waste from the production process, and potential classification of the product as hazardous waste due to mercury content provide powerful incentives for replacing the mercury.

HD-8 *The proposal to export mercury out-of-state for recycling has the potential for unintended consequences: environmental justice implications; difficulty in tracking; verification that the mercury is, in fact, recycled properly.*

Environmental justice issues arise out of land use and siting decisions rather than the recycling requirement for universal waste. In fact, because solid wastes are often managed in poor areas, removing hazardous constituents from the wastes would improve the environmental justice for those areas by eliminating release of mercury.

There will be difficulty in tracking universal wastes and in verifying that wastes are, indeed, recycled. New inspection and auditing techniques will be developed to address these issues. However, elimination of the prescriptive and complex standards for tracking and managing universal wastes is at the heart of the justification for adopting universal waste standards. This is because making management simpler and focusing the costs on ultimate recycling rather than intermediate management will give a better ultimate environmental result. Simpler management will minimize the incentives for illegal disposal. In other words, the State is “giving a little, to get a lot.” More stringent requirements for recordkeeping and manifesting may be imposed at a later date if

necessary.

H-F *Northern California Auto Dismantlers Association*

HF-.5 *The State of California Auto Dismantlers Association (SCADA) supports the voluntary removal of mercury-containing automobile trunk and light, hood light switches.*

DTSC has determined that voluntary efforts will not succeed in diverting a significant amount of mercury from the solid waste stream because there is no economic incentive to do so and businesses are primarily motivated by profit.

To ensure compliance, it is necessary to create a level playing field where persons in the same business face the same costs. Otherwise, a business that chose to properly remove and recycle mercury switches would be placed at a competitive disadvantage compared to those that do not. Given the competition and the small profit margin of most recycling industries, DTSC would expect firms to have an economic incentive to continue to not remove the switches unless every automobile recycling firm were faced with the requirement to remove the switches and was therefore, faced with the same costs.

HF-1 *The proposal to require removal of all mercury switches, recycling of all switches, and certification that all switches have been removed is not workable. A switch that is not recycled, and a vehicle from which all switches are not removed, would be considered hazardous waste. Dismantlers do not know which parts contain mercury switches. (The commenter brought various parts removed from vehicles that "may or may not contain mercury"--a climate control device, air bag sensors, a metering device for a vacuum.) Dismantlers have no information on which vehicles contain mercury. They are told that they will be provided the information, which "could impose a great deal of new information" on dismantlers, which they would have to provide to their employees.*

DTSC has partially accommodated this comment. In response to this and other comments, required removal of switches has been limited to hood and trunk mercury-containing light switches in the 15-Day Notice of Changes. Additionally, the certification requirement was deleted. See the response to comment Q-7 and Public Hearing comment HF-7 below.

HF-2 *The organization is not sure whether dismantlers are expected to remove the mercury from the switches, or "take these switches out as they are."*

Dismantlers are expected to remove intact switches and send them, intact, to another handler or a mercury recycler. The regulations allow universal waste management after the switches are removed. However, universal waste management standards do not

allow dismantling of the actual switch because switches would be very difficult to dismantle without release of the mercury.

HF-3 *Shipping "thousands and thousands of pounds" of whole autos (as hazardous waste?) would be very costly. Removing mercury switches may be excessively costly, if it takes a long time to do.*

To avoid shipping autos under the general hazardous waste standards, a person must only remove the hood and trunk light switches and manages them separately as universal waste. DTSC concurs that removing all switches may be costly; however, the 15-Day Notice of Changes limits the removal requirement to hood and trunk light switches, in intact hoods and trunks. There is sufficient documentation on the presence or absence, location, and removal methods for these switches to easily remove them. As discussed in the economic analysis used to develop the Form Std. 399 for this rulemaking, it takes little time to remove trunk and hood light switches. Removal of only those switches is neither time consuming nor excessively costly.

HF-4 *Unsure whether the requirement to remove mercury switches will affect employee training, Cal-OSHA involvement, and fire department involvement. The fire department is "going to be concerned about any potential fire hazards that are going to be created with the quantities of this collected in one area."*

The allowance to remove the mercury switches requires simple and informal employee training. Training would be needed simply to ensure that the switches are removed in the most efficient manner. Cal/OSHA rules must be followed for all workplace activities. Note that management of waste vehicles involves generation and management of other hazardous wastes (used oil, waste gasoline, lead-acid batteries) and Cal/OSHA rules for hazardous waste workers are triggered by those wastes even without this rulemaking. Mercury is not a flammable liquid and switch housings are plastic or metal and offer no fire hazards beyond other components of the autos. Other wastes such as used oil and gasoline offer more serious fire hazards. In the event of a fire that involved accumulated switches, a mercury emission hazard would exist and precautions should be taken to protect switches (and other wastes) from fire.

HF-5 *We don't know the cost of complying with the proposed regulations.*

DTSC, in compliance with statutory requirements for rulemaking, has considered all reasonably available information about the costs of such management and has factored them into the economic analysis that accompanies this rulemaking. While the exact costs encountered by any specific individual managing these wastes may not be exactly reflected by the general estimates of costs, the cost estimates do constitute a good "ballpark" estimate of removal costs.

HF-6 *How can we possibly be expected to certify that all the mercury is out of the vehicles not knowing where it is?*

DTSC has accommodated this comment by removing the requirement that all mercury switches be removed in order for the vehicle to exit the M001 listing. Now, only the light switches in the hood and trunk must be removed prior to recycling. That requirement has been retained because there is much information available about which vehicles contain light switches, where the switches are located, and how to remove them.

HF-7 *Is there a mechanism to enforce the switch removal certification requirement? Would there be civil penalties for violations. Could there be jail time? Will the requirements "eventually cause us to shut down our businesses?" Who is going to be liable?*

The switch removal certification has been removed from the proposal in the 15-Day Notice of Changes. It was removed because the information available on the existence, location, number, and removal procedures for mercury switches in specific models of vehicle makes it virtually impossible to know if all the mercury-containing switches in the have been removed. Therefore, certification would have been very difficult and risky. For further discussion, see the Final Statement of Reasons.

HF-8 *Our insurance costs (which are already "extremely" high) will go up (as a result of these regulations) because there will be another (risk) factor.*

DTSC does not believe that managing switches as universal waste will add another risk factor that should increase insurance premiums for persons handling universal wastes. Unless a person is in the business of collecting and managing universal wastes from other handlers, the universal wastes are generated by the business regardless of the regulatory status of the wastes. For instance, an automobile scrap yard handles vehicles with mercury switches with or without these regulations. They also already handle other hazardous wastes. The regulations do not change the chemical hazards offered by the switches. They do, however, reduce the chance of contaminating properties with mercury released from the switches during crushing, baling, or shredding of the vehicles and should reduce risk based on that fact. However, DTSC does not regulate the behavior of insurance companies and can give no assurances that insurers will not raise premiums.

HF-9 *The proposal, as written, puts my business in such serious jeopardy that there's no way that I could ever see keeping my doors open and being willing to sign a certification that my vehicles are free of mercury. Further, some vehicles are so severely damaged that we cannot get to all of the (mercury-containing) parts.*

The certification requirement has been removed in response to this and other comments. See the response to Public Hearing comment HF-7.

HF-10 *Assuming that each car has two mercury switches (which the commenter felt is an overestimate, based on his vehicle inventory), and that a dismantler*

recycles 250 vehicles per year, "in a year I'd come up with less than a pound" of mercury. If there are 50,000 pounds of mercury in the environment, the contribution from automobile switches is very small.

While the amount of mercury in individual vehicles seems small, it is much larger in terms of its potential to pollute than is readily apparent. Each switch contains at least one gram of metallic mercury – an amount equivalent to that in approximately 500 to 1000 fluorescent tubes. The huge number of vehicles scrapped each year in California, releases about one ton of mercury each year. Given the ability of mercury to move through the environment into the waters of the State and its persistence in the environment, all sources of metallic mercury are significant and must be controlled.

HF-11 *Just transporting the mercury removed from vehicles to out-of-state recycling facilities would do more environmental damage, from the standpoint of fuel alone (than not removing the switches).*

DTSC does not agree with this statement and has seen no data or studies that would support this assertion. The actual mercury-containing switches are small and many switches can be packaged into a small box or plastic bottle. Once removed, they can be transported using any common carrier or package service that will accept this type of hazardous material. Thus, no special trips will be necessary to ship the removed switches and they should not constitute a significant fraction of any single load of cargo.

HF-12 *SCADA members handle approximately 25 percent of the vehicles in the state. And SCADA members are the dismantlers that would be most likely to comply with the regulations. How can we tell our membership that they should take on this liability and sign a certification? Anyone who would sign a certification would be signing something that they cannot know is true.*

The certification requirement has been removed in the 15-Day Notice of Changes in response to this and to other comments. See the response to Public Hearing comment HF-7 for further discussion.

HF-13 *The rule should be limited to hood and trunk switches, and the dismantlers should be required to certify only that they have removed all hood and light switches "to the best of our knowledge."*

The certification requirement has been removed in the 15-Day Notice of Changes in response to this and to other comments and the listing was changed to limit the listing to mercury containing light switches. See the response to Public Hearing comment HF-7 for further discussion.

HF-14 *California needs to implement a recycling program for mercury switches like the used oil and bottle recycling programs, where there's a reward for recovering the switches. Anyone removing a switch from a vehicle, even if the person is unlicensed or unregulated, would have an incentive to bring the*

switch in and get some sort of rebate.

DTSC concurs that such a deposit/rebate system would provide an incentive for proper management of mercury containing switches; it lacks authority to create such systems. This regulation creates as much incentive to remove switches as can be established administratively by DTSC. It does so by (correctly) identifying the switches and vehicles containing the switches as hazardous waste and by creating a simple and streamlined system for management of the switches after removal.

Only the Legislature can create such a deposit/rebate program.

HF-15 *In most mercury switches found in vehicles, the mercury is carefully encapsulated in substantial units. It's not likely that--if they were put into a landfill--there would ever be a problem with them leaking mercury.*

End-of-life vehicles with intact switches are not generally discarded in landfills. They are shredded, baled, crushed, or sheared into bits and pieces of scrap metal that can then be smelted into steel for new products. Plastic and “pot metal” switches can generally be expected to shatter and release their mercury in the scrap recycling process, both releasing mercury to the air and contaminating the scrap metal with mercury that is released to the air later when the scrap metal is smelted.

If switches were removed from the vehicles and then deposited into landfills rather than sent for recycling, many of the switches would be broken as the waste is spread into the landfill and covered with “daily cover” (dirt spread on top of the garbage every day by heavy equipment). Other switches would be entombed in the landfill to slowly degrade. Ultimately, all the switches in the landfill would corrode or other wise degrade releasing the mercury into the environment. Disposing of mercury switches (and other mercury containing equipment) into landfills, at best, simply delays release while recycling prevents release.

H-E *State of California Auto Dismantlers Association (SCADA)*

HE-1 *SCADA and its members want to work with DTSC to develop a workable program (for removing automotive mercury switches).*

DTSC will work with SCADA and other interested parties to generate quality guidance for switch removal.

HE-2 *There is speculation that there are mercury switches in antilock brake (ABS) systems. Currently, ABS systems are valuable commodities that are almost always removed from vehicles prior to crushing. But in the future, they may become a liability, instead of a commodity. (Therefore,) in order for this to be*

a workable regulation, we have to focus on regulating the product and not the industry.

DTSC does not have authority to regulate products or constituents used in products. DTSC can only regulate products when discarded by disposal or recycling to prevent environmental release of hazardous constituents. DTSC will provide information to the Legislature as requested and will advise the Executive Branch on any proposed legislation.

HE-3 *SCADA members are only responsible for 25 percent of the state's end-of-life vehicles. Therefore, in order for the regulations to work, we have to focus on the mercury switches themselves, and make the regulations feasible for everyone involved, not just auto dismantlers.*

The regulations address all discarded mercury-containing light switches regardless of who generates the switches. All waste vehicles, regardless of who manages them, are subject to the M001 listing and all removed switches may be managed as universal waste.

HE-4 *SCADA would like to investigate working with DTSC in implementing a SCADA-run program, much like the state's storm water program, where we have a group certification program.*

The certification requirement has been removed in the 15-Day Notice of Changes in response to this and to other comments. See the response to Public Hearing comment HF-7 for further discussion

Note that group certifications and other association actions are not necessary for this regulatory program because there are no plan approvals of submissions required. All that is required is that the mercury-containing light switches be removed and properly managed.

H-G *"Coalition of Health Related Organizations"*

HG-1 *We are concerned about the disposal of dental amalgam, which has been made little of. I am glad to see dental amalgam included in the new regulations.*

DTSC acknowledges the commenter's support.

HG-2 *Many dentists don't pay attention to the amalgam waste going down the drain. There is no oversight or inspection. Amalgam particles wind up going into public wastewater treatment programs, where they cannot be extracted. The amalgam goes either into the sludge, or into our waterways.*

Inclusion of amalgam wastes as universal wastes will make management of those wastes simpler and less expensive. With the growing focus on mercury in the waters of the State, more and more dentists will use various control devices such as amalgam separators to filter the amalgam fines from wastewaters. The existence of the Universal Waste Rule standards for waste amalgam will act as an incentive towards proper management and cessation of drain disposal.

Wastewaters containing more than miniscule amounts of amalgam will exhibit the characteristic of toxicity under section 66261.24(a)(2) for both mercury and, potentially, silver. As hazardous wastes, these wastewaters cannot be discharged to the sewers under Health and Safety Code section 25189.5. The wastewaters must be rendered non-hazardous prior to sewer discharge or the discharge is illegal disposal of a hazardous waste. Illegal disposal is a serious felony subject to both civil and criminal penalties.

HG-3 *Several organizations, including alloy manufacturers, put out misunderstandings about amalgam. They say it's very stable. It is relatively structurally stable in your mouth, but it is not inert. Amalgam in the mouth is constantly off gassing (mercury), which is diluted into saliva, beverages and food. A small quantity of mercury vapor from amalgam is inhaled with every breath. There are very good scientific papers published in peer review journals that those studies have revealed this.*

See response to comment B-1. Note that DTSC has no authority to regulate emissions from materials until the materials themselves become hazardous wastes. The definition of hazardous waste (Health and Safety Code section 25117) excludes uncontained gases from classification as hazardous waste.

HG-4 *"I would almost guarantee" that most dentists do not carefully and conscientiously trap amalgam and dispose of it as toxic waste.*

While this assertion may be correct, DTSC is not adopting regulations addressing enforcement actions. This comment makes no objections or suggestions that are germane to the regulations being adopted.

HG-5 *Commenter questions whether anyone is responsible for enforcing proper management of amalgam waste. How many people? How subject to budget cuts are they? Do they look only at paper work, or do they go and see if dentists actually have amalgam traps?*

DTSC and the CUPA inspectors are charged with ensuring proper management of hazardous waste, including dental amalgam. Water quality inspectors from the RWQCB and the Publicly Owned Treatment Works are responsible for ensuring that wastewater discharges are consistent with standards for those discharges. Inspection of dental clinics is only one of many priorities for inspectors, and enforcement is carried out according to the individual priorities of the inspecting agency. Note that this

rulemaking establishes new hazardous waste listings and special management standards for mercury-containing wastes and does not address enforcement issues.

HG-6 *It's important that dental offices be included with as much regimen and oversight as auto dismantlers or any other source of mercury.*

DTSC acknowledges this comment and will factor it into development of inspection priorities. However, development of such priorities is not within the scope of this rulemaking.

HG-7 *You have made a common error in referring to dental amalgam as "silver amalgam." The correct term is "mercury amalgam." This needs to be changed, because dental amalgam is approximately 50 percent mercury.*

The term "amalgam" is defined in Hawley's "Condensed Chemical Dictionary", 11th Edition, as:

"A mixture or alloy of mercury with any of a number of metals or alloys including cesium, sodium, tin, zinc, lithium, potassium, gold, and silver as well as with some nonmetals.

Thus, the term silver amalgam is a correct chemical description since the word "amalgam" refers to the mercury content and the word "silver" refers to the second component of the mixture.

HG -8 *Regarding the statement that amalgam or another material is appropriate and the decision to use amalgam is up to the dentist and their patients: Commenter states that "Patients currently are not given accurate full information" and the California State Dental Board was dissolved last year and a new board appointed in part because they refused to publish a consumer education folder with the truth about mercury amalgam.*

This rulemaking addresses classification and management of specified wastes containing mercury. Use of amalgam and consumer information about the use of amalgam fillings is not only beyond the scope of this rulemaking, it is also outside the scope of DTSC's authority.

HG-9 *Commenter states that "dentists are not given accurate, truthful information" on amalgam from manufacturers and the dental associations and consequently believe there's no harm in using amalgam.*

See the response to Public Hearing comment HG-8, incorporated herein.

HG-10 *Commenter states that DTSC needs to, as part of this rulemaking process, educate dentists [as to the effects of mercury in amalgam].*

See the response to Public Hearing comment HG-8. However, the commenter is correct in asserting that DTSC can educate dentists to the effects of mercury illegally discharged to the sewers. Educational outreach for these regulations may include this topic, among other topics.

HG-11 *Commenter makes an aside comment that when you drink or cook with fluoridated water, the fluoridated water causes mercury, lead, and other heavy metals to cross the blood-brain barrier. So by having it [mercury] going into rivers and streams and having that water fluoridated, people are being poisoned at a higher level.*

See the response to Public Hearing comment HG-8. Note that discharge of human waste to the sewers may include some mercury. However, DTSC expects that mercury in human waste, both liquid and solid, will be at very low levels that will not approach the thresholds for classification as hazardous waste.

HG-12 *Regarding the auto dismantlers' statement that they don't know where all the mercury is in the autos, commenter suggests that auto and auto parts manufacturers be required to send part numbers and all relevant data on parts [containing mercury] to the State. Then the State should disseminate the information to the public [and businesses] for use in identifying what needs to be removed, etc.*

While DTSC agrees that this action would allow much more effective removal of mercury switches from vehicles, DTSC does not have the authority to take the suggested action.

H-H2 Anita Vasquez-Tibau, California Director, representing Consumers for Dental Choice (CDC)

HH2-0 *CDC's position is that the mercury and dental filling issue is a huge global problem, as well as a state problem.*

See the response to Public Hearing comment HG-8, incorporated herein.

HH2-1 *One way to eliminate mercury in the environment is to start today by requiring mercury amalgam separators in all dental offices. Commenter asserts that this would eliminate a huge portion of the mercury going into the environment and that this requirement is already mandatory in Finland, Germany, Norway, Sweden, Switzerland, Canada, Denmark, France, and New Zealand.*

Generally, the composition of discharges to the sewers is enforced by the inspectors of the sewer agency. However, discharge of hazardous waste to the sewers in California constitutes illegal disposal of a hazardous waste because the State has not excluded mixtures of hazardous waste and domestic sewage as has the federal government. Nonetheless, DTSC is not addressing standards for sewer discharge or for treatment of

amalgam containing wastewaters in this rulemaking. Discharges of hazardous waste can be addressed by existing DTSC and CUPA inspection and enforcement staff and can be prevented under existing law with no changes to these proposed regulations. While DTSC cannot require the use of amalgam separators, it can provide authorization for the use of those separators. Note that authorization for use of separators is required by Health and Safety Code section 25201 if the wastewaters exhibit a characteristic of a hazardous waste. However, authorizing wastewater treatment is beyond the scope of this rule.

HH2-2 *The fishing industry in California is suffering from mercury contamination and that the dental business contributes the largest burden of mercury in wastewaters in the U.S. today. It is our obligation as a state to mandate that dental offices are required to have this mercury amalgam separators installed. The cost is minimal compared to the environmental issues that are created by their dental waste.*

See the response to Public Hearing comment HH2-1 above.

H-I Gene Erbin, Partner in the Law Offices of Nielsen Merksamer, representing Philips Lighting Company.

HI-1 *Opposes regulation because it essentially repeals the TTLC.*

These regulations do not repeal the TTLC. The TTLC will continue to be one of the criteria used to classify a variety of mercury-containing wastes as hazardous or nonhazardous. DTSC is not required to use the TTLC to classify all wastes as hazardous or nonhazardous. DTSC is also authorized, pursuant to section 25140 of the Health and Safety Code, to develop a listing of wastes that are determined to be hazardous, considering "the immediate or persistent toxic effects to man and wildlife and the resistance to natural degradation or detoxification of the wastes." See the FSOR for further discussion.

A number of mercury-containing wastes are already classified as hazardous wastes due to being listed in one of the four Resource Conservation and Recovery Act (RCRA) lists of hazardous wastes (Cal. Code Regs., tit. 22, ch. 11, art. 4). The four wastes that are newly-listed by these regulations were identified based on the three objectives of these regulations. See the FSOR and response to comment T-24 (45-Day Notice), incorporated herein, for further discussion on DTSC's objectives.

HI-2 *The proposed regulations violate Health and Safety Code Section 25179.4 because they fail to give top priority [or any priority] to source reduction.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. This comment is essentially similar to comments submitted in writing during the 45-Day Public Comment Period. The facts that the M003 listing of mercury is consistent with section 25179.4 of the Health and Safety Code and that it promotes

source reduction are discussed in detail in the responses to several of the 45-Day written comments. See, specifically, the responses to comments T-2, T-5 and T-24, incorporated herein.

HI-3 *Evidence in the rulemaking file is deficient in supporting DTSC's finding that universal recycling will be available in the near future.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. This comment is essentially similar to comments submitted in writing during the 45-Day Public Comment Period. See response to written comment T-28 (45-Day Notice), incorporated herein. The record contains substantial evidence from a major lamp recycling company (Onyx/Superior Special Services) and the Association of Lighting and Mercury Recyclers (ALMR), both of whom assert that adequate capacity already exists to recycle all lamps that can be diverted from California's municipal waste stream. Industry representatives also reported there is adequate capacity during the development of the Universal Waste Rule. DTSC considers the lamp recycling industry to be a reliable source of information about its own capacity. Also see the responses to comments C-8, C-9, and U-2, submitted during the 45-Day Public Comment Period, incorporated herein.

HI-4 *The regulations violate the Administrative Procedure Act (APA) standards of necessity, consistency and authority; and that the rulemaking file is deficient [in showing compliance with the APA standards].*

DTSC has reviewed this comment and determined that no regulatory change is necessary. This comment is essentially similar to comments submitted in writing during the 45-Day Public Comment Period. For discussion of why these regulations meet the APA standards cited by the commenter, see the responses to comments T-22, T-23, T-24 and T-25 in the 45-Day written comments and responses, incorporated herein.

HI-5 *DTSC failed to study alternatives, specifically the alternative of reducing the TTLC but not eliminating it.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. This comment is essentially similar to comments submitted in writing during the 45-Day Public Comment Period. DTSC evaluated the TTLC alternative in the ISOR and FSOR, incorporated herein, and rejected it. Also see the responses to comments Q-11, NN-6, T-4, T-19, and T-26.2 (45-Day Public Comment period), incorporated herein.

HI-6 *Two of DTSC's three objectives for the regulations are pollution prevention though the use of non-mercury alternatives and the development of products that use mercury alternatives. Commenter asserts that DTSC failed to meet those objectives for fluorescent lamps because fluorescent lamps can [transcript appears to be in error] be made without mercury.*

DTSC has reviewed this comment and determined that no regulatory change is

necessary. This comment is essentially similar to written comment T-9 submitted in writing during the 45-Day Public Comment Period. See the response to comment T-9 in the 45-Day written comments and responses, incorporated herein.

HI-7 *The [listing] criterion of availability of mercury-free substitutes does not apply [to fluorescent lamps] and DTSC's basis, therefore, for proceeding with the regulations is difficult to determine, based on the rulemaking record.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. This comment is essentially similar to comments submitted in writing during the 45-Day Public Comment Period. See the responses to comments T-9 and T-26 in the 45-Day written comments and responses, incorporated herein.

HI-8 *The DTSC assertion that people who purchase low level mercury lamps do so to avoid managing the lamps as universal waste, recycling them, or disposing them as hazardous waste is false. Cannot determine the basis for that statement in the rulemaking file. We have evidence in our submission that it's just the contrary.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. The commenter asserts that Philips' customers voluntarily recycle lamps at a higher rate than the purchasers of other brands, many of whom are required to recycle. As evidence to support this assertion, the commenter submitted a letter from EPSI, a lamp recycling firm, stating that stating that Philips ALTO lamps represent 36 percent of the lamps they process. DTSC finds this "evidence" less than persuasive. Another commenter refutes the suggestion that EPSI's experience is representative of recyclers in general (see comment C-5 in the 45-Day written comments and responses). See also the responses to comments T-31 and T-45, incorporated herein, for discussion.

HI-9 *Philips is submitting evidence into the rulemaking file indicating that their customers recycle at a rate almost double the average rate of 20 percent indicated in the record.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. This comment is essentially similar to written comment T-31 submitted in writing during the 45-Day Public Comment Period. See the response to comments T-31 and T-45 in the 45-Day written comments and responses, incorporated herein.

HI-10 *The study of alternatives is again deficient because the basis used for considering alternatives [feasibility of recycling and availability of mercury-free substitutes] do not apply to fluorescent lamps.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. The commenter has misinterpreted the way in which DTSC applied its two criteria (the availability of mercury-free substitutes and/or the feasibility of recycling) in

identifying products for inclusion in these regulations' new list of hazardous wastes. Discarded products that met either or both of the criteria were considered for inclusion.

With regard to the availability of mercury-free substitutes, this comment is similar to Public Hearing comment HI-7, above, and to comments submitted in writing during the 45-Day Public Comment Period. See the responses to comments T-9 and T-26 in the 45-Day written comments and responses, incorporated herein.

The commenter himself has made several statements, at the public hearing on these regulations and in writing, in which he has touted the recycling ethic of Philips ALTO purchasers. DTSC does not understand, therefore, the commenter's statement that the feasibility of recycling is not an applicable criterion for the listing of mercury-added lamps as hazardous wastes.

HI-11 *DTSC uses statements of conjecture and the word "believes" to support regulations and asserts that DTSC cannot, as a matter of law, rely on belief and conjecture [as a basis to proceed with the regulations].*

DTSC has reviewed this comment and determined that no regulatory change is necessary. These regulations are based on facts compiled in DTSC's Final Mercury Report, not on "belief and conjecture," as the commenter asserts. The facts that support the need for these regulations are summarized in the response to comment T-1 in the 45-Day written comments and responses. See also the response to comment T-29.

HI-12 *The economic fiscal impact incorrectly states that the Philips fluorescent tubes cost $1.40 more than other tubes, and that other parts of the documents say the tubes cost $1.25 to $1.40 more. The price of Philips tubes is the same as other tubes and that the rulemaking record is incorrect and inconsistent.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. This comment is similar to written comment T-51, submitted during the 45-Day Public Comment Period, incorporated herein. As noted in the response to comment T-51, DTSC's statement in the economic analysis for these regulations to the effect that Philips Alto lamps were more expensive to purchase than competing lamps was based on a spot check of the prices of various brands of lamps at a large home improvement retail store. Lamp prices were not a basis for the M003 listing, and the price of mercury-added lamps was not used in any calculations of the fiscal or economic impact of these regulations. Therefore, if the commenter's assertion that Philips lamps generally cost no more to purchase than the other major brands is true, DTSC's analysis of the economic impact of these regulations would, nevertheless, remain valid.

HI-13 *Philips doesn't know how DTSC can proceed on the basis of this record with [rulemaking that is] a dramatic departure from existing practice that is unwarranted under statute.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. This comment is similar to written comment T-48, submitted during the 45-Day Public Comment Period. The rulemaking record supports DTSC's regulatory proposals and complies with the requirements of the Administrative Procedure Act. As shown in the responses to earlier comments, the proposal is consistent with the priorities of Health and Safety Code section 25179.4. Pursuant to Government Code section 11346.9(a)(3), DTSC has responded adequately to all of the "evidence" submitted as comments by the commenter to support his assertion that the record is deficient.

The new hazardous waste listings in section 66261.50 of title 22 of the California Code of Regulations, title 22 are new, but are not a "dramatic departure from existing practice." As noted in the response to Public Hearing comment HI-1, California has already adopted the four RCRA lists of hazardous wastes (Cal. Code Regs., tit. 22, ch. 11, art. 4). Appendix X of chapter 11 of title 22 contains a list of nearly 800 wastes that are presumed to be hazardous unless they are determined not to be. As noted in the response to written comment T-22, section 25140 of the Health and Safety Code requires DTSC to adopt the listings and authorizes DTSC to revise lists of hazardous wastes. See also the response to written comment T-25 (45-Day Notice) for further discussion of DTSC's authority to adopt these regulations. There is ample evidence the regulations are warranted under statute.

Universal waste management and recycling of lamps is also not a "dramatic departure from existing practice." The Universal Waste Rule, adopted in March, 2002, already designates hazardous waste lamps as universal waste and provides management standards, including recycling.

HI-14 *Commenter suggests adopting the alternative proposed in their submission: reduction of the TTLC. This alternative would result in the quantifiable, immediate, measurable and verifiable reduction of the use of mercury used in lamps.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. This comment is similar to written comments T-13, T-16, T-26.2, and QQ-5, submitted during the 45-Day Public Comment Period. See also the responses to these comments for additional discussion.

H-J Teresa Pichay, representing the California Dental Association (CDA).

HJ-1 *The CDA supports DTSC's objective of recycling mercury-containing waste, and agrees with and supports the proposed regulations for dental amalgam waste.*

DTSC acknowledges the commenter's support.

HJ-2 *The best management practices DTSC will require dentists to follow [as part of the regulations] have been supported by research by Publicly Owned Treatment Works (POTWs) as being highly effective as a pollution prevention strategy.*

DTSC interprets this comment to be support for the conditions that DTSC has placed on the management of universal waste dental amalgam such as forbidding rinsing amalgam traps into sinks.

HJ-3 *Regarding other speakers' proposal for a requirement for amalgam separators, research done by the POTW[s] show that the amalgam separators only address one waste stream in the dental office, the dental unit, and do not address the sinks in the dental office.*

See the response to Public Hearing comment HH2-1 above. Note that discharge of hazardous waste to the sewers in California constitutes illegal disposal of a hazardous waste, regardless of whether it comes from an amalgam separator or from a sink.

HJ-4 *Use of the term "silver amalgam" does not need to be changed because it is a common chemical and metallurgical term that is not redundant. Use of the term "mercury amalgam", as proposed by other commenters, would be redundant because amalgam by definition means a mixture of metal with mercury.*

See the response to Public Hearing comment HG-7.

HJ-5 *Regarding a previous commenter's point about dental materials information provided to dentists and patients: Patients are receiving information from dentists regarding dental restorative materials, and effective this year, dentists are required to provide a dental materials fact sheet to patients on all types of dental materials.*

While DTSC appreciates this information, the comment and the previous comments referred to are both outside the scope of this rulemaking and are outside the scope of DTSC's authority to adopt regulations.

HJ-6 *The CDA preferred using the term "alternative" as opposed to "substitute" [when considering amalgam alternatives] because "substitute" implies an equivalency among the various dental materials [as opposed to equivalent function].*

While DTSC appreciates this information, the comment and the previous comments referred to are both outside the scope of this rulemaking and are outside the scope of DTSC's authority to adopt regulations.

H-K Bill Magavern, representing the Sierra Club California.

HK-1 *The Sierra Club supports maintaining the requirement that all mercury-containing light bulbs be classified as hazardous. The San Francisco Regional Water Quality Control Board says the breakage of fluorescent lamps is one of the largest sources of new mercury released into the San Francisco Bay.*

DTSC acknowledges the commenter's support.

HK-2 *The Sierra Club also supports the requirement that the entire car or appliance be classified as hazardous unless the mercury-containing switches are removed.*

DTSC acknowledges the commenter's support. However, note that the switch removal requirement has been limited to mercury-containing light switches for vehicles in response to comments. See the Final Statement of Reasons for further discussion.

HK-3 *The Sierra Club thinks DTSC should require using and regularly maintaining state-of-the-art amalgam separators in dentist offices.*

See the response to Public Hearing comment HH2-1.

HK-4 *The Sierra Club suggests that the 2006 effective date for fluorescent lamps to be classified as hazardous be moved up, at least for the large commercial buildings, to the date that the regulations go into effect.*

DTSC has partially accommodated this comment. The effective date for the M003 listing has been advanced to 2004 from 2006. Note that most spent fluorescent lamps are already classified as hazardous waste because they exhibit the characteristic of toxicity for mercury.

HK-5 *DTSC should work on packaging criteria for fluorescent lamps, possibly by requiring that the lamps be sold in a package into which they could be replaced when they're discarded.*

While the commenter's suggestion would be an effective answer to packaging waste fluorescent tubes, the action is beyond the scope of DTSC's authority to adopt regulations.

HK-6 *The Sierra Club suggests that DTSC develop a comprehensive enforcement plan to make sure that, even with this regulation, mercury isn't released into the environment.*

DTSC and the local enforcement agencies, the CUPAs, set priorities for enforcement actions based on many factors. However, this rulemaking is not intended to set enforcement priorities and the comment is beyond the scope of this rulemaking.

HK-7 *DTSC should establish a process to broaden this list [of products considered hazardous waste when discarded] so that DTSC doesn't have to go through a lengthy process to add products that will be considered hazardous when discarded.*

DTSC cannot adopt regulations without satisfying the requirements of the Administrative Procedures Act. Listing new products as hazardous waste establishes standards of general application which must be adopted as regulations.

HK-8 *DTSC should establish a process for the safe retirement and isolation of mercury waste.*

DTSC agrees that the ultimate solution to prevent further environmental contamination with mercury is to take it out of commerce. While the uses of mercury in products is decreasing (and these regulations will provide incentives for further reductions), mercury is still needed in certain applications. DTSC is participating in an effort by the Environmental Council of States (ECOS) to address the issue of long-term storage (retirement) of mercury. This issue is national in scope and is beyond the scope of this rulemaking. However, before the mercury in discarded products can be retired, it must be reclaimed (recycled). Elemental mercury that is recycled as a consequence of these regulations will be ready for retirement, once a solution to the long-term storage of this toxic metal is developed.

HK-9 *Even though DTSC doesn't necessarily have the authority to address this, DTSC should work with the legislature and other regulatory agencies to make sure that front end [product development] issues are addressed.*

DTSC is working with the Environmental Council of the States (ECOS) to develop a plan and funding for collection and retirement of recycled mercury.

HK-9.1 *A front end issue DTSC should address is banning mercury-containing products for which there are substitutes.*

DTSC has no authority to ban products. DTSC can only establish regulations governing the identification and management of hazardous waste.

HK-9.2 *Another front end issue DTSC should address is requiring labeling of all products that contain mercury.*

DTSC has no authority to establish labeling standards for products. DTSC can only establish regulations governing the identification and management, including labeling, of hazardous waste.

HK-9.3 *Another front end issue DTSC should address is putting recycling fees on the sale of products to fund a recycling infrastructure.*

DTSC has no authority to establish fees, deposits, or mandated takebacks for products. DTSC can only establish regulations governing the identification and management of hazardous waste. However, DTSC and the California Integrated Waste Management Board (CIWMB) are co-chairing an effort to develop a robust infrastructure to collect and properly manage universal wastes generated by households and small businesses.

H-L Joe Howley, Manager of Industry Relations and Environmental Marketing, representing GE Lighting.

HL-1 *GE Lighting supports the proposed regulations as they apply to mercury-containing lamps.*

DTSC acknowledges the commenter's support.

HL-2 *GE Lighting supports how the regulations will affect [management of] fluorescent lamps.*

DTSC acknowledges the commenter's support.

HL-3 *It is time for California to update the regulations from nearly 20 years ago and require the recycling of all mercury-containing lamps from commercial and industrial facilities. GE Lighting believes that the regulations on mercury-containing lamps should move forward, either together or separate from regulations affecting other mercury-containing products.*

DTSC is taking the actions suggested by the commenter and is going beyond the suggestion by applying these rules to all generators of waste lamps. Households and the smallest commercial generators become subject to the recycling requirement after a temporary disposal exemption.

HL-4 *GE Lighting requests that DTSC provide guidance to lamp users by clearly stating that any lamps purchased by commercial or industrial facilities in 2003 will be expected to be disposed in 2006 or later (due to three to five-year lamp life expectancy) and therefore are subject to the new recycling regulations.*

Note that the effective date of the M003 listing has been changed to 2004 in the 15-Day Notice of Changes in response to comment. DTSC will perform educational outreach to generators of waste mercury-added lamps in the future. However, DTSC will not

make the prospective statement that lamps purchased today will be hazardous waste by the time that they are spent.

HL-5 *Regarding why people purchase low mercury lamps: GE sells both traditional fluorescent lamps as well as low mercury lamps and in areas where the low mercury lamps can be landfill disposed, it's typically the only reason why people request this lamp type – to give them the option for landfill disposal and not recycling.*

DTSC acknowledges this information. However, DTSC has not reached any conclusions about why different people choose low or high mercury lamps and expects that some consumers will purchase low mercury lamps to be able to dispose of them as non-hazardous waste and others will purchase low mercury lamps to benefit the environment. The M003 listing is not predicated on either assumption.

H-M Mark Murray, Executive Director, representing Californians Against Waste.

HM-1 *It is important that DTSC update the regulations as they relate to mercury-containing products, and in general we support the direction that the regulations are taking.*

DTSC acknowledges the commenter's support. Note, however, that these regulations only address products after they become waste.

HM-2 *We believe that incentives and enforcement inherent in a regulatory structure respond to the need for 1) source reduction; 2) safe and effective recycling; and 3) aggressive enforcement of the existing and proposed expanded disposal ban.*

DTSC concurs with the commenter's understanding of the philosophy behind this rule. Enforcement will follow upon the establishment of this new regulatory structure for mercury-containing products, within the resource capabilities and other priorities of the hazardous waste enforcement agencies.

HM-3 *We support the approach in the proposed section 66261.50 [title 22 of the California Code of Regulations] to require virtually all mercury-containing products be managed as hazardous waste when discarded, while creating an incentive for recycling by classifying them as Universal Waste when safely recycled.*

DTSC acknowledges the commenter's support.

HM-4 *We strongly support the disposal ban for all fluorescent lamps containing any amount of added mercury.*

DTSC acknowledges the commenter's support.

HM-5 *The regulation package falls short in addressing the need for source reduction, real recycling, and meaningful enforcement of a disposal ban.*

Enforcement is not an issue addressed by this regulation. DTSC's enforcement authorities are contained in statute.

The regulations themselves, especially the new listings for mercury containing products, are an incentive for source reduction and represent the most aggressive steps DTSC can take to promote source reduction. DTSC cannot, for instance, ban the use of mercury in products. Likewise, these regulations strongly promote recycling of mercury from mercury-containing products by allowing universal waste management only if the products (except mercury-containing flooring) are recycled.

This comment makes no specific suggestions or objections that DTSC can analyze and take action on.

HM-6 *In the absence of source reduction incentives, the proposed expansion of the existing disposal ban may inadvertently remove the existing incentive for manufacturers to source reduce their products.*

Listing mercury-containing products as hazardous waste is an incentive in itself to eliminate the use of mercury. However, the listing for any amount of intentionally-added mercury may remove incentives to reduce the amount of mercury in any one product. While there is some validity to this argument, DTSC believes that the actual health threat of products with mercury disposed to the environment is of paramount importance given that mercury levels in many of the State's waters have already contaminated the aquatic food chain to the point where important sources of protein in our diet have mercury levels that trigger consumption warnings. One of DTSC's highest priorities is to ensure that wastes with high levels of mercury are not disposed in a manner that releases the mercury to the environment.

Additionally, DTSC's goal is not to reduce the amount of mercury in any product below a limit. DTSC's ultimate source reduction goal is the total removal of mercury from products. While reduced mercury lighting is less environmentally risky, it is not as desirable a goal as mercury-free lighting (all other factors being equal). Note that there are at least two new energy efficient alternatives to mercury-containing lamps approaching commercialization. Light emitting diodes are appearing in traffic lights, flashlights, and tail lights, and will soon be used as interior lighting. Likewise, new types of emission lighting using "leaky" cathodes are being tested and will soon be sold in Europe. Thus, DTSC's goal of zero mercury is not only feasible, but may be reached within the next decades.

The existing incentive to reduce mercury is the ability to make products where mercury content is below hazardous waste thresholds. Manufacturers can "game" these numbers by adding mass to other components or adding substances that interfere with the leaching tests. While the existing thresholds provide some impetus for source reduction, such impetus cannot be retained at the expense of the environment.

HM-7 *We support adding the M003 category to section 66261.50 [title 22 of the California Code of Regulations].*

DTSC acknowledges the commenter's support.

HM-8 *We strongly urge DTSC to retain the existing TTLC as a means of designating low mercury lamps for the purposes of product labeling, marketing, procurement, and other mechanisms to minimize levels of mercury in lamps and encourage consumer purchases of those lamps.*

The existing TTLC will be preserved for those products that do not contain recyclable mercury and for those products in which the mercury is not in metallic form or is not easily convertible to metallic form. Note that, as discussed in other responses, product labeling and marketing are beyond the authority of DTSC. Guidelines for purchase of products by the State of California are a potential product of the Cal/EPA Interagency infrastructure development workgroup.

It is important to stress however, that DTSC is not authorized to regulate products.

HM-9 *While we appreciate that the existing TTLC may no longer represent an appropriate threshold for determining waste management requirements, we urge DTSC to convene stakeholders to evaluate the existing TTLC threshold level in the context of a source reduction incentive system, and to develop additional source reduction incentives including, but not limited to, product labeling and public agency procurement preferences.*

DTSC acknowledges the comment, but the proposed actions are beyond the scope of this rulemaking.

HM-10 *Roughly 75-80% of all mercury lamps are being disposed in municipal landfills, either illegally or through the existing householder and small quantity generator exemptions. We strongly object to extending the householder and small quantity generator exemptions to 2006. We wouldn't want to stand in DTSC's way on it, but we are thinking 2004. With regard to small quantity generators, commercial generators, it's appropriate to close the loophole. For local agencies that need collection infrastructure, giving them until 2004 to develop some kind of mechanism for households is appropriate. But it should not be put too far out into the future.*

The 2006 date for the sunset of the conditionally exempt small quantity universal waste generator and household temporary exemptions was adopted in a previous rulemaking and is not being altered in this rulemaking. However, it is being newly applied to the wastes designated as universal wastes by this rulemaking.
DTSC has adopted the temporary exemptions to allow time for infrastructure to develop to collect and manage universal wastes generated by these numerous small entities prior to requiring them to recycle this waste. DTSC believes that requiring proper recycling for such small entities prior to developing a robust and widespread infrastructure for simple and cost-effective management would drive increased illegal disposal to the environment outside of landfills (where operators are now watching for universal wastes and rejecting loads containing them). Such environmental disposal clearly offers threats beyond those of disposal in an inappropriate, but more desirable, solid waste landfill.

For further discussion, see the Final Analysis and Findings Required by Health and Safety Code section 25150.6.

HM-11 *The regulation process has motivated stakeholders to try and work out a financing system to develop a collection infrastructure. It's got to happen through the legislative process but with an exemption date until 2006 some of that motivation may be lost. Making a shorter exemption period will motivate stakeholders to work together and work something into the next legislative session.*

DTSC believes that it will take until 2006 to be able to develop a plan, enact legislation or implement other alternatives, and actually implement the solutions at the collection agency level.

HM-12 *In order for the regulations to be successful, there is a need for public education and more aggressive enforcement. We don't think adoption of the regulations should be held up waiting for funding for these programs, but these kinds of programs are important.*

DTSC agrees that aggressive education and enforcement are vital to reaching a high recycling rate for the newly designated universal wastes. However, education and enforcement are beyond the scope of this rulemaking.

HM-13 *We support the notion of some kind of certification process for large generators of lamps, meaning big office buildings. It's appropriate that they have a management mechanism in place that ensures proper management and recycling, and it's appropriate for DTSC to require some kind of certification process and potentially assess a fee to pay for enforcement and public education.*

DTSC has chosen to implement the same regulatory model as used for general hazardous waste management to implement these regulations. In this model, the State

establishes regulatory standards, uses educational outreach to publicize the regulatory standards, and uses inspection and enforcement to assure compliance. DTSC has elected to not use a certification program because of the administrative overhead

required to obtain, track, and verify certifications. DTSC has chosen, instead, to utilize resources for educational outreach and inspection and enforcement to gain compliance.

HM-14 *There is a need for a front end financing mechanism to make sure [education and enforcement] devices are properly managed. This will take legislation but aggressive enforcement of the regulations, with some of the modifications we've suggested, will motivate stakeholders to work on a legislative package.*

While DTSC agrees that a "front-end" mechanism such as an advance disposal fee would be a good solution to the funding issues, such solutions are outside the authority of DTSC and would best be addressed by the commenters.

DTSC will enforce these regulations in accordance with its priorities for enforcement and its available resources.

H-N Charlie Brown, representing the Coalition to Abolish Mercury Dental Fillings.

HN-1 *Reports reviewed by a number of environmental groups and newspaper articles identify dentists and dental fillings as the largest source of mercury in wastewater.*

See the response to Public Hearing comment HH2-1, incorporated herein.

HN-2 *Each [amalgam] filling has a half a gram of mercury and the dental associations have a gag rule that tells dentists not to criticize/talk about the amount of mercury in the fillings.*

DTSC has designated waste amalgam as a universal waste to ensure that the mercury is properly managed by recycling. However, DTSC has no opinion about gag orders and regulation of the practice of dentistry, beyond dental waste management, is beyond the authority of DTSC.

HN-3 *These regulations are a step backward [because] you have no requirements [for dentists] at all and you are giving dentists a free ride [by not] making them buy [amalgam separator] equipment.*

See the response to Public Hearing comment HH2-1, incorporated herein .

HN-4 *The American Academy of Biological Dentistry, a research group, urges you to require every dentist to do that [buy/use amalgam separators].*

See the response to Public Hearing comment HH2-1, incorporated herein.

HN-5 *Please have them [the dentists] buy that equipment [amalgam separators].*

See the response to Public Hearing comment HH2-1, incorporated herein.

HN-6 *It's time for you to do your job; it's not a resource problem, it's the rule of compliance. [You should] require dentists to buy the equipment and report [to DTSC] whether they bought the equipment. This will do it for 95% of the dentists.*

DTSC has not included wastewater treatment in the scope of this rulemaking project. See the response to Public Hearing comment HH2-1. DTSC and the CUPAs will enforce these rules. The degree of enforcement will depend on the available resources and the priority of dental amalgam compared with other issues.

HN-7 *We hope that DTSC is not regulating dentists as a function of "professional courtesy" because they are too important. I don't think that should be a reason [for not regulating]. The legislature's very upset at the dental board for hiding the information about mercury, mercury amalgam.*

DTSC establishes enforcement priorities based on many factors such as available resources, the degree of deviation from proper waste management, the risk to the public and the environment, agreements with other agencies. Enforcement of the rules for amalgam management and proper treatment of wastewaters with dental amalgam fines will be factored into DTSC's enforcement workload.

HN-8 *This thing has got to be on the DTSC radar screen and the answer is not what [comments] the California Dental Association (CDA) filed with DTSC.*

See the response to Public Hearing comment HN-7 above, incorporated herein .

HN-9 *I do agree with the point CDA made that the equipment won't solve everything because the mercury goes into people and is excreted with they die, either when they are buried or incinerated [cremated]. So the answer is source reduction.*

As discussed in prior comments, DTSC does not have authority to regulate the practice of dentistry.

HN-10 *Start [source reduction] with the pregnant women and children by requiring a 20% reduction per year. That's the right answer; simply a five-year source reduction as you're doing with other people. Can dentists do it? Of course*

they can. Twenty-eight percent of them are mercury free now. The tripling process has been ongoing for fifteen years and is going to continue.

As discussed in prior comments, DTSC does not have authority to regulate the practice of dentistry.

HN-11 *I think the right answer is source reduction. Phillip Blum, supervising hazardous substances scientist with the State of California, filed comments with the Federal Drug Administration saying amalgam is so toxic it must be handled as hazardous waste. [Therefore] it's far too toxic to be safe in our bodies. Mercury does leach out of amalgam fillings, and therefore will poison people with amalgam fillings.*

As discussed in prior comments, DTSC does not have authority to regulate the practice of dentistry.

HN-12 *So we urge you to require [amalgam separator] equipment [by] January 1, 2003 and do a five-year phase out [of amalgam fillings].*

As discussed in prior comments, DTSC does not have authority to regulate the practice of dentistry.

HN-13 *Commenter requested an extension to the public comment period.*

DTSC has considered this request and will not extend the comment period. These regulations have been made available for a 45 day public review and comment period as required by the Administrative Procedures Act.

HN-14 *The other dental trade organization, as you know, supports a strong movement and supports a ban on mercury fillings.*

As discussed in prior comments, DTSC does not have authority to regulate the practice of dentistry.

H-O Pete Price, Price Consulting, representing Appliance Recycling Centers of America.

HO-1 *With respect to [the California Code of Regulations, title 22] section 66273.7.2 and designating an appliance as universal waste when it's discarded, DTSC should think through the process of what happens to an appliance when it's discarded and explain it [what discarded or waste means] a little better in the regulations.*

The element of discard is central to the entire body of hazardous waste control regulations and is well understood by the regulated community. Discard establishes the point at which a material becomes a waste and is set forth for the hazardous waste control regulations in section 66261.2 and in Health and Safety Code section 25124.

HO-2 *With respect to [the California Code of Regulations, title 22] section 66273.7.2, the regulations speak to mercury switches but not temperature control devices that include mercury. Does the term "mercury switches" include temperature control devices that include mercury? In existing law, Public Resources Code section 42175, not only mercury switches but temperature control devices that include mercury in appliances are required to be removed from appliances.*

DTSC agrees with this assertion. Note that such temperature control devices are known as "thermostats" and were designated as universal wastes in the previous rulemaking that established California's permanent universal waste regulations.

HO-3 *Regarding the requirement that appliances from which the mercury switches are not removed are not considered Universal Waste and must be managed under existing [hazardous waste] regulations: There are already laws requiring that mercury switches, other items controlling mercury, polychlorinated biphenyls (PCBs), chlorofluorocarbons (CFCs), and used oil, be removed from discarded appliances before being crushed or shredded for metal recycling. There is a presumption in the proposed regulations that the existing laws are being implemented and they are not.*

The existing laws address the legal requirements for recycling appliances. These regulations address classification of appliances if persons managing them fail to, or do not choose to, comply with the removal requirement. DTSC has established the necessity of such removal with the scientific facts demonstrating the risks of mercury-containing wastes to the environment

HO-4 *Under the existing laws, removed mercury switches are hazardous waste and anyone who removes the switches becomes a hazardous waste generator. While we require handlers to remove materials that require special handling, including mercury switches, no one wants to be a hazardous waste generator. You have to have some kind of plausible inspection and enforcement process to make sure that people are complying with the law. There is no apparent inspection or enforcement process for the existing law relating to appliances. We would like to see these regulations in some specifics address how DTSC is going to inspect and enforce requirements at facilities required to remove the mercury switches.*

DTSC's enforcement priorities and plans are not established in regulation and are clearly outside the scope of this rulemaking. .

HO-5 *We would like DTSC to wonder with us where do the other 4.9 million appliances that are discarded every year go?*

This comment does not seem to make a suggestion or assertion that can be responded to.

H-P Peter Weiner, partner in the law firm of Paul Hastings, Janofsky & Walker, representing OSRAM Sylvania.

HP-1 *We believe that the regulations as proposed by DTSC meet the Administrative Procedure Act requirements for showing authority, necessity, consistency, and non-duplication under Government Code section 11349.1.*

DTSC concurs with the commenter.

HP-2 *DTSC has documented what kind of environmental harm is caused by the release of mercury from breakage of fluorescent tubes, and deposition of other mercury into water and air.*

DTSC concurs with the commenter.

HP-3 *DTSC has evidence of mercury releases and the source of those releases, in this case, are fluorescent lamps. You reduce the source markedly when you reduce the presence of those lamps in a place where they can cause a release.*

DTSC concurs with this comment. Note that lamps are being listed in section 66261.50 for this reason.

HP-4 *[Health and Safety Code sections] 25140 and 25141 give DTSC the authority to identify which wastes are hazardous, which you have done in the proposed listing of all fluorescent lamps.*

DTSC concurs with this comment.

HP-5 *[Health and Safety Code section] 25179.4 says that in adding new programs, DTSC should emphasize source reduction and recycling. DTSC has said in the statement of reasons that you are doing just that, and that these criteria are consistent with section 25179.4.*

DTSC concurs with this comment. Note that this rulemaking is intended to accomplish:

First, source reduction by encouraging development of mercury free lamps.

Second, recycling by requiring the recycling of all mercury added lamps.

HP-6 *In revising the final regulations or making clarifications, DTSC may want to state that you've used two separate criteria, some to identify some products, some to identify others. Not everything is both capable of being recycled and has mercury-free substitutes.*

The commenter is correct. DTSC has indeed identified some universal wastes that cannot be reasonably recycled. Mercury-containing rubber flooring is one example.

HP-7 *In the case of fluorescent lamps, there are no mercury-free substitutes that are fluorescent lamps. However, in the case of street lighting, there are also some high sodium mercury-free substitutes available. So, I would say, that is the guiding light in your decision to list all lamps in terms of ultimate source reduction, because ultimately your objective is that manufacturers will develop sources of energy efficient lighting that will not use mercury. The alternatives may be called by another name but that doesn't mean it's not source reduction, which is what you're accomplishing.*

DTSC concurs that there are immediately available mercury-free substitutes for some street lighting. There are also two different types of mercury-free interior lighting that will ultimately offer mercury-free alternatives for energy-efficient interior lighting. In the near term, a Swedish firm is commercializing technology that utilizes a "leaky cathode" to produce mercury-free fluorescent lamps. In the next decade, light emitting diodes will emerge and the energy efficient lighting of choice.

HP-8 *Moreover, you are clearly emphasizing recycling and there is no requirement that you emphasize source reduction to the exclusion of recycling, or vise-versa.*

DTSC concurs with this comment. No agency is required to address every possible issue within their authority in every rulemaking.

HP-9 *The overarching theme of Health and Safety Code, beginning at section 25100 and section 6.5 [Chapter 6.5 ?] is protecting human health and the environment . That is what you are doing with these regulations because the goal is to reduce the amount of mercury going into the environment.*

DTSC concurs with this comment.

HP-10 *[Contrary to previous testimony] you have already addressed considering the alternative of reducing the TTLC and STLC under rejected alternatives.*

DTSC concurs with this comment. DTSC did consider changes to the TTLC and STLC in considering alternatives to these regulations. However, the scope of wastes affected and the scope of the scientific analysis is much larger for efforts that address general classes of waste than for efforts that address specific classes of waste.

Looking at all the alternatives, DTSC concluded that the chosen alternative, which is (in part) to list certain products with intentionally-added mercury and promote their recycling (by development of streamlined alternative management standards for recycling the newly listed wastes), was the best approach to the bounded subset of wastes addressed by this rulemaking.

HP-11 *You do say that DTSC believes that listing all mercury-containing lamps as hazardous waste would be more effective in reducing the amount of mercury going into our environment, etc. To address the legality of the statement, you may want to say that DTSC has concluded based on substantial evidence, that this is the case (studies in other states and evidence from the Bay Area Regional Water Quality Control Board).*

DTSC concurs with this comment. This response constitutes this statement in the official record of this rulemaking.

HP-12 *You could have reduced the TTLC to another number but [I don't think there] would have been more evidence as to why a number would have been better that the listing process. You've given people flexibility to use the universal waste rule and that flexibility reduces the fiscal impact and will result in ultimately more reduction than if you had strict TTLCs and required everything be handled under the hazardous waste rules.*

Based on substantial evidence in the record, including the Final Statement of Reasons discussion of alternatives, DTSC found that listing this narrow class of products with intentionally-added mercury was the best approach. Reasons for this include the incentive to completely eliminate mercury from the products and removal of the incentive to "game" the TTLC and STLC by adding mass to non-mercury components of the waste or using materials and other substances that interfere with the testing process causing it to give anomalously low results for mercury. For instance, increasing the wall thickness of glass in fluorescent tubes could reduce the proportion of mercury below the TTLC without actually reducing the amount of mercury. Adding iron components or ascorbic acid has been cited as a way to fool the leaching tests that estimate the potential for mercury to leach from the wastes. Thus, not only do the listing and the proposed universal waste management standards promote both elimination of mercury in lamps and recycling of those with mercury, it provides the best level of environmental protection by removing the thresholds as incentives for product changes that do not really eliminate the hazard posed by the wastes.

HP-13 *While it would be nice to have some product labeling or procurement preference requirements, it's not within DTSC's authority. DTSC does not have jurisdiction with regard to procurement preferences and those kinds of incentives, or with regard to any kind of advance disposal fee. Those are legislative issues.*

DTSC concurs with the commenter's assessment of the limitations of DTSC's authority.

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15-Day Public Notice
(11/5/02 – 11/20/02)
Comment Summaries and Responses

Mercury Waste Classification and Management Regulations: R-02-04 - 15-day Public Notice (11/5/02 – 11/20/02) Comment Summaries and Responses:

Commenter 15-A: Vale Cervarich

15-A-1: D*oes not understand the proposed regulation, but asks DTSC to keep mercury and other hazardous wastes away from people and ground water.*

DTSC finds the regulations are clear and understandable. In fact, the Universal Waste Rule has been developed to be a simpler and less complex approach to hazardous waste regulation. However, DTSC recognizes that many people have had little or no contact with regulations and do not understand the structure and content of regulatory standards. To this end, DTSC has simplified the duties for the smallest commercial generators and households to focus on a single standard: dispose or recycle the wastes at a proper (hazardous waste) facility. To facilitate understanding and compliance and thus obtain the intended environmental protection, the Cal/EPA Interagency Universal Waste Infrastructure Workgroup will develop extensive educational outreach including printed materials, classes, workshops, and press releases to educate the smallest generators and households prior to the sunset of the small quantity and household exemptions.

Commenter 15-B: Michael Adler (The Adler Group)

15-B-1: C*ommends DTSC for working to remove mercury from waste.*

DTSC acknowledges the comment.

15-B-2: W*hy are all mercury switches in cars not classified as hazardous waste?*

As explained in more detail in the Final Statement of Reasons for listing M001 (section 66261.50), including all switches in the listing would not be feasible because there is little information available about the presence, location, and numbers of other types of mercury-containing switches. Thus, a dismantler could not know where all the other switches are located and could unknowingly not comply with the regulation. However, as more information becomes available about the existence, number, and location of other mercury switches on specific models of automobile, DTSC can add further types of switches to the listing description in additional rulemakings. Note that these regulations do allow universal waste management of any mercury-containing switches removed from vehicles, not just mercury-containing light switches (that are included in the listing for M001).

15-B-3: W*hy wait till 2006 to classify non-automotive switches as hazardous waste?*

The effective date was further extended because there is no comprehensive guidance available identifying specific models of appliances with mercury switches, identifying their location, and giving removal instructions for the switches, as there is with most vehicle light switches. The additional two years will allow the recycling industry to

develop such guidance so that the switches can be located and removed prior to crushing or shredding the appliances.

15-B-4: Please *clarify of the status of mercury switches between February 8, 2004 and February 9, 2006. Was one of the dates was changed and not the other?*

Between the dates of 2004 and 2006 (in fact, between the effective date of the regulations and the 2006 date), mercury switches will be required to be removed from appliances prior to recycling, as they are today, and will be able to be managed as universal waste (rather than the current hazardous waste status). After 2006, the entire appliance, when discarded, will be a hazardous waste by operation of the M002 listing and will only cease being a listed hazardous waste when the switches are removed.

15-B-5: W*hy are medical products containing mercury (Thimerosal preservatives) not included in the proposed regulations?*

Medical products containing thimerosal (and other mercury-based preservatives) have not been listed for several reasons:

- There are no approved alternatives for these materials, a criterion for listing mercury containing wastes in this rulemaking.
- It is not possible to recycle thimerosal to recover the mercury. Disposal is the only management option.
- Thimerosal and other mercury-containing preservatives are used and disposed in miniscule quantities for each use (i.e.: doses of vaccine).

15-B-6: T*he State of California has failed its citizens in the past regarding mercury pollution in fish.*

This rulemaking represents an aggressive step forward in protecting both the fish and the humans and wildlife eating them. Past steps include cleanup of mercury mines and mercury pollution in rivers dating from the Gold Rush. This contamination is extensive and will be very difficult and expensive to remediate.

15-B-7: T*he proposed regulations are not strong enough and do not immediately ensure that all mercury wastes are disposed of properly.*

DTSC disagrees:

1. To allow for the development of infrastructure, householders and the smallest commercial generators are allowed to dispose of mercury–containing wastes until their exemptions sunset in 2006. The reasons for the temporary exemptions is discussed in

detail in the Final Analysis and Findings required by Health and Safety Code section 25150.6 and in the discussion of changes to section 66273.8 in the Final Statement of Reasons.

2. These regulations have not addressed all mercury-containing wastes. There remain some wastes that contain mercury, but are not identified as hazardous wastes under existing hazardous waste regulations. Every rulemaking must have a defined scope, as does this rulemaking, and the scope must be narrow enough to allow reasonable fiscal, economic, and scientific analysis that supports the rulemaking and can be completed within one year of the original notice to meet the Administrative Procedures Act deadlines for submission to Office of Administrative Law (OAL). Additionally, the scope of this rulemaking was limited to feasible mercury wastes that were recyclable and/or for which an alternative to mercury was available.

Commenter 15-C: Durk De Lu

15-C-1: O*pposed to the temporary disposal exemption for conditionally exempt small quantity universal waste generators found in section 66273.8. Please eliminate the exemption.*

DTSC is retaining the temporary disposal exemptions, both for households and for the conditionally exempt small quantity universal waste generators. These exemptions are being retained because they are necessary to allow time for infrastructure to develop for collecting and managing these wastes. As discussed in detail in the Final Analysis and Findings required by Health and Safety Code section 25150.6 and in the Final Statement of Reasons, DTSC believes that requiring proper disposal or recycling prior to establishing simple and reasonable alternatives would drive illegal disposal to the general environment. Such disposal is poses greater threats to the environment than disposal to non-hazardous waste landfills.

15-C-2: E*lectronic product generators should be required to maintain detailed information, including manifests, regarding their hazardous mercury waste storage and disposal.*

For reasons detailed in the Final Analysis and Findings required by Health and Safety Code section 25150.6 and the Final Statement of Reasons, DTSC has not applied detailed recordkeeping and manifesting requirements to persons managing universal wastes, including the mercury-containing wastes being designated as universal wastes in this rulemaking. DTSC believes proper recycling and disposal can be accomplished without the extensive recordkeeping and manifest requirements. If this belief is proven wrong, DTSC will, in a new rulemaking, change the required management practices to more closely track the practices and requirements for other hazardous wastes.

15-C-3: O*pposed to the elimination of the requirement that the area in which mercury switches are removed is well ventilated and monitored to ensure OSHA and CalOSHA compliance.*

DTSC has removed this provision in response to comment that:

- Switches are normally removed from vehicles and appliances outdoors in scrap yards where there is no danger of mercury vapor exposure beyond the occupational limits.

- Switches are robust containers and are well protected from accidental breakage unless subjected to high forces such as are created by auto shredders and heavy landfill equipment. They are very unlikely to break during removal making the monitoring requirement unnecessary.

- OSHA and Cal-OSHA standards already require ventilation or respiratory protection for persons managing exposed elemental mercury.

- OSHA and Cal-OSHA standards apply independently from these regulations and, absent the monitoring requirement, they will continue to apply and be enforceable.

15-C-4: O*pposed to the elimination of the requirement that a small quantity universal waste handler who processes motor vehicle waste certify that all mercury-containing switches have been removed prior to processing.*

The certification requirement was removed because commenters stated, and DTSC agreed, that an automotive recycler cannot certify that all mercury containing switches have been removed because:

- They do not know where all of the switches are located in the thousands of different year, make, and model vehicles they receive.

- Switches are added by owners and others after vehicles are sold that are not on the manufacturer's diagrams and other information regarding the vehicle (for instance, burglar alarm motion detector switches that can be mounted in many places on a vehicle).

- Some switches cannot be removed due to damage that prevents removal such as a crushed hood or trunk lid.

DTSC considered modifying the certification to require that a dismantler certify that all known mercury-containing switches that can practicably be removed, have been removed. However, a dismantler could then argue that he did not know of switches or

that switches were not practicable to remove for reasons of vehicle damage, corrosion, or other reasons. Because the purpose of the certification would then be "questionable", it would lose its enforcement value and would no longer be necessary. Thus, DTSC is not requiring certification.

15-C-5: B*elieve there is a contradiction in the proposed regulations because they state that some "mercury, residues, and/or other wastes" may not be hazardous.*

DTSC disagrees that there is a contradiction as stated by the commenter. The actual universal wastes contain mercury and must be recycled or properly disposed (as allowed for each universal waste). However, there are two types of waste derived from the universal wastes that may or may not be hazardous waste under existing hazardous waste characteristics:

1. Mercury and residues from recycling of the universal wastes designated in these regulations. The mercury itself, once recycled, is no longer a waste and may be reused. Thus, it cannot be regulated as a hazardous waste and still be reused. The residues from the recycling operation no longer contain the amount of mercury that they originally did because the recycling operation recovers most of the mercury, and leaves a residue from which further mercury cannot be recovered. At this point, the residues are non-hazardous unless they contain sufficient mercury or other hazardous constituents to be identified as hazardous wastes.

2. Residues of mercury-contaminated media resulting from release of mercury from universal wastes. These residues consist of materials such as contaminated soil or garbage in a dumpster in which fluorescent tubes have been broken. The mercury is no longer recoverable from the contaminated media and is no longer the original material listed as a universal waste. At this point, the residues are non-hazardous unless they contain sufficient mercury or other hazardous constituents to be identified as hazardous wastes.

Tom Tyler (Institute of Scrap Recycling Industries, Inc.)

15-D-1: Please *refer to the comments of September 30, 2002 submitted by Partnership for Mercury-Free Vehicles in response to the 45-day notice of the currently proposed regulations. Commenter included a copy of those comments as an attachment. Commenter also attached draft language of model legislation proposed by Partnership for Mercury-Free Vehicles*.

The comments made in September have been addressed with the remainder of the comments from the 45-Day Public Comment Period.

The draft legislation is interesting and would represent an effective step in eliminating use of mercury. However, DTSC cannot adopt regulations creating a fee, mandating

take-back or product stewardship, and cannot forbid the use of mercury in products or require phase-out of mercury. DTSC's hazardous waste authority extends to standards classifying and managing hazardous wastes and does not apply to products before those products become waste.

15-D-2: T*he proposed regulations will not achieve the stated objective of encouraging pollution prevention through the use of non-mercury containing products. In addition, the proposed regulations would create an illusory fix to the problem of mercury use and, therefore, hinder the adoption on legislation that the commenter believes is needed.*

DTSC disagrees with the commenter. While the proposed regulations do not, and can not, address every aspect of every product containing mercury, they do address products that contain mercury and have non-mercury substitutes. The identification of these products as hazardous waste and universal waste (characterized by some commenters as "stigmatizing" the products) illuminates their mercury content and drives users towards mercury-free alternatives, as does the added expense and difficulty of managing products as hazardous waste instead of indiscriminate disposal and management. Note that DTSC does not have authority to order a cessation of mercury use in products nor can it order substitution of mercury alternatives for mercury– potentially more effective options.

Moreover, adoption of these regulations does not hinder or impede the Legislature's ability to enact statutes that would address the problem in a different or more global manner.

As to whether the "fix" is "illusory", the new adopted listings require certain activities that mitigate the risks offered by non-hazardous disposal of mercury containing wastes. For instance, waste vehicles with mercury light switches could previously be shredded as non-hazardous waste because the amount of mercury in the switches was not enough to identify the entire vehicle as a hazardous waste. Listing the vehicle until the light switches are removed, as is done in this rulemaking, creates an enforceable duty to either remove the switches and manage them separately prior to shredding, or obtain a hazardous waste facility permit for the shredder – an obviously less desirable option. Thus, with some education and enforcement of vehicle recyclers, mercury switches will be removed from vehicles prior to shredding preventing the release of the mercury to the environment – a requirement that will benefit the environment and not an illusory change.

15-D-3: Please *"pursue the appropriate policy choice through legislation" and "not implement regulations that will complicate adoption of such legislation." Please support model legislation promoted by the Partnership for Mercury-Free Vehicles entitled "Mercury-Free Vehicle Act."*

DTSC is an administrative agency and does not enact laws through legislations. DTSC does study and comment to the Executive Branch of government on proposed legislation and provides information to the Legislature on request.

These regulations do not complicate adoption of legislation as discussed in the response to comment 15-D-2 above.

15-D-4: *Commenter describes how the "Mercury-Free Act" would achieve DTSC's objectives by requiring vehicle manufacturers to establish and fund systems for the removal and management of vehicle mercury switches.*

DTSC acknowledges that the "Mercury-Free Vehicles Act" is an important proposal for mercury reduction. Also, see response to 15-D-2.

15-D-5: T*he proposed regulations do not require automakers to disclose the uses and locations mercury switches and, therefore, places additional burden on those involved in vehicle recycling.*

DTSC acknowledges that such required disclosure could provide valuable information to vehicle recyclers and would aid in lessening total mercury pollution. However, such requirements are beyond the scope of the authorities granted to DTSC by statute.

DTSC agrees that requiring removal of the switches without information as to the presence, number, location, and removal methods for switches places an additional burden on vehicle recyclers. This is the reason, as explained in the Final Statement of Reasons for the M001 listing in proposed section 66261.50, that DTSC has changed the listing to apply only to mercury-containing vehicle light switches since such information exists about the light switches.

15-D-6: *Encourages the Department to set aside the current proposed regulations in favor of the comprehensive legislative solution.*

For the reasons discussed in the response to comments 15-D-1 – 15-D-4 above, DTSC has chosen to adopt the regulations.

Chuan-Hai Teh (Micro Metallics)

15-E-1: *"End of life electronics" currently dominate my business of metal recycling, sampling, and refining business.*
DTSC acknowledges this information.

15-E-2: I*ssues from the original proposal have not been adequately addressed in the current version.*

Because DTSC has not accommodated every comment presented from the

45-Day Comment Period, it is clear that many commenters will not agree with DTSC's decision on some comments and will feel that the response has been inadequate to some issues. However, the changes presented in the 15-Day Notice of Changes represent all the changes that DTSC has determined are necessary. For further discussion, see the responses to individual comments from the 45-Day Comment Period.

15-E-3: S*ection 66261.3(c)(5) appears to create a "derived-from-rule" that sets an excessive standard for products derived from a hazardous waste. Of particular concern is the phrase "The material must not exhibit any characteristics identified in article 3." It may be impossible to for a derived-from product to be free of any hazardous characteristic; the hazardous constituent may be a recoverable product with marketable value.*

The commenter has misinterpreted this provision. This provision applies only to "waste" material residual to a recycling or treatment process. The materials that have been recovered and are usable products are not "waste", but "products", and are no longer hazardous waste. Thus, mercury recycled from vehicle light switches is close to 100% pure mercury and would certainly fail the TTLC for mercury, but is not waste and is therefore not hazardous waste and is not regulated under these regulations unless discarded.

However, there are instances when residual materials from one recycling operation may exhibit a characteristic of a hazardous waste, but still contain other recoverable constituents. Further recycling would then yield a recovered material, not regulated, and residual waste, regulated if it continues to exhibit a characteristic of a hazardous waste.

These residual materials are considered wastes and if they require further reclamation prior to recycling, they are regulated as hazardous waste unless these wastes meet the criteria for one or more of the exemptions from regulation for recycling in Health and Safety Code section 25143.2. In general, wastes being recycled by a "reclamation" process at an offsite facility are not exempt; if they were, the statutory exemption would pre-empt the statement in this regulation.

15-E-4: T*he proposed regulations should be amended to allow recyclers continued access to legitimate recycling exemptions. The language identified in 15-E-3 (above) should be deleted, modified to reclassify or re-specify derived-from wastes, or an exemption should be added for "shipment for further recycling."*

As explained in the response to comment 15-E-3 above, the commenter's understanding of the provision in section 66261.3(c)(5) is partially incorrect. The suggestion will not be accommodated and DTSC will not modify this regulation to vary from the exemptions and standards of Health and Safety Code section 25143.2. That

statute, as discussed above, generally regulates hazardous wastes and residual materials from hazardous wastes that will be further reclaimed, as hazardous wastes.

No provisions of these regulations are intended to negate the recycling exemptions in Health and Safety Code section 25143.2.

15-E-5: T*here has already be an exodus of electronics manufacturing for California and over-regulating end-of-life scrap will only drive a growing recycling industry out of the state as well.*

DTSC does not agree that regulations have driven manufacturing out of State. Most electronic manufacturing is conducted in third world countries for other economic reasons and the research, development, and design work remains in the State regardless of our regulations.

DTSC also does not agree that the provisions of these regulations requiring removal of mercury switches from appliances (the only provisions that could affect electronics recycling) will drive businesses from California. In fact, these regulations will give scrap metal processing businesses some surety that their products and workplaces will not be inadvertently contaminated with mercury. Such mercury contamination would make their workplaces subject to expensive remediation, injure their employees, and make their products unsaleable.

Comment 15-F: Colin Burns

15-F-1: P*rotecting public health from mercury pollution is important and the proposed regulations are "a step in the right direction."*

DTSC acknowledges the support.

15-F-2: H*opes that "future directions include incentives to reduce mercury use in consumer products."*

DTSC agrees that this action would be environmentally protective; however, such actions are beyond DTSC's authority.

Commenter 15-G: Peter Bleasby (Osram Sylvania)

15-G-1: S*upports the amendments included in the 15-day language.*

DTSC acknowledges the commenter's support.

Commenter 15-H: Susan Lee (CALPIRG)

15-H-1: S*upports classifying all mercury containing wastes as hazardous waste but believes the proposed regulations do not adequately encourage the*

elimination of mercury from consumer products and fail to ensure that mercury in disposed products is collected and contained in a manner protective of public health.

DTSC agrees that eliminating the use of mercury from products would be environmentally protective; however, requiring such an action is beyond DTSC's authority. DTSC believes these regulations will divert specified mercury-containing wastes from landfills and promote the use of mercury-free substitutes. This promotion occurs due to the label of "hazardous waste" placed on mercury-containing products which, as stated by several commenters, complicates management of the products and creates a disincentive for their purchase.

DTSC disagrees that the regulations are inadequately protective and will fail to ensure that mercury in disposed products is collected and contained in a manner protective of public health. As discussed at length in both the Final Statement of Reasons and the Final Analysis and Findings required by Health and Safety Code section 25150.6, these regulations are much less prescriptive than the general hazardous waste control regulations. However, given the extremely large number of generators, DTSC has determined that these regulations will provide better ultimate environmental protection by diverting a larger percentage of mercury-containing wastes from both the landfills and disposal to the general environment, such as ditches, farmer's fields, etc. See the documents referred to above for further discussion.

15-H-2: T*he definition of "Mercury-containing motor vehicle light switch" should be expanded to include all mercury-containing switches in motor vehicles.*

The original proposal would have regulated all mercury-containing switches and required removal of all switches. However, in response to comments during the 45-Day Comment Period, DTSC limited the M001 listing to mercury-containing vehicle light switches and the definition was created to delineate the universe of switches covered by the M001 listing.

For further discussion of the reasons why DTSC cannot accommodate this comment, see the discussion in the Final Statement of Reasons of the changes M001 which explains why DTSC narrowed the scope of the listing, and therefore the removal requirement, to only light switches rather than all mercury-containing switches.

15-H-3: C*oncerned with "the delay in listing non-automotive mercury switches and any product that contains such switches" and believe that the delay will only increase the time during which more mercury containing waste may be improperly managed.*

DTSC has delayed the applicability of this listing for reasons detailed in the Final Statement of Reasons. In short, there is little information about the existence, location, and removal methods for most of the mercury-containing switches in appliances. This

information will be developed during the delay time to ultimately both facilitate removal and allow enforcement of the removal requirement. Requiring removal prior to developing information may drive recyclers to dispose to solid waste landfills without removing the switch and without recycling the products. Note that some of these products are currently non-hazardous because the mass of the product is high enough to offset the small amount of mercury in some switches and a person managing these products could legally dispose of them as non-hazardous waste without removing the switch. After the listing becomes effective, the appliances will have to be properly managed regardless of the mass of the appliance and the mass of mercury in the switches.

15-H-4: T*he phrase "manner designed to prevent breakage" should be defined; without an approved standard for removal and storage, breakage may result in improper disposal.*

For reasons detailed in the Final Statement of Reasons and in the Final Analysis and Findings required by Health and Safety Code section 25150.6, DTSC has determined that the performance standards of the Universal Waste Rule will offer better ultimate environmental protection than application of the prescriptive standards in the general hazardous waste control regulations. DTSC has chosen a performance standard, rather than a prescriptive standard, to allow appropriate flexibility in meeting this standard and to promote sufficiently protective hazardous waste management.

15-H-5: *"Lack of notice and the inherent time constraints of the current comment period made it difficult … to examine the proposed changes with the precision deserved."*

These regulations have been available for public comment for the full 45 days required by the Administrative Procedures Act and the changes to the original proposal have been available for public comment and review (for all but 58 commenters) for not one, but two 15-day comment periods (due to a mailing list error). Thus, the regulations have met all the Administrative Procedures Act requirements for public review and comment on the proposed regulations.

Commenter 15-I: Margaret Rosegay (law firm of Pillsbury Winthrop, representing auto shredders)

15-I-1: Please confirm my u*nderstanding of the legal implications of the proposed regulations. The text of the letter is attached.*

Question 1: *Please confirm that vehicles exit the M001 listing when crushed (or baled or shredded), even if all mercury containing light switches have not been removed prior to crushing.*

DTSC confirms that this is the intent of the changes made to sections 66273.13(d)(3)(B) and 66273.7.1(b)(5).

Question 2: *Please confirm that the language added as 66261.3(c)(5) is not intended to change the regulatory status of auto shredder residues.*

DTSC concurs that this provision is not intended to change the regulatory classification of auto shredder residues. These residues are waste generated by the metal recycling operation and are classified as hazardous waste if they exhibit a characteristic of a hazardous waste, a situation that will not change with this rulemaking. All characteristic wastes are subject to regulation under the hazardous waste control statutes and regulations. As wastes, auto shredder residues are classified and managed like any other wastes. Changing or otherwise affecting variances and re-classifications is beyond the scope of this rule.

Question 3: *Footnote 1: We believe DTSC, in section 66273.7.1(b)(5), did not intend to require that other mercury-containing automotive switches (other than vehicle light switches) be regulated under the M002 listing.*

This belief is correct because the M002 listing applies to "non-automotive mercury switches…". Note, however, that if these mercury switches are removed from the vehicle and managed separately (as recommended by DTSC), they can be managed as universal waste rather than under the general hazardous waste regulations.

Question 4: *Footnote 2: Uncrushed vehicles received directly by the shredder would be classified as M001 waste if mercury-containing lighting switches were present and the shredder operator would have to remove the switches prior to shredding the vehicle*.

DTSC agrees. Otherwise, the shredder needs authorization to treat a hazardous waste.

15-I-2: Please insert *the word "light" after "mercury-containing" in section 66273.7.1(b)(3) to ensure consistency with the scope of the M001 listing.*

DTSC agrees change should be made. The change is a non-substantive and corrects an oversight by DTSC when it issued the 15-Day Notice of Changes. The change conforms paragraph (3) of subsection (b) to the other changes made to section 66273.7.1 and the M001 listing in section 66261.50 in the 15-Day Notice of Changes. The change is non-substantive because this subsection discusses which vehicles are *not* subject to regulation as universal wastes and the recommended change does not expand the universe of vehicles that would not be universal waste. In order to be universal waste, a waste must be a hazardous waste ("universal waste" is a subset of "hazardous waste"). Vehicles from which all mercury containing switches have been removed (as the text appeared in the 15 Notice of Changes) most likely do not contain enough mercury, when compared to the large mass of the vehicle, to be

characteristically hazardous for mercury. Thus, they could not be universal waste based on mercury-containing switches. Likewise, if all of the *light* switches have been removed (as the text reads with the recommended change), a vehicle is not a listed waste pursuant to the M001 listing. Therefore, it would not be a universal waste either. Thus, the change has no practical impact because a vehicle is not a hazardous waste based on mercury (and thus not a universal waste) if all switches have been removed or if only the light switches have been removed. However, the change is preferable to make the paragraph more precise, clear and consistent with the rest of the section and the listing.

15-I-3: Please remove t*he parenthetical at the end of subsection 66263.7.1(b) (5) to prevent inconsistencies with the exclusion of crushed vehicles from regulation as a universal waste.*

The comment will not be accommodated. A waste vehicle is a waste like any other waste and any waste that exhibits a characteristic of a hazardous waste is regulated as such subject to the regulatory standards, exemptions, and exclusions of the general hazardous waste control law. However, if the light switches have been removed, the vehicle is not classified as a hazardous waste due to meeting the listing description for M001 and would only be a hazardous waste if it contained sufficient hazardous constituents (for instance, lead from lead acid batteries) to exhibit a characteristic of a hazardous waste. This is a restatement of existing law and this conclusion is not derived from this rulemaking. The parenthetical is put into the regulation to clarify that removal of mercury-containing light switches eliminates classification due to meeting the M001 listing description, but the vehicle may still be hazardous waste for other reasons already found in existing law.

15-I-4: Please replace *"2006" in section 66273.7.2(b)(3) with "2004."*

DTSC agrees the recommended change should be made. The change is non-substantive and corrects an oversight by DTSC when it issued the 15-Day Notice of Changes. The change conforms the date in subdivision (b) to the effective date of 2006 in the M002 listing in section 66261.50 and the applicability of universal waste requirements in section 66273.7.2, subsection (a), paragraph (2). The change does not affect the duties of any person because a discarded product cannot be identified as a hazardous waste until it becomes listed as a M002 waste in 2006. Also, it can not become a universal waste until it is a hazardous waste. It would be more precise and provide consistency and clarity to conform the date in subdivision (b) to the effective date in subsection (a), paragraph (2) and the new effective date (2006) in the M002 listing.

15-I-5: Please amend *section 66273.7.2(b)(6), replacing the word "appliances" with "products" and the phrase "mercury switches" with "non-automotive mercury switches."*

The purpose of this paragraph is to tell the reader which materials cannot be managed as universal waste. End-of-life appliances are routinely crushed, baled, sheared, and/or shredded in the course of recycling to recover their scrap metal. DTSC has used the term “appliances” rather than “products” in this subsection because we are unaware of any product categories other than appliances that are commonly processed in this way. If in the future, DTSC becomes aware of other product categories that are crushed, baled, sheared, or shredded in the course of recycling, we may amend subsection (b) of section 66273.7.2 to exclude such products from universal waste management if they have been crushed without removing their non-automotive mercury switches.

The words "mercury switches" are replaced with "non-automotive mercury switches" for purposes of clarity and consistency. [The term "non-automotive mercury switches" is used throughout subsection (b) of section 66273.7.2; section 66273.7.2 deals only with non-automotive mercury switches.]

15-I-6: Please amend section *66273.9(e) by adding the word "light" to "switches" in the definition of Universal Waste and replace "as described in" with "in accordance with."*

This comment will not be accommodated. The M001 listing and associated removal requirement applies only to automotive “light” switches. However, any mercury-containing switches removed from motor vehicles are almost 100% certain to be identified as hazardous waste because they fail the TTLC. DTSC has chosen to allow management of all mercury switches, not just light switches, as universal waste to facilitate collection and shipment to a mercury recycler.

The term “as described in” is used to remain consistent with the federal Universal Waste Rule. This is necessary to comply with Health and Safety Code section 25159.5. Note that the sections referred to in section 66261.9, actually describe the universal wastes.

15-I-7: Please amend section *66273.9(f) by adding the word "light" to "switches" in the definition of Universal Waste and replaced "as described in" with "in accordance with."*

This comment will not be accommodated. Subsection (f) identifies any mercury switches found in <u>non-automotive</u> products as universal wastes. The word “light” is germane only to the M001 presumptive hazardous waste listing for <u>motor vehicle light switches and vehicles</u> that contain them, under specified circumstances.

See the response to comment 15-I-6 for further information.

The term “as described in” is used to remain consistent with the Federal Universal Waste Rule. This is necessary to comply with Health and Safety Code section 25159.5. Note that the sections referred to in section 66261.9, actually describe the universal wastes.

15-I-8: Please delete *the recordkeeping requirements of sections 66273.13 and 66273.33.*

DTSC is retaining these minimal recordkeeping requirements to allow basic tracking of universal wastes. Additionally, these recordkeeping requirements will provide evidence that universal wastes are being sent to a proper destination. This evidence will be helpful for the handler and an inspector from the CUPA or from DTSC.

15-I-9: Please amend section *66273.41 to replace "as described in" with "in accordance with."*

The term "as described in" is used to remain consistent with the Federal Universal Waste Rule. This is necessary to comply with Health and Safety Code section 25159.5. Note that the sections referred to in section 66261.9, actually describe the universal wastes.

Please also see response to comments 15-I-6 and 15-I-7.

15-J California Integrated Waste Management Board

15-J-1: *The effective date for M003, from 2006 to 2004, is not consistent with the existing universal waste regulations' exemption for households. The M003 listing does not provide for a householder exemption or reference the existing exemption in section 66273.8 and appears to say that households that dispose of mercury-containing lamps on or after February 9, 2004, must manage them as hazardous waste.*

DTSC disagrees with the commenter. These two dates are independent of each other and had originally coincided with each other. The change to 2004 reflects the hazardous waste *identification* date while 2006 is a universal waste *management* date that ends the temporary management and disposal exemptions for households and conditionally exempts small quantity universal waste generators (CESQUWGs). No change to the regulations is necessary to accommodate this comment.

On February 9, 2004, the effective date of the listing, all mercury-added lamps will become listed hazardous wastes, including those generated by households and CESQUWGs. However, the existing temporary disposal exemptions for these wastes will remain unchanged (section 66273.8): until February 9, 2006, households and CESQUWGs may manage and dispose of mercury-added lamps in the nonhazardous waste stream. Note that effective February 9, 2004, the exempt quantity of hazardous lamps for CESQUWGs will be reduced to 30 lamps. On February 9, 2006, all hazardous waste lamps will be subject to management as universal waste under chapter 23 or disposal as hazardous waste.

15-J-2: *In the M003 listing description, it is not clear if LCD backlights that contain mercury are regulated as hazardous waste or not, and if they are, they can be regulated as universal waste lamps. DTSC should resolve the confusion about the applicability of the hazardous waste requirement to LCD backlights, and clearly reference in the proposed regulations where and how they can be regulated.*

DTSC has reviewed this comment and determined that no regulatory changes are necessary to accommodate this comment. The M003 listing does not include liquid crystal displays (LCDs) that are back lit with mercury-containing lamps, or products that contain LCDs. Lamps eligible for universal waste management are defined in section 66273.9 and do not include the mercury-containing lamp contained in an LCD.

DTSC does not have information that would indicate if LCDs or the products with LCDs would exceed the TTLC for mercury. However, if the LCDs (if it were able to be separated from the product) or the product itself exceeded the TTLC, it would not meet the M003 listing description, nor qualify as a universal waste because it does not meet the definition of universal waste lamp. The LCD and/or product would be subject to hazardous waste management.

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15-Day Public Notice
(11/20/02 – 12/5/02)
Comment Summaries and Responses
And
External Scientific Peer Review Findings and Responses

External Scientific Peer Review Report Findings and Responses

General

University of California, Santa Cruz (Dr. Russell Flegal)

PR-UC-1: By necessity, the Mercury Report relies extensively on published and unpublished "gray literature" reports.

DTSC accepts this finding in part; however, no changes to the proposed regulations are necessary to accommodate this finding. Health and Safety Code section 57004, subdivision (d) allows the Department of Toxic Substances Control (DTSC) to accept the finding of the external scientific peer review, in whole or in part, and revise the scientific portions of the proposed rule accordingly. If DTSC disagrees with any aspect of the finding of the external peer reviewer, an explanation of the basis of its determination is needed, including the reasons why the scientific portions of the proposed rule are based on sound scientific knowledge, methods, and practices.

DTSC accepts that the Mercury Report relied extensively on published literature, but in part the finding regarding "gray literature." DTSC interprets "gray literature" as meaning personal communications and articles or reports not published in peer reviewed journals or its equivalents. DTSC interprets this finding to mean that peer reviewed, published specific information and data from journals would be the primary source of information and data for the report. DTSC in general agrees with this; however, "gray literature" was used "by necessity" as noted by the peer reviewer due to a lack of information and data in published articles that are specific to the needs of the DTSC's Mercury Report scope and purpose – to provide and support the scientific basis of the regulations.

Also, as discussed in response to PR-UC-6 below, the overarching finding of the peer reviewer is: "…the Mercury Report has accomplished its objectives of synthesizing existing scientific information on the magnitude of mercury contamination and the potentially adverse effects of that contamination in California to substantiate their proposed mercury regulations." Overall, the peer reviewer has found that the Mercury Report adequately provides the scientific basis of the regulations.

The scientific portions of the regulations are not changed by this finding, thus, no changes to the regulations are necessary as required by Health and Safety Code section 57004, subdivision (d).

PR-UC-2. The proposed recommendation in the Mercury Report to "list mercury-containing consumer products that can be recycled or have a non-mercury alternative as a hazardous waste when discarded is based on a large body of rigorously critiqued reports and articles in peer-reviewed scientific journals and their equivalents.

DTSC accepts this finding. No changes to the regulations are necessary to accommodate this finding. This finding supports the Mercury Report's use of rigorously

reviewed reports and articles, which does not affect the scientific basis of the regulations. Thus, there no changes to the regulations are necessary based on this finding.

PR-UC-3: The Mercury Report provided limited information on the effects and potential effects of mercury contamination in California by using linear extrapolations from national data that oversimplifies the complexity of the mercury problem and uses "gray literature," which lacks the credibility of peer reviewed scientific publications.

DTSC accepts this finding in part; however, no changes to the regulations are necessary to accommodate this finding pursuant to Health and Safety Code section 57004. Refer to PR-UC-1 regarding the use of "gray literature" and why the regulations are unaffected. DTSC accepts that the Mercury Report provided "limited information" on California using linear extrapolation, but qualifies it by noting that specific information was not available for California. This lack of California specific information is recognized by the peer reviewer in a similar finding to Section 5 of the Mercury Report. The scientific basis of the regulations that mercury is a toxic, bioaccumulative, and persistent chemical substance, is unaffected by this finding. Refer to PR-UC-6 regarding the finding that the Mercury Report substantiates the scientific basis of the regulations.

Note that while revising the Mercury Report (August 2002), based on this finding (and other findings regarding the Mercury Report), would provide additional information, data, and clarifications to the report, it would not change the conclusions of the report nor the scientific basis of the regulation: mercury is a toxic, persistent and bioaccumulative chemical substance. (Note that the two peer reviewers have substantiated the scientific basis.) Therefore, any revision to the Mercury Report to support the scientific basis of the regulations is not necessary and is outside of the scope of the rulemaking package, as well as Health and Safety Code section 57004.

PR-UC-4: More research on the extent of mercury contamination in California would provide a more compelling rationale for the proposed regulatory concept.

DTSC accepts this finding. However, additional research would not change the conclusion of the report or the scientific basis of the regulations; that is, mercury is a toxic, persistent and bioaccumulative chemical substance. The regulations will prevent additional releases of mercury from certain wastes from entering the environment. No changes to the proposed regulations are necessary to accommodate this finding as the peer reviewer has found that overall the Mercury Report substantiates the scientific basis of the regulations (PR-UC-6). See response to PR-UC-3 for discussion on revisions to the Mercury Report.

PR-UC-5: The Mercury Report is compromised by statements that are circumspect or incorrect.

DTSC accepts this finding in part. However, no changes to the proposed regulations are necessary to accommodate this finding because it does not affect the scientific portions of the regulations, and thus, the text of the regulations are not affected. The peer reviewer has identified specific examples in the Mercury Report of circumspect or incorrect statements (see the specific sections below). However, noted in PR-UC-6 below, the peer reviewer's report states that adequate scientific information is detailed in the Mercury Report to substantiate the proposed regulations.

DTSC accepts the findings regarding incorrect statements. DTSC accepts in part, the finding regarding "circumspect" statements. As the peer reviewer noted in his report, the statements "are attributed to the difficult task in preparing a report, although 125 pages long, that needs to be terse and readable to a diverse audience." In spite of these "circumspect" statements, the peer reviewer has found that the Mercury Report substantiates the scientific basis of the regulations (PR-UC-6).

Note that while revising the Mercury Report (August 2002), based on this finding (and other findings), would provide additional information, data, and clarifications to the report, it would not change the scientific basis of the regulations; that is, mercury is a toxic, persistent and bioaccumulative chemical substance. (Note that the peer reviewers have substantiated the scientific basis.) Therefore, any revisions to the Mercury Report to support the scientific basis of the regulations is not required and is outside of the scope of the rulemaking package, as well as Health and Safety Code section 57004.

PR-UC-6: "In spite of criticisms, the Mercury Report has accomplished its objectives of synthesizing existing scientific information on the magnitude of mercury contamination and the potentially adverse effects of that contamination in California to substantiate their proposed mercury regulations. Mercury is a "toxic, persistent, bioaccumulative chemical substance"; and it is a pervasive contaminant in the State of California, where the historic legacy of massive industrial mercury contamination extends over one and on-half centuries."

DTSC accepts this conclusion as the peer reviewer's overarching finding in support of the scientific basis of the proposed regulations and regarding the fact that the Mercury Report supports the regulations' goal to encourage pollution prevention (source reduction and recycling) in order to further control environmental releases. This overall finding substantiates the regulations.

Specific findings regarding specific sections, statements, suggestions for additional information, and clarifications are identified below with responses as they pertain to the regulations and Health and Safety Code section 57004, subdivision (d). Note, however, this overall finding substantiates the scientific basis of the regulations.

Health and Safety Code section 57004, subdivision (d) allows DTSC to accept the finding of the external scientific peer review, in whole or in part, and revise the scientific portions of the proposed rule accordingly. If DTSC disagrees with any aspect of the finding of the external peer reviewer, an explanation of the basis of its determination is

needed, including the reasons why the scientific portions of the proposed rule are based on sound scientific knowledge, methods, and practices.

Acceptance of this finding does not result in any changes to the scientific portions of the regulations, thus no regulatory changes are needed to accommodate this finding.

PR-UC-7: The regulations will proceed "regardless of a qualitative understanding of the potential impacts or benefits" and could be considered poor science and poor policy, but the benefits of a proactive response have been demonstrated for other elements.

DTSC accepts this finding in part and has determined that this finding does not result in any changes to the scientific portions of the regulations. Thus, no regulatory changes are needed to accommodate this finding. Note, as discussed in response to PR-UC-6, the peer reviewer determined, in spite of this finding, that adequate scientific information is present in the Mercury Report to substantiate the proposed regulations.

DTSC accepts the finding that there are benefits of a proactive response; but rejects the statement that regulations will proceed "regardless of a qualitative understanding of the potential impacts or benefits." Note that the "qualitative understanding of the potential impacts or benefits" that the peer reviewer is referencing is not within the scope of the Mercury Report. The Mercury Report provides the scientific basis for the regulations (which the peer reviewer substantiates), while the rulemaking package must demonstrate, among other elements, the necessity of the regulations, including economic and fiscal impacts. Before regulations are approved for adoption by the Office of Administrative Law, the "qualitative understanding of the potential impacts or benefits" must be shown as part of the rulemaking package.

PR-UC-8: From a scientific standpoint, the Mercury Report is best evaluated by its link to the characteristics of mercury (toxic, pervasive, bioaccumulative) to the disposal of waste and the implementation of the proposed regulations. The Mercury Report should address a number of questions (posed by the peer reviewer) regarding the toxic, persistent, and bioaccumulative nature of mercury that would support DTSC's regulatory proposal.

DTSC accepts this comment regarding the peer reviewer's method of evaluating the scientific basis of the regulations found in the Mercury Report. However, acceptance of this finding does not result in any changes to the scientific portions of the regulations, thus no regulatory changes are needed to accommodate this finding. Specific findings related to the peer reviewer's method of evaluating the Mercury Report were noted throughout the individual sections and are identified below. Responses are made as they pertain to the regulations and the requirement for an external scientific peer review found in Health and Safety Code section 57004.

Section 1: Nature and Extent of California's Mercury Contamination: A Summary

California State University, Chico (Dr. Marti Wolfe)

PR- CSU-1: Piscivorous (fish eating) wildlife is not protected by mercury fish advisories as they do not have alternate sources of food.

DTSC accepts this finding. Acceptance of this finding does not result in any changes to the scientific portions of the regulations, thus no regulatory changes are needed to accommodate this finding.

Health and Safety Code section 57004, subdivision (d) allows DTSC to accept the finding of the external scientific peer review, in whole or in part, and revise the scientific portions of the proposed rule accordingly. The scientific portion of the Mercury Waste Classification and Management is based on the finding that mercury is a toxic, persistent, and bioaccumulative chemical substance and in order to further control environmental releases, regulations to encourage pollution prevention (recycling and source reduction) are needed.

The peer reviewer's findings regarding mercury risks to wildlife reinforce and support DTSC's scientific basis for the regulations, specifically, that mercury (methylmercury) is a toxic, persistent, and bioaccumulative chemical substance. Thus, DTSC's scientific portions of the Mercury Waste Classification and Management Regulations do not require any revisions.

Note that while revising the Mercury Report (August 2002), based on this finding (and other findings), would provide additional information, data, and clarifications to the report, it would not change the scientific basis of the regulation: mercury is a toxic, persistent and bioaccumulative chemical substance. (Note that the peer reviewers have substantiated the scientific basis.) Therefore, any revisions to the Mercury Report to support the scientific basis of the regulations is not required and is outside of the scope of the rulemaking package, as well as Health and Safety Code section 57004.

PR-CSU-2: The wildlife values as they appear in the Federal Register should be included in Table 1-4: Summary of State and Federal, Water Quality Standards for Mercury.

DTSC accepts this finding. In accordance to Health and Safety Code section 57004, acceptance of this finding does not result in any changes to the scientific portions of the regulations, thus no regulatory changes are needed to accommodate this finding.

Adding the wildlife values to Table 1-4 adds information regarding wildlife mercury toxicity and supports the scientific basis of the regulations; that is, mercury is a toxic, bioaccumulative, and persistent chemical substance. See response to PR-UC-3 regarding revisions to the Mercury Report based on the findings of the peer reviewers.

University of California, Santa Cruz (Dr. Russell Flegal)

PR-UC-9: This section contains limited information on the sources and magnitude of mercury contamination in California and should compile a more thorough, quantitative assessment of the extent of mercury contamination in California,

specifically addressing the geology of California and the impact of its mercury mining activities.

DTSC accepts this finding in part; however, no changes to the regulations are necessary to accommodate this finding pursuant to Health and Safety Code section 57004. Section 57004 states that DTSC may revise the scientific portions of the regulations in response the peer reviewer's findings. Accepting this finding in part does not affect the scientific portion of the regulations; note also that the peer reviewer's report found that adequate scientific information is detailed in the Mercury Report to substantiate the proposed regulations (refer to PR-UC-6).

DTSC accepts this finding in part because although compiling additional information about mercury contamination in California due to mercury mining activities would add more information to the Mercury Report, it is not the main focus of the report. DTSC briefly summarizes the mercury mining contamination in California in the report, but the scope of the report focuses on assessing and preventing mercury contamination in the environment due to waste contribution. As mercury mining in California has ceased, the left over mining waste is a "legacy waste" issue and a clean up issue, which is not within the scope of the report nor the regulations. No revision to the Mercury Report (August 2002) is required to accommodate this finding and is also outside the scope of the rulemaking package and Health and Safety Code 57004 (refer to response to PR-UC-3 regarding revisions to the Mercury Report).

PR-UC-10: DTSC's Site Mitigation Program (CalSites) should be fully referenced.

DTSC accepts this finding. Full references would not affect the Mercury Report's discussions or conclusions and would not affect the scientific portions of the regulations, thus no regulatory changes are needed to accommodate this finding. See also response to PR-UC-3 regarding changes to the Mercury Report.

PR-UC-11: Original air data regarding elevated atmospheric mercury concentrations may be available through the Air Toxic "Hot Spots" Program (AB 2588) and may include mercury emissions from stationary sources (specifically, waste disposal sites) and may include elevated atmospheric mercury concentrations to substantiate DTSC's proposal.

DTSC rejects this finding. DTSC has determined that rejecting this finding does not affect the scientific portions of the regulations; thus, no changes to the regulations are necessary to accommodate the rejection of this finding. DTSC rejects this finding because the California Air Resources Board's mercury air monitoring program has approximately 25 stations statewide – enough to develop statewide trends, but not enough to assess the risk from a given facility (e.g., waste disposal sites). Note also that the Air Toxic "Hot Spots" Program (AB 2588) reports emission data, not atmospheric data. This finding, although rejected, does not affect the peer reviewer's conclusion that the Mercury Report substantiates the scientific basis of the regulations (PR-UC-6).

PR-UC-12: The Mercury Report contains a misstatement: "Because metallic mercury is liquid at room temperature, it is especially mobile in the environment." Mercury is mobile in the environment because of complex biogeochemical behavior, not due to physical properties.

DTSC accepts this finding in part. Physical mobility in the environment occurs through (mis)handling of metallic mercury (for example, in mercury switches and thermometers) and may result in spills that contaminate the ground. Spills near storm drains can also physically move to the water through the storm drains. The biogeochemical behavior is summarized in Section 2 of the Mercury Report. Acceptance of this finding in part does not result in any changes to the scientific portions of the regulations, thus no regulatory changes are needed to accommodate this finding.

See also response to PR-UC-5 regarding revisions to the Mercury Report.

PR-UC-13: Concentrations of mercury in municipal landfill leachate can exceed water quality standards and organiomercuric species of mercury have also been identified in municipal landfill gas.

DTSC accepts this finding. This finding lends support to the scientific basis for the regulations (mercury is toxic, persistent, and bioaccumulative) because mercury species have been detected in landfill leachate and landfill gas. No changes to the proposed regulations are necessary to accommodate this finding. See also response to PR-UC-4 regarding similar comments and discussions on revising the Mercury Report.

PR-UC-*14: A statement regarding methylmercury toxicity and subsections on Health Effects and Public Health require references, better references, and should include more recent epidemiological studies, which are described in NRC (2000) report.*

DTSC accepts this finding. Accepting this finding does not affect the scientific portions of the regulations or the text of the regulations. Note that the peer reviewer's findings lend support to DTSC's findings that mercury is a toxic, bioaccumulative, and persistent chemical and strengthens the scientific basis of the regulations. (Refer to the peer reviewer's overall finding that the Mercury Report substantiates the scientific basis of the regulations in PR-UC-6.) Thus, no changes to the proposed regulations are necessary to accommodate this finding. See also response to PR-UC-3 regarding revising the Mercury Report to incorporate the findings of the peer reviewer into the report.

PR-UC-15: The general reason for bioaccumulation is poorly described given that in part, the proposed regulations are based that mercury is a bioaccumulative substance. Bioaccumulation is well described in general terms by several authors, including Boudou and Ribeyre (1997). Organic onomethylmercury is produced from inorganic mercury (II), a process thought to be carried out primarily by sulfate reducing bacteria in anoxic sediments.

DTSC accepts this finding in part. However, no changes to the proposed regulations are necessary to accommodate this finding. Elaborating on the mechanism for bioaccumulation in the Mercury Report does not change the fact that mercury does bioaccumulate; thus, does not affect the scientific basis of the regulations, which includes that mercury is a bioaccumulative chemical. See also response to PR-UC-5 regarding revisions to the Mercury Report.

PR-UC-16. In subsection I-2-D-2, Persistence: the concept of persistence could be better developed by mentioning what is encompassed by the biosphere and showing how the extraction of mercury resources increases the amount of mercury in the biosphere.

DTSC accepts this finding. Acceptance of this finding does not result in any changes to the scientific portions of the regulations, thus no regulatory changes are needed to accommodate this finding. As noted above in PR-UC-15, the better development of persistence in the Mercury Report does not change the fact that mercury is persistent and does not affect the scientific basis of the regulations, which includes that mercury is a persistent chemical. See also response to PR-UC-5 regarding revisions to the Mercury Report.

Section 2: Mercury's Chemistry and Toxicology – Human and Environmental Hazards

California State University, Chico (Dr. Marti Wolfe)

PR-CSU-3: "Wildlife are often attracted to landfills and small mammals and birds cannot be excluded by fences designed to keep out humans and large mammals. Wildlife may therefore be more at risk from mercury-containing landfill leachate." This statement (finding) is accompanied by a number of journal articles that were referenced by the peer reviewer.

DTSC accepts this finding. The peer reviewer's findings regarding mercury risks to wildlife reinforce and support DTSC's scientific basis for the Mercury Waste Classification and Management regulations, specifically that mercury (methylmercury) is a toxic, persistent, and bioaccumulative chemical substance. Thus, DTSC's scientific portions of the Mercury Waste Classification and Management Regulations do not require revision.

See also response to PR-CSU-1.

PR-CSU-4: Additional information is needed on mercury methylation in fresh water environments.

DTSC accepts this finding; however, it does not affect the scientific basis for the regulations. Additional information on how mercury methylates in fresh water environments does not change the fact that mercury methylation occurs in fresh water environments and would not affect the scientific basis for the regulations (mercury is

toxic, bioaccumulative, and persistent). No changes to the proposed regulations are necessary to accommodate this finding. See also response to PR-UC-4 regarding a similar finding and revisions to the Mercury Report.

PR-CSU-5: In marine water mercury methylation and uptake, "marine organisms may be at less risk from methylmercury due to co-exposure to selenium, which is antagonist to methylmercury, therefore providing protection." This statement (finding) is accompanied by a number of journal articles that were referenced by the peer reviewer.

DTSC accepts this finding; however, it does not affect the scientific basis for the regulations. No changes to the proposed regulations are necessary to accommodate this finding. See also similar finding and response to PR-CSU-4. Revising the Mercury Report to accommodate this finding is not required as discussed in PR-UC-3.

PR-CSU-6: Methymercruy toxicokinetics: "The half-life of mercury in seabirds has been estimated to be about 60 days (Monteiro, 1965)." This statement (finding) is referenced by the peer reviewer.

DTSC accepts this finding; however, it does not affect the scientific basis for the regulations. This statement (finding) supports and reinforces the scientific basis of the regulations in that it reflects the toxicological effects of mercury in seabirds. Thus, no changes to the proposed regulations are necessary to accommodate this finding. See also response to PR-UC-3 regarding revisions to the Mercury Report.

PR-CSU-7: Methylmercury toxic effects delays have been observed in second generations mallards.

DTSC accepts this finding. The peer reviewer's findings regarding mercury risks to wildlife reinforce and support DTSC's scientific basis for the Mercury Waste Classification and Management, specifically that mercury (methylmercury) is a toxic, persistent, and bioaccumulative chemical substance. Thus, DTSC scientific portions of the mercury waste classification and management regulations do not require revision.

See also response to PR-CSU-1.

PR-CSU-8: Wildlife impacts: Inorganic mercury has the greatest effect on kidneys. Methylmercury is a potent embryo and nervous system toxicant. Symptoms of acute methylmercury poisoning in birds include reduced food intake leading to weight loss, progressive weakness in wings and legs, difficulty flying, walking and standing and inability to coordinate muscle movements. This statement (finding) is referenced by the peer reviewer (Scheuhammer, 1987).

DTSC accepts this finding. The peer reviewer's findings regarding mercury risks to wildlife reinforce and support DTSC's scientific basis for the regulations. Thus, DTSC regulations do not require revision.

See also response to PR-CSU-1.

PR-CSU-9: Wildlife reproductive effects are one of the most sensitive toxicological responses, causing effects at very low dietary concentrations. Effects from mercury (methylmercury) exposure include embryo lethality to sublethal behavioral changes in juveniles at low dietary levels, reduced hatchability (due to early mortality of embryos), eggshell thinning, reduced clutch size, increased numbers of eggs laid outside the nest, aberrant behavior of juveniles, and potentially impaired hearing of juveniles. These statements (findings) are accompanied by a number of journal articles that were referenced by the peer reviewer.

DTSC accepts this finding. The peer reviewer's findings regarding mercury risks to wildlife reinforce and support DTSC's scientific basis for the regulations. Acceptance of this finding does not result in any changes to the scientific portions of the regulations, thus no regulatory changes are needed to accommodate this finding.

See also response to PR-CSU-1.

PR-CSU-10: Both mercury and methylmercury cause chromosome breakage, which is mitigated by selenium as reported in a number of studies. Methylmercury compounds were more active than inorganic mercury salts. These statements (findings) regarding genotoxicity are accompanied by a number of journal articles that were referenced by the peer reviewer.

DTSC accepts this finding. The peer reviewer's findings regarding mercury risks to wildlife reinforce and support DTSC's scientific basis for the regulations. Acceptance of this finding does not result in any changes to the scientific portions of the regulations, thus no regulatory changes are needed to accommodate this finding.

See also response to PR-CSU-1.

PR-CSU-11: Wildlife reference doses should be included in Table 2-9: Reference Doses (RfDs) and Reference Concentrations (RfCs) for Methylmercury.

DTSC accepts this finding; however, it does not affect the scientific basis for the regulations. Adding the wildlife reference doses to Table 2-9 adds information regarding wildlife mercury toxicity and supports the scientific basis of the regulations; that is,mercury is a toxic, bioaccumulative, and persistent chemical substance. Acceptance of this finding does not result in any changes to the scientific portions of the regulations, thus no regulatory changes are needed to accommodate this finding. See response to PR-UC-3 regarding revisions to the Mercury Report based on the findings of the peer reviewers.

PR-CSU-12: The key points in Section 2 should include wildlife impacts and that methylmercury bioaccumulates in both marine and freshwater food webs.

DTSC accepts this finding; however, it does not affect the scientific basis for the regulations. Thus, no changes to the proposed regulations are necessary to accommodate this finding. See also related responses to PR-CSU-4 and PR-CSU-5.

University of California, Santa Cruz (Dr. Russell Flegal)

PR-UC-17. This section contains numerous incorrect or circumspect statements regarding mercury's chemistry and toxicology and contains information irrelevant to DTSC's objectives. For example, gallium and cesium are not the only liquid metals that are liquids at room temperature. Effectively synthesizing information from the recent report by the National Research Council (NRC, 2000), Toxicological Effects of Methylmercury would have prevented these statements.

DTSC accepts this finding in part and has determined that this finding does not result in any changes to, nor does it affect the scientific portions of the regulations. Thus, no regulatory changes are needed to accommodate this finding.

DTSC accepts this finding in part because although the peer reviewer's example regarding gallium and cesium may be correct, the information does not affect the scope of the Mercury Report or its conclusions to support the regulations.

See also response PR-UC-5 regarding incorrect or circumspect statements. Also refer to PR-UC-6 regarding the peer reviewer's overall findings and conclusions about the Mercury Report.

PR-UC-18. The NRC, 2000 report also addresses the scientific controversies and uncertainties about acceptable levels of mercury exposure, notably in fish. This is important because of the emphasis on the potential hazards of mercury poisoning from contaminated fish consumption.

DTSC accepts this finding. Accepting this finding does not result in any changes to the scientific portions of the regulations, thus no regulatory changes are needed to accommodate this finding.

This finding reinforces and substantiates the scientific basis of the regulations; specifically that mercury is a toxic and bioaccumulative chemical. Revisions to the Mercury Report to support the scientific basis of the regulations is not necessary and is outside of the scope of the rulemaking package, as well as Health and Safety Code section 57004. See also response to PR-UC-3 for additional discussion on report revisions.

PR-UC-19. This section contains incorrect references: e.g., National Academy of Scientists should be National Academy of Sciences and the "Toxicological Effects of Methylmercury" was written by a National Research Council committee, not the National Academy of Sciences. A reference used is not in a peer reviewed scientific journal or an equivalent (Jones and Slotton, 1995, which the commenter believes should be 1996).

DTSC accepts this finding. Correcting reference citations would not change the Mercury Report's conclusions or the scientific basis of the regulations. Thus, acceptance of this finding does not result in any changes to the scientific portions of the regulations and no regulatory changes are needed to accommodate this finding.

Revising the Mercury Report is outside the scope of the rulemaking, as well as Health and Safety Code section 57004. See also response to PR-UC-3 for additional discussion on report revisions.

PR-UC-20. This section should emphasize studies on the biogeochemical cycle of mercury in California rather than on national or global reports.

DTSC accepts this finding. Emphasis on studies on the biogeochemical mercury cycle in California would not change the conclusion of the report or the scientific basis of the regulations; that is, mercury is toxic, bioaccumulative and persistent. The regulations would prevent additional releases of mercury into the environment within DTSC's authority.

Acceptance of this finding does not result in any changes to the scientific portions of the regulations, thus no regulatory changes are needed to accommodate this finding.

Section 3: Sources of Mercury in California's Environment

University of California, Santa Cruz (Dr. Russell Flegal)

PR-UC-21. This section's discussion would be strengthened by adding additional citations and relying less on two references; one of the references does not appear in a peer reviewed journal or equivalent and the other a fact sheet prepared by the United States Geological Survey.

DTSC accepts this finding. Acceptance of this finding does not result in any changes to the scientific portions of the regulations, thus no regulatory changes are needed to accommodate this finding. The peer reviewer's finding indicates that this section would be strengthened, but not that the section is inadequate. In fact, the peer reviewer has found that the Mercury Report adequately substantiates the regulations (see PR-UC-6).

PR-UC-22. This section could make use of atmospheric data in a report from the San Francisco Estuary Institute and the study by Hornberger et al. (1999), which provides insights into the history of mercury deposition in San Francisco Bay.

DTSC accepts this finding. However, accepting this finding does not result in any changes to the scientific portions of the regulations, thus no regulatory changes are needed to accommodate this finding. Adding more information and data to the Mercury Report does not change its conclusions or the scientific basis for the regulations. See related discussion in above response to PR-UC-21.

Section 5: Waste Contribution to the Mercury Environmental Burden

California State University, Chico (Dr. Marti Wolfe)

PR-CSU-13: The Table 5-3A is confusing because no units are given.

DTSC accepts this finding; however this finding does not result in any changes to the scientific portions of the regulations, thus no regulatory changes are needed to accommodate this finding.

While revising the Mercury Report (August 2002), based on this finding, would provide additional clarity to the report, it would not change the scientific basis of the proposed regulations: mercury is a toxic, persistent and bioaccumulative chemical substance. Thus, the scientific basis of the regulations are unaffected by this finding.

PR-CSU-14: Include a discussion on compact fluorescent tubes with a calculation to determine the potential decrease of mercury wastes and emissions with the increased use of compact fluorescent lamps in Section 5.

DTSC accepts this finding. Acceptance of this finding does not result in any changes to the scientific portions of the regulations, thus no regulatory changes are needed to accommodate this finding.

See response to PR-UC-4 regarding additional research.

University of California, Santa Cruz (Dr. Russell Flegal)

PR-UC-23. Estimates of waste contribution to the mercury environmental burden in California are based on linear extrapolations of national estimates by the United States Geological Survey and the United States Environmental Protection Agency, presumably because there are insufficient data for California. The extrapolations should not be reported to three significant figures.

DTSC accepts this finding and has determined that this finding does not result in any changes to the scientific portions of the regulations. Thus, no regulatory changes are needed to accommodate this finding. As noted by the peer reviewer, insufficient data exist for California. See response to PR-UC-3 for a similar finding.

PR-UC-24. Mercury data specific to California are derived from "personal communications" or "gray literature" with incomplete citations (e.g., Barron 2001), rather than publications in peer reviewed scientific journals or equivalents. Thus, DTSC's efforts to address mercury wastes in California are constrained by the unknown magnitude of those wastes.

DTSC accepts this finding in part and has determined that this finding does not result in any changes to the scientific portions of the regulations. Thus, no regulatory changes are needed to accommodate this finding.

DTSC accepts the finding regarding "gray literature" in part. See response to PR-UC-1 regarding the use of "gray literature."

PR-UC-25. The Key Points uses conclusions based on national assessments; more appropriate would be California specific information, such as 150 year duration of mercury mining operations in California, the amount of mercury derived from that activity, the amount of mercury imported into the state. This information would provide a better perspective of the historic legacy of mercury production in the state.

DTSC accepts this finding in part and has determined that this finding does not result in any changes to the scientific portions of the regulations. Thus, no regulatory changes are needed to accommodate this finding. This finding is a common theme throughout the peer reviewer's findings on the Mercury Report – more specific information on California is needed. See response to PR-UC-9 regarding mercury mining in California as it relates to the Mercury Report and the regulations.

PR-UC-26. The California waste-derived air emissions from the California Air Resources Board (Table 5-2) are not well referenced.

DTSC accepts this finding in part and has determined that this finding does not result in any changes to the scientific portions of the regulations. Thus, no regulatory changes are needed to accommodate this finding.

The report references the California Air Resources Board as the source of this information. In addition, it developed the emission data for DTSC's Mercury Report and provided some discussion on the emission data in Section 3. Note, upon consultation with the California Air Resources Board Tables 3-1 and 5-2 should be fully referenced as "California Air Resources Board CEIDARS database, year 2000 inventory."

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External Scientific Peer Review Report Comment Summaries and Responses:

Glen Brandenburg (San Diego State University)

PR-A-1: Incorporate mercury impacts to wildlife in the Final Mercury Report as suggested in Dr. Wolfe's peer review report as well as grammatical corrections.

DTSC has determined that changes to the Final Mercury Report to reflect the external scientific peer reviews are outside the scope of this rulemaking and are not required by Health and Safety Code section 57004, subdivision (d).

While revising the Mercury Report (August 2002), based on these findings, would provide additional information to support to the conclusions of the report and the regulations, it would not change the scientific basis of the proposed regulations: mercury is a toxic, persistent and bioaccumulative chemical substance.

PR-A-2: It seems imperative to the overall report to include, as Dr. Flegal suggests, more specific information about the mercury contamination in California.

DTSC has determined that changes to the Final Mercury Report to reflect the external scientific peer reviews are outside the scope of this rulemaking and are not required by Health and Safety Code section 57004, subdivision (d).

While revising the Mercury Report (August 2002), based on these findings, would provide additional information to support to the conclusions of the report and the regulations, it would not change the scientific basis of the proposed regulations: mercury is a toxic, persistent and bioaccumulative chemical substance.

Note that the peer reviewer's overarching finding (discussed in PR-UC-6) substantiates DTSC's regulations.

PR-A-3: Crucial to the credibility of the Mercury Report are Dr. Flegal's comments regarding the lack of underlying scientific studies not cited or referenced.

DTSC has determined that changes to the Final Mercury Report to reflect the external scientific peer reviews are outside the scope of this rulemaking and are not required by Health and Safety Code section 57004, subdivision (d). Full references would not affect the Mercury Report's discussions or conclusions and do not affect the scientific portions of the regulations, thus no regulatory changes are needed to accommodate this comment.

PR-A-4: Correct the "numerous statements that are circumspect or simply incorrect" as outlined by Dr. Flegal to insure the highest quality of the report.

External Scientific Peer Review Report Comment Summaries and Responses:

DTSC has determined that changes to the Final Mercury Report to reflect the external scientific peer reviews are outside the scope of this rulemaking and are not required by Health and Safety Code section 57004, subdivision (d).
See response to PR-UC-5, PR-UC-12 and PR-UC-17 regarding the peer reviewer's findings.

PR-A-5: Making additions and corrections is crucial to the acceptance and support for the Final Mercury Report.

DTSC has determined that changes to the Final Mercury Report to reflect the external scientific peer reviews are outside the scope of this rulemaking and are not required by Health and Safety Code section 57004, subdivision (d). Revising the Mercury Report to accommodate the peer reviewer's findings would not change the conclusion of the Mercury Report or change the scientific basis of the regulations.

15/3-E-12.1: Commenter noted severe criticisms submitted by Dr. A. Russell Flegal that are sufficiently deficient to abandon this proposal and that "there is a strong appearance that the Department is determined to adopt the proposed regulations regardless of the nature, content, or quality of any comments it may receive." Several examples of criticisms were noted from Dr. Flegal's peer review report, including the "most troubling" statement that "the regulations, it seems, will proceed regardless of a qualitative understanding of the potential impacts or benefits."

DTSC does not agree with the commenter's assertion. The commenter has taken the statements out of context by conveniently not acknowledging other statements and conclusions made by Dr. Flegal about the Mercury Report. No changes to the regulations are necessary to accommodate this comment.

Dr. Flegal's overall finding (discussed in PR-UC-6) substantiates the scientific basis of the regulations and their goal, which is to encourage pollution prevention (source reduction and recycling) in order to further control environmental releases of mercury. The commenter is referred to DTSC's responses to the external scientific peer reviewer's findings for additional discussions.

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Mercury Waste Classification and Management Regulations: R-02-04: 15-Day Public Notice (11/20/02 – 12/5/02) Comment Summaries and Responses:

Commenter 15/2-A: Chuan-Hai Teh (Micro Metallics)

15/2-A-1: *Commenter submitted a letter that duplicates an email received on November 20, 2002, addressing the first 15 Day Notice of Changes.*

See comments and responses for commenter 15-E.

Commenter 15-2-B: Michael F. Ziff, DDS, International Academy of Oral Medicine and Toxicology

15/2-B-1: *DTSC should address the contribution of Dental mercury to environmental pollution and further states that dental amalgam contains 42-50% mercury that is continuously released from the amalgam and is a contributory factor to environmental pollution.*

The analysis of sources of mercury in California's environment reflects the best scientific understanding of the contribution of dental amalgam to the mercury loading in the environment. Moreover, DTSC has addressed this problem to the extent of its authorities by simplifying and streamlining the standards for managing hazardous waste dental amalgam. This simplification and streamlining is accomplished by designating hazardous waste dental amalgam as a universal waste. DTSC does not have authority to regulate dental amalgam while it is being used for its intended purpose and therefore cannot take steps independently to reduce the release from amalgam in teeth.

15/2-B-2: *"Studies … have shown that dentistry contributes 14-75% of the total environmental mercury."*

DTSC acknowledges the information. See the response to comment 15/2-B-1 for further discussion of the steps that DTSC is taking to address this issue and the limitations on DTSC's authority.

15/2-B-3: *Legislation has been introduced at the state and federal level with the intent of phasing out the use of mercury dental fillings.*

DTSC acknowledges this information.

15/2-B-4: *Mercury is highly toxic, is of great concern to the environment, is released from dental amalgam, and is a substantial contributor to environmental mercury pollution; urges the "utmost consideration."*

DTSC concurs with the commenter's assessment of the threats offered by mercury in the environment. See the response to 15/2-B-1, 15/2-B-2 and 15/2-B-3 for discussion of DTSC's actions to control mercury from dental amalgam and the limitations of DTSC's authority to regulate the use of dental amalgam.

Commenter 15/2-C: M. Anthony Collins, Ph.D. (Decision Analysis Impact Consultant)

15/2-C-1: *Opposes to the deletion of references to OSHA and Cal/OSHA requirements. The proposed regulations should be consistent with 40 CFR 262.34 (d)(5) et.Seq.*

DTSC has deleted the references to the OSHA and Cal/OSHA requirements for reasons stated in the Final Statement of Reasons. DTSC does not agree that the reference to Cal/OSHA should be retained.

DTSC has exempted universal wastes from many of the prescriptive standards of the general hazardous waste control regulations and statutes. Exemption is necessary to allow simple and efficient management of these universally generated waste. DTSC determined, as the U.S. EPA determined in adopting the federal Universal Waste Rule, that application of prescriptive standards for such a vast universe of generators would promote illegal disposal rather than protective management.

15/2-C-2: *Ambiguity, and a potential loophole, is introduced into the proposed regulation when the term "persons" is used without incorporating a definition of the term in the text of the document.*

A definition of "person" is included in section 66260.10 and in Health and Safety Code section 25118. It is not necessary to repeat the definition in the special definitions for the Universal Waste Rule, section 66273.9. The commenter and other readers are referred to those definitions of "person".

15/2-C-3: *"What is DTSC's position regarding omitting referenced sections and subsections?"*

DTSC is required by the Government Code to show the full text of all changes to the regulations. However, there is no requirement to show text of regulations that are not affected by the rulemaking. It is necessary to show not only the actual subsection, paragraph, subparagraph, etc. being added, repealed, or modified, but to also show any superior provisions that must be read to understand and assess the impacts of the changes. However, it is not necessary to show all text of each affected section because to do so would often include large unnecessary volumes of text that would detract from commenters' ability to understand and assess the changes being made.

Note that the full text of sections that are not being changed is available in both printed and online copies of the California Code of Regulations. Links to electronic versions can be found on DTSC's website, www.dtsc.ca.gov, under "Laws, Regulations, and Policies" in the menu on the left hand side of the page.

15/2-C-4: *Opposes the extension of the February 9, 2004 deadline to 2006. The extension rewards the "bad management practices" of industry by saving them money to the detriment of children and the elderly.*

As discussed in further detail in the Final Statement of Reasons, the date (the effective date for the M002 listing for appliances containing mercury-containing switches) is being extended because there is no easily available information regarding the presence, number, locations, and removal methods for the mercury switches in the myriad of types, brands, models, and ages of appliances and other products potentially containing mercury switches. Thus, a scrap metal dealer would be unable to determine his/her compliance status and could not be assured of compliance. By moving out the date, DTSC is allowing the industry and other groups to develop this guidance. This date gives the appliance recycling industry time to develop needed guidance, but puts the industry on notice that such guidance must be developed.

15/2-C-5: *Commenter highlights the toxicology, pathways, and health effects of mercury exposure*.

DTSC acknowledges the information. DTSC clearly understands these issues and clearly understands their import. Note that they make up part of the scientific basis for this rulemaking and the standards adopted are intended to at least partially address the problems highlighted in this comment.

Commenter 15/2-D: S. Ward Eccles, DDS

15/2-D-1: *The "best techniques" advocated by "organized dentistry and the California Dental Association" do not occur in every day dental practice; as a result, the bulk of excess new mercury amalgam and old mercury amalgam removed from teeth is vacuumed into suction and discharged into the sewer.*

DTSC is adopting these regulations to make environmentally protective management of waste dental amalgam simpler and more efficient. DTSC believes that simplifying the management standards commensurate with the risks posed by the waste will induce more dentists to properly manage waste amalgam.

Further, educational outreach is planned to all universal waste generators to publicize both the new regulatory standards and the need to properly manage these wastes.

Lastly, enforcement can be used to ensure that these wastes are properly managed. Note that discharge of wastewater containing more than traces of dental amalgam would be identified as hazardous waste due to both the soluble and suspended mercury

and silver content. Discharge of hazardous waste to the sewers without authorization is illegal disposal, chargeable as a felony in California and subject to fines and/or imprisonment.

However, enforcement of the standards is governed by article 8 of chapter 6.5 of division 20 of the California Health and Safety Code; it is not necessary to address enforcement in these regulations.

15/2-D-2: *Advocates the use of amalgam separators, and, find their use simple and economical*.

DTSC agrees that the use of amalgam separators will become necessary to separate amalgam fines from dental wastewaters. In fact, technology capable of finer filtration may be necessary to bring mercury levels in dental wastewaters below hazardous waste thresholds. However, requiring the use of amalgam separators to treat wastewaters is beyond the scope of this regulation, although it can be addressed in future rulemakings.

Commenter 15/2-E: William P. Galaros, DDS (American Academy of Biological Dentistry)

15/2-E-1: T*here are three important issues regarding mercury amalgam: dentistry is divided over the issue, the California Dental Association does not speak for the ordinary dentist, and the public does not support mercury fillings.*

DTSC acknowledges the information. However, the comment is interpreted as requesting that DTSC ban the use of amalgam fillings. This action, as discussed in the response to numerous comments for the 45-Day Public Review and Comment Period and the first 15-Day Notice of Changes, is outside the authority of DTSC to adopt regulations.

15/2-E-2: V*oluntarism will not work. Rules must be imposed to deal with mercury wastes generated in dental offices. Advocates a requirement that every dental office must install an amalgam separator.*

DTSC agrees that voluntarism does not generate as much environmental protection as regulatory requirements as has been stated in response to many similar comments.

However, as discussed in more detail in the response to comment 15/2-D-1 and 15/2-D-2 above, is not addressing treatment of dental wastewaters in this rulemaking.

Commenter 15/2-F: Elisabeth Carlson

15/2-F-1: *Commenter expresses her disappointment that the proposed regulations do not require amalgam separators, do not require dentists to document mercury use and disposal, and do not impose penalties for non-compliance.*

For discussion of the recommendation to require amalgam separators, see the responses to comments 15/2-D-1 and 15/2-D-2. Note that these regulations do require a level of documentation of waste amalgam management. However, DTSC has no authority to require recordkeeping for the use of amalgam as a product. Note that there are significant penalties for non-compliance with the hazardous waste control laws, including the State's Universal Waste Rule, and that these final regulations include enforcement authority restored or adopted by emergency regulation.

15/2-F-2: *Dentists should be required to use amalgam separators*.

For discussion of the recommendation to require amalgam separators, see the responses to comments 15/2-D-1 and 15/2-D-2.

15/2-F-3: *"American dentists are the leading cause of mercury in wastewater."*

DTSC acknowledges this comment. DTSC is adopting these regulations to make environmentally protective management of waste dental amalgam simpler and more efficient. DTSC believes that simplifying the management standards will induce more dentists to properly manage waste amalgam. These regulations are not intended, however, to change the State's regulations for discharge and/or treatment of wastewater. Thus, requiring amalgam separators is beyond the scope of this rulemaking.

Enforcement can be used to ensure that these wastes are properly managed. The discharge of wastewater containing more than traces of dental amalgam would be identified as illegal discharge of a waste that is hazardous due to both the soluble and suspended mercury and silver content. Discharge of hazardous waste to the sewers without authorization is illegal disposal, chargeable as a felony in California and subject to strict fines and/or imprisonment.

15/2-F-4: *Commenter attached a copy of a document prepared by the Stockholm Water Company that discusses measures it has taken to reduce the influx of mercury to wastewater sludge. Document is attached.*

DTSC agrees that the measures discussed in the Stockholm Water Company paper would greatly reduce the amount of mercury both in sewage sludge and in wastewaters discharged by the POTWs. However, as discussed in numerous comments above (for instance, 15/2-D-1, 15/2-D-2, and 15/2-F-3), mandating treatment of wastewaters is beyond the scope of this rule. Note that the designation of dental amalgam wastes as universal waste is intended to promote proper management of amalgam wastes such as

separator sludges. Thus, this rulemaking does represent a step towards removal of amalgam residues from wastewater.

15/2-F-5: *Mercury separators should be required at crematories.*

It is unclear that mercury separators as used in dental offices would be applicable to crematoriums. An air treatment unit to capture gaseous mercury emissions would be needed to remove mercury from the gaseous exhaust. Uncontained gases, such as crematorium exhausts are expressly excluded from classification as wastes in Health and Safety Code section 25124 and as defined in section 25110.11.

The removal of fillings prior to cremation, is beyond the scope of this rule.

15/2-F-6: *"The only proper solution is to end the use of mercury by all dentists" by phasing out amalgam use over the next three years.*

See the response to comment 15/2-E-1.

15/2-F-7: *The pipes in and under buildings occupied by dentists should be regulated.*

The pipes in and under buildings are regulated by several agencies. First, leakage from sewer pipes that could potentially release mercury from amalgam wastes is regulated by the State's water quality agencies. Any released material is regulated as waste requiring cleanup by both DTSC and the State's water quality agencies and many local agencies have cleanup authority. The piping is regulated by the State's water quality agencies and by the local publicly owned treatment works for the chemistry of the waste water discharges. The wastewater discharges are further regulated by DTSC if the discharges exhibit a characteristic of a hazardous waste.

Sewer piping associated with dental offices and clinics is beyond the scope of this rulemaking.

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15-Day Public Notice
(11/26/02 – 12/10/02)
Comment Summaries and Responses

Mercury Waste Classification and Management Regulations: R-02-04 15-day Public Notice (11/26/02 – 12/10/02) Comment Summaries and Responses:

15/3-A **Charles G. Brown**
Coalition to Abolish Mercury Dental Fillings

15/3-A-1 *Please require amalgam separators for all dentists.*

See response to comment DD-3, incorporated herein, for the response to this comment.

15/3-A-2 "Please phase out *mercury fillings in three years."*

DTSC acknowledges the comment. However, the action requested by the commenter is outside both the scope of this rulemaking and the authority granted to DTSC.

15/3-A-3 T*he information contained in a Journal of the California Dental Association (CDA) article titled "Dentistry, Amalgam, and Pollution Prevention" "is sharply at odds with CDA's written and oral testimony."*

While DTSC acknowledges the comment, the comment does not identify objections or suggestions that are germane to this rulemaking.

15/3-A-4 *Commenter summarizes the article identified in 15/3-A-3 and highlights 16 points that make the article "one of the best arguments there could be for abolishing mercury dental fillings."*

DTSC acknowledges the information. However, abolishing mercury dental fillings is outside both the scope of this rulemaking and the authority granted to DTSC.

15/3-B **Mary Ann Newell**

15/3-B-1 S*upports the "mandatory use of amalgam separators for all dental offices" because voluntary use "does not work."*

See responses to comments DD-3 and B-4, incorporated herein, for the response to this comment.

15/3-B-2 *Commenter attached a copy of an April 23, 2001 letter from Denise Laflamme, MS Toxicologist, Department of Health, Washington State to the Program Manager of Washington State's Department of Ecology in which Ms. Laflamme summarizes her findings of a literature survey regarding mercury dental amalgam.*

This letter is evidence of the failures of "voluntary" programs that result in the improper disposal of mercury amalgam wastes.

DTSC acknowledges the information. DTSC agrees that voluntarism does not generate as much environmental protection as regulatory requirements. However, compliance with existing prohibitions on disposal of hazardous waste, such as unauthorized disposal of mercury amalgam wastes is not a voluntary issue. DTSC and the CUPAs have the authority to inspect dentists to enforce the law and regulations related to hazardous waste. See also the responses to comments DD-3, B-4, and E-6, incorporated herein, for additional response to this comment.

15/3-B-3 *Commenter attached a copy of an article published in the Oregonian on January 22, 1999 titled "Dentists, city reach recycling deal." the article is evidence that "some dentists admit a voluntary program will not work."*

DTSC acknowledges the information. See responses to comments 15/3-B-2, DD-3, B-4, and E-6, incorporated herein, for the response to this comment.

15/3-B-4 *Commenter attached a copy of an application for a Washington State Department of Ecology Waste Prevention, Reduction, and Recycling Annual Award from Gen Tech Dentists dated March 13, 2000. Commenter points out the applicant's statement that most dentists dispose of waste mercury amalgam waste in a "careless and irresponsible" manner.*

DTSC acknowledges the information provided by the commenter.

15/3-C **Jared Blumenfeld**
San Francisco County Department of the Environment

15/3-C-1 T*he San Francisco Department of the Environment supports regulation that would mandate the installation of amalgam separators for all dental offices. This requirement is necessary because dental offices contribute half of all mercury entering wastewater, amalgam separators would prevent 95% of dental office waste mercury from entering wastewater, voluntary programs in San Francisco have not worked, a mandatory program in Toronto resulted in a 58% reduction in the amount of mercury entering wastewater, and existing mercury contamination levels in the San Francisco Bay require that all possible pollution prevention practices are put in place for all sectors contributing to the problem.*

See responses to comments DD-3 and B-4, incorporated herein for the response to this comment.

15/3-D **Charles A. White, P.E.**
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15/3-D-1 We *support the deletion of paragraph 4 of subdivision (b) of 66261.3 because "It is virtually impossible for a solid waste service provider to identify every waste that may house a mercury-containing device…"*

DTSC acknowledges the support offered by the commenter.

15/3-D-2 We *support the inclusion of new paragraph 5 of subdivision (b) of section 66261.3(b).*

DTSC acknowledges the support offered by the commenter.

15/3-E **Gene Erbin**
Nielsen, Merksamer, Parrinello, Mueller & Naylor, LLP
(representing Philips Lighting Company)

15/3-E-1 Philips *opposes the Department's proposal and "recommends retention (and modification) of the TTLC test" or, alternatively, "endorses the recommendation made by Mr. Mark Murray…" of Californian's Against Waste.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. While expressing his support of the M003 listing of all mercury-added lamps as hazardous wastes, Mr. Murray proposed at the public hearing on these regulations that the TTLC be retained "for the purposes of product labeling, marketing, procurement ….", not as an alternative to the M003 listing. In Philips' September 30, 2002 written comments on the 45-Day public notice, Philips expressed support for Mr. Murray's proposal. For discussion of this proposal, please see the response to comment T-47 in the responses to the written 45-day comments, and response to comment HM-8 in the response to oral comments made at the public hearing, incorporated herein.

15/3-E-2 Philips *objects to "The Department's decision to circulate its proposed revisions for only 15 days, and not 45 days". "The Initial Statement of Reasons relies on the delayed implementation date and clearly delineates several persuasive reasons for proposing a February 9, 2006 listing date." There revisions "represent a sudden and unwarranted departure from the Department's previously articulated position" and" do not qualify for 15-day review."*

DTSC has reviewed this comment and determined that no regulatory change is necessary. This revision to section 66261.50 could be expected, is warranted, is consistent with DTSC's previously articulated position and qualifies for 15-day review for reasons explained below.

DTSC has shortened the delay between adoption of the regulations and the effective date of the M003 *listing* as presented in the originally proposed regulations. DTSC has not shortened the delay of the exemption from requirements to *manage* M003 waste as universal or hazardous waste for households and Conditionally Exempt Small Quantity Universal Waste Generators (CESQUWGs). Thus, DTSC has not departed from the concept of a delay of the effective date for the listing or management requirements for households and CESQUWGs. DTSC has merely shortened the delay for the effective date of the listing. This change is consistent with, and is only a variation on, DTSC's original approach.

The change in the effective date for the listing from 2006 to 2004 is warranted and not sudden or unexpected. The effective date of 2006 for the M003 listing was included in the original text of section 66261.50 and DTSC made the text available for public comment. A number of comments suggested changing the originally proposed effective date. Suggestions ranged from deleting the delay of the implementation date (shortening the delay) to never having implementation (lengthening the delay). These suggestions show commenters were certainly aware of and could expect there might be change in the effective date. Therefore, proposing a change from 2006 to 2004 for the effective date for the M003 listing complies with the requirement in Government Code section 11346.8, subdivision (c) that a change be "sufficiently related to the original text that the public was adequately placed on notice that the change could result from the originally proposed regulatory action".

Subdivision (c) of Government Code section 11346.8 requires a sufficiently related change to be made available to the public for at least 15 days before adoption. DTSC has complied with the statute by making the change in the effective date of the listing available for at least 15 days.

15/3-E-3 *"It is unreasonable, unfair, and illegal for the Department to abandon its own analysis and preferred explanation without the opportunity for full and informed discussion."*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC's change is consistent with its analysis and explanation for the delayed implementation dates. See response to comment 15/3-E-2 above, incorporated herein. The following discussion provides additional support for the change and responds further to this comment.

In the Initial Statement of Reasons, DTSC explained its rationale for delaying the implementation of the M003 listing until 2006. Reasons for the delay included:

- To allow time to educate the generators of lamps that currently are not classified as hazardous about the change in the lamps' status;
- To allow time for generators to prepare for the proper disposition of all mercury-containing lamps;
- To allow time for the development of the collection infrastructure.

DTSC changed the effective date of the M003 listing in response to comments that a three year delay was too long and was not needed to educate the public that every fluorescent tube was regulated as hazardous waste (the first reason for the delay).

Also, DTSC has determined that a three-year delay in the listing is not needed for the purpose of developing a collection infrastructure for lamps generated by households and CESQUWGs (the second and third reasons listed above for the delay). While currently non-hazardous lamps will become subject to the universal waste management standards in 2004, the regulations allow eligible households and CESQUWGs to continue to dispose of these lamps as non-hazardous waste until 2006, under the existing temporary disposal exemptions. These existing exemptions will allow time for smaller generators to prepare for the proper disposition of all mercury-containing lamps and for the development of the collection infrastructure. (See the discussion of the M003 listing in the Final Statement of Reasons.)

Further, two commenters representing the lamp recycling industry stated in their comments on the original proposal that adequate capacity already exists to recycle all of California's waste fluorescent lamps that can be diverted from municipal landfills. These comments confirm DTSC's pre-existing knowledge about the adequate recycling capacity. (See response to comment T-28 (45- Day Notice), incorporated herein.) Larger generators already have collection systems readily available. Thus, larger generators do not need a lengthy delay for listing or a temporary disposal exemption. See responses to comments C-8, and T-9.1 in the responses to the written 45-day comments, incorporated herein.

For reasons discussed in this response, DTSC has not "abandoned its own analysis," as the commenter asserts. Rather, DTSC has modified the original proposal in response to information and comments submitted during the 45-Day public comment period.

15/3-E-4 T*here is no evidence to support "the earlier listing date," and there is no significant evidence that recycling capacity and infrastructure exist to handle the increased lamp recycling that would result from the earlier listing date. Philips also questions the environmental record and current economic and operational strength of recycling companies.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. Substantial evidence in the record supports the earlier listing date and shows that adequate recycling capacity and infrastructure exist to support the earlier listing date. (See response to comments 15/3 E-2 and E-3 above (listing date) and response to comment T-28 (adequacy of recycling capacity and infrastructure) (45 Day Notice), incorporated herein.) Evidence in the record shows there are recycling companies that are capable and willing to expand their operations to accommodate more lamps. Philips' question about the environmental record of recycling companies is speculative and does not provide enough information to allow DTSC to specifically respond. The info information previously provided by Philips concerned an out-of-state recycler that was not included in DTSC's determination that adequate capacity currently exists to recycle the fluorescent lamps generated in California. However, if Philips has more specific information or concerns in the future, it can file a complaint with DTSC's Statewide Compliance Division.

15/3-E-5 *"There is compelling evidence in the record endorsing source reduction" and the Department has engaged in "over-reliance on recycling." There is no professionally informed testimony rebutting these claims."*

DTSC has reviewed this comment and determined that no regulatory change is needed. These regulations will encourage manufacturers wishing to market lamps that can be disposed of as non-hazardous waste to develop and produce new types of high-efficiency lamps that are entirely free of mercury. The use of the TTLC to classify waste lamps as hazardous or nonhazardous does not provide this incentive. See the responses to comments T-5, T-18, and T-24 in the responses to the written 45-day comments, incorporated herein, for a more detailed discussion.
DTSC does not agree that:

- The M003 listing over-relies on recycling at the expense of source reduction;

- The M003 listing designates all mercury-containing lamps as hazardous waste;

- The Universal Waste Rule encourages lamp recycling, by requiring it in order for lamps to be eligible for universal waste management;
- Until new types of high efficiency mercury-free lamps are developed and available, recycling is preferable to disposal;.
- The tables in the appendix to the responses to the 45-day written comments, incorporated herein, clearly show that raising the lamp recycling rate, even if the lamps are higher in mercury, will reduce releases of mercury more than will reducing the average mercury content of lamps and maintaining the current 20 percent recycling rate.

As noted in the responses to 45-day written comments T-5, T-18, and T-24, incorporated herein, the M003 listing promotes source reduction in a way that the current use of the TTLC does not. The "compelling evidence" to which the commenter refers is, presumably, the analysis by Roux Associates. DTSC does not agree with the assumptions Roux uses in calculating the impact of these regulations on environmental mercury loading in California. Please see the response to 45-day written comment T-36 for discussion, incorporated herein.

DTSC and Cal/EPA staff composed of professional engineers, toxicologists, scientists and economists prepared the Mercury Report, the Initial and Final Statement of Reasons, the regulations, other background documents and responses to comments. Similarly qualified persons prepared DTSC's Universal Waste Rule regulation package. These professionally informed individuals have rebutted the claims Philips asserts in this comment.

15/3-E-6 *DTSC has ignored analytical studies indicating that recycling rates would have to triple to achieve the same reduction in mercury emissions as achieved by the current TTLC.*

DTSC has reviewed this comment and determined that no regulatory change is needed. DTSC has not ignored the analytical studies (Presumably the commentor is referencing the studies submitted by Roux Associates) of the effect of recycling rates on mercury releases. DTSC has reviewed and commented on the analysis in the summaries and responses for the written 45-day comments, incorporated herein.

DTSC acknowledges that the recycling rate must increase significantly if the needed reductions in mercury releases are to be realized. Minnesota has

attained a 70 percent recycling rate[1] by prohibiting the nonhazardous disposal of fluorescent lamps; fluorescent lamps must either be recycled or managed and disposed of as hazardous waste. The M003 listing is a necessary prerequisite for California to reach, or exceed, Minnesota's recycling rate. The M003 listing will classify all waste mercury-added lamps as hazardous wastes, but as universal wastes, they will be exempted from all but a few simple management requirements provided they are recycled. The following factors will allow California to attain (or exceed) a 70 percent recycling rate:

- The M003 listing, which will require recycling of all mercury-added lamps that are managed as universal wastes;
- The February 9, 2004, reduction in the temporary disposal exemption for lamps generated by Conditionally Exempt Small Quantity Universal Waste Generators (CESQUWGs) to no more than 30 lamps per month;
- The February 9, 2006 sunset of the temporary disposal exemptions for lamps generated by households and CESQUWGs; after that date, all lamps will be required to be recycled or managed and disposed as hazardous wastes; Any nonhazardous disposal after this date will be a violation of hazardous waste requirements;
- The implementation of a collection infrastructure for universal wastes generated by households and CESQUWGs, which is currently being developed by the Cal/EPA Universal Waste Infrastructure Workgroup; and
- Education and outreach on the changes in the requirements for managing waste mercury-containing lamps.

The tables in the appendix to the written 45-day comments and responses, incorporated herein, illustrate that under the plausible scenario in which 70 percent of lamps are recycled, less mercury would be released to the state's environment than under the unlikely scenario that all manufacturers would reduce the mercury content of their lamps to the levels used by Philips ALTO lamps, and the current recycling rate would remain unchanged. See the response to comment 15/3-E-5, above, incorporated herein.

15/3-E-7 *At the September 30, 2002 hearing a proposal was made to retain the TTLC "as a means of designating low mercury lamps for the purposes of product labeling, for marketing, and procurement preferences…" In a September 30, 2002 letter, Philips Lighting Company expressed its interest in seriously exploring this option. "Because our request has apparently been denied, Philips now requests, pursuant to Government Code Section 11346.8(e), additional time...before the Department takes final action."*

[1] January 28, 2002 letter from Mr. Paul Walitsky, C.H.M.M., Manager of Environmental Affairs for Philips Lighting Company to Mr. Ed Lowry, Director of the Department of Toxic Substances Control, page 3.

DTSC considered the option to retain the TTLC for labeling and marketing lamps in the context of these regulations and determined that it is beyond its authority and beyond the scope of this rulemaking. See the response to public hearing comment HM-8 for DTSC's response to the proposal. Nonetheless, DTSC is always willing to work with interested parties on proposals to reduce pollution. Therefore, as discussed in response to public hearing comment HM-8, DTSC is willing to work with Mr. Murray, Philips and other interested parties in 2003 on ways that the TTLC can be used to educate the public on the content of hazardous constituents in products that may be disposed. It is important to stress however, that DTSC is not authorized to regulate products.

Philips did not explicitly request additional time to explore the proposal in its September 30, 2002 comment letter. The letter stated "the law requires DTSC to seriously explore this alternative" (see response to public hearing comment HM-8) and that "[it] is incumbent upon the Department to pursue this legitimate alternative." For reasons discussed in the response to hearing comment HM-8, incorporated herein, DTSC has not pursued the alternative further at this time.

Now that the commenter is formally requesting "additional time to respond to [Mr. Murray's] new issue…," DTSC has considered granting this request, pursuant to subdivision (e) of section 11346.8 of the Government Code.[2] However, given that the suggestion is both beyond the scope of this rulemaking and beyond DTSC's authority to adopt, DTSC has determined the commenter's request is not practical and therefore, DTSC must deny the request.

15/3-E-8 *Philips Lighting Company is "at an extreme (and prejudicial) disadvantage at this stage of the regulatory process" because "it has no access to the Department's most recent reasoning." This is "because the Department has obviously discarded its previously announced position". "Is the Department's refusal to adhere to [Government Code] section 11346.8 a product of the [Health and Safety Code] section 25250.6 deadline?"*

First, contrary to its assertion in the comment, Philips has had access to DTSC's most recent thinking. The 45-Day and 15-Day public notices clearly stated that interested parties can contact DTSC personnel with inquiries. Names and

[2] Subdivision (e) of Government Code section 11346.8 states:

> (e) If a comment made at a public hearing raises a new issue concerning a proposed regulation and a member of the public requests additional time to respond to the new issue before the state agency takes final action, it is the intent of the Legislature that rulemaking agencies consider granting the request for additional time if, under the circumstances, granting the request is practical and does not unduly delay action on the regulation.

telephone numbers of specific staff persons were provided in the notices. Philips' representative has contacted various DTSC personnel since the public hearing and has made copies of numerous documents in the file. Thus, Philips' claim that it is at an "extreme and prejudicial disadvantage" due to lack of access is erroneous.

Reasons for the original proposal were explained in the ISOR and supporting documents. The changes in the regulations from the original proposal are fully accounted for and explained in the Final Statement of Reasons, as required by subdivision (a), paragraph (1) of section 11346.9 of the Government Code. As discussed above in responses to comments 15/3 E-2 and E-3, incorporated herein, DTSC complied with Government Code section 11346.8, subdivision (c) and made the changes available for comment for 15 days and DTSC has responded to all comments.

Second, Philips' assertion that DTSC has "discarded" its previous position is also erroneous. (See responses to comments 15/3 E-2 and E-3, incorporated herein.) The original proposal to list all mercury-added lamps waste as hazardous waste has been retained, not discarded. The concept of a delay in the effective date of the listing for M003 waste has been retained, not discarded. The concept of an exemption until 2006 for households and CESQUWGs to manage M003 waste as hazardous (or universal) waste has been retained, not discarded. The only change is that the delay in the effective date for the M003 listing has been reduced from 2006 to 2004.

The effective date for the M003 listing was changed in response to comments received during the 45 day comment period. All effective dates (and delays) were open for comment, and DTSC received a number of suggestions to change or eliminate altogether the effective date for the M003 listing. As discussed above in responses to comments 15/3 E-2 and E-3, this change is "sufficiently related to the original text that the public was adequately placed on notice that the change could result from the originally proposed regulatory action." (Gov. Code § 11346.8, subd. (c).)

Philips' assertion that DTSC has not adhered with section 11346.8 due to Health and Safety Code section 25150.6 (or any other deadline for that matter) is erroneous. The authority for listing M003 wastes rests with Health and Safety Code sections 25140 and 25141, <u>not</u> section 25150.6. Sections 25140 and 25141 do not have expiration dates. Furthermore, DTSC is not adopting universal waste standards for lamps pursuant to section 25150.6. The universal waste management standards for lamps are *already* in the Universal Waste Rule, which was adopted in early 2002. Subdivision (g) of section 25150.6 includes the sunset date and states:

> "This subdivision does not invalidate any regulation adopted pursuant to this section prior to the expiration of the Department's authority." (Emphasis added.)

In conclusion, DTSC has fully complied with Government Code 11346.8, for the change to the effective date of the M003 listing. DTSC has also already complied with the deadline in Health and Safety Code section 25150.6 for designating universal waste standards for mercury-containing lamps.

15/3-E-9 *Philips Lighting Company has previously submitted a demonstration of "the Department's lack of compliance with section 25179.4" This section contains a mandate to "first promote reduction of hazardous waste and, secondly, recycling of hazardous waste." Without convincing evidence, the Department has inverted statutory priorities, and with the revised proposal, has accelerated and magnified "the illegality of the Department's original proposal."*

Listing of waste is authorized and mandated by Health and Safety Code sections 25140 and 25141. Hazardous waste must be identified in order to determine whether the generation is being reduced. Far from inverting its priorities, the listing of mercury-added waste lamps as hazardous wastes, and encouraging recycling over disposal through designation as universal waste is fully consistent with section 25179.4 of the Health and Safety Code. See the responses to 45-day written comments NN-2, T-2, T-5, T-22, T-23, T-24, T-26, T-28 T-47, and T-48 (45-Day Notice), incorporated herein, for discussion.

In addition to demonstrating that the M003 listing is consistent with the priorities of section 25179.4, DTSC provides "convincing evidence" that the listing of mercury-added waste lamps as hazardous waste will produce greater reductions in the release of mercury to California's environment than would continuing to use the TTLC to classify lamps. See the tables in the appendix to the 45-day written comments, incorporated herein. For all of the above stated reasons, DTSC's proposal complies with applicable laws.

15/3-E-10 *Philips Lighting Company has previously submitted large volumes of analytical and documented evidence supporting the retention of the TTLC and demonstrating that reliance on recycling is misplaced. "Green Seal recommends that concerned persons and entities only purchase fluorescent lamps that pass the TTLC test." The commenter attached a copy of Green Seal's "Choose Green Report" and a copy of Green Seal's website (www.greanseal.org/about.htm). Considering the "extraordinary*

evidence" in the record, section 25179.4 "prohibits the Department from proceeding on the basis of insubstantial evidence."

DTSC has elsewhere responded to the documents submitted by the commenter in support of his arguments against the M003 listing (see the responses to the written 45-day comments and also the response to comment 15/3-E-6, above, incorporated herein). The listing of mercury-added lamps as hazardous wastes was proposed in the 45-day public notice, and it has been retained in the revised regulations. Subdivision (c) of Government Code section 11346.8 requires DTSC to respond only to written comments received regarding a change from the original proposal. In the revised regulations circulated in the 15-Day Notice, the scope of the listing has been changed; only lamps with intentionally-added mercury are now covered under the M003 listing. The effective date of the listing has also been changed, from February 9, 2006 to February 9, 2004. Thus, DTSC is required to respond (and has responded) to any comments received on either of these topics. However, because the listing itself was proposed in the 45-day notice and has not changed since then, comments on the listing in general are beyond the scope of this public notice.

DTSC has reviewed the Green Seal documents submitted as comments on the 15-day changes to the originally proposed text, and has determined that no regulatory change is necessary. DTSC does not regulate the marketing of products, and these regulations do not preclude Green Seal from continuing to encourage the use of low-mercury lamps. See the responses to comments T-39 and T-47 in the 45-day written comments and responses, incorporated herein.

15/3-E-11 *"The record, upon which the Department presumably relies, is riddled with inconsistencies and errors."The Department has made no attempt to correct these errors, and, therefore, is proceeding without accurate and consistent answers to even rudimentary questions. These errors are so significant that they could not be corrected in a Final Statement of Reasons.*

DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC has responded to all of the comments submitted during the public comment periods for this rulemaking, including comments that allege errors and inconsistencies in the record. The commenter asserts that the record is “riddled with inconsistencies and errors.” DTSC cannot speculate as to which elements of the record the commenter disputes, other than those cited in his comments. In his comments on this 15-Day Public Notice of Post-Hearing Changes, the commenter objects to the following statements:

- Statements in Fiscal Impact Analysis (page 10) and the Economic Impact Analysis (page 9) for these regulations the low-mercury lamps "are more expensive to manufacture and sell at a premium price of 1.25 to 1.5 times the cost of other lamps."

The commenter submitted this comment during the 45-day public comment on these regulations. DTSC addresses it in the response to comment T-51, incorporated herein. It states, "DTSC has reviewed this comment and determined that no regulatory change is necessary. DTSC's statement in the economic analysis for these regulations to the effect that Philips Alto lamps were more expensive to purchase than competing lamps was based on a spot check of the prices of various brands of lamps at a large home improvement retail store. Lamp prices were not a basis for the M003 listing, and the price of mercury-added lamps was not used in any calculations of the fiscal or economic impact of these regulations. Regardless of the cost of the lamps, DTSC's analysis of the economic impact of these regulations would, remain unchanged."

- The following statement appears in the Initial Statement of Reasons: "… variables other than a lamp's mercury content may affect its impact on the environment. For example, if one type of lamp contains less mercury than another, but also produces less light or has a shorter life, using more of the lower-mercury lamps may not result in a net decrease in the mercury entering the environment." The commenter believes that this statement suggests low-level lamps may have shorter life. The commenter further asserts that this statement conflicts with another statement: that "low-level mercury lamps 'may also have longer rated useful life.'" According to the commenter, the latter statement appears on page 22 of DTSC's "Economic and Fiscal Analysis." The latter statement, which the commenter claims is on page 22 of the "Economic and Fiscal Analysis", does not appear in the Fiscal Impact Analysis (which is only 15 pages long) or the Economic Impact Analysis (which has only 13 pages).

The statement in the ISOR to which the commenter refers is not intended to address any particular brand of lamp, and is not does not compare the longevity of Philips lamps with its competitors. Instead, the statement points out the inadequacy of mercury concentration as a basis for determining whether a particular lamp is hazardous or nonhazardous. A number of variables besides total concentration determine the net amount of mercury that will be released to the environment when a particular type of lamp is used and—at end-of-life—disposed of. The commenter himself acknowledges that increasing the mercury dose in lamps could increase their average longevity.[3]

[3] See footnote 21 on page 8 of Mr. Erbin's September 27, 2002 letter, commenting on these regulations as originally proposed. Mr. Erbin states: "It is very easy to produce a long-lasting lamp - simply add copious quantities of mercury."

One could devise a formula for classifying wastes lamps that would take into account longevity, mercury dose, and light output, but DTSC has determined that regulating "all mercury-containing lamps as hazardous wastes will be more protective of public health and the environment" (see page 16 of the Final Statement of Reasons).

- DTSC lacks accurate information on the cost of lamps, the longevity of lamps, and the mercury content of lamps. (These are the "basic economics or realities of the marketplace," according to the commenter.)

Neither the cost nor the longevity of mercury-added lamps was a basis for the M003 listing. DTSC has (presumably accurate) information submitted by this commenter on the mercury dose of Philips ALTO lamps and of competing brands, as well as data suggesting that ALTO lamps meet or exceed industry standards for life. The commenter has asserted that Philips ALTO lamps cost no more than competing brands. DTSC has reviewed, considered, and responded to all of this information and incorporated it into the rulemaking file. Further, DTSC has used data submitted by this commenter (in the analysis by Roux Associates submitted during the 45-day public comment period) on the mercury content of ALTO lamps and competing brands to calculate the amount of mercury that would be released to the state's environment under various regulatory scenarios. These scenarios include ones in which the TTLC for mercury would continue to be used in classifying lamps, and one in which the TTLC for mercury-added lamps would be lowered to 15 milligrams per kilogram. The calculations show that, in addition to supporting the objectives of these regulations, the M003 listing will reduce mercury releases to California's environment more than would retaining or lowering the TTLC for lamps, even under the optimistic assumptions made in the Roux analysis. See the responses to 45-day written comments T-36 and QQ-5, incorporated herein, for further discussion.

15/3-E-12 *"The record of this proceeding contains other damaging deficiencies which, cumulatively, forbid the Department from proceeding." Philips Lighting Company identified numerous deficiencies in its letter of January 28, 2002, that was submitted on September 27, 2002, (during the 45-day comment period) including miscalculations, outdated data, and inadequate data collection*

DTSC disagrees with the comments and has determined that no regulatory change is necessary. DTSC addressed Philips' January 28, 2002 letter and in the responses to the written 45-day comments, incorporated herein.

15/3-E-12.1 Severe criticisms submitted by Dr. A. Russell Flegal are sufficiently deficient to abandon this proposal and "there is a strong

appearance that the Department is determined *to adopt the proposed regulations regardless of the nature, content, or quality of any comments it may receive." Several examples of criticisms were noted from Dr. Flegal's peer review report, including the "most troubling" statement that "the regulations, it seems, will proceed regardless of a qualitative understanding of the potential impacts or benefits."*

DTSC disagrees. Dr. Flegal did not recommend abandoning the project. Among other supportive things, Dr. Flegal stated in his report: "[r]easoned regulatory action to limit additional mercury contamination in the the state [is] … justified…" DTSC addressed Dr. Flegal's criticisms in its comments on the external scientific peer review, incorporated herein. DTSC determined that none of Dr. Flegal's concerns warranted changing or abandoning the project.

15/3-E-13 *Commenter attached two charts comparing the mortality curve of Philips fluorescent lamps to the industry standard.*

DTSC has reviewed this comment and determined that no regulatory change is needed. These charts contain updates of data submitted during the 45-day public comment period. Pursuant to subdivision (c) of section 11346.8 of the Government Code, DTSC is required to respond only to comments submitted during this 15-Day Public Notice of Post-Hearing Changes that address changes made since the regulations were "originally made available to the public…." The charts do not address any of the post-hearing changes made to the regulations. As discussed in the response to comment 15/3-E-11, the longevity of mercury-added lamps was not used as a basis for these regulations. See also the responses to 45-day written comments T-21, T-43, and NN-12.3, incorporated herein, for further discussion.

15/3-E-14 *Health and Safety Code section 25150.6 erects a substantive barrier to the Department's proposal because it codifies the distinction between hazardous and non-hazardous lamps, removing the ability of the Department to regulate as universal waste lamps that are not hazardous.*

DTSC disagrees. See the response to comment T-25 (45-Day Notice), incorporated herein.

15/3-E-15 *All but one of Philips' comments on the draft Mercury Report were ignored in the Final Mercury Report. The one exception pertained to air emissions from lamp breakage. The draft Report said 450 pounds per year are emitted from lamp breakage; "without explanation, the final Report 'picks' an amount of 370 pounds of*

annual air emissions." This value "is still factors larger than an accurate calculation."

A copy of Philips' January 28, 2002 comments on DTSC's Draft Mercury Report was submitted as a comment on the 45-day public notice. Pursuant to subdivision (c) of section 11346.8 of the Government Code, DTSC is required to respond only to comments submitted during this 15-Day public notice of post-hearing changes that address changes made since the regulations were "originally made available to the public…." This letter does not address any of the post-hearing changes made to the regulations. However, the assertions contained in the letter are responded to in the 45-day written comments and responses.

15/3-E-16 *Green Seal's recommendation of Alto lamps rebuts DTSC's unsupported assertion that confusion exists in the marketplace regarding lamps. "Obviously, just the opposite is true! Persons know which lamps pass the TTLC and which don't. If anything, persons are highly confused by the Department which proposes abolition of a highly useful and progressive standard."*

DTSC has reviewed this comment and determined that no regulatory change is needed. This comment does not address any change in the 15-day notice of post-hearing changes. This commenter submitted similar comments during the 45-day public comment period for this rulemaking. See the response to 45-day written comment T-47 for discussion of the issue raised in this comment.

In the *Choose Green Report* submitted by the commenter, the discussion of "Lamp Mercury Content" does not explain what is meant by "the State of California's requirements, at 3.8 milligrams per 4-ft lamp." The TTLC is not mentioned by name; if the TTLC were mentioned, the statement would imply that California endorses ALTO lamps.[4] These regulations do not preclude Green Seal from recommending Philips ALTO lamps if it chooses to do so, but neither the commenter nor Green Seal should imply that DTSC endorses ALTO lamps.

15/3-F Bernard Windham, President

[4] A copy of a letter from Ronald Pilorin of DTSC's Human and Ecological Risk Division (HERD) to Peter A. Bleasby of Osram Sylvania was submitted by Mr. Erbin with his comments on the 45-day public notice for these regulations. Mr. Pilorin's letter states that the nonhazardous concurrence issued to Philips by DTSC in 1997 does not constitute an endorsement of ALTO lamps, and that any use of the concurrence as an endorsement for ALTO lamps would be inappropriate, beyond the scope of the concurrence, and would not be condoned or approved by DTSC.

**Dams, Inc.
12164 Whitehouse Rd.
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Berniew1@earthlink.net**

15/3-F-1 T*he environmental effects of amalgam fillings affect everyone.*

DTSC acknowledges the comment.

15/3-F-2 thru F-15 below. *Commenter provides findings, statements, documentation, and references to support findings related to dental amalgam.*

15/3-F-2 *Human excretion into sewers by those with amalgam dental fillings along with dental office amalgam waste, have been documented to be the largest source of mercury into sewers.*

While DTSC acknowledges the comment, regulation of human waste to sewer plants and Publicly Owned Treatment Works (POTWs) is outside of DTSC's authority and not within the scope of this rulemaking. Discharges to sewers are regulated in California by the local POTW, the local Regional Water Quality Control Board, and the State Water Resources Control Board.

See responses to comments DD-3, B-4, and E-6 for discussion and response to dental office amalgam waste discharges to the sewer.

15/3-F-3 *All sewer plants in the U.S. have high levels of mercury and all sewer sludge has dangerous levels of mercury.*

While DTSC acknowledges the comment, regulation of sewer plants, Publicly Owned Treatment Works (POTWs), is outside of DTSC's authority and not within the scope of this rulemaking. Discharges, including sewage sludge are subject to characterization as a hazardous waste using the existing criteria. They are not affected by this rulemaking. In general, any POTWs are regulated in California by the State Water Resources Control Board and the nine Regional Water Quality Control Boards.

15/3-F-4 D*ental amalgam fillings are a major source of mercury going into waterbodies from dental offices and human wastes.*

While DTSC has no specific information to corroborate or deny this assertion, DTSC does recognize that in urbanized areas dental amalgam may be a major contributor of mercury to wastewater treated by POTWs. However, as discussed in the response to comment HG-2 on the originally proposed regulations,

(incorporated herein), the proposed regulations will provide an incentive for proper disposal and a reduction in sewer disposal of waste amalgam. (See also the response to comment K-1, incorporated herein.)

15/3-F-5 D*entistry is the third largest use of mercury in the U.S., most of which ends up in the environment.*

See response to comment 15/3-F-4, incorporated herein, for the response to this comment.

15/3-F-6 M*ercury pollution is widespread in the U.S. with dangerous amounts of mercury commonly found in both freshwater and saltwater fish.*

DTSC acknowledges this comment.

15/3-F-7 M*ercury is the most toxic substance commonly encountered and is adversely affecting the health of people in the U.S.*

While DTSC does not have information that corroborates or denies the assertion that mercury is the most toxic substance commonly encountered, DTSC does acknowledge and agree that mercury is a highly toxic substance that may adversely affect the health of people in the U.S.

15/3-F-8 I*f sewer sludge is incinerated, most of the mercury goes into emissions.*

While DTSC acknowledges the comment, regulation of nonhazardous sewer sludge incineration and associated emissions is outside of DTSC's authority and not within the scope of this rulemaking.

15/3-F-9 C*rops grown on land using sewer sludge pick up high levels of mercury.*

DTSC acknowledges the comment. However, regulation of the use of nonhazardous sewer sludge as a crop fertilizer or soil additive is outside of DTSC's authority and not within the scope of this rulemaking. Land application of treated municipal sewage sludge is subject to the federal requirements established in Title 40, Code of Federal Regulations, Part 503, and any additional requirements established by the State Water Resources Control Board and local Regional Water Quality Control Board.

15/3-F-10 S*oil bacteria converts methylate mercury to methyl mercury which is released in landfills and land spread sludge areas in methane and landfill gas in high levels.*

While DTSC acknowledges the comment, consideration of the impacts of landfilled or land spread sewer sludge that are not hazardous wastes is outside of DTSC's authority and not within the scope of this rulemaking.

15/3-F-11 H*igh levels of mercury are being found in rain all over the U.S.*

While DTSC has no specific information to corroborate or deny this assertion, consideration of mercury levels in rain is outside the scope of this rulemaking.

15/3-F-12 D*ental amalgam fillings are the number one source of mercury in most people and levels of mercury exposure from amalgam commonly exceeds government health guidelines, with high levels in human excretion wastes documented.*

While DTSC has no specific information to corroborate or deny this assertion, consideration of non-waste amalgam government health guidelines and nonhazardous human wastes is outside the scope of this rulemaking. However, as discussed in the response to comment HG-2, the proposed regulations will provide an incentive for proper disposal and a reduction in sewer disposal of waste amalgam. (See also the response to comment K-1.)

15/3-F-13 T*he level of mercury in all sewer plants in the U.S. exceeds the U.S. EPA proposed mercury limit due to amalgam in sewers from dental offices, homes, and businesses.*

See response to comment 15/3-F-3 for the response to this comment.

15/3-F-14 C*rematoria emissions commonly violate mercury air emission standards and constitute a significant source of mercury emissions due to mercury in amalgam fillings.*

While DTSC has no specific information to corroborate or deny this assertion, regulation of crematoria emissions is outside of DTSC's authority and not within the scope of this rulemaking. Air emission standards are established and enforced by the California Air Resources Board and local air quality management districts.

15/3-F-15 M*ost European countries require amalgam separators in dental offices but U.S. still has no regulations on this source of mercury; and Japanese dental schools, several other countries, and several U.S. states have banned or issued warnings regarding its use.*

While DTSC acknowledges this comment, establishment of regulations governing the use of dental amalgam are outside of DTSC's authority and the scope of this rulemaking. See response to comment DD-3 for discussion regarding use of amalgam separators.

15/3-G **Bernard Windham, President**
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15/3-G-1 *Commenter provides information regarding the DAMS web page and gives 16 internet links and descriptions of DAMS fact sheets documenting high exposures and adverse affects due to mercury from amalgam and other mercury sources.*

DTSC acknowledges the information provided by the commenter.

15/3-H **Bernard Windham, President**
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Note: This email comment is essentially the same comment as 15/3-G but has a different opening (includes a To/From paragraph whereas 15/3-G does not) and was sent about 15 minutes later than 15/3-G. See response to comment 15/3-G, incorporated herein.

15/3-H-1 *Commenter provides information regarding the DAMS web page and gives 16 internet links and descriptions of DAMS fact sheets documenting high exposures and adverse affects due to mercury from amalgam and other mercury sources.*

DTSC acknowledges the information provided by the commenter. No regulatory change is necessary.

15/3-I **Bernard Windham, President**
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15/3-I-1 *DTSC may not be fully aware of the extent of the problem of outgasing of mercury from landfills since the proposed rule appears to be allowing more mercury to be landfilled. This would be a big mistake, as mercury levels are already much too high.*

Consideration of mercury outgasing at municipal solid waste landfills is outside both the scope of this rulemaking and DTSC's regulatory authority. In addition, mercury outgasing at hazardous waste landfills is not known to be a problem because these facilities do not accept or co-dispose with hazardous waste the organic putresible wastes that cause landfill gas production.

Furthermore, DTSC disagrees with the assertion that the proposed regulations allow more mercury to be landfilled. The focus of the universal waste management requirements established in the regulations is to ensure that the waste is recycled and never reaches the landfills.

15/3-I-2 I*t appears the proposed rule defines dental amalgam waste and other mercury waste as universal waste and not subject to hazardous waste regulation, as long as it is less than 100 kg for a small generator. This is a huge amount for mercury.*

The commenter is incorrect in stating that dental amalgam and other mercury-containing universal wastes would not be subject to hazardous waste regulation under the proposed regulations if the volume of waste is less that 100 kg for a small generator. Universal wastes are hazardous wastes. However, they are regulated according to management requirements that are tailored to the volumes, properties, and management risks associated with each specific type of universal waste. The Conditionally Exempt Small Quantity Universal Waste Generator (CESQUWG) exemption provides simplified management requirements for the smallest non-household universal waste generators because these generators manage universal wastes in a manner more similar to a household rather than a larger business. The exemption requires that the wastes (except mercury-added novelties without liquid mercury and rubber flooring) not be disposed and that the generator ensures that the waste is transported to another universal waste handler or to a destination facility. The focus of the waste management requirements here is to ensure that the waste is not disposed in the municipal solid waste system where it might inappropriately end up at a municipal landfill. The simplified CESQUWG waste management

requirements serve as an incentive to properly manage and recycle universal wastes by focusing on final disposition of the waste to prevent environmental damage.

While the 100 kg CESQUWG volume limit may appear to be a huge volume of waste to the commenter, it must be noted that this volume limit is not exclusive to mercury or mercury wastes. The 100 kg volume limit takes into account all universal wastes and all federal Resource Conservation and Recovery Act (RCRA) hazardous wastes generated by the CESQUWG in a single month. This means that any universal waste batteries, lamps, or thermostats, as well as mercury-containing universal wastes and RCRA wastes generated by the CESQUWG must be counted toward the 100 kg total. Depending on the wastes generated, the 100 kg total volume of waste may actually only represent a small number of items because wastes like batteries are very heavy compared to their size and the weight of the entire mercury-containing product or device (such as switches or gauges) is counted, not just the weight of the mercury contained in the device.

15/3-I-3 D*ue to mercury's extreme toxicity, the definition of small quantity generator or small quantity handler or shipper needs to be reconsidered and changed.*

While DTSC acknowledges the comment, no specific information or alternative is provided by the commenter to support the requested action. DTSC finds that no regulatory change is necessary. DTSC recognizes that mercury exhibits known toxicity. However, the small quantity generator volume limit is not based exclusively on mercury-containing wastes. As discussed in comment 15/3-1-2, the 100 kg volume limit takes into account all universal wastes and all federal Resource Conservation and Recovery Act (RCRA) hazardous wastes generated by the CESQUWG in a single month.

15/3-I-4 U*.S. EPA, AMSA, and other studies have documented that dental offices have high amounts of mercury and mercury waste that cause dangerous levels of mercury in sewers, sewage sludge, and landfills if the mercury isn't collected by amalgam separators and other means for solid waste and recycled. dental office waste should not be allowed to go into sewers or landfills.*

See response to comment DD-3, incorporated herein, for response regarding discharge into sewers. With respect to dental office waste going to landfills, while DTSC only has authority over management and disposal of hazardous waste, adoption of the proposed regulations will help prevent disposal of dental amalgam at municipal solid waste landfills. Any disposal of dental amalgam that is hazardous waste is a violation of the hazardous waste requirements.

15/3-I-5 T*he proposed rule appears to allow too much mercury at dental offices and in other mercury containing devices to be exempt from more stringent regulations and thus allows dangerous amounts of mercury into landfills and the environment.*

DTSC disagrees with the assertion made by the commenter, and has determined no regulatory change is necessary. The proposed regulations do not allow dangerous amounts of mercury into landfills and the environment. The focus of the universal waste management requirements established in the regulations is to ensure that the waste is recycled and never reaches the landfills. The simplified CESQUWG waste management requirements serve as an incentive to properly manage and recycle universal wastes.

The regulations balance the need for more stringent prescriptive management standards to prevent releases against the need to make proper management simple and less costly. Utilizing full hazardous waste management for the mercury-containing universal wastes may drive generators toward the more harmful action of illegal disposal. DTSC has determined that the performance standards established in the universal waste requirements are the best achievable balance between stringent control of the wastes and the need to remove the wastes from illegal disposal and municipal landfill disposal and into more appropriate waste recycling or hazardous waste disposal facilities.

15/3-I-6 T*he large amounts of mercury exempted from more rigorous regulation and requirements needs to be reconsidered in light of the evidence of harm to the environment, fish and wildlife, and people.*

See response to comment 15/3-I-5, incorporated herein, for the response to this comment.

15/3-J **Rachel Zellner/Mark Murray**
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15/3-J-1 T*hey are generally supportive of the proposed regulations but are concerned that they lack some necessary provisions that would make them more effective in protecting public health and the environment.*

DTSC acknowledges the general support offered by the commenter. However, the comment makes no specific suggestions or objections that DTSC can analyze, respond to, or take action on. Thus, DTSC has determined that no regulatory change is necessary.

15/3-J-2 I*n order to minimize impacts of mercury on public health and the environment, it is essential that incentives and enforcement inherent in the regulatory structure respond to the need for source reduction, safe and effective recycling, and aggressive enforcement of the existing and proposed expanded disposal ban.*

See response to comment HM-2, incorporated herein, for the response to this comment.

15/3-J-3 We *generally support the new approach in proposed section 66261.5 to require virtually all mercury-containing products be managed as hazardous waste when discarded, while creating an incentive for recycling by classifying them as universal waste when they are safely recycled.*

DTSC acknowledges the support offered by the comment.

15/3-J-4 We *strongly support the disposal ban for all fluorescent lamps containing any amount of added mercury.*

DTSC acknowledges the support offered by the comment.

15/3-J-5 We *are concerned that the proposed regulations fall short in addressing the need for source reduction, real recycling, and meaningful enforcement of the disposal ban.*

See response to comment HM-5 for the response to this comment.

15/3-J-6 We are *concerned that the proposed expansion of the existing disposal ban may inadvertently be removing the one existing incentive for manufacturers to source reduce their products.*

See response to comment HM-6 for the response to this comment.

15/3-J-7 We *strongly urge DTSC to retain the existing TTLC test as a means of designating "low mercury lamps" for the purposes of product labeling and marketing, procurement preferences, or other mechanisms that might be used to encourage manufacturers to minimize levels of mercury in lamps and encourage consumers to purchase those lamps.*

See response to comment HM-8, on the originally proposed regulations, incorporated herein, for the response to this comment.

15/3-J-8 We *urge DTSC to convene stakeholders in order to evaluate the existing TTLC "threshold/level" in the context of a source reduction incentive system, and to develop additional source reduction incentives, including but not limited to product labeling and public agency procurement preferences.*

DTSC acknowledges the comment. However, the actions proposed by the comment are beyond the scope of this rulemaking, See response to comments HM-8 and 15/3-E-7, incorporated herein. However, DTSC is willing to meet with interested parties in the near future to discuss these issues.

15/3-J-9 *We are supportive of the ultimate phase out of the householder and small quantity generator exemptions proposed in Section 66273 but strongly object to extending the exemption to 2006. A long lead time may reduce motivation and closing these loopholes by an effective date will provide adequate incentive and lead-time to develop collection infrastructure.*

See the responses to comments HM-10 and HM-11, incorporated herein, for the response to this comment.

15/3-J-10 T*here is nothing in the regulations about providing compliance and recycling information and guidelines to generators. We strongly urge DTSC to develop and implement a public education and enforcement component to ensure that regulatory requirements are adhered to.*

As discussed in comments F-5 and HM-12, incorporated herein, DTSC and the CUPAs have authority and established programs in place to enforce the provisions of the proposed regulations. In addition, DTSC plans to develop educational materials and conduct outreach activities to assist the public and the regulated community in understanding and complying with the proposed regulations. DTSC agrees that aggressive education and enforcement are vital to reaching a high compliance and recycling rate for the newly proposed universal wastes. However, establishment of new public education and enforcement programs are not within the scope of this rulemaking.

15/3-J-11 *DTSC should at least undertake an education and enforcement program targeting the largest generators of mercury added fluorescent lamps (large buildings) and require a compliance certification from building owners/operators, with certification fees to offset costs of the compliance program.*

See the response to comment HM-13, incorporated herein, for the response to this comment.

15/3-J-12 A *front-end financing mechanism will be needed to ensure development of a safe and effective recycling system. While DTSC may not want to test the limits of its authority by proposing an advance disposal fee as part of this rulemaking package, DTSC's leadership on this issue will be needed in the legislature.*

See responses to comments HK-9.3, CC-3, HC-5, H-13, HD-5, and HM-14, incorporated herein, for the response to the issue of front-end financing mechanisms, such as advance disposal fees.

15/3-J-13 We *urge DTSC to consider the changes to the proposed regulations that we have identified in our comments.*

DTSC acknowledges the comment and has given consideration to the changes proposed by the commenter.

15/3-K **Lena Brook, Environmental Health Program Associate
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15/3-K-1 We *commend DTSC for acknowledging the concerns of many in the environmental community regarding the delay in regulating mercury-containing lamps. The revised February 9, 2004 effective date still provides ample time to comply with the new rules yet will be more effective at reducing environmental mercury releases.*

DTSC acknowledges the support offered by the commenter.

15/3-K-2 We are *concerned about the newly delayed timeline for regulating non-automotive switches because our understanding is that many of the products are already subject to regulations governing their mercury-containing devices. We are unclear on the necessity of postponing implementation until 2006.*

See responses to comments 15-B-3, 15-H-3, and 15/2-C-4, incorporated herein. While many non-automotive products may already be subject to regulations governing their mercury-containing devices, the existing information on the

presence, location, and removal methods of mercury switches in appliances is insufficient to enable recyclers to comply with the requirements. The 2006 implementation date allows the recycling industry and manufacturers adequate time to develop the guidance necessary to ensure compliance with the regulations and also establishes a date certain for removal of mercury switches from non-automotive products and appliances.'

15/3-K-3 *While we appreciate the M001 vehicle light switch clarification, we question the value of only regulating one automotive mercury source, and we are extremely concerned that section 66273.5 specifically exempts mercury-containing lamps found in vehicles.*

As noted in the rulemaking Final Statement of Reasons, the proposed regulations originally included all mercury switches found in vehicles in the M001 listing. However, the listing description was changed in response to comments received from the automobile recycling associations to apply the listing only to those mercury-containing switches that turn on lights when the hood or trunk lid is raised. This change was necessary because, while there is information readily available on the number, location, and accessibility of light switches, there are no clear guides or information available on the presence of other types of mercury switches, some of which are specific to certain parts suppliers or are installed in post-manufacture features, such as car alarms. Because it is difficult or impossible to know the number and location of mercury switches in a vehicle, and thus know whether the switches have been located and removed, the listing was changed to address only the accessible and well documented mercury-containing light switches for which compliance and enforcement of universal waste management requirements is possible. Please note that the M001 listing may be expanded in a future rulemaking as information about the existence and location of other mercury switches in specific vehicle models becomes available.

Similarly, the regulations were also changed to exempt vehicles that contain mercury-added lamps from regulation as universal waste (unless the vehicles exhibit a hazardous waste characteristic) because there is little information available about which lamps in motor vehicles contain intentionally added mercury and how to remove those lamps prior to dismantling. In response to currently available information, DTSC further concluded that few lamps in vehicles at this time actually contain intentionally-added mercury, so the exemption would not be allowing any significant volume of mercury-added lamps to escape proper management. It should be noted, however, that this exemption may be removed or modified in a future rulemaking if comprehensive information is developed showing the types and locations of mercury containing lamps in vehicles and which vehicles contain these lamps.

15/3-K-4 We *believe that dental industry compliance with the proposed regulations will not be achieved if the regulations are not amended; the dental amalgam universal waste designation must be coupled with mandates for the installation of control technologies such as state-of-the-art amalgam separators and dentists should also be required to maintain basic records indicating that pollution prevention equipment was installed and the amount of amalgam in use by each office.*

See responses to comments DD-3 and J-14, incorporated herein, for the response to this comment.

15/3-K-5 We are *concerned that the strength of the waste control provisions in the regulations is not commensurate with the enforcement strategies; a strong enforcement program is needed to compliment the regulations.*

See responses to comments CC-4, DD-4, HC-4, HD-3, J-1, HH-2, FF-4, and BB-4, incorporated herein, for the response to this comment.

15/3-K-6 We *suggest that DTSC create a compliance certification program for mercury-containing wastes similar to the one used by Title V of the Clean Air Act, with criminal penalties and certifications that could be modified as needed for different categories or waste generators.*

See responses to comments HD-4 and J-2, incorporated herein, for response to this comment.

15/3-K-7 *While an advance disposal fee structure may be outside DTSC's regulatory authority, we strongly urge DTSC to proactively work with California legislators to develop an advance disposal fee program for applicable mercury-containing products.*

See responses to comments HK-9.3, CC-3, HC-5, H-13, HD-5, and HM-14, incorporated herein, for the response to the issue of front-end financing mechanisms, such as advance disposal fees.

15/3-L **Sean Robledo Edgar, Director of Regulatory Affairs
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15/3-L-1 We *support inclusion of the listed mercury-containing devices in the universal waste category [section 66268.1(g)] and the handling of mercury-containing devices as "universal waste".*

DTSC acknowledges the support offered by the commenter.

15/3-L-2 *Regarding removal of lamps from waste motor vehicles, section 66273.5(b)(5), we request clarification that a single mercury-added lamp in a waste motor vehicle would automatically result in regulation as a hazardous waste.*

Proposed regulation section 66273.5, subsection (b), paragraphs (4) and (5) actually provide an exemption from the universal waste requirements for vehicles that contain mercury-added lamps and waste vehicles that are crushed, baled, sheared, or shredded from which all mercury-added lamps have not been removed. However, whereas subsection (b), paragraph (4) further provides that vehicles with mercury-added lamps could be eligible for regulation as universal waste if the vehicle itself exhibits a hazardous waste characteristic, subsection (b), paragraph (5) requires waste vehicles containing mercury-added lamps that are *crushed, baled, sheared, or shredded* to be regulated according to full hazardous waste requirements <u>if</u> they exhibit a hazardous waste characteristic.

This means that inclusion of a single mercury-added lamp in a waste (crushed, baled, sheared, or shredded) motor vehicle <u>would not</u> automatically result in regulation of the waste as hazardous waste. The waste vehicle would only be regulated as hazardous waste if it exhibited a hazardous waste characteristic.

Please see the rulemaking Final Statement of Reasons for a more detailed discussion of the requirements and reasons for the requirements.

15/3-M **Greg Jalbert**
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15/3-M-1 T*he proposed regulations do not adequately encourage the elimination of mercury from use in consumer products and fail to ensure that mercury in disposed products is collected and contained in a manner protective of public health.*

See response to comment 15-H-1 for response to this comment. See also responses to comments CC-3, HC-1, HC-3, H-1, J-8, and LL-1 for discussion of the issue of elimination of mercury from consumer products. (All of these references are incorporated herein.)

15/3-M-2 W*e need to stop putting mercury in products in the first place by encouraging manufacturers, through economic incentives and advanced disposal fees, to take mercury out of products and use alternatives.*

See responses to comments CC-2, CC-3, and J-8 for response to stopping use of mercury in products. See response to comments CC-3, HC-5, H-13, and HD-5 for response to use of economic incentives and advanced disposal fees. (All of these references are incorporated herein.)

15/3-M-3 A*n enforcement plan is needed to make sure products containing mercury are properly disposed. Without this oversight, how will we know that mercury waste won't continue to be disposed into municipal landfills and down the drain?*

See responses to comments CC-4, DD-4, HC-4, HD-3, J-1, HH-2, FF-4, and BB-4, incorporated herein, for the response to this comment.

15/3-M-4 W*e need to be able to add new products to the list [of mercury-containing universal wastes or listed mercury-containing products?] and have an established process for considering the addition of other products to the list over time.*

See responses to comments H-12 and J-5, incorporated herein, for the response to this comment.

15/3-M-5 W*e need to have a concrete plan to collect used mercury, "retire" and contain it, taking it out of our environment and preventing future human exposure.*

Sequestration of recycled mercury is outside the scope of this rulemaking. Although discussions on this topic have already begun with the U.S. EPA in Washington, DC, any actions that may be identified to address permanent mercury sequestration will have to be addressed in other, future rulemaking efforts.

See also response to comment GG-2 for an additional discussion of mercury sequestration.

15/3-N **Marjorie Monteleon**
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15/3-N-1 Supports inclusion of *a requirement for amalgam separators in all dental offices.*

See response to comment DD-3, incorporated herein, for the response to this comment.

15/3-N-2 Supports *inclusion of a requirement that dental amalgam be regulated with intentionally added mercury as hazardous waste.*

DTSC acknowledges the comment and notes that dental amalgam is already generally subject to regulation as a hazardous waste when discarded because it would exhibit the hazardous waste characteristic of toxicity. Therefore, if the commenter means that a requirement should be added to include dental amalgam as a listed hazardous waste (as with lamps with intentionally added mercury), such a requirement would be unnecessary because dental amalgam is usually considered hazardous waste anyway by virtue of exhibiting a hazardous waste characteristic.

15/3-N-3 Supports *inclusion of a requirement to phase out mercury fillings in 3 years.*

See response to comment 15/3-A-2, incorporated herein, for the response to this comment.

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