

California Department of Toxic Substances Control



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Evaluation and Analysis of Metal Shredding Facilities and Metal Shredder Wastes



January 2018

*Implementation of
California Health and Safety Code Section 25150.82*

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S T A T E O F C A L I F O R N I A

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ACRONYMS

ADC	Alternative Daily Cover
APCD	Air Pollution Control District
AQMD	Air Quality Management District
ARB	Air Resources Board
Cal/OSHA	California Occupational Safety and Health Administration (now the California Department of Industrial Relations, Division of Occupational Safety and Health)
CalEPA	California Environmental Protection Agency
CalRecycle	California Department of Recycling and Resource Recovery
CAR	Certified Appliance Recycler
CFC	chlorofluorocarbon
CTMSR	Chemically Treated Metal Shredder Residue
CUPA	Certified Unified Program Agency
DHS	Department of Health Services
DTSC	Department of Toxic Substances Control
EMP	Emissions Minimization Plan
HWTS	Hazardous Waste Tracking System
ISRI	Institute of Scrap Recycling Industries
LFM	light fibrous material
mg/kg	milligrams per kilogram
mg/l	milligrams per liter
MRSB	Materials that Require Special Handling
NAICS	North American Industry Classification System
NPDES	National Pollutant Discharge Elimination System
OCI	Office of Criminal Investigation
OPP	Official Policy and Procedure
PCB	polychlorinated biphenyl
PM	particulate matter
RCRA	Resource Conservation and Recovery Act
RTO	Regenerative Thermal Oxidizer
RWQCB	Regional Water Quality Control Board
SB	Senate Bill
SIC	Standard Industrial Classification
SMARTS	Storm Water Multiple Application and Report Tracking System
STLC	Soluble Threshold Limit Concentration
SWRCB	State Water Resources Control Board
TTL	Total Threshold Limit Concentration
VOC	volatile organic compounds
WDID	Waste Discharger Identification
US EPA	United States Environmental Protection Agency

EXECUTIVE SUMMARY

The Department of Toxic Substances Control (DTSC) has conducted this Evaluation and Analysis (Analysis) of Metal Shredding Facilities and Metal Shredder Wastes to implement Health and Safety Code Sections 25150.82 through 25150.86, collectively referred to here as the Metal Shredding Facilities Law. Based on certain required findings and demonstrations, the law authorized DTSC to adopt alternative management standards for metal shredding facilities that differ from existing hazardous waste control law, and to classify metal shredder waste as nonhazardous waste. This report describes public health and environmental threats posed by metal shredding facilities, and begins the regulatory process to ensure these facilities comply with important public health and environmental protections.

DTSC reviewed hazardous waste management activities, the current regulatory oversight, and the history of releases, contamination, and enforcement actions at the facilities. DTSC directed a study to identify the highest level of treatment that could be achieved on metal shredder waste with current technology. DTSC also reviewed the current disposal practices of metal shredder waste at municipal solid waste landfills to identify the potential for migration of contaminants to groundwater, to surface waters, or through the air.

DTSC found numerous examples of accidents, improper storage of hazardous wastes, soil contamination, and releases of hazardous wastes that impacted surrounding communities. DTSC noted several legal actions taken against metal shredding facilities in response to these types of incidents. Additionally, DTSC is evaluating enforcement actions resulting from current investigations.

DTSC evaluated whether alternative management standards could be developed that would provide adequate protection for human health and safety and the environment. DTSC showed through a series of demonstrations that the most appropriate level of regulation for these kinds of facilities is a hazardous waste permit. Based on this Analysis, DTSC has chosen not to adopt alternative management standards for metal shredding facilities.

However, DTSC's analysis demonstrated that continued disposal of chemically treated metal shredder residue (CTMSR) as nonhazardous waste in municipal solid waste landfills, including its use as alternative daily cover (ADC), has not resulted in harm to human health or safety or to the environment, and that CTMSR has not contributed to the solubilization and migration of heavy metals from solid waste landfills. DTSC has concluded that classification of CTMSR as a hazardous waste is not necessary to prevent or mitigate potential hazards to human health or safety or to the environment.

This report is intended to serve as a basis to establish enforceable operating requirements for metal shredding facilities through a hazardous waste permit. Through a formal and transparent permitting process, DTSC will ensure these facilities come into compliance with existing law, and that communities are adequately protected. This process will provide for a reasonable and orderly transition period for facilities to complete the permitting process. DTSC also intends to promulgate regulations that exclude CTMSR from classification as a hazardous waste, with certain limitations, under separate statutory authority.

DTSC anticipates conducting workshops on the proposed regulatory action in early 2018, and welcomes input from the public, the regulated community, and other stakeholders in the upcoming permitting process and the anticipated rulemaking process.

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1 INTRODUCTION AND OVERVIEW

The Department of Toxic Substances Control (DTSC) prepared this Evaluation and Analysis of Metal Shredding Facilities and Metal Shredder Wastes (Analysis) under Health and Safety Code Sections 25150.82 through 25150.86, collectively referred to here as the Metal Shredding Facilities Law. During the research and preparation of this Analysis, DTSC consulted with other state and local governmental regulatory agencies including the California Air Resources Board, State Water Resources Control Board, California Department of Recycling and Resource Recovery (CalRecycle), California Department of Industrial Relations, Division of Occupational Safety and Health (Cal/OSHA), Regional Water Quality Control Boards (Regional Water Boards), local Air Quality Management Districts and Air Pollution Control Districts, and the Certified Unified Program Agencies (CUPAs). DTSC engaged with the metal shredding facilities and with the landfill owners and operators in conducting this evaluation. DTSC appreciates the cooperation and assistance of the regulated community, members of the public, and other stakeholders in conducting this evaluation and developing this Analysis.

1.1 Document Scope

This Analysis was prepared to evaluate metal shredding processes and wastes as they are operating under current conditions. The goal of the Analysis is to ensure that these processes are managed and regulated in a manner that protects public health and the environment and minimizes economic impacts to industry. The Analysis specifically considers the applicability of hazardous waste management regulations and determines whether additional requirements are needed or appropriate. This Analysis also considers whether alternative management standards specific to the generation, handling, transfer, storage, transportation, and disposal of hazardous wastes generated and managed at metal shredding facilities should be adopted by DTSC, and would be, if justified, an alternative to DTSC's existing hazardous waste management requirements.

This Analysis is divided into six sections: Section 1, an Introduction and Overview; Section 2, a presentation of the evaluations that DTSC is required to conduct; Section 3, a presentation of the analyses DTSC is required to perform; Section 4, a discussion of the demonstrations DTSC is required to make to allow alternative management standards to be proposed; Section 5, a discussion of the classification and disposal of chemically treated metal shredder residue; and Section 6, a presentation of DTSC's conclusions.

1.2 Terminology

Many terms have been used to describe the metal shredding industry and the wastes it manages. To ensure a clear and common understanding of the concepts discussed in this Analysis, DTSC provides the following definitions of terms used:

Metal Shredding Facility: The Metal Shredding Facilities Law defines a metal shredding facility as “an operation that uses a shredding technique to process end-of-life vehicles, appliances, and other forms of scrap metal to facilitate the separation and sorting of ferrous metals, non-ferrous metals, and other recyclable materials from nonrecyclable materials that are components of the end-of-life vehicles, appliances, and other forms of scrap metal. A metal shredding facility does not include a feeder yard, a metal crusher, or a metal baler, if that facility does not otherwise conduct metal shredding operations.”
Also known as: Auto shredder, autoshredder, metal shredder, auto shredding facility, shredder.

Metal Shredder Aggregate: The mixture of shredded material produced by the metal shredding hammer mill that typically contains recoverable ferrous and non-ferrous metals, plastics, rubber, glass, foam, fabrics, carpet, wood, residual automobile fluids, road dirt, and/or other debris. *Also known as: Aggregate, intermediate manufacturing process stream.*

Metal Shredder Residue: The portion of the metal shredder aggregate that remains after ferrous metals and non-ferrous metals have been separated, and before chemical stabilization occurs. *Also known as: Metal shredder waste, auto shredder waste, autos shredder waste, shredder residue, fluff, auto shredder fluff, recycling residue.*

Chemically Treated Metal Shredder Residue (CTMSR): Metal shredder residue that has been subject to a chemical stabilization treatment consisting of the addition of sodium or potassium silicate and an alkaline cement powder to reduce to the solubility of metals in the residue. *Also known as: Metal shredder waste, auto shredder waste, autos shredder waste, shredder residue, treated auto shredder waste, treated auto shredder residue, treated (stabilized) auto shredder waste, treated shredder waste, fluff, auto shredder fluff, and recycling residue.*

Metal Shredder Wastes: A collective reference to all wastes being managed at metal shredding facilities that emanate from the metal shredding process, including metal shredder aggregate, metal shredder residue, and Chemically Treated Metal Shredder Residue (CTMSR).

Department of Toxic Substances Control, or DTSC: DTSC originated as the Toxic Substances Control Division (TSCD) within the Department of Health Services (DHS), later expanding to a program (the Toxic Substances Control Program (TSCP)). In 1991, TSCP, by the action of the Governor, was reorganized as a department within the California Environmental Protection Agency (CalEPA). "DHS," "TSCD," and "TSCP" are referred to in this Analysis under the umbrella term of "DTSC" for ease of reference. *Also known as: DHS, TSCD, and TSCP.*

1.3 Metal Shredding Operations

There are estimated to be 2,500 scrap metal recycling facilities in California, which in 2014 collected and processed for export an estimated 7 million tons of scrap metal worth \$5 billion.¹ Taiwan, Korea, and China received 71 percent of the scrap metal exports from California. Scrap metal recycling facilities include feeder yards that collect scrap metal from the public and businesses, automobile dismantlers that process end-of-life vehicles (approximately 1,200), and metal shredding facilities which shred and separate the scrap metal for export. There are currently six metal shredding facilities in California.

Metal shredding operations all follow the same basic process, as illustrated in Figure 1. The metal shredding facility receives scrap metal input materials, such as whole vehicles and large appliances, and certain hazardous wastes that are still present are removed from the input materials in a process commonly referred to as "de-pollution."² The de-polluted input materials are processed through a

¹ See 2014 California Exports of Recyclable Materials, California Department of Resources Recycling and Recovery, Publication # DRRR-2015-1539, September 2015.

² Section 42175 of the Public Resources Code requires that hazardous materials be removed from major appliances and vehicles prior to crushing for transport or transferring to a baler or shredder for recycling. The law defines Materials that Require Special Handling (MRSH) as any material that, when removed from a major appliance, is a

hammer mill to break down large metal pieces into smaller pieces, resulting in metal shredder aggregate. Iron-containing metal, or ferrous metal, is separated out, and the remaining metal shredder aggregate is further processed to sort the non-ferrous metals. The material that is left after ferrous and non-ferrous metal separation is called “metal shredder residue,” which is chemically treated and sent to landfills. Each of these steps is discussed further below.

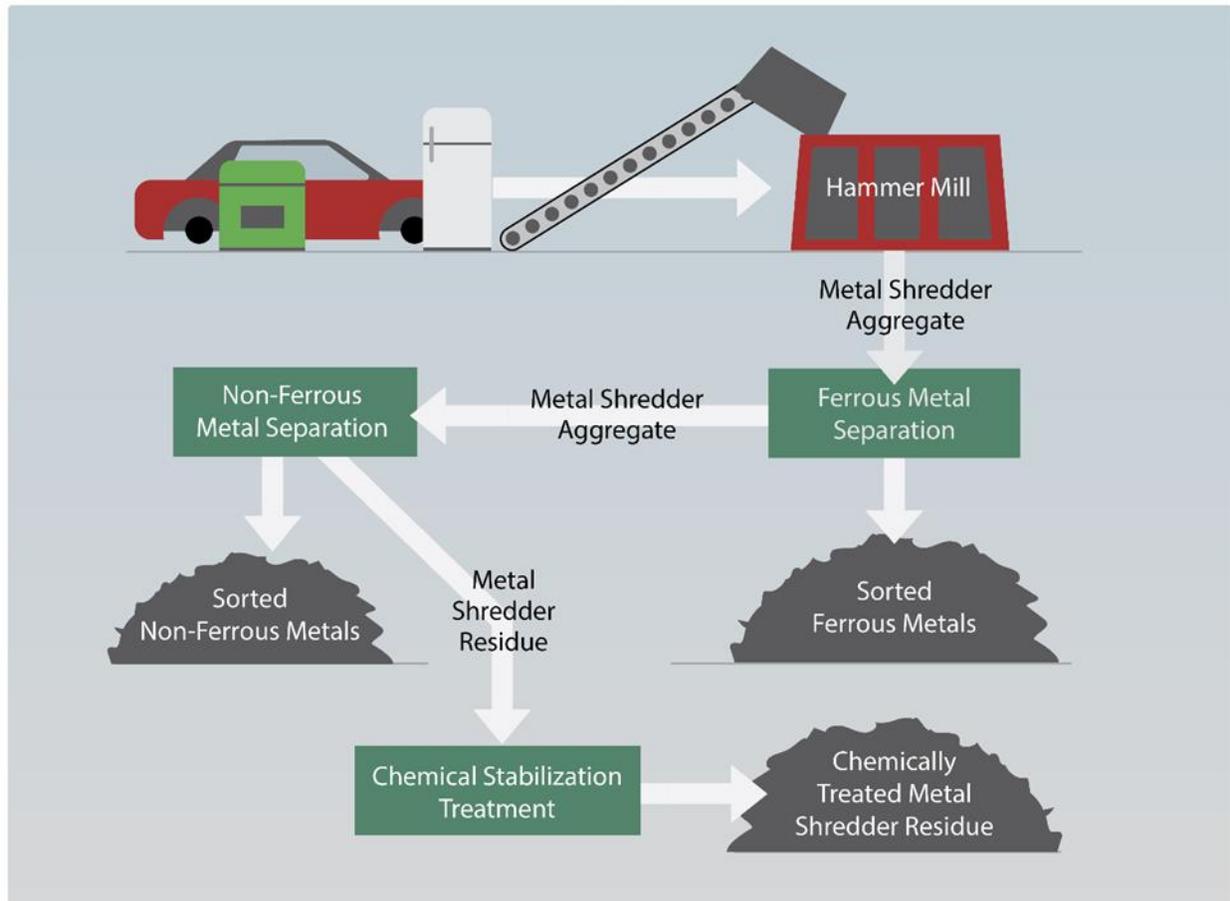


Figure 1. Diagram of a typical metal shredding operation.

Scrap Metal

The types of scrap metals that are sent to metal shredding facilities include end-of-life products that are primarily composed of metal, such as vehicles, appliances, construction and demolition materials, and manufacturing scrap. Much of the scrap metal that arrives at metal shredding facilities comes from metal recycling facilities, which sort, bale, and shear the metal to compress it for ease of transport. Scrap metal arrives at the metal shredding facility in a variety of ways, most commonly by truck or rail. When vehicles, appliances, and other scrap metal arrive at a metal shredding facility, they are subject to

hazardous waste regulated pursuant to Chapter 6.5 (commencing with Section 25100) of Division 20 of the Health and Safety Code.

the scrap metal exclusion, meaning the scrap metal is not regulated as a hazardous waste since it is being recycled.³

When the scrap metal arrives at the metal shredding facility, it is unloaded by large machinery and piled for ease of handling. Because scrap metal deliveries can be a mixture of various metals (ferrous and non-ferrous) and other materials, additional separation and processing steps, such as further sorting, de-pollution, and shearing occur before the scrap metal is ready to be shredded. All six metal shredding facilities in California have acceptance policies regarding what materials they will and will not accept as scrap metal.

De-pollution

Much of the scrap metal that metal shredding facilities receive to shred has the potential to contain hazardous materials, also known as materials that require special handling, or MRSH. The MRSH must be removed before the scrap metal can enter the shredder.⁴ Typical hazardous materials found in scrap metal include gasoline, oil, antifreeze, lead-acid batteries, vehicle air bags, compressed gas cylinders (e.g., propane tanks, compressed gas tanks, and fire extinguishers), refrigerants in air conditioning or heat transfer systems, polychlorinated biphenyls (PCBs) containing capacitors, light ballasts, transformers, and items containing elemental mercury (e.g., tilt-switches or thermostats).

Metal shredding facilities that conduct the de-pollution operations on-site are subject to hazardous waste generator requirements, as the facility becomes a point of hazardous waste generation. Similarly, the metal shredding facility is subject to requirements for containerization, labeling, storage, and disposal or other means of hazardous waste management.



Scrap metal stored prior to shredding.

³ See subdivision (3) of paragraph (a) of Section 66261.6 of Division 4.5 of Title 22, California Code of Regulations.

⁴ See Public Resources Code section 42175

Hammer Mill

The de-polluted scrap metals are fed into a hammer mill to reduce the size to facilitate downstream sorting processes. The hammer mill can reduce scrap metal to pieces less than four inches in diameter. This shredded waste is called metal shredder aggregate.

A large hammer mill may contain up to 72 hammers, each weighing 1,000 pounds. The hammers are placed around a rotor in balanced positions, with the entire rotor assembly weighing up to 100 tons. The rotor is turned by an electric motor with up to 9,000 horsepower at over 400 revolutions per minute, generating hammer tip speeds of more than 100 miles per hour ("tip speed" refers to the speed at which the tip of the hammer is travelling in the hammer mill). The hammer mill is surrounded by grates with slots that allow the smaller pieces to pass through. Larger pieces continue to be shredded until they are small enough to fit through the slots.



Shredder and loading equipment at Schnitzer Steel, Inc., Oakland, CA.



An earlier photo of the shredder unit at SA Recycling, Anaheim, CA before it was enclosed.

Ferrous Metal Recovery

Ferrous metals are recovered from the metal shredder aggregate using magnets, leaving non-ferrous metals such as aluminum, copper, lead, and zinc.



Magnets at SA Anaheim, shown here before they were enclosed.



Pile of sorted ferrous metal following shredding of scrap metal at SA Terminal Island.

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Non-ferrous Metal Recovery

Non-ferrous metals are recovered from metal shredder aggregate based on density and other physical properties. Generally, the non-ferrous metals are separated by first separating the metal shredder aggregate into different size fractions using trommels, then by feeding the segregated sizes into: (1) eddy-current separators to separate most aluminum, zinc and copper materials, (2) under air-actuated sensors to remove stainless steel and copper wire, and (3) through density separators to remove fine copper materials. Additionally, “hand picking” is used at some metal shredding facilities, a process by which individuals manually pick through the metal shredder residue to pull out any remaining non-ferrous metal pieces that the separation may have missed, before the metal shredder residue is subjected to the chemical stabilization treatment.

One of the metal shredding facilities does not conduct the non-ferrous metals separation on-site, but ships partially-processed material to a facility it owns in Arizona for further sorting.⁵ The sorted and separated metals are sold in bulk to metal refiners for further purification, ultimately to be used in the manufacture of new metal products.



Eddy current separator, used for recovery of non-ferrous metals.



Hand picking station, Sims Metals, Redwood City, CA.

⁵ Ecology Auto Parts of Colton, California, ships its aggregate for further processing to another facility owned by Ecology, located at 59260 Highway 72, in Salome, Arizona. The aggregate is shipped as an Excluded Recyclable Material in trucks owned and operated by Ecology.

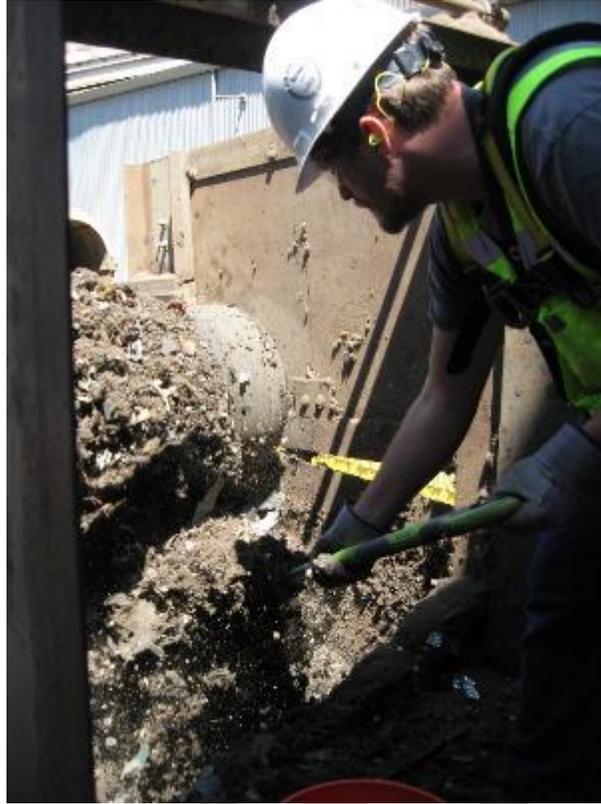


Pile of sorted non-ferrous metal.

Metal Shredder Residue

A large amount of waste remains after all the metals that can be economically recovered have been removed. This remaining material, called metal shredder residue, consists of plastics, rubber, glass, foam, fabrics, carpet, wood, residual automobile fluids, road dirt, other debris, and a small amount of unrecoverable metals (typically non-ferrous). Approximately 25 percent of the original weight of a typical end-of-life vehicle remains after all the metals have been practicably removed.⁶

⁶ See industry presentation, "Regulation of Auto Shredder Residue in California," Oakland Public Workshop, January 23, 2014.



Metal shredder residue exiting the joint products plant following removal of non-ferrous metals.

Chemical Stabilization

Each of the facilities that conducts non-ferrous metal separation on-site treats the resulting metal shredder residue using a chemical stabilization process that applies a sodium or potassium silicate solution and an alkaline activator such as cement.⁷ Chemical stabilization is used to reduce the mobility of toxic heavy metals in the residue. The initial step is a thorough wetting of the material with liquid silicate. After the material is wetted, cement powder is added and the material is mixed in a pug mill, yielding chemically treated metal shredder waste. This CTMSR is passed under a final magnet for additional recovery of ferrous metals before it is transported off-site for disposal.

⁷ For Ecology Auto Parts, the metal shredder residue produced following the sorting of non-ferrous metals is generated in Arizona, and thus, is not governed by California hazardous waste control law.



Cement storage silos at SA Bakersfield.



Pug mill mixing screw at Schnitzer Steel, Oakland.

DO NOT CITE OR QUOTE



Chemically treated metal shredder residue is passed under a final magnet for recovery of ferrous metal at Schnitzer Steel, Inc., in Oakland.

1.4 Regulatory History of Metal Shredding Facilities and Metal Shredder Waste

All facilities that store, treat, or dispose of hazardous waste in California must obtain a permit or grant of authorization from DTSC. California's tiered permitting system includes a full permit, which is generally required for hazardous waste facilities that are managing federally regulated hazardous wastes; a standardized permit, generally available for facilities managing hazardous wastes that are not federally regulated; and three lower-tiered permits that are reserved for lower-risk and lower-volume waste streams.

Metal shredding facilities generally do not produce waste that exceeds the federal regulatory levels established by the U.S. Environmental Protection Agency (US EPA) under the Resource Conservation and Recovery Act (RCRA), and thus are not regulated under the full permit. Metal shredding facilities do, however, produce waste that exceeds California's more stringent regulatory thresholds as is recognized to be a hazardous waste.

Metal shredder residue was not managed as hazardous waste until 1984, when California adopted the Waste Extraction Test to determine whether a waste is hazardous due to the solubility of contaminants in the waste. Metal shredder residue was found to have high levels of lead, copper, and zinc which could be mobilized under the test conditions.

On March 9, 1984, DTSC informed all generators of metal shredder residue that their waste was classified as hazardous and must be managed in accordance with hazardous waste regulations.⁸ The

⁸ See DHS Letter to Dr. Kenneth Hekimian RE: Disposal of Automobile Shredder Wastes from Hugo Neu-Proler and Clean Steel, Inc., March 9, 1984.

requirement for disposal of metal shredder residue as a hazardous waste greatly increased the cost for the shredder operators and also created a concern about the limited capacity of hazardous waste landfills.

In 1985, Senate Bill (SB) 976 (Bergeson, Ayala and Seymour, Chapter 1395, Statutes of 1985) addressed the issue of limited capacity at hazardous waste landfills by requiring five Regional Water Quality Control Boards (RWQCBs)⁹ to prepare a list of Class III nonhazardous waste landfills that would be authorized to accept and dispose of metal shredder residue.¹⁰ Class III landfills are generally authorized to only accept nonhazardous waste. The RWQCBs identified 13 Class III landfills, including at least one in each of the five RWQCB jurisdictions, that could accept metal shredder residue. SB 976 did not require that the listed landfills accept metal shredder residue, and did not provide exemptions from other hazardous waste regulations. Metal shredder residue was designated nonhazardous for purposes of disposal only, and it retained the hazardous designation for purposes of storage, transportation, manifesting, and disposal fees. The RWQCBs required the 13 landfills to upgrade their facilities to accept metal shredder residue; doing so was financially prohibitive, and only a few Class III landfills that became authorized by SB 976 actually accepted the metal shredder residue. By its own operation, this statute expired on January 1, 1988.

In 1986, DTSC began working with a shredder in Los Angeles to determine if shredder waste could be treated with silicate and cement to reduce the solubility of metals so that it would qualify for a nonhazardous waste classification. Based on testing results of the treated waste, DTSC made the determination that CTMSR exhibited “mitigating physical or chemical characteristics which rendered it insignificant as a hazard to human health and safety, livestock, and wildlife” and classified the waste as nonhazardous. It cited as legal authority subdivision (e) of Section 66305 of Title 22 of the California Administrative Code.¹¹ This authority was later renumbered to subdivision (f) of Section 66260.200 of Title 22 of the California Code of Regulations. The letters granting the nonhazardous waste determinations are now referred to as “f letters.”

In 1987, as DTSC continued to work with the industry to develop effective chemical stabilization for metal shredder residue, the State Water Resources Control Board (SWRCB) adopted Resolution 87-22, which established a policy to standardize the requirements for the Class III landfills to accept metal shredder residue for disposal. The policy attempted to resolve the conflict between the Legislature’s direction to accept the metal shredder residue at Class III landfills, and the RWQB’s longstanding policy to prevent hazardous wastes from being accepted by nonhazardous waste landfills. The SWRCB’s Resolution 87-22 stated that metal shredder residue that was determined to be hazardous by DTSC, but was granted a variance for the purposes of disposal by DTSC, was suitable for disposal at designated Class III landfills.

In 1987, Assembly Bill (AB) 1542 (Bradley and Peace, Chapter 1483, Statutes of 1987), exempted untreated metal shredder residue that was disposed in an appropriate Class III landfill from hazardous waste disposal fees and taxes. The AB 1542 conditional exemption was effective only if the generator

⁹ RWQCBs in the San Francisco, Central Valley, Los Angeles, Santa Ana, and San Diego regions.

¹⁰ See former Section 25143.6 of the Health and Safety Code, now repealed (SB 976, Bergeson, Ayala and Seymour, Chapter 1395, Statutes of 1985, Section 1).

¹¹ See letter from Dr. David J. Leu, Department of Health Services, Toxic Substances Control Division to Jim Wotherspoon, Hugo Neu-Proler Company, February 21, 1986.

carried out specified monitoring, recordkeeping, and testing requirements; if the waste was disposed within 45 days of being generated; and if DTSC determined that the metal shredder residue would not pose a threat to human health or water quality. AB 1542 required the metal shredder residue generators to analyze their residue for total and soluble concentrations of chromium, cadmium, copper, lead, mercury, nickel, and zinc, and for total concentrations of PCBs.

On November 30, 1987, in anticipation of AB 1542 going into effect on January 1, 1988, DTSC rescinded all disposal variances it had previously issued to metal shredder residue generators in 1984 and 1985.¹² The timing of this rescission allowed metal shredder residue generators sufficient time to apply to DTSC for a new variance prior to the effective date of AB 1542.

Of the eight metal shredding facilities in California at that time, only Levins Metal Corporation (later to become Sims Metal Management) and Schnitzer Steel Products, used the AB 1542 nonhazardous disposal provision. Four of the facilities applied to DTSC for nonhazardous waste classifications by submitting testing data demonstrating their use of the silicate and cement treatment. DTSC approved the treatment based on the reduction in solubility of the metals. Nonhazardous waste classifications were granted to Ferromet (later to become SA Rancho Cucamonga; no longer in operation), Hugo Neu-Proler (later SA Terminal Island), Clean Steel (later Ecology Auto Parts), and Orange County Steel Salvage (later SA Anaheim). The two remaining facilities—Pacific Steel (no longer operating) and Golden State Metal (later SA Bakersfield)—were not disposing of metal shredder residue at that time. By its own operation, AB 1542 expired on January 1, 1989.

In 1988, DTSC also issued Official Policy and Procedure Number 88-6 (OPP 88-6) to ensure that a consistent regulatory approach would be applied to the management and disposal of auto shredder waste.¹³ The policy was designed to assist staff in regulating generators, and provided clarification for several scenarios typically encountered at metal shredding facilities. Facilities that treat, store, or dispose of hazardous waste in California are required to have a hazardous waste permit. DTSC's OPP 88-6 focused on the chemical stabilization process being performed on the metal shredder residue, which required a hazardous waste facility permit. Through OPP 88-6 DTSC interpreted that the metal shredder aggregate that was undergoing separation at the metal shredding facilities was not yet a waste. If the chemical stabilization were to take place while the metal shredder aggregate was still undergoing separation processes, prior to the last separation process, the treatment would be considered "in-line" and would not require a permit. Each of the metal shredding facilities complied with OPP 88-6 by conducting a final ferrous metal separation step after the chemical stabilization. Each metal shredding facility now passes the CTMSR under a final magnet as a stage of ferrous separation to conform their operations to the OPP 88-6 policy and to avoid requiring a permit.

In 2002, DTSC conducted sampling at three auto shredding facilities to verify compliance with the existing statutes, regulations, and DTSC policy.¹⁴ The investigation identified longstanding and continuing issues related to the treatment, storage, and handling of hazardous waste at the facilities. However, DTSC's historic waste classifications and policies remained in effect during the investigation, and were affirmed in 2005, when one of the metal shredding facilities was reorganized under a new

¹² See DHS Letter to Adams RE: Auto Shredder Disposal Variances, November 30, 1987.

¹³ See DHS Official Policy and Procedure Number 88-6 Auto Shredder Waste Policy and Procedure, 1988 (OPP 88-6).

¹⁴ See DTSC draft report "California's Automobile Shredding Waste Initiative", 2002.

name, and requested that the previous “f letter” be transferred from the existing facility’s location to that of a new facility.¹⁵

In 2008, based on the results sampling conducted during the 2002 investigation, DTSC determined that the conditions contained in DTSC’s authorization letters and in OPP 88-6 were not sufficient to reduce the waste to a nonhazardous solid waste. DTSC informed the metal shredding facilities of DTSC’s intention to rescind the nonhazardous classifications and OPP 88-6,¹⁶ and to impose management standards (including requiring a permit or some other form of authorization to treat the metal shredder wastes). DTSC then began discussions with industry on the process to rescind the conditional nonhazardous waste classifications and require the waste to be managed as hazardous waste. In response, industry representatives provided DTSC with a significant amount of technical information supporting the treatment and legal arguments challenging the process to rescind the authorizations and policy. DTSC’s proposed rescission was not finalized, and the “f letters” and policy continued to remain in place.

During this time, DTSC conducted in-depth investigations of specific metal shredding facilities. An explosion at the SA Terminal Island facility (then operated by a subsidiary of Sims) in 2007 resulted in the release of hazardous waste. In 2011, the multi-agency enforcement action against the company resulted in penalties of nearly \$3 million and improved environmental protections. DTSC also investigated releases of light fibrous material (LFM) from the Sims facility in Redwood City beginning 2009. The enforcement action resulted in \$2.4 million in penalties in 2015 and enclosure of the entire facility to prevent future releases into the surrounding community.

In 2012, DTSC again met with industry to discuss the “f letters” and OPP 88-6. DTSC raised questions about the efficacy of the treatment, the protectiveness of the policy, and the appropriateness of allowing the metal shredding facilities to perform hazardous waste treatment without a permit. DTSC invited industry to provide additional information that demonstrated the effectiveness of the chemical treatment through a treatability study, as well as to document the industry’s claims that the current treatment was the best available.

In 2013, the Institute of Scrap Recycling Industries (ISRI) submitted a Draft Metal Shredder Residue Treatability Study Workplan to DTSC, presenting a methodology to determine the effectiveness of various application rates of the current treatment technology.¹⁷ In late 2013 and early 2014, DTSC held a series of workshops with the public, other state and local government agencies, and the regulated community to receive feedback and input on the development of the treatability study.¹⁸

In 2014, Senator Jerry Hill introduced SB 1249 (Chapter 756, Statutes of 2014) in response to safety concerns at metal shredding facilities related to two recent fires in his district, and his concern that the

¹⁵ See DTSC Letter to Lynn Delzell regarding the transfer of the Clean Steel nonhazardous waste classification (“f letter”) to Pacific Rail Industries, dated August 1, 2005.

¹⁶ See DTSC Letter to Metal Shredding Facilities repealing “f letters” and Policy and Procedure 88-6 effective January 1, 2009, dated September 29, 2008.

¹⁷ See DTSC Letter to Margaret Rosegay, July 11, 2013, providing DTSC’s review of the Draft Metal Shredder Residue Treatability Study Workplan (Treatability Study Workplan), dated May 9, 2013.

¹⁸ Local Governmental Agency Workshops were held in Berkeley on November 7, 2013 and in Cypress on November 15, 2013. Public Workshops were held in Wilmington on January 14, 2014 and in Oakland on January 23, 2014. A meeting with Landfill Owners and Operators was held on December 16, 2013.

hazards associated with these operations were not adequately regulated. The Senate Committee on Environmental Quality noted that many of these facilities are in highly populated areas and have been found to have contaminated air and water surrounding their facilities.¹⁹ The bill was amended to require DTSC to consider additional aspects of the industry and its wastes. SB 1249 was passed by the Legislature, signed by the Governor, and became effective on January 1, 2015. The final bill as chaptered authorizes DTSC to adopt regulations establishing management standards for metal shredding facilities for hazardous waste management activities within the department's jurisdiction, as an alternative to the requirements of existing hazardous waste control law, based on a comprehensive evaluation of the industry and its practices, which would identify the appropriate level of regulatory controls to place on the industry and the management of treated metal shredder residue.

1.5 Requirements of Legislation

SB 1249 enacted Health and Safety Code Sections 25150.82 through 25150.86. These provisions are collectively referred to in this document as the Metal Shredding Facilities Law. It requires DTSC to evaluate the risks posed by metal shredding facilities and the management of metal shredder aggregate. Based on the findings of its evaluation, SB 1249 authorizes DTSC to either develop alternative management standards for metal shredding facilities or to rescind any prior decisions and require the facilities and their hazardous wastes to be subject to full hazardous waste management requirements.

In Section 1 of the Metal Shredding Facilities Law, the Legislature expressed its intent "that the conditional nonhazardous waste classifications, as documented through the historical 'f letters,' be revoked and that metal shredding facilities be thoroughly evaluated and regulated to ensure adequate protection of the human health and the environment."

The general requirements of the Metal Shredding Law:

- Authorize DTSC, in consultation with CalRecycle, SWRCB, and affected local air quality management districts, to adopt regulations establishing management standards for metal shredding facilities for hazardous waste management activities as an alternative to current hazardous waste control law and regulations.
- Require DTSC, before adopting regulations establishing alternative management standards, to first prepare an analysis evaluating the hazardous waste management activities to which alternative management standards would apply.
- Prohibit DTSC from adopting management standards that are less stringent than applicable standards under federal law.
- Authorize the alternative management standards, to the extent consistent with the federal hazardous waste standards, to allow CTMSR to be classified and managed as nonhazardous waste.

¹⁹ See SB 1249 Committee Analysis, Senate Committee on Environmental Quality, Committee Consultant Rachel Machi Wagoner, April 30, 2014, p. 3.

- Allow CTMSR that is classified as nonhazardous waste pursuant to the alternative management standards to be managed as either alternative daily cover or for beneficial reuse, or to be placed in a unit that meets specified state waste discharge requirements.
- Require that all hazardous waste determinations and policies, procedures or guidance issued by DTSC before January 1, 2014, governing CTMSR be inoperative if DTSC completes its analysis and does either of the following: 1) adopts new regulations establishing alternative management standards; or 2) rescinds the existing conditional nonhazardous waste classifications.
- Sunset DTSC's authority to adopt regulations on January 1, 2018.
- Authorize DTSC to collect an annual fee from metal shredding facilities to pay DTSC's costs for implementation. This bill also establishes a separate subaccount in the Hazardous Waste Control Account and requires the fees to be deposited into the account, to be available upon appropriation by the Legislature, and authorizes regulations relating to fee provisions to be adopted as emergency regulations.
- Repeal Section 25143.6 of the Health and Safety Code.²⁰

In order to implement the Metal Shredding Facilities Law, the Legislature directed DTSC to evaluate:

- 1) The operative environmental and public health regulatory oversight of metal shredding facilities (HSC Section 25150.82(d)(1)); and
- 2) The hazardous waste management activities (HSC Section 25150.82(d)(2)).

The Legislature then directed DTSC, if it were to propose any alternative management standards, to prepare an analysis that would address the following:

- 1) The types of hazardous waste and the estimated amounts of each hazardous waste that are managed as part of the activity (HSC Section 25150.82(d)(3)(A));
- 2) The complexity of the activity, and the amount and complexity of operator training, equipment installation and maintenance, and monitoring that are required to ensure that the activity is conducted in a manner that safely and effectively manages each hazardous waste (HSC Section 25150.82(d)(3)(B));
- 3) The chemical or physical hazards that are associated with the activity and the degree to which those hazards are similar to, or different from, the chemical or physical hazards that are associated with the production processes that are carried out in the facilities that produce the hazardous waste that is managed as part of the activity (HSC Section 25150.82(d)(3)(C));
- 4) The types of accidents that might reasonably be foreseen to occur during the management of particular types of hazardous waste streams as part of the activity, the likely consequences of those accidents, and the reasonably available actual accident history associated with the activity (HSC Section 25150.82(d)(3)(D));

²⁰ Repeal of the requirement for five RWQCBs to prepare a list of Class III nonhazardous waste landfills that would be authorized to accept and dispose of metal shredder residue that was enacted by SB 976 (Bergeson, Ayala and Seymour, Chapter 1395, Statutes of 1985).

- 5) The types of locations where hazardous waste management activities associated with metal shredding and management of treated metal shredder waste may be carried out and the types of hazards or risks that may be posed by proximity to the land uses described in Section 25227 (HSC Section 25150.82(d)(3)(D)).²¹

The Legislature next directed DTSC to demonstrate, for any alternative management standards that DTSC is proposing, one of the following:

- 1) The requirements that the alternative management standards replace are not significant or important for either a) Preventing or mitigating potential hazards to human health or safety or to the environment posed by the activity; or b) Ensuring that the activity is conducted in compliance with other applicable requirements of this chapter and the regulations adopted pursuant to this chapter (HSC Section 25150.82(e)(1));
- 2) A requirement is imposed and enforced by another public agency that provides protection of human health and safety and the environment that is as effective as, and equivalent to, the protection provided by the requirement, or requirements, that the alternative management standards replace (HSC Section 25150.82(e)(2));
- 3) Conditions or limitations imposed as part of the alternative management standards will provide protection of human health and safety and the environment equivalent to the requirement, or requirements, that the alternative management standards replace (HSC Section 25150.82(e)(3)); or
- 4) Conditions or limitations imposed as part of the alternative management standards accomplish the same regulatory purpose as the requirement, or requirements, that the alternative management standards replace, but at less cost or with greater administrative efficiency, and without increasing potential risks to human health or safety or to the environment (HSC Section 25150.82(e)(4)).

SB 1249 also allows DTSC to classify and manage CTMSR as nonhazardous waste if the analysis demonstrates that classification and management as hazardous waste is not necessary to prevent or mitigate potential hazards to human health or safety or to the environment. SB 1249 authorizes the classification of CTMSR as nonhazardous waste to be included in any regulations to establish alternative management standards. The alternative management standards may allow CTMSR to be used as either alternative daily cover or for beneficial reuse, or to be placed as a nonhazardous waste in a land disposal unit that meets specified requirements.

However, SB 1249 requires the disposal of CTMSR to be regulated by existing hazardous waste control law unless alternative management standards are adopted by DTSC. If the department does not adopt alternative management standards that include the classification of CTMSR as nonhazardous waste, SB 1249 allows the current disposal of CTMSR to continue until the department rescinds the conditional nonhazardous waste classifications. If DTSC were to rescind the nonhazardous waste classifications without alternative management standards, or other new regulations in place which classify the waste

²¹ HSC § 25227 cites sensitive land uses including hospitals for humans, schools for persons under 21 years of age, day care centers for children, and permanently occupied human habitations, other than those used for industrial purposes.

as nonhazardous, the waste would be required to be managed as hazardous waste. This provision in SB 1249 which allows DTSC to adopt alternative management standards and to classify metal shredder waste as nonhazardous sunsets as of January 1, 2018.

Importantly, SB 1249 does not affect or limit DTSC's other statutory authorities to regulate metal shredding operations or to classify wastes as hazardous or nonhazardous as appropriate to ensure proper management and disposal.

The information summarized in this report provides the evaluations, analyses, and demonstrations required by SB 1249.

DRAFT

2 EVALUATION

Pursuant to HSC Sections 25150.82(d)(1) and 25150.82(d)(2), the Metal Shredding Facilities Law requires DTSC to evaluate:

- The operative environmental and public health regulatory oversight of metal shredding facilities, identifying activities that need to be addressed by the alternative management standards or other advisable regulatory or statutory changes; and
- The hazardous waste management activities being conducted by metal shredding facilities or at landfills that handle metal shredder waste.

This section presents the information that DTSC gathered in performing the required evaluations.

2.1 Identification of Metal Shredding Facilities

Pursuant to SB 1249, DTSC first identified all metal shredding facilities that would be evaluated based on the statutory definition of a metal shredding facility and using available data as shown in Table 1.

Table 1. Databases Searched for Potential Metal Shredding Facilities	
Database	Identified metal handlers
Hazardous Waste Tracking System (HWTS)	1,325 entities with ID numbers with company featuring keywords (“metal” or “scrap”) or Standard Industrial Classification (SIC) codes related to metal recycling activities
California Department of Motor Vehicles list of Licensed Automobile Dismantlers	1,111 auto recyclers identified as automobile salvage/recycler
DTSC’s Certified Appliance Recycler (CAR) Program	343 registered facilities
State of California Auto Dismantlers Association	171 member companies
Dunn and Bradstreet Business Listings for specific North American Industry Classification System (NAICS) codes	999 business entities with NAICS codes for used motor vehicle parts, metal wholesalers, metal service centers, and recyclable mineral merchant wholesalers
Institute of Scrap Recycling Industries (ISRI)	241 California businesses
2014 North American Scrap Metals Directory	8 facilities

The data review identified approximately 2,000 businesses that managed scrap metal (some of the businesses were identified across multiple databases). In narrowing the scope to further identify only metal shredding facilities, DTSC identified 400 facilities that were shown in HWTS records to have shipped contaminated soil or other hazardous waste solids off-site for disposal. DTSC examined satellite images of the 400 facilities in Google Earth and identified 101 locations where metal processing equipment and piles of material indicating that metal shredding operations were visible.

DTSC next sought the assistance of the CUPAs in evaluating the 101 potential metal shredding operations within their respective jurisdictions.²² The CUPAs confirmed that 74 of the identified locations did not perform any shredding activities, that 18 facilities had not been inspected and the CUPAs had no additional information on them, and that nine were potential metal shredding facilities. DTSC’s Office of Criminal Investigations (OCI) then conducted follow-up inspections of the facilities identified by the CUPAs to determine if they met the statutory definition of a metal shredding facility.

OCI completed its initial inspection of the facilities in December 2015. The name and locations of metal shredding facilities authorized to operate in California are shown in Table 2. In addition to the facilities identified in Table 2, an SA Recycling facility in Rancho Cucamonga holds a valid “f letter” but was not operating as a metal shredding facility as of 2017.²³ DTSC identified two additional facilities which were not currently authorized to operate: Universal Recycling Services in Stockton and Kramar’s Iron and Metal in Sun Valley. Due to pending enforcement activities by DTSC, these facilities were not included in the evaluation.

Table 2. Authorized Metal Shredding Facilities Operating in California		
Facilities Currently Holding an “f letter”	Original “f letter” Recipient	Original “f letter” Issue Date
SA Recycling, Terminal Island 901 New Dock Street Terminal Island, CA 90731	Hugo Neu-Proler Company 901 New Dock Street P. O. Box 3100 Terminal Island, CA 90731	February 21, 1986
Schnitzer Steel Products 1101 Embarcadero West Street Oakland, CA 94607-2536	Schnitzer Steel Products Foot of Adeline Street P.O. Box 747 Oakland, CA 94604	June 13, 1988
SA Recycling, Anaheim 3200 East Frontera Street Anaheim, CA 92806-2822	Orange County Steel Salvage, Inc. 3200 E. Frontera Road Anaheim, CA 92806	December 19, 1988
Sims Metal Management 699 Seaport Boulevard Redwood City, CA 94063-2712	LMC Metals 600 South 4th Street Richmond, CA 94804	May 31, 1989
SA Recycling, Bakersfield 2000 East Brundage Lane Bakersfield, CA 93307-2734	Golden State Metals, Inc. P.O. Box 70158 Bakersfield, CA 93387	February 25, 1992
Ecology Auto Parts, Inc. doing business as (DBA) Pacific Rail Industries 785 East M Street Colton, CA 92324-0000	Transferred from Clean Steel, Inc. August 1, 2005	Transferred from Clean Steel, Inc. August 1, 2005

²² See DTSC Letter requesting assistance from the CUPAs, July 28, 2015.

²³ See DHS Letter to Mr. Thomas Hightower, Ferromet, Inc., February 23, 1990.

The locations of the six metal shredding facilities that were identified as currently active and operating under the authority of the “f letters” and OPP 88-6 are shown in Figure 2. Additionally, the locations of the five solid waste landfills that accept CTMSR as of 2017 are also presented in Figure 2.



Figure 2. Metal shredding facilities currently active and operating under the authority of the “f letters” and OPP 88-6 and landfills accepting CTMSR.

2.2 Survey of Metal Shredding Facilities

In 2015, DTSC sent questionnaires to the authorized metal shredding facilities and to the landfills currently accepting CTMSR as a preliminary assessment of their operational practices. The survey requested information on general operating conditions and practices, acceptance policies, volumes processed, environmental controls, and waste management practices related to the generation, treatment, storage, transportation, and disposal of metal shredder wastes. Responses were returned by all six metal shredding facilities, and from four of the five landfills. The complete responses to the questionnaires are provided in Appendices A and B.

General information about each of the metal shredding facilities and their operations is provided below. Additional information from these surveys has been integrated into the relevant sections of this Analysis.

DO NOT CITE OR QUOTE

SA Terminal Island

SA Terminal Island is located on 27 acres in the Terminal Island area of the Port of Long Beach. The area is entirely industrial. More than 95 percent of the facility site is covered with pavement or by structures.²⁴ The facility captures storm water and wash water from the yard and reuses it after chemical treatment and clarification. Water that is not reused is discharged to the Cerritos Channel, which flows to the Pacific Ocean.



SA metal recycling facility in Terminal Island CA.

The facility receives automobiles, consumer and industrial appliances, manufacturing scrap, curbside collection scrap, demolition scrap, miscellaneous scrap from consumers and homeowners, and industrial scrap. In some circumstances, appliances and vehicles have fluids, batteries, mercury switches, and other pollutants, which are removed on-site prior to being sent to the shredder. The facility reported that a total weight of approximately 300,000 metric tons of scrap metal was shredded for the year 2014. The scrap metal consisted of 42.16 percent automobiles, 43.63 percent appliances, and 14.21 percent miscellaneous. SA Terminal Island uses a 9,000-horsepower mega shredder manufactured by Riverside Engineering.

SA Terminal Island reported that there is no material storage on bare ground. The facility reported up to 100,000 tons of ferrous and non-ferrous scrap metal were stored on-site at any given time. The facility

²⁴ See Storm Water Pollution Prevention Plan, SA Recycling LLC dba SA Recycling, Waste Discharge Identification (WDID) number 419I021125, June 20, 2015.

reported that it typically stores 1,000 to 4,000 tons of metal shredder waste with its ferrous metals removed, prior to the removal of non-ferrous metals. SA Terminal Island reported that it typically stores 1,500 to 2,000 tons of CTMSR on-site at any given time, but that up to 10,000 tons could potentially be present at the site.

Schnitzer Steel Products

Schnitzer Steel Products (Schnitzer) is located on 26.5 acres in southern Oakland in the industrialized port area. The facility is adjacent to Oakland Inner Harbor and the Port of Oakland.²⁵ Approximately 57 percent of the site is composed of paved roads and other paved areas, 12 percent is composed of buildings and structures, and the remaining 31 percent is composed of unpaved dirt and gravel surfaces. The facility is bounded to the south by the Oakland Inner Harbor, to the east and west by the Port of Oakland, and to the north by Embarcadero West and the Union Pacific Railroad tracks. The facility is located approximately 0.3 mile south of Interstate 880. The nearest residential area is approximately one-half mile to the north of the facility, with other residents to the south in nearby Alameda.



Schnitzer Steel Products metal recycling facility, located in Oakland, CA.

The facility does not normally discharge storm water. Any storm water that falls on the facility is contained on-site and used as cooling water in the shredder. Containment is achieved by a combination of structural and physical features, including a 2,400-foot concrete wall with a raised walkway that runs the entire length of the shoreline, a 1,300-foot concrete wall that runs along the facility's western

²⁵ See Industrial Activities Storm Water Pollution Prevention Plan, prepared for Schnitzer Steel Products Company, Inc., Oakland, CA, WDID number 2011003365, June 2015.

boundary, a 1,000-foot concrete wall and 300-foot sheet pile wall that run along the facility's eastern boundary, and a 1,000-foot concrete wall that encloses the pier crane dock. Storm water is retained on-site in a 1.2-million-gallon storage tank pending use in the shredder. There are no storm water outfalls at the facility and no storm drains that connect to the separate municipal storm sewer system.

Schnitzer processes iron containing scrap including end-of-life vehicles, appliances, and demolition scrap; non-ferrous metals including copper, aluminum, and stainless steel; electronics scrap; and lead-acid batteries. Schnitzer's scrap acceptance policy prohibits items such as elemental mercury; nickel-cadmium, lithium ion, and alkaline batteries; scrap metals with free-flowing liquids (e.g. used oil); scrap metals with refrigerants; scrap metals with capacitors, ballasts, and transformers; munitions and other explosives; asbestos; radioactive scrap metal; and any wastes that contain hazardous materials.

Schnitzer reported that the scrap metal processed at its facility was composed of approximately 50 percent end-of-life vehicles, 10 percent appliances, and 40 percent other light tin or iron. Schnitzer also uses a 9,000-horsepower mega shredder manufactured by Riverside Engineering.

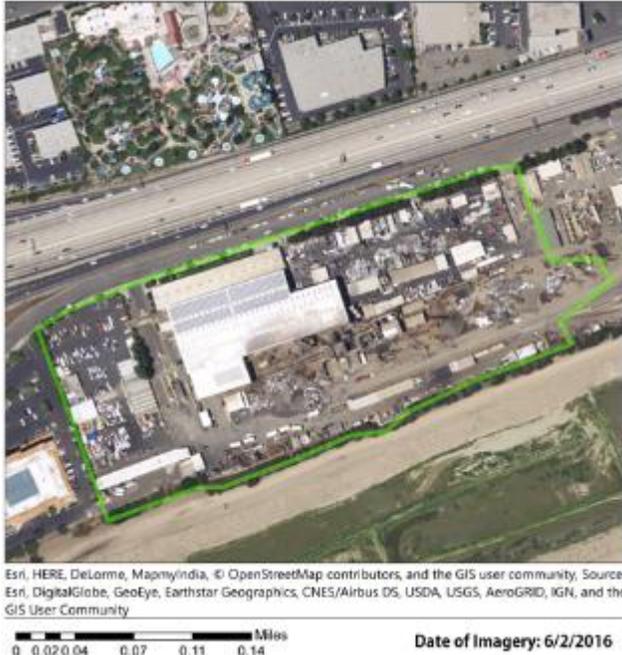
Schnitzer reported that between 70,000 and 80,000 tons of sorted scrap metals are stored outdoors at any given time. Additionally, on average there may be 300 to 500 tons of metal shredder aggregate which has had ferrous metal removed stockpiled near the shredder and the non-ferrous separation plant. The facility reported that the maximum amount of CTMSR typically stored at the facility is approximately 350 tons. Typically, 20 loads per day of CTMSR are transported off-site for disposal in a landfill. Each load weighs between 20 and 25 tons.

SA Anaheim

SA Anaheim is located on approximately 20 acres of a 40-acre site in Anaheim, near retail centers, warehouses, and residential neighborhoods. Scrap metal operations are conducted on the 20-acre portion. The remainder of the site is used as a railyard.²⁶ The facility is completely paved and is designed to collect storm water for recycling and on-site reuse. The site is surrounded by Highway 91 to the west and north, the Santa Ana River Basin to the south-southeast, and commercial properties including a hotel to the south-southwest. Other surrounding land areas are zoned heavy industrial.

SA Anaheim reported that end-of-life vehicles, consumer and industrial appliances, manufacturing scrap, curbside collection scrap, demolition scrap, miscellaneous scrap from consumer and homeowners, and industrial scrap are all processed at the facility. The facility receives scrap from industrial accounts, from other scrap metal recycling facilities, and from the public. Some materials are received with the fluids, batteries, mercury switches, and other pollutants already removed. In other circumstances, such pollutants are removed from the appliances and vehicles at the site, in a specially designated area, prior to being sent to the shredder.

²⁶ See Storm Water Pollution Prevention Plan SA Recycling LLC dba SA Recycling, WDID: 830MR000004, revision dated June 6, 2011.



SA metal recycling facility, located in Anaheim, CA.

SA Anaheim reported that approximately 225,000 metric tons of scrap metal were shredded in 2014. The scrap metal was composed of 39.25 percent end-of-life vehicles, 34.63 percent appliances, and 26.11 percent miscellaneous. The facility uses a 7,000-horsepower mega shredder manufactured by The Shredder Company.

The facility reported that it stores more than 20,000 tons of separated ferrous and non-ferrous scrap metal on-site at any given time. The separated ferrous and non-ferrous scrap is stored in containers and in piles in bermed areas that also serve as surface impoundments for storm water collection. These storage locations are in various areas of the site. There are typically 500 to 1,000 tons of metal shredder aggregate which has had the ferrous metal removed stored in the metals recovery plant. The facility reported storing less than 150 tons of CTMSR on-site at any one time.

Storm water collected from the parking lot and the central industrial operations main yard is captured and treated in the storm water treatment system prior to reuse or discharge. The facility has a multi-stage chemical treatment process to reduce the concentration of contaminants in the collected water. The facility has a 135,000-gallon aboveground storage tank. Water exiting the treatment system which is not reused on-site is discharged to the municipal storm drain that discharges to the Santa Ana River, which eventually discharges to the Pacific Ocean.

Sims Metal Management

Sims Metal Management (Sims) is located on 13.54 acres in the northern industrialized section of the Port of Redwood City and adjoins Redwood Creek, a tributary to San Francisco Bay.²⁷ The facility is

²⁷ See Storm Water Pollution Prevention Plan for Sims Metal Management, Redwood City, June 30, 2015.

surrounded by sensitive wetlands, including Bair Island State Marine Park, and extensive commercial salt evaporation ponds. Residential areas are located approximately two miles south of the facility.



Sims metal recycling facility, located in Redwood City, CA.

The facility reported that it stores approximately 3,400 tons of ferrous and non-ferrous scrap on-site at any given time. In addition, the facility stores 350 tons of CTMSR awaiting disposal.

The facility reported that approximately 90 percent of the site is either paved or beneath structures.²⁸ There are no storm drain connections from the facility to any off-site storm water drainage system. Run-off and on-site precipitation from storm events is collected in two storage ponds designed to contain enough volume to hold the precipitation from a 100-year storm event. One pond is lined while the other, which has a surface area of 95,000 square feet (2.2 acres), is unlined. The unlined pond is also used to store ferrous metal before it is loaded onto ships. The collected water is used for dust control in the yard, and for cooling and dust control in the shredder and material recovery plant.

The facility has installed 34-foot fencing on the east boundary, 20-foot fencing on the south boundary, and 25-foot fencing on the west boundary. The fence on the east side of the shredder stockpile is 22 feet high, with a “candy cane” curve installed at the top intended to capture fugitive emissions of LFM.

²⁸ See Emissions Minimization Plan, Regulation 6, Particulate Matter, Rule 4: Metal Recycling and Shredding Operations, Sims Metal Management, Redwood City, September 25, 2014.

SA Bakersfield

SA Bakersfield is located on 18.1 acres in central Bakersfield in a predominantly industrial area, and a mile from the nearest residences.²⁹ More than 95 percent of the facility is paved or beneath structures.



SA metal recycling facility, located in Bakersfield, CA.

The facility processes end-of-life vehicles, consumer and industrial appliances, manufacturing scrap, curbside collection scrap, demolition scrap, consumer/homeowner scrap, and industrial scrap. It receives scrap from industrial accounts, materials from other scrap metal recycling facilities, and materials from the public. The facility reported that it processed approximately 75,000 metric tons of scrap metal in 2014. The scrap was composed of 52.34 percent end-of-life vehicles, 30.10 percent appliances, and 17.56 percent miscellaneous. The facility uses a 6,000-horsepower mega shredder manufactured by The Shredder Company.

The facility reported that less than 6,000 tons at any given time of ferrous and non-ferrous scrap is stored in bins, boxes, and in piles in bermed areas that also serve as surface impoundments. Shredded scrap metal is not stored at the site, but 300 to 800 tons of metal shredder aggregate with ferrous metal removed is stored on concrete paved surfaces prior to further metal removal. Following the chemical stabilization treatment, there can be from 100 to 300 tons of CTMSR stored on-site at any one time.

²⁹ See Storm Water Pollution Prevention Plan, SA Recycling LLC dba SA Recycling, June 17, 2015.

SA Bakersfield reported that it has no active outfalls that are a point of discharge. Rather, it manages storm water through infiltration on the property. The storm water management includes settling/sedimentation, oil-water separation, filtration, and reuse.

Ecology Auto Parts

Ecology Auto Parts (Ecology) is located on approximately 22 acres in an industrial section of Colton, but with residences nearby. Ecology accepts various types of materials for shredding, including end-of-life vehicles, appliances, tin, and other forms of scrap metal. In most instances, auto bodies that have not been depolluted are not accepted directly at Ecology's shredder facility; most have fluids, batteries, mercury switches, and other pollutants removed before delivery to the shredder facility. Ecology estimated that it processed 264,000 tons of scrap metal in 2014, comprising 35 percent end-of-life vehicles, 56 percent appliances, and 9 percent miscellaneous. Ecology uses a 6,000-horsepower hammer mill manufactured by Metso Corporation.



Ecology Auto Parts metal recycling facility, located in Colton, CA.

Ecology is unique among the other shredding facilities in that it performs the initial removal of ferrous materials using magnets at the shredding facility in Colton, but then transports the remaining aggregate to a facility in Arizona for further processing to recover the non-ferrous metals. At one time, the facility recovered non-ferrous metals at the Colton facility and then chemically treated the remaining metal shredder aggregate on-site. However, since the metal shredder aggregate is currently sent off-site for further processing, Ecology is no longer operating the chemical stabilization treatment system.

Ecology reported that between 80 and 85 percent of the site is paved, and that the site is graded so that all storm water runoff is captured in a lined storm water pond with a capacity of one million gallons.³⁰ The captured water is transferred to a holding tank, also with a capacity of one million gallons, and reused for cooling in the hammer mill and for dust suppression throughout the facility. Ecology's retention pond was constructed with a capacity to accommodate the precipitation from a 100-year, 24-hour storm event.

2.3 Operative Environmental and Public Health Regulatory Oversight of Metal Shredding Facilities

This section presents the information that DTSC gathered to evaluate the operative environmental and public health regulatory oversight of metal shredding facilities, and to identify activities that need to be addressed by the alternative management standards or other advisable regulatory or statutory changes.

Table 3 provides information regarding the local environmental regulatory agencies that exercise jurisdiction over the metal shredding facilities.

³⁰ See Report of Investigation on Ecology Auto Parts, Inc., Colton dba: Pacific Rail Industries, December 16, 2015.

Table 3. Local Environmental Regulatory Agencies That Oversee Metal Shredding Facilities			
Metal Shredding Facility	Air District	RWQCB	CUPA
SA Recycling, Terminal Island 901 New Dock Street Terminal Island, CA 90731 Los Angeles County	South Coast Air Quality Management District 21865 Copley Drive Diamond Bar, CA 91765-4182	Los Angeles Regional Water Quality Control Board 320 West Fourth Street Los Angeles, CA 90013	Los Angeles County Fire Department 5825 Rickenbacker Road Commerce, CA 90040
Schnitzer Steel Products 1101 Embarcadero West Oakland, CA 94607-2536 Alameda County	Bay Area Air Quality Management District 939 Ellis Street San Francisco, CA 94109-7799	San Francisco Bay Regional Water Quality Control Board 1515 Clay Street Oakland, CA 94612	Alameda County Environmental Health 1131 Harbor Parkway, Suite 240 Alameda, CA 94502-
SA Recycling, Anaheim 3200 E Frontera Street Anaheim, CA 92806-2822 Orange County	South Coast Air Quality Management District 21865 Copley Drive Diamond Bar, CA 91765-4182	Santa Ana Regional Water Quality Control Board 3737 Main Street, Suite 500 Riverside, CA 92501-3348	Anaheim City Fire Department 201 South Anaheim Boulevard, Suite 300 Anaheim, CA 92805
Sims Metal Management 699 Seaport Boulevard Redwood City, CA 94063-2712 San Mateo County	Bay Area Air Quality Management District 939 Ellis Street San Francisco, CA 94109-7799	San Francisco Bay Regional Water Quality Control Board 1515 Clay Street, Suite 1400 Oakland, CA 94612	San Mateo County Environmental Health 2000 Alameda de las Pulgas San Mateo, CA 94403
SA Recycling, Bakersfield 2000 East Brundage Lane Bakersfield, CA 93307-2734 Kern County	San Joaquin Valley Air Pollution Control District 1990 East Gettysburg Avenue Fresno, CA 93726	Central Valley Regional Water Quality Control Board 1685 E Street Fresno, CA 93706-2007	Kern County Environmental Health Services Department 2700 M St., Suite 300 Bakersfield, CA 93301-2370
Ecology Auto Parts, Inc. DBA Pacific Rail Industries 785 East M Street Colton, CA 92324-0000 San Bernardino County	South Coast Air Quality Management District 21865 Copley Drive Diamond Bar, CA 91765-4182	Santa Ana Regional Water Quality Control Board 3737 Main Street, Suite 500 Riverside, CA 92501-3348	San Bernardino County Fire Department Hazardous Materials Division 620 South E Street San Bernardino, CA 92415

2.3.1 Air Quality: Regulation by Local Air Quality Management Districts or Air Pollution Control Districts

The federal Clean Air Act requires attainment of National Ambient Air Quality Standards (NAAQs) for criteria air pollutants causing human health impacts. The criteria pollutants include: ozone, particulate matter (PM), carbon monoxide, lead, nitrogen dioxide, and sulfur dioxide. The Clean Air Act established deadlines for all states to reach attainment levels for these pollutants. States are required to develop a State Implementation Plan (SIP) to attain the NAAQs by the attainment deadlines. SIPs must contain air pollution measures in adopted “regulatory” form and must be approved by US EPA as containing sufficient measures to attain NAAQs. California law makes the California Air Resources Board the lead

agency for developing and implementing the SIP. Local air districts and certain other agencies prepare SIP elements and submit them to ARB for review and approval. ARB forwards SIP revisions to US EPA for approval and publication in the Federal Register. Local air districts are responsible for developing and implementing the portion of the SIP applicable within their boundaries, including adoption of control regulations for stationary sources, and implementation of other source control measures. Metal shredding facilities are stationary sources of air pollution subject to regulation by local air districts.

Metal shredding facilities and landfills that accept metal shredder waste are also regulated by California's Air Toxics "Hot Spots" program.³¹ The program's goals are to collect emissions data, identify facilities having localized impacts, ascertain health risks, and notify nearby residents of significant risks. The program requires stationary sources to report the types and quantities of certain substances their facilities routinely release into the air. Each of the metal shredding facilities and landfills has submitted data on their emissions, including their annual emissions of particulate matter and lead. These data are reviewed by the local air district and, depending on the nature and quantity of the emissions, the facility may be required to prepare a formal health risk assessment, notify the public of potential risks, and take additional actions. The local air districts submit emissions and health risk information to ARB, which then provides that information to the public.³²

Emissions from each of the metal shredding facilities are quantified and permitted by the local air districts. Total facility throughput is also often specified in the permits, along with the types and quantities of pollutants, such as volatile organic compounds (VOCs) and particulate matter. Visible emissions are also often specified.

The Ringelmann Smoke Chart, referenced in this section, is used to quantify visible emissions. The Ringelmann scale was officially promulgated by the U.S. Bureau of Mines and is used to determine whether emissions of smoke or dust are within limits or standards of permissibility established and expressed with reference to the chart.³³ It is widely used by law enforcement or compliance officers in jurisdictions that have adopted standards based on visible emissions.

A summary of the regulatory oversight of the metal shredding facilities by local air districts is shown in Table 4.

³¹ See Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly), as amended (SB 1731 1992, Calderon).

³² Annual emissions data is available on the ARB website at:
<https://www.arb.ca.gov/app/emsinv/facinfo/facinfo.php>

³³ United States Department of the Interior, Bureau of Mines, Information Circular 8333, 1967.

Table 4.						
Regulatory Oversight of Metal Shredding Facilities by Local Air Districts						
Facility	Sims Metal Manageme	Schnitzer Steel Products	SA Terminal Island	SA Anaheim	SA Bakersfield	Ecology
District	BAAQMD	BAAQMD	SCAQMD	SCAQMD	SJVAPCD	SCAQMD
Permit Identification	PPermitfor Plant #5152	Permit for Plant #208	Permit No. R-G27565	Permit No. G 16984	Permit Number(s): S-1256-7-2	Permit No. G32848
Point Source	Hood, H2O, Cyclone	Hood, H2O, Cyclone	Hood, H2O	Hood, H2O	Hood, H2O	Hood, H2O
VOC Control Technology	Scrubber	Scrubber	RTO, Scrubber	RTO, Scrubber	No RTO or Scrubber	RTO
Fugitive Emissions Requirements	Ringelmann less than 1.0, Emissions Minimization Plan	Ringelmann less than 1.0, Emissions Minimization Plan	Must be kept moist	Must be kept moist	5% max opacity, PM10 limit	Must be kept moist
Maximum Throughput Authorized	200 tons/hr max	720,000 tons/yr	108,333 tons/mo max	56,160 tons/mo	2,300 tons/day max	40,000 tons/mo max
Particulate Matter Emissions in 2015, tons/yr³⁴	6.1	0.4	1.7	0.9	1	0
PM 10 Emissions in 2015, tons/yr	3.9	0.3	0.4	0.2	0.6	0
PM 2.5 Emissions in 2015, tons/yr	2.9	0.2	0.3	0.2	0.4	0
Lead Emissions in 2015, lbs/yr	N/A	0	13.4	1	N/A	N/A

The following is more detailed information regarding the air pollution control permits and compliance activities at each of the facilities.

³⁴ All emissions data from <https://www.arb.ca.gov/app/emsinv/facinfo/facinfo.php>

SA Terminal Island

SA Terminal Island is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). Air permits issued by SCAQMD include Permits to Operate for the shredder (R-G27565), the metals recovery plant (R-G18947), and the shredder air pollution control system (APCS) (R-G27566).

SA Terminal Island and the other facilities within the SCAQMD have the most extensive air pollution control equipment. Regenerative Thermal Oxidizers (RTOs) are required at the three facilities to remove VOCs from exhaust air. The RTO uses a substrate bed of ceramic material to absorb heat from the exhaust gas. Incoming gases are passed over this heated bed, which destroys the organic compounds by oxidizing (burning) them. The RTO requires a dust-free air stream, so demisters and PM filters are placed before the oxidizer. Any dust containing metal particles that enter the RTO can form slag, which reduces performance and can damage the unit. Subjecting organic compounds to the high temperatures in the oxidizer ideally yields only carbon dioxide and water vapor. Any halogenated compounds in the incoming exhaust stream, such as remaining chlorofluorocarbons (CFCs) in vehicle and appliance refrigerant systems, can create acid gasses when burned in the oxidizer, and are removed using a wet scrubber at the final stage of the air pollution control system following the RTO.

The facility employs a variety of measures to control off-site migration of contaminants. These include:

- RTO for control of VOCs
- A chemical scrubber to neutralize and remove acid gases from the shredder exhaust
- Water spray inside the shredder chamber to control temperature and reduce dust generation
- Overhead exhaust hood to collect particulate matter and VOCs generated from shredding
- Dust/mist collector to capture oils, particulate matter and moisture from shredder exhaust
- Various moisture-coalescing filters and high-efficiency dust filters
- Periodic sweeping of material stacking areas throughout the day to reduce dust generation
- A sweeper truck to clean the entrances and driveways in the yard
- Water applied to the yard, haul roads, and material piles to reduce dust generation

The facility is concrete-paved, and is designed to allow collection of the wash water for recycling and subsequent reuse on-site.

Schnitzer Steel Products

Schnitzer is under the jurisdiction of the Bay Area Air Quality Management District (BAAQMD). Air permits issued by BAAQMD include a Permit to Operate for Plant # 208, as well as application of BAAQMD Rule 4 for Metal Recycling and Shredding Operations, and BAAQMD Regulation 6 for particulate matter. The facility employs a variety of control measures to eliminate the potential for off-site contamination. These include:

- Shredder emissions abatement by a water spray system
- Irrigated cyclone scrubber (venture scrubber), mist eliminator, moving dry belt filter
- A simple cyclone downstream of the magnets
- Frequent sweeping of paved traffic surfaces with a mobile sweeper
- Frequent application of water to all traffic surfaces and stockpiles
- Use of mist turbines at key material handling areas to minimize fugitive emissions
- Enclosure of many material conveyance systems to minimize fugitive emissions

- Use of an industrial wheel wash at the facility exit to minimize tracking off-site

BAAQMD Regulation 6, Rule 4 for Metal Recycling and Shredding Operations requires metal recycling facilities to develop an Emissions Minimization Plan (EMP) to minimize the fugitive emissions of particulate matter from the facilities operating in the district. The EMP is to detail the management practices, measures, equipment, and procedures that are used to minimize fugitive emissions. Operations subject to the EMP include roadways and traffic areas, metal management, metal shredder waste management, and de-pollution operations. Schnitzer submitted its EMP to BAAQMD on October 27, 2014.

SA Anaheim

SA Anaheim is under the jurisdiction of SCAQMD. Air permits issued by SCAQMD include a permit to construct/operate the shredder (Permit to Construct/Modify No. 502884), the shredder air pollution control system (Permit to Construct No. 495678), and for the Metals Recovery Plant (G16984). The facility employs the following measures to control off-site migration:

- RTO for VOC control
- A chemical scrubber to neutralize and remove acid gases from the shredder exhaust
- Water spray inside the shredder chamber to control temperature and reduce dust generation
- Overhead exhaust hood to collect particulate matter and VOCs generated from shredding
- Dust/mist collector to capture oils, particulate matter, and moisture from shredder exhaust
- Various moisture-coalescing filters and high-efficiency dust filters.
- Periodic sweeping of material stacking areas throughout the day to reduce dust generation
- Use of a sweeper truck to clean the entrances and driveways in the yard
- Extensive application of water to the yard haul roads and piles of materials to reduce dust generation
- The entire Metals Recovery Plant operation, from receipt of aggregate via conveyer, through non-ferrous recovery operations, to loading out CTMSR in trucks, is conducted within a covered structure, although the sides are open

The entire facility is concrete-paved.

Sims Metal Management

Sims is under the jurisdiction of BAAQMD. Air permits issued by BAAQMD include Permit to Operate for Plant # 5152, as well as application of BAAQMD Rule 4 for Metal Recycling and Shredding Operations, and BAAQMD Regulation 6 for particulate matter. The facility employs a variety of measures to reduce the potential for off-site contamination. These include:

- Water spray inside the shredder chamber to control temperature and reduce dust generation
- An exhaust collection system
- A cyclone dust collection system for the shredder exhaust
- A wet scrubber system
- A fabric-covered fencing to reduce off-site emissions of LFM

BAAQMD Regulation 6, Rule 4 for Metal Recycling and Shredding Operations requires the facilities to develop an EMP to minimize the fugitive emissions of particulate matter from metal recycling facilities operating in the district. The EMP details the management practices, measures, equipment, and procedures that are used to minimize fugitive emissions. Operations subject to the EMP include

roadways and traffic areas, metal management, metal shredder waste management, and de-pollution operations. Sims submitted its EMP to BAAQMD on September 25, 2014.

Sims has dry and wet cyclones and secondary high-efficiency particulate filtration units on the main shredding chamber exhaust. Various sprinklers, mist turbines, and sweepers are used to keep the ground area dust-free.

According to Sims, in response to recent enforcement actions (see Section 2.3), it has made a number of improvements to reduce the potential for fugitive emissions from transfer and loading operations. The facility has taken efforts to enclose its conveyor systems to eliminate them as a source of fugitive emissions of particulate matter and light fibrous material (LFM).

SA Bakersfield

SA Bakersfield is under the jurisdiction of the San Joaquin Valley Air Pollution Control District (SJVAPCD). Air emissions from the facility are governed under permits to operate the shredder and the air pollution control system (S-1256-7-2 and S-1256-3-10). The shredder is equipped with an exhaust collection system, which incorporates a mist/oil eliminator and a series of high-efficiency particulate filters on the main shredder exhaust. However, the shredder and the metals recovery plant are not enclosed. The facility employs a variety of measures to control off-site migration. These include:

- Water spray inside the shredder chamber to control temperature and reduce dust generation
- Overhead exhaust hood to collect particulate matter and VOCs generated from shredding
- Dust/mist collector to capture oils, particulate matter, and moisture from shredder exhaust
- Various moisture-coalescing filters and high-efficiency dust filters
- Material stacking areas are swept periodically throughout the day

A sweeper truck is used to clean the entrances and driveways in the yard. The SA Bakersfield facility is fully paved.

Ecology Auto Parts

Ecology is under the jurisdiction of SCAQMD. Air permits issued by SCAQMD include a Permit to Operate the Shredder (G32848 and A/N 567354) and a Permit to Operate the RTO (G32228). The facility employs a variety of measures to control off-site contamination. These include:

- RTO for VOC control
- Water spray inside the shredder chamber to control temperature and reduce dust generation
- Overhead exhaust hood to collect particulate matter and VOCs generated from shredding
- High-efficiency particulate air filtration system for ultra-fine particulate control
- A full-time mechanical street sweeper
- A water truck to wash down specific areas when needed
- Overhead, remote-controlled water cannon and mist turbines to spray down the shredder area
- Use of a water truck to wash down specific areas when needed

The entire shredding area, including the receiving and stockpile areas, is completely paved.

2.3.2 Water Quality: Regulation by the Regional Water Quality Control Boards

SWRCB implements federal requirements for storm water quality for industrial facilities using the industrial general permit (referred to as the “general permit”), which is used throughout California. Applicability of the general permit is based on the types of activities that occur that the facility using Standard Industrial Classification codes, recycling being one of the categories. RWQCBs administer the statewide general permit, in addition to any region-specific requirements for that permit. Once a facility is covered under the general permit they are assigned a waste discharge identification (WDID) number and must submit a Notice of Intent for coverage under the permit, explaining how they will adhere to all the requirements of the general permit. Additionally, a facility covered under the general permit is required to create and implement a storm water pollution prevention plan (SWPPP) with a site map, conduct water quality monitoring and reporting, and install best management practices.

SA Terminal Island

SA Terminal Island is under the jurisdiction of the Los Angeles RWQCB. Storm water discharges from SA Terminal Island are permitted under the SWRCB General Permit to Discharge Storm Water Associated with Industrial Activity. The WDID number is 4 19I021125.

Schnitzer Steel Products

Schnitzer is under the jurisdiction of the San Francisco Bay RWQCB. Storm water discharges from the Schnitzer facility are permitted by the East Bay Municipal Utilities District under Wastewater Discharge Permit No. 02300311.

SA Anaheim

SA Anaheim is under the jurisdiction of the Santa Ana RWQCB. Storm water discharges from SA Anaheim are permitted under the Sector-specific General Permit for Storm Water Runoff Associated with Industrial Activities from Scrap Metal Recycling Facilities within the Santa Ana Region. The WDID number is 8 30MR000004.

Sims Metal Management

Sims is under the jurisdiction of the San Francisco Bay RWQCB. Storm water discharges from Sims are permitted under WDID number 2 41I005107. Sims has also obtained a National Pollutant Discharge Elimination System (NPDES) permit under the authority of the federal Clean Water Act to discharge storm water into San Francisco Bay.

SA Bakersfield

SA Bakersfield is under the jurisdiction of the Central Valley RWQCB. Storm water discharges from SA Bakersfield are permitted under the SWRCB General Permit to Discharge Storm Water Associated with Industrial Activity, and the facility WDID number is 5 F15I021109.

Ecology Auto Parts

Ecology is under the jurisdiction of the Santa Ana RWQCB. Storm water discharges from Ecology are permitted under SWRCB General Permit to Discharge Storm Water Associated with Industrial Activity (WQ Order No. 97-03-DWQ). The facility is designated WDID number 8 36I027274.

Ecology received a no-discharge exemption from the Santa Ana RWQCB in 2012 since it does not discharge storm water associated with industrial activities to surface waters. Instead, a retention pond was constructed with a capacity to accommodate the precipitation from a 100-year, 24-hour storm event.

2.3.3 Hazardous Waste: Regulation by DTSC

DTSC is responsible for ensuring that hazardous wastes generated and handled in California are managed safely and legally to prevent harm to public health and the environment. There are currently 113 facilities permitted by DTSC to store, treat, or dispose of hazardous waste in California. Additionally, there are over 100,000 businesses that generate hazardous waste, and approximately 900 transporters registered with DTSC to transport hazardous waste. Federal and California law creates the framework for the management of hazardous waste by generators, transporters, and storage, treatment, and disposal facilities. DTSC administers these laws in part by issuing permits and registering hazardous waste transporters. DTSC enforces these laws by inspecting hazardous waste generators, transporters, and facilities, and providing compliance assistance and training. DTSC's compliance assistance activities include partnering with the CUPAs.

DTSC can conduct investigations of potential hazardous waste violations on its own initiative, or in response to complaints that have been submitted to CalEPA's Environmental Complaint System, but the CUPAs have had the primary responsibility for conducting routine inspections of metal shredding facilities' hazardous waste management activities.

2.3.4 Hazardous Waste and Hazardous Materials: Regulation by Local CUPAs

CalEPA oversees the statewide implementation of the Unified Program and its 81 certified local government agencies, known as CUPAs. The CUPAs administer and enforce a consolidated program that includes the following individual environmental and emergency management programs:

- Aboveground Petroleum Storage Act Program;
- Area Plans for Hazardous Materials Emergencies;
- California Accidental Release Prevention Program;
- Hazardous Materials Release Response Plans and Inventories;
- Hazardous Material Management Plan and Hazardous Material Inventory Statements;
- Hazardous Waste Generator and On-site Hazardous Waste Treatment (tiered permitting) Programs; and
- Underground Storage Tank Program.

The hazardous waste activities conducted by the metal shredding facilities are under the jurisdiction of the CUPA in their geographic area. But because of DTSC's historical decisions to classify CTMSR as nonhazardous waste, and DTSC's implementation of OPP 88-6, the CUPAs do not permit or inspect the metal shredding operations, the storage of metal shredder waste on-site, or the chemical stabilization treatment. The oversight provided by the CUPAs is limited to hazardous waste activities such as implementing DTSC's Certified Appliance Recycler program, and overseeing the storage of traditional hazardous wastes, such as the materials that require special handling that are removed from appliances and vehicles prior to shredding. None of the metal shredding facilities is operating under the one of the

lower-tiered permitting programs for which the CUPAs would have primary jurisdiction. Table 3 identifies the CUPAs that oversee each metal shredding facility.

2.4 Hazardous Waste Management Activities

This section provides a summary of the hazardous waste management activities at the facilities. It is important to note that DTSC's historic decisions and policies have affected the regulation and management of wastes and hazardous wastes at all California metal shredding facilities. For purposes of this Analysis, DTSC assessed the generation and management of hazardous wastes by metal shredding facilities based on existing law and regulation, without consideration of the "f letters" or OPP 88-6.

2.4.1 Hazardous Wastes Generated and Managed at Metal Shredding Facilities

Scrap Metal Feedstock: When vehicles, appliances and other scrap metals arrive at a metal shredding facility, they are subject to the scrap metal exclusion.³⁵ At this point, the scrap metal is not regulated as a hazardous waste.



Scrap metal awaiting shredding

Metal Shredder Aggregate: After vehicles, appliances, and other scrap metal are shredded in the hammer mill, a combination of ferrous metals, non-ferrous metals, and nonrecyclable materials is generated. This combination of ferrous metals, non-ferrous metals, and nonrecyclable or reclaimable materials is referred to in this Analysis as metal shredder aggregate.

³⁵ See subdivision (3) of paragraph (a) of Section 66261.6 of Division 4.5 of Title 22, California Code of Regulations.



Pile of aggregate awaiting further processing at Schnitzer Steel Industries, Inc., Oakland, CA.



Stockpiled aggregate prior to processing in joint products plant, Schnitzer Steel, Inc., Oakland, CA.



Stored aggregate pile at Ecology, Colton, CA.

Metal shredder aggregate has been demonstrated to contain levels of lead, copper, and zinc in finely divided form that exceed their respective Soluble Threshold Limit Concentrations (STLCs) and Total Threshold Limit Concentrations (TTLCs). Historically, metal shredder aggregate has also contained levels

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of cadmium and PCBs in excess of their respective STLCs and TTLCs, although the presence of these constituents has decreased in recent years.³⁶ These constituents are listed in subdivision (a) of Section 66261.24 of Chapter 11, of Title 22 of the California Code of Regulations along with their respective STLCs and TTLCs. The STLC and TTLC are regulatory levels that determine whether a waste is considered hazardous because of its toxicity.

Due to challenges in sampling methodology, there is limited empirical data available demonstrating the toxicity of metal shredder aggregate at the precise point of shredding in the hammer mill. Sampling data from later stages of processing demonstrates the toxicity of the metal shredder wastes, and therefore provides the basis for a reasonable assumption that the metal shredder aggregate is generally hazardous.

Metal Shredder Residue: After the metal shredder aggregate has been treated to separate the ferrous and non-ferrous metals, the portion that remains is referred to in this Analysis as metal shredder residue. As with the metal shredder aggregate, the metal shredder residue also contains levels of lead, copper, and zinc that exceed their respective Soluble STLCs and TTLCs, and historically contained levels of cadmium and PCBs in excess of their respective STLCs and TTLCs.



Metal shredder residue exiting the joint products plant following removal of non-ferrous metals

³⁶ Metal Shredder Residue Treatability Study, prepared for the Institute of Scrap Recycling Industries, California Chapter, prepared by Terraphase Engineering, Inc., April 26, 2017.

CTMSR: To reduce the solubility of hazardous constituents in the metal shredder residue, the metal shredding facilities apply a chemical treatment of silicates and cement to reduce the solubility of the lead, copper and zinc. After this chemical treatment, it is referred to in this Analysis as CTMSR. Although the chemical treatment has been shown to reduce the solubility of the lead, copper, and zinc, it has not been successful in consistently reducing the soluble concentrations below their respective STLCs, and does not affect their total concentrations, which still exceed their respective TTLCs. (More detailed information regarding the characteristics of the metal shredder residue and CTMSR are presented below, as part of the information on a treatability study that was performed by the metal shredding industry.) Thus, although the solubility of metals in the waste is reduced by the treatment, CTMSR continues to exhibit hazardous characteristics after treatment, and is a hazardous waste.



Pile of chemically treated metal shredder residue, Schnitzer Steel, Inc., Oakland, CA

Treatability Study for Metal Shredder Residue and CTMSR: In 2016, metal shredding facilities at the direction of DTSC conducted a study to demonstrate the effectiveness of their treatment methods. The treatability study demonstrated different application rates of silicate and cement under full-scale operating conditions to determine if the treatment could be optimized, and if the optimized treatment could achieve the required reduction in soluble metals. The treatability study confirmed the treatment process used by metal shredding facilities can significantly reduce the solubility of regulated heavy metals contained within CTMSR, including lead. However, the treatability study confirmed that CTMSR remains a non-RCRA hazardous waste even after treatment.

Data collected in preparation for the treatability study showed that metal shredder residue prior to chemical treatment is nonhazardous waste under RCRA. Metal shredder residue is not regulated as a hazardous waste under the federal hazardous waste program because US EPA thresholds for regulated hazardous constituents were not met or exceeded. For instance, US EPA's toxicity characteristic regulatory threshold for lead is 5.0 milligrams per liter (mg/l), and the average and maximum

concentrations found in 17 samples of untreated metal shredder residue were 0.99 and 2.60 mg/l, respectively.³⁷ In addition, the highest result for PCBs was 33 mg/kg.³⁸

As a result of the bench-scale testing in the treatability study, three treatment reagent combinations were selected for evaluation during the subsequent demonstration of the treatment at the full-scale. The reagent combinations ranged from 0.5 to 0.7 gallons of silicate per ton, and from 5 to 12 percent cement. Treatment at the highest rates, 0.7 gallons of silicate per ton and 12 percent cement, was found to be most effective at reducing soluble metals. However, even metal shredder residue treated at the highest still exceeded regulatory thresholds for both total and soluble metals.

The treatability study showed that CTMSR remains a non-RCRA hazardous waste (i.e., the waste is a hazardous waste under California's Hazardous Waste Control Law and under Chapter 11 of Title 22 of the California Code of Regulations). This was demonstrated by the TTLC test results, which showed that CTMSR exceeded regulatory thresholds for lead and zinc, although STLCs were met occasionally.

In California, wastes that exceed the TTLC for regulated hazardous constituents, including lead and zinc, regardless of their STLCs, are classified as hazardous wastes. The TTLC limit for lead is 1,000 milligrams per kilogram (mg/kg) and the average concentration in CTMSR treated at the higher, most effective, rates was found to be 1,041 mg/kg.³⁹ Likewise, the TTLC limit for zinc is 5,000 mg/kg and the average concentration in CTMSR was found to be 6,468 mg/kg.⁴⁰ However, the maximum lead concentration observed in 120 samples treated at the higher rates was 11,300 mg/kg.⁴¹ Similarly, the maximum zinc concentration was 15,500 mg/kg, which further indicates that significant concentration spikes are a possibility for individual sampling events.⁴²

The treatability study also demonstrated that the treatment process used by metal shredding facilities could not consistently lower soluble concentrations for lead. The STLC limit for lead is 5 mg/l and the average concentration was found to be 13.4 mg/l.⁴³ The concentration of zinc in CTMSR did not exceed the zinc STLC of 250 mg/l. The average concentration measured was 180 mg/l.⁴⁴ The maximum observed

³⁷ Metal Shredder Residue Treatability Study, April 26, 2017, Discrete sample results found in Table A1, Baseline Analysis - Total and Extractable Metals Results for Untreated Samples Bench-scale Study, Metal Shredder Residue Treatability Study.

³⁸ Metal Shredder Residue Treatability Study, April 26, 2017, Discrete sample results found in Table A2, Baseline Analysis - PCBs, Moisture Content, pH, Alkalinity, Aquatic Toxicity Bioassay, and Ignitability, Results for Untreated Samples, Metal Shredder Residue Treatability Study.

³⁹ Metal Shredder Residue Treatability Study, April 26, 2017, Individual Sample Results for the high dosages found in Table B1, Pilot Study, Metal Shredder Residue Treatability Study.

⁴⁰ Ibid.

⁴¹ Metal Shredder Residue Treatability Study, April 26, 2017, Results for sample SMM-2-H-8, Eurofins Calscience Analytical Report, Work Order Number 16-09-1887, page 678 of Part 5.

⁴² Metal Shredder Residue Treatability Study, April 26, 2017, Results for sample SARB-1-3-H, Eurofins Calscience Analytical Report, Work Order Number 16-08-1653, page 1629 of Part 4.

⁴³ Metal Shredder Residue Treatability Study, April 26, 2017, Individual Sample Results for the high dosages found in Table B1, Pilot Study.

⁴⁴ Metal Shredder Residue Treatability Study, April 26, 2017, Individual Sample Results for the high dosages found in Table B1, Pilot Study.

concentration for lead was 91.3 mg/l.⁴⁵ The maximum observed concentration for zinc was 529 mg/l, which as noted previously is an indication that significant concentration spikes are possible in individual samples.⁴⁶

The treatability study showed that soluble concentrations of cadmium, lead, and zinc usually decreased when application rates were increased. In most cases, the greatest percent reduction achieved during the full-scale demonstration was with a treatment rate of 0.7 gallons per ton silicate and 12 percent cement.⁴⁷ However, even though the treatment significantly reduces the solubility of regulated heavy metals, CTMSR still exceeds total thresholds for lead and zinc, and soluble thresholds for lead. That although the highest treatment rates used in the pilot-scale test generally achieved the highest reductions in soluble metals concentrations, the lead and zinc concentrations were not consistently reduced below their respective STLCs.⁴⁸ The treatment results also reflected the high degree of variability in metal shredder residue, as shown by the difference between single samples collected at a given point in time, compared to composite samples of daily production runs. Thus, the treatability study results indicate that, even at the highest levels of treatment evaluated during the study, regulatory thresholds for soluble and total metals were usually not achieved. While concentrations below STLCs of some soluble metals were achieved in individual samples, this was not consistent from sample to sample, or over a range of treatment rates.⁴⁹

Hazardous Materials Removed from Received Scrap Metals: Scrap metal often contains hazardous materials when received by metal shredding facilities. Although many of the metal shredding facilities require these materials to be removed prior to their arrival at the facility, some are discovered as loads are checked. In some instances, a metal shredding facility will remove the hazardous materials rather than reject the load. Typical hazardous materials found in scrap metal include free-flowing hazardous liquids (e.g., gasoline, oil, antifreeze), flammable or combustible materials, corrosive materials (e.g., lead-acid batteries), radioactive materials, explosives in any form (e.g., vehicle air bag actuators, ammunition), pressurized containers (e.g., propane tanks, compressed gas tanks, fire extinguishers), refrigerants, capacitors, ballasts, transformers or other materials containing PCBs, and items containing elemental mercury (e.g., switches or thermostats).

⁴⁵ Metal Shredder Residue Treatability Study, April 26, 2017, Results for sample SMM-3-H-4, Eurofins Calscience Analytical Report, Work Order Number 16-09-1616, page 586 of Part 5.

⁴⁶ Metal Shredder Residue Treatability Study, April 26, 2017, Results for sample SSP-2-4-H, Eurofins Calscience Analytical Report, Work Order Number 16-09-0276, page 159 of Part 5.

⁴⁷ Ibid., page 68 of Part 5.

⁴⁸ Ibid., page 71 of Part 5.

⁴⁹ Metal Shredder Residue Treatability Study, April 26, 2017, Results for sample SSP-2-4-H, Eurofins Calscience Analytical Report, Work Order Number 16-09-0276, page 71 of Part 5.



Compressors removed from refrigerators and other appliances, Ecology, Colton, CA.



Storage area for materials requiring special handling, SA Recycling, Anaheim, CA. Two pallets of lead-acid batteries are shown in the foreground.



Waste mercury switches pulled from appliances, Ecology Auto Parts, Colton, CA.

Air Pollution Control Equipment Dust and Filters: The air pollution control equipment operated by metal shredding facilities to capture particulate and emissions from the hammer mill and other operational equipment will capture contaminants in bag houses or filters. These filtered materials are expected to contain the same contaminants as the metal shredder aggregate, and are also expected to be hazardous wastes. The amount and characteristics of this type of waste have not been quantified by the metal

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shredding facilities. No residues from air pollution control equipment were analyzed as part of this analysis. Hazardous waste manifests use general hazardous waste codes that may not always specify the particular source of the waste stream. Therefore, DTSC has not been able to verify through the Hazardous Waste Tracking System (HWTS) whether this material is being managed as a hazardous waste.

Wastewater Treatment System Residuals: Most of the metal shredding facilities capture their surface water runoff and treat it to allow for its recycling and reuse as hammer mill quench water or for dust suppression. The treatment of the water includes the removal of contaminants and suspended solids. These filtered materials are expected to contain the same contaminants as the metal shredder aggregate, and are also expected to be hazardous wastes. The amount of this type of waste has not been quantified by the metal shredding facilities, and DTSC has been unable to verify through the HWTS whether this material is being managed as a hazardous waste. No samples from this waste stream were analyzed as part of this analysis and DTSC was not able to identify this waste stream in HWTS.

Storm Water Collection System Tank Bottoms: Most of the remaining metal shredding facilities have no surface water discharge, meaning they capture and store all surface water runoff in large tanks, and recycle and reuse it directly as hammer mill quench water and for dust suppression. The captured surface water runoff contains contaminants and suspended solids which, as the water is retained in the tank, settles to the bottom. These tank bottom materials are expected to contain the same contaminants as the metal shredder aggregate, and are also expected to be hazardous wastes. The amount of this type of waste has not been quantified by the metal shredding facilities. No samples from this waste stream were analyzed as part of this analysis and DTSC was not able to identify this waste stream in HWTS.

Metal Shredding Facility Equipment Maintenance Wastes: Each metal shredding facility operates gasoline and diesel-powered equipment, including forklifts, cranes, front-end loaders, and other mechanical equipment. This mechanical equipment requires routine maintenance for continued operation. The routine maintenance can generate a variety of hazardous wastes that must be disposed by the metal shredding facility, including used oil, hydraulic fluid, contaminated gasoline or diesel fuel, used oil filters, aerosol spray cans (paints and solvents), oily rags, absorbent material, and contaminated soil from spills or releases. Each of these wastes is a hazardous waste. The amount of this type of waste has not been quantified separately by the metal shredding facilities. No samples from this waste stream were analyzed as part of this analysis and DTSC was not able to identify this waste stream in HWTS.

Metal Shredding Facility Maintenance Wastes: Each metal shredding facility performs routine “housekeeping” of its facility, cleaning up dirt and debris that escapes from the scrap metal and metal shredder aggregate and metal shredder residue treatment activities. Most of the metal shredding facilities collect this dirt and debris using sweepers and vacuums. These housekeeping wastes are expected to contain the same contaminants as the metal shredder aggregate and metal shredder residue, and are also expected to be hazardous wastes. The amount of this type of waste has not been quantified by the metal shredding facilities. No samples from this waste stream were analyzed as part of this analysis and DTSC was not able to identify this waste stream in HWTS.

Summary of Hazardous Wastes Shipped Off-site on Manifests

DTSC does not have information with which it can quantify the individual waste streams which are generated by metal shredding facilities that are expected to be hazardous wastes. DTSC has access to copies of the hazardous waste manifests used to ship hazardous wastes from the metal shredding facilities to off-site hazardous waste facilities. (All hazardous waste shipments must be accompanied from the site where they are generated to the site where they are disposed by a hazardous waste manifest.) Table 5 provides the approximate quantities of hazardous waste manifested by the metal shredding facilities in 2016. The hazardous waste types listed correlate to the California Waste Codes that were used. These waste codes do not often correlate directly to the hazardous wastes discussed above. If these wastes are managed as hazardous wastes, they may be included in the category for soils and other solids.

Table 5. Hazardous Wastes Manifested from Metal Shredding Facilities in 2016						
Facility	Soils and Other Solids (tons)	Asbestos (tons)	Oils (tons)	PCBs (tons)	Solvents (tons)	Other Wastes (tons)
SA Recycling, Terminal Island	28.86	0	91.61	0.17	0	0.14
Schnitzer Steel Products	395.93	0	0	0	0	0
SA Recycling, Anaheim	53.35	0.11	24.14	0.65	5.50	0
Sims Metal Management	0.57	0	0	0	0	0
SA Recycling, Bakersfield	18.33	0	0.18	3.22	91.81	1.87
Ecology Auto Parts	135.44	0	0	0	0	0

2.4.2 Treatment, Storage and Handling of Metal Shredder Wastes at Metal Shredding Facilities

The treatment, storage, and disposal of any hazardous waste must be performed in accordance with the hazardous waste management statutes and regulations. Each of these terms is defined in the hazardous waste laws and regulations.

Treatment is defined as “any method, technique, or process which changes or is designed to change the physical, chemical, or biological character or composition of any hazardous waste or any material contained therein, or removes or reduces its harmful properties or characteristics for any purpose including, but not limited to, energy recovery, material recovery or reduction in volume.” (See Section 25123.5 of the Health and Safety Code, and Section 66260.10 of Division 4.5 of Title 22 of the California Code of Regulations.)

Storage is defined as “the holding of hazardous waste for a temporary period, at the end of which the hazardous waste is treated, disposed of or stored elsewhere.” (See Section 25123 of the Health and Safety Code, and Section 66260.10 of Division 4.5 of Title 22 of the California Code of Regulations.)

Disposal is defined as “the discharge, deposit, injection, dumping, spilling, leaking or placing of any waste or hazardous waste into or on any land or water so that such waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters,” as well as “the abandonment of any waste.” (See Section 25113 of the Health and Safety Code, and Section 66260.10 of Division 4.5 of Title 22 of the California Code of Regulations.)

Unless specifically excluded or exempted from regulation, treatment, storage,⁵⁰ and disposal of hazardous wastes can only be performed at a facility that has a hazardous waste permit issued by DTSC or that has received some other grant of authorization to conduct the activities (e.g., through statute or regulation). Apart from the “f letters” and OPP 88-6, none of the metal shredding facilities have been granted authorization for the treatment, storage, or disposal of hazardous waste. Storage of hazardous waste generated at the metal shredding facilities, for less than 90 days, would not require a permit if it is stored in appropriate containers and the metal shredding facilities comply with other applicable accumulation requirements.

Treatment Processes

Generally, a facility must apply for and obtain a hazardous waste permit or other form of authorization to conduct treatment on a hazardous waste. There are many treatment processes that can occur at a metal shredding facility, as described below.

Metal Shredding Unit or Hammer Mill: Hazardous waste regulations are not applicable to scrap metal entering the hammer mill since the crushed vehicles, appliances, and other forms of scrap metal are excluded from hazardous waste management when recycled. Therefore, a hazardous waste permit is not required to operate the hammer mill. In practice, however, hammer mills at metal shredding facilities rarely operate in isolation, and are usually adjacent to ferrous recovery equipment.

Physical Separation of Ferrous Metals from Metal Shredder Aggregate: The removal of ferrous metals from metal shredder aggregate using magnets may be considered a hazardous waste treatment activity, depending on the circumstances.

Physical Separation of Ferrous Metals from Metal Shredder Aggregate: The removal of ferrous metals from metal shredder aggregate using magnets may be considered a hazardous waste treatment activity, depending on the circumstances.

Chemical Stabilization of Metal Shredder Residue: The metal shredder residue that remains after ferrous and non-ferrous metals have been removed (which was shown to be a non-RCRA hazardous waste) is treated with silicate and cement to reduce the mobility of toxic metals in the waste, which is recognized to be a hazardous waste treatment activity.

⁵⁰ Generators typically cannot store hazardous waste onsite for longer than 90 days.



Tube for feeding cement into the pug mill for chemical treatment of metal shredder residue, Sims Metal Management, Redwood City, CA.



Pug mill mixing screw, chemical treatment of metal shredder residue, Sims Metal Management, Redwood City, CA

Storage Processes

The metal shredder aggregate stored in piles exhibits hazardous waste characteristics. California's hazardous waste laws generally allow the storage of hazardous wastes for 90 days or less without a permit or grant of authorization, but only if certain conditions are met (including that they are stored in tanks or containers). There are many storage activities that occur with the metal shredder aggregate, CTMSR, and components of the metal shredder waste, as it is processed at a metal shredding facility.

Storage of Metal Shredder Aggregate: Metal shredder aggregate is stored for varying periods of time at various stages of its processing in piles due to the quantities being managed. These piles at most of the metal shredding facilities are outside of buildings, and at some facilities are on bare ground. The metal shredder aggregate exhibits hazardous waste characteristics. The hazardous waste laws generally allow for storage of hazardous wastes for 90 days or less without a permit or grant of authorization, but only if certain conditions are met (including that the waste is stored in tanks or containers). The storage of hazardous waste in piles is regulated as a hazardous waste management activity; to the extent the aggregate includes hazardous wastes, a metal shredding facility would need to apply for and receive a hazardous waste permit, or obtain some other form of authorization, to conduct this activity.

Storage of Sorted Ferrous and Non-ferrous Metals: Sorted ferrous and non-ferrous metals are typically stored following the shredding and metals separation processes. The sorted metals are largely homogeneous materials which are not further processed at the metal shredding facilities. Because of their quantities, they are typically stored in piles. The sorted ferrous and non-ferrous metals are reclaimed materials and, because they have been segregated from the metal shredder aggregate (which may contain hazardous wastes, depending on the circumstances), are not expected to exhibit hazardous

waste characteristics. Residual amounts of the hazardous constituents from the metal shredder aggregate, however, could remain in the sorted ferrous and non-ferrous metals. The storage and management of the ferrous and non-ferrous metals could consequently cause the residual hazardous waste constituents to separate from the recovered metals. This residue would be considered hazardous waste. Metal shredding facilities need to ensure that the hazardous wastes generated by the storage of the ferrous and non-ferrous metals are managed to minimize their releases. Storage of sorted ferrous and non-ferrous metal would not be regulated as a hazardous waste management activity, and a metal shredding facility would not need a hazardous waste facility permit to conduct this activity unless residual amounts of metal shredder aggregate, or hazardous constituents of the metal shredder aggregate, remain in the segregated metals.



Stockpiled aggregate, Schnitzer Steel, Inc., Oakland, CA.



Stockpiled aggregate, Ecology, Colton, CA.

Storage of CTMSR: CTMSR is stored in piles (sometimes outside of buildings) due to the quantities being managed for varying periods of time after treatment. CTMSR continues to exhibit hazardous waste characteristics, even after chemical treatment to stabilize the soluble metals in the waste. The storage

DO NOT CITE OR QUOTE

of hazardous waste in piles does not meet the storage in tanks or containers requirement, and therefore does not meet the conditions for storage for 90 days or less. Because of this, its storage would be regulated as a hazardous waste management activity, and a metal shredding facility would need to apply for and receive a hazardous waste permit, or obtain some other form of authorization, to conduct this activity.



CTMSR, Schnitzer Steel, Inc., Oakland, CA.



Pile of sorted ferrous metal, background, and scrap metal from the Oakland Bay Bridge demolition project, foreground, Schnitzer Steel, Inc., Oakland, CA.



Pile of sorted ferrous metal following shredding of scrap metal at SA Terminal Island.

Transportation Processes

There are many transportation processes that occur with the metal shredder aggregate as it is processed at a metal shredding facility, as described below:

Transfer of Metal Shredder Aggregates within the Facility: Metal shredder aggregate is transferred within the metal shredding facilities from the hammer mill to the different locations where it is further treated. This transfer occurs via conveyor belts and via heavy equipment such as trucks and front-loading tractors. These methods to convey this material within a site do not require a permit from DTSC, nor do they require the use of a registered hazardous waste transporter. However, the conveyance of this material is generally required to be performed in a manner that minimizes or prevents the release of hazardous wastes and hazardous waste constituents into the environment.



Conveyor belt lines used to transport material through the joint products plant and to the chemical treatment system at Schnitzer Steel, Inc., Oakland, CA.

DO NOT CITE OR QUOTE



Front loader used to feed stockpiled aggregate into the joint products plant, Schnitzer Steel, Inc., Oakland, CA.

Transportation of Ferrous Metal from the Metal Shredding Facility: Ferrous metal is transferred from the metal shredding facilities primarily by way of ocean-going vessels to steel mills in Pacific Rim countries.



Loading sorted and shredded ferrous metals onto ship via conveyor system, Sims Metal Management, Redwood City, CA.



Ferrous metal being loaded onto a truck for transportation at Ecology Auto Parts, Colton, CA.

DO NOT CITE OR QUOTE

Transportation of CTMSR from the Metal Shredding Facility: CTMSR is transferred from the metal shredding facilities to the landfills where it is either being directly disposed, or used as alternative daily cover. CTMSR continues to exhibit hazardous waste characteristics, even after chemical treatment to stabilize the soluble metals in the waste. Its transportation is regulated as a hazardous waste management activity, and its transportation to another facility requires the use of a registered hazardous waste transporter.



Truck being loaded with CTMSR for transportation to Altamont or Vasco Road Landfill, Schnitzer Steel, Oakland, CA.

Transportation of Untreated Metal Shredder Aggregate from a Metal Shredding Facility: One metal shredding facility, Ecology, transports its metal shredder aggregate (after ferrous metal has been removed) out of state for further processing. Ecology uses a facility in Arizona owned by the same company to recover non-ferrous metals from its metal shredder aggregate. Ecology ships the aggregate as an excluded recyclable material under the provisions of subdivision (d) of Section 25143.2 of the Health and Safety Code. DTSC is reviewing Ecology's assertion that the material is not subject to hazardous waste requirements and has not yet made a determination regarding the claimed exclusion. Because the aggregate is processed out of state, the facility does not generate CTMSR in California, and does not dispose of CTMSR in California landfills.

Disposal Processes

Land Disposal: The current practices employed by the metal shredding facilities to manage metal shredder wastes generally meet the definition of land disposal. The metal shredder wastes are being managed in piles in direct contact with bare soil or on paved surfaces that are designed to withstand traffic but not to prevent migration of hazardous waste or hazardous waste constituents. Particulate and LFM have been shown to be emitted from the metal shredding facilities and to deposit onto the ground outside the facility boundaries. Metal shredder aggregate or residue that falls from conveyors or outside of waste management units and is not retrieved or cleaned up, results in all operational areas of the metal shredding facilities being contaminated with the hazardous constituents present in the metal shredder wastes.

Solid Waste Landfill Disposal: CTMSR is currently managed at solid waste landfill facilities. The disposal processes will be discussed further in Section 5 of this Analysis.



Vasco Road Landfill, Livermore, CA with municipal solid waste in the foreground (lighter material) and stockpiled CTMSR in the distance (darker colored material).

2.5 Enforcement History

DTSC reviewed compliance and enforcement history from CUPAs, SWRCB, and DTSC's own investigations. Enforcement history was requested from each respective authority for a 10-year timespan, starting in 2007 and ending in 2016. The following databases and resources were used to obtain information on violations:

Storm Water Requirements: SWRCB's Storm Water Multiple Application and Report Tracking System (SMARTS) is a public database that keeps track of facilities that have storm water permits and all supporting documentation, including sampling results, notices of violation, and storm water pollution prevention plans.⁵¹ Facilities were searched by their WDID number, and supporting documentation was reviewed to discern if there had been any enforcement actions regarding their storm water permit.

Soil/Groundwater Contamination: SWRCB's GeoTracker database is used to track facilities with groundwater contamination.⁵² Additionally, DTSC's EnviroStor was consulted to see if any of the facilities had undergone cleanup activities.⁵³

Fire/Explosions: A search of newspaper articles was conducted regarding any fires or explosions that had occurred at the metal shredding facilities and summarized.

CUPA Inspections: DTSC contacted CUPAs that oversee hazardous waste inspections for the metal shredding facilities in their jurisdictions for inspection reports during the 10-year time span.

DTSC Inspections or Investigations: DTSC reviewed all investigations for the six metal shredding facilities from 2007 to 2016 that were included in the report, including complaints received.

⁵¹ See <https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.xhtml>

⁵² See <https://geotracker.waterboards.ca.gov/>

⁵³ See <https://www.envirostor.dtsc.ca.gov/public/>

Storm Water Violations: Two of the four metal shredding facilities that operate under an industrial general permit had issues with routine exceedances of the water quality thresholds (known as numeric action levels). The exceedances were for specific conductance, chemical oxygen demand, iron, and lead. The SWRCB requires subsequent proof of implementation of best management practices to mitigate any future exceedances of the numeric action levels.

One metal shredding facility had violations for both its NPDES permit and the Clean Water Act, enforced by US EPA, which identified material associated with metal shredding exiting the property boundary and contaminating surrounding areas. Subsequent soil and sediment samples from the areas surrounding the property revealed TTLC exceedances of lead, zinc, copper, and cadmium.

Soil/Groundwater Contamination: All six metal shredding facilities have been cited by DTSC and/or SWRCB for soil or off-site migration contamination, or have had monitoring conducted which revealed regulatory threshold exceedances. As a result of enforcement actions by RWQCBs, two facilities were required to install an impermeable concrete cap over part of their properties due to contamination found in both the soil and groundwater attributed to metal shredding activities. Three facilities required soil cleanup due to the presence of petroleum hydrocarbons, metals, PCBs, and other contaminants associated with metal shredding activities. Two facilities have had soils collected and analyzed by DTSC in areas where metal processing and storage operations occur, revealing STLC and TTLC exceedances for lead, copper, zinc, and cadmium. Two facilities had off-site migration of LFM, which lands on soil and can cause contamination of the surrounding properties.

Fire/Explosions: Four metal shredding facilities have had fires on their properties, either in the metal shredding machinery or in the piles of scrap metal, with a total of six known fires over the past 10 years. Two of the four had more than one fire from 2009 to 2013. One of the fires resulted in substantial damage to the air pollution control device on the shredder to reduce particulate emissions, resulting in the release of particulate matter and VOCs and enforcement action by the Los Angeles County District Attorney's Office.

CUPA Inspections

Typically, facilities are inspected by CUPAs for hazardous waste and materials management every three years. Minor violations were most commonly cited, and included improper containerization and labeling of hazardous wastes, improper tank certifications, inadequately maintained health and safety measures (such as exit signs, eyewash and shower installations, aisle space, and housekeeping), missing tank log inspections, improper storage, keeping containers closed when not in use, and failure to dispose of wastes within appropriate storage time limits.

Class I and II violations also occurred, including improper storage and inadequate hazardous waste plan for hazardous waste ammunitions, unknown fluids being stored, and inaccurate and out-of-date hazardous waste inventory.

DTSC Inspections/Investigations

DTSC has inspected or investigated all of the metal shredding facilities, several times in coordination with SWRCB. DTSC has responded to fires, collected soil samples that have led to or are in the process of supporting enforcement actions, and enforced off-site migration of contaminants associated with metal shredding facilities.

SA Terminal Island

Storm Water Requirements: In 2010 and again in 2011, the facility exceeded water quality benchmark standards for specific conductance and chemical oxygen demand (COD).⁵⁴ In 2011, the facility also exceeded water quality standards for zinc under its industrial storm water permit. The exceedances prompted the Los Angeles RWQCB to require the facility to ensure that it is in full compliance with the general permit, and that it has either implemented best management practices (BMPs) identified in its Storm Water Pollution Prevention Plan or has described which additional BMPs will be implemented, and updated its Storm Water Pollution Prevention Plan with the additional BMPs.⁵⁵ A response from SA Terminal Island indicated that significant structural changes were made, including “storage containers for [material recovery plant] finished product ... a roof for [material recovery plant] storage bunkers,” and “fully [enclosing] the shredder operation and 75% of the [material recovery plant] operation” to mitigate storm water quality exceedances.⁵⁶ In 2013, the facility was cited by the Los Angeles RWQCB for inadequately updating the Storm Water Pollution Prevention Plan, failing to update the site map to specifically address the pollutant sources, and failing to fully describe the pump station sizes in the storm water treatment system.⁵⁷ After a subsequent site inspection conducted two months afterward by the Los Angeles RWQCB, the facility was required to submit a description of the storm water

⁵⁴ See SWRCB Letter to Ms. Nancy Felix, S.A. Recycling L.L.C., Annual Report Review – Second Benchmark Value Exceedance: NPDES General Permit (Permit) for Storm Water Discharges Associated with Industrial Activity (Order No. 97-03 DWQ; NPDES No. CAS000001), WDID# 4 19I021125, July 5, 2012.

⁵⁵ Ibid.

⁵⁶ See SA Recycling Letter to Mr. Sean Lee, Regional Water Quality Control Board, RE: July 5, 2012 Annual Report Review – Second Benchmark Value Exceedance: NPDES General Permit (Permit) for Storm Water Discharges Associated with Industrial Activity (Order No. 97-03 DWQ; NPDES No. CAS000001), WDID# 4 19I021125, July 19, 2012.

⁵⁷ See Los Angeles Regional Water Quality Control Board Notice to Comply for SA Recycling, WDID# 4 19I021125, Order No. 97-03, February 25, 2013.

treatment system to resolve discrepancies in the plan.⁵⁸ The RWQCB also required the facility to sample for priority pollutants using the correct detection limits, and to provide proof of proper grading to the pump stations.⁵⁹

Soil Contamination: The Los Angeles RWQCB required SA Terminal Island to add an impermeable concrete cap to all or part of the property and to conduct semi-annual groundwater monitoring as part of remediation plans associated with contamination found in both the soil and groundwater.⁶⁰ Both actions were intended to prevent further soil and groundwater contamination from ongoing shredding activities. Investigations of soil and groundwater were conducted from 1990 to 1994 to assess the environmental impact from long-term scrap metal recycling at the facility. Soils were found to have been impacted by petroleum hydrocarbons, metals, polychlorinated biphenyls, and polycyclic aromatic hydrocarbons. Cleanup involved removing, backfilling the excavation, and placing a concrete cap over the affected area to prevent further contamination. Low-level detections of methyl tert-butyl ether and tert-butyl alcohol were present, but were attributed to an off-site source.

Fire/Explosions: On May 21, 2007, there was an explosion at SA Terminal Island that damaged the air pollution control system, which was used to control emissions of particulate matter and VOCs.⁶¹ The shredder operated without its air pollution control system for 120 days following the explosion. DTSC described the matter as a significant and ongoing health risk to the employees and the surrounding community in its Statement of Facts in the Investigation of SA Recycling LLC, presented to the Los Angeles County District Attorney and State Attorney General's Office in Oakland, on April 22, 2009. An estimated 52 pounds per hour of VOCs were released into the air, and approximately 28.3 tons of particulate matter were emitted over the course of the 120 days that the shredder was in operation after the explosion. Although a chiller box was later installed to control the release of particulates and VOCs in the absence of the air pollution control system, it was estimated to have removed only 40 percent of total particulates. The Los Angeles County District Attorney's Office reached a \$2.9 million settlement with SA Recycling for these violations.⁶²

CUPA Inspections: One hazardous waste inspection report from 2015 was provided to DTSC from the 10-year timeframe requested. Records for the most recent inspection (conducted on August 27, 2015) were provided, in addition to the dates of additional inspections conducted between September 1999 to September 2016. SA Terminal Island was visited by the CUPA 18 times during that time, in 1999, 2003, 2011, 2015, and 2016.⁶³ On August 27, 2015, the Los Angeles Fire Department conducted a routine inspection and noted three minor violations.⁶⁴ The inspectors observed hazardous waste solids stored in an open metal container without the required labeling. They observed five open 12-foot roll-off

⁵⁸ See California Regional Water Quality Control Board – Los Angeles Region, Industrial Storm Water Inspection Report for SA Recycling, WDID# 4 19I021125, April 19, 2013.

⁵⁹ *Ibid.*

⁶⁰ See California Regional Water Quality Control Board Los Angeles Region, Order No. R4-2012-0088, Termination of Waste Discharge Requirements for Discharges to Land/Groundwater.

⁶¹ See Statement of Facts in the Investigation of SA Recycling LLC. Case No. 13450-19-078, April 22, 2009.

⁶² *People of the State of California v. SA Recycling, LLC and Simsmetal West, LLC*, California Superior Court, Los Angeles County, case no. BC458943, Stipulated Judgment and Order, filed August 31, 2011.

⁶³ See LA County Fire Department, Facility Information Report for SA Recycling, retrieved on October 4, 2016.

⁶⁴ See Los Angeles County Fire Department – Health Hazardous Materials Division, Inspection Report for SA Recycling LLC on August 27, 2015.

dewatering bins at the storm water tank area that are required to be kept closed at all times except when adding or removing waste. They found that the facility did not have tank assessments for the 10 10,000-gallon hazardous waste holding tanks at the storm water tank area. An operator of a hazardous waste tank is required to obtain a written certification from a professional engineer.

DTSC Inspections or Investigations: In 2008, DTSC sampled the filter media of the air pollution control system and found quantities of lead and mercury above the regulatory threshold. DTSC concluded that during the period in 2007 when the shredder was operating without a functioning air pollution control system (see above description in “Fires/Explosions”), particulates containing lead and mercury were released into the surrounding community.⁶⁵ These findings were included in the case brought by the Los Angeles County District Attorney’s Office against SA Recycling.⁶⁶

Schnitzer Steel Products

Soil Contamination: Schnitzer was identified in GeoTracker for groundwater contamination that required remedial measures. The San Francisco Bay RWQCB required Schnitzer to add an impermeable concrete cap to part of the property and to conduct semi-annual groundwater monitoring as part of the remediation plans.⁶⁷ Both actions are intended to prevent further soil and groundwater contamination resulting from Schnitzer’s operations.

In 1987 soil samples were collected during construction at the Schnitzer facility that showed elevated levels of PCBs, copper, lead, and zinc, prompting a more thorough investigation of potential soil and groundwater contamination from metal shredding activities. In 1987, Schnitzer installed a graded concrete cap along the inner-estuary shoreline to prevent storm water runoff into San Francisco Bay; it also installed an engineered riprap along the shore and implemented routine groundwater monitoring as part of an overall remedial action plan. The San Francisco Bay RWQCB required Schnitzer to maintain the concrete cap and riprap to ensure that the soil contaminants do not migrate from their current location. The San Francisco Bay RWQCB also required Schnitzer to place a deed restriction on the property to ensure that any future use of the property would take into account the residual soil contamination at the site.

During the excavation of nine pits for the construction of a wind wall on the eastern part of the property as part of Cleanup and Abatement Order R2-2013-001 issued by The San Francisco Bay RWQCB, oily soil was discovered in the subsurface along with a severed pipe leaking oily sludge in one of the pits.⁶⁸ The Bay RWQCB allowed Schnitzer to continue construction of the wind wall, provided it did not interfere with the evaluation and cleanup of the subsurface oily soil discovered during initial construction. Schnitzer filled in the pits with pea gravel and removed soil piles that had accumulated from the excavation of the pits. In response to the potential petroleum hydrocarbon contamination, the San

⁶⁵ See Statement of Facts in the Investigation of SA Recycling LLC. Case No. 13450-19-078, April 22, 2009.

⁶⁶ People of the State of California v. SA Recycling, LLC and Simsmetal West, LLC, California Superior Court, Los Angeles County, case no. BC458943, Stipulated Judgment and Order, filed August 31, 2011.

⁶⁷ See California Water Quality Control Board, San Francisco Bay Region, Order No. 88-023 Site Cleanup Requirements for Schnitzer Steel Products Company, Inc., February 17, 1988.

⁶⁸ See San Francisco Bay Regional Water Quality Control Board Letter to Chris Orsolini, Schnitzer Steel Industries, Inc., Conditional Approval of Work Plan for sampling in the vicinity of nine pits; Requirement for Technical Report – Schnitzer Steel Products, 1101 Embarcadero West, Oakland, Alameda County, File No. 01S0067 (CFC), March 23, 2015.

Francisco Bay RWQCB required Schnitzer to evaluate the extent of the contamination and any migration pathways, to assess the potential surface water infiltration due to the pea gravel infill, and to sample soil, groundwater, standing water, and sludge. The San Francisco Bay RWQCB approved the cleanup work plan, with a draft report submitted on September 28, 2016.

Fire/Explosions: On April 8, 2009, a fire occurred at Schnitzer in a pile of debris at the site.⁶⁹ The smoke was reported to create air quality concerns for the local neighborhoods. On September 29, 2011, another fire occurred in a pile of scrap metal, which was reported to have sent a plume of smoke into the sky that was visible for miles.⁷⁰

CUPA Inspections: Two hazardous waste inspection reports were provided to DTSC from the 10-year timeframe requested, one on February 13, 2007, and the second on September 14, 2015. The Alameda County Environmental Health Department conducted a routine inspection of the Schnitzer facility on the latter date.⁷¹ The CUPA found six violations, all of which were minor. Schnitzer had violated two recordkeeping and documentation requirements related to eyewash and shower station installation, lack of exits signs in a specific area, and verification of employee training for hazardous waste handling. Schnitzer also violated three hazardous waste generator requirements for waste labels that did not have accumulation start dates, for unlabeled waste stored in open containers, and for missing tank inspection logs in a hazardous waste storage area. A general facility violation was also noted for visible oil stains and for improper storage of compressed gas cylinders.⁷² During the previous inspection on February 13, 2007, no violations had been found.⁷³

DTSC Inspections or Investigations: On March 17, 18, and 19, 2015, DTSC conducted a Compliance Investigation Inspection of Schnitzer.⁷⁴ During the inspection DTSC collected soil samples from bare ground where scrap metal was stored or being processed; from piles of material collected from the bare ground and from paved surfaces (swept material); and from areas adjacent to and under the joint products plant where the non-ferrous metals are removed from metal shredder aggregate. DTSC found that samples collected from various locations at the facility had the following characteristics:

- Five exceeded the STLC for chromium.
- Eleven exceeded the STLC for lead.
- One exceeded the STLC for nickel.
- Ten exceeded the STLC for zinc.
- Five exceeded the TTLC for copper.
- Twelve exceeded the TTLC for lead.

⁶⁹ See Don Sanchez of ABC 7 News, "Fire Breaks Out at Steel Plant in Oakland," April 8, 2009, <http://abc7news.com/archive/6751956/>

⁷⁰ See Angela Woodall of East Bay Times, "Oakland Firefighters Extinguish Scrap Metal Blaze," September 29, 2011, <http://www.eastbaytimes.com/2011/09/29/oakland-firefighters-extinguish-scrap-metal-blaze/>

⁷¹ See Alameda County Department of Environmental Health Inspection Report for Schnitzer Oakland, September 14, 2015.

⁷² Ibid.

⁷³ See Alameda County Department of Environmental Health, Hazardous Waste Generator Inspection Report for Schnitzer Steel, February 13, 2007.

⁷⁴ See DTSC Letter to Orsolini, Re Report of Investigation on Schnitzer Steel Industries, Inc. Oakland Facility, August 18, 2015.

- Two exceeded the TTLC for nickel.
- Ten exceeded the TTLC for zinc.

One of the samples exceeded the federal limit for lead as measured by the Toxic Characteristic Leaching Procedure, indicating that the waste was also federally regulated as hazardous waste.

DTSC has shared a copy of the Report of Investigation with Schnitzer and is evaluating appropriate enforcement actions.

SA Anaheim

Storm Water Requirements: The facility holds a specific storm water permit for scrap metal recyclers administered by the Santa Ana RWQCB. A notice of violation was issued in 2014 for exceeding limits for chemical oxygen demand and iron for the sampling year 2012-13, and exceeding the annual average numeric action level for specific conductance, chemical oxygen demand, and iron.⁷⁵ In response, the facility was required to submit a corrective action plan to identify preventative measures and control measures to reduce the concentrations of each specific contaminant. In 2015, SA Anaheim received another notice of violation for exceeding the numeric action levels for chemical oxygen demand and lead after developing a corrective action plan resulting from the 2014 notice of violation.⁷⁶ SA Anaheim was required to develop a corrective action plan that included the best available technology treatment method. The RWQCB conducted an inspection in 2016, and found that no corrective actions were needed and all documentation required as part of the storm water permit was present.⁷⁷

Soil Contamination: In June 1987, a Remedial Action Order was issued by DTSC requiring the facility, then known as Orange County Steel Salvage, to characterize contamination at its facility, and in the piles of metal shredder residue that had been accumulated. In June of 1991 DTSC approved a Remedial Action Plan for the site, which included plans to remove and dispose of the accumulated metal shredder residue to a hazardous waste landfill. Some areas of the site were found to have soil contaminated with PCBs, heavy metals, and oil and grease. Some areas had contamination that exceeded the TTLC of 50 mg/kg for PCBs. By December 1998, 31,250 cubic yards of PCB-contaminated soil had been removed. On October 30, 2002, DTSC certified that remediation of the site had been completed and that no further action was required.⁷⁸ No deed restriction was required for the property and, because no groundwater contamination was found, the groundwater monitoring wells were abandoned and removed per agreement with the Santa Ana RWQCB.

CUPA Inspections: Six hazardous waste inspection reports from 2008, 2010, 2013, and 2016 were provided to DTSC from the 10-year timeframe requested, with two of the six being re-inspections. On

⁷⁵ See Santa Ana Regional Water Quality Control Board Letter to Lindsay Maine of SA Recycling, Notice of Violation with Industrial Activities from Scrap Metal Recycling Facilities Within the Santa Ana Region, Order No. R8-2012-0012 (Scrap Metal Storm Water Permit), April 3, 2014.

⁷⁶ See Santa Ana Regional Water Quality Control Board Letter to Lindsay Maine of SA Recycling, Notice of Violation of the Sector-specific General Permit for Storm Water Runoff Associated with Industrial Activities from Scrap Metal Recycling Facilities within the Santa Ana Region, Order No. R8-2012-0012 (Scrap Metal Storm Water Permit), June 29, 2015.

⁷⁷ See Santa Ana Regional Water Quality Control Board Inspection Report for SA Recycling LLC (WDID: 8 30MR000004), September 1, 2016.

⁷⁸ See DTSC Letter to Mr. George Adams, Jr., October 30, 2002.

March 13, 2008, during a routine inspection, the CUPA cited a minor violation for not properly marking and labeling containers, including the presence of unmarked containers.⁷⁹ On March 4, 2010, during a routine inspection, the CUPA cited a minor violation pertaining to damage to the concrete pad where metal turnings were stored, in addition to irregular inspection of oil drainage collection sump.⁸⁰ On February 20, 2013, the CUPA observed one Class II violation regarding containers that held mixed live ammunition with empty casings, with no accumulation start date and no hazardous waste plan for hazardous waste ammunitions.⁸¹

On February 12, 2016, the CUPA conducted a routine inspection and cited one Class II violation for containers with unknown fluids found stored, requiring a hazardous waste determination for the wastes.⁸² One minor violation related to aisle space and housekeeping issues was also cited. On March 22, 2016, the CUPA determined that all violations from the February 12, 2016, inspection had been corrected.⁸³

Sims Metal Management

Storm Water Requirements: On March 4, 2011, US EPA observed material outside the Sims property boundary, including “shredding residue, scrap metal, and other debris associated with industrial activities” while conducting a storm water inspection for its NPDES permit.⁸⁴ On August 25, 2011, US EPA returned and collected sediment and soil samples from areas surrounding the facility, which were found to have TTLC exceedances for lead, zinc, copper, and cadmium. US EPA determined that Sims had been operating that way since at least the early 1990s. On December 16, 2011, US EPA issued an Order for Compliance based on findings of violations of the Clean Water Act and the NPDES permit regulating storm water and non-storm water discharges from the facility.⁸⁵ In 2014, US EPA fined Sims \$189,500 for polluting Redwood Creek and San Francisco Bay.⁸⁶

Fires/Explosions: On November 10, 2013, a two-alarm fire originated from “crushed cars and scrap metal that were in a large pile about 30 feet high.”^{87,88} The fire sent a plume of smoke into the area that

⁷⁹ See Anaheim Fire Department Hazardous Materials Section, Hazardous Waste Generator Inspection Report for SA Recycling, LLC, March 13, 2008.

⁸⁰ See Anaheim Fire Department Hazardous Materials Section, Hazardous Waste Generator Inspection Report for SA Recycling, LLC, March 4, 2010.

⁸¹ See Anaheim Fire & Rescue Hazardous Materials Section, Hazardous Waste Generator Inspection Report for SA Recycling, LLC, February 20, 2013.

⁸² See Anaheim Fire & Rescue Hazardous Materials Section, Hazardous Waste Generator Inspection Report for SA Recycling, LLC, February 12, 2016.

⁸³ See Anaheim Fire & Rescue Hazardous Materials Section, Hazardous Waste Generator Inspection Report for SA Recycling, LLC, March 22, 2016.

⁸⁴ See DTSC Statement of Facts in the Investigation of Sims Group USA Corporation, Case No. 14158-48.

⁸⁵ See US EPA Letter to Mr. Steven Shinn, Sims Metal Management, Findings of Violation and Order for Compliance, December 16, 2011.

⁸⁶ See “EPA fines Sims Metal plant in Redwood City \$189,500 for polluting the Bay,” The Mercury News, September 19, 2014.

⁸⁷ See Bay Area Air Quality Management District, “Incident Report, Sims Metal Management (A5152), Redwood City, CA,” Compliance and Enforcement Division, November 10, 2013.

⁸⁸ See “Redwood City requires Sims Metal to take more than a dozen steps to prevent future fires,” The Mercury News, February 21, 2014.

prompted the Redwood City Fire Department to advise nearby residents to avoid the smoke, stay indoors and close air intake systems to their homes. On December 17, 2013, another fire broke out at about 12:50 a.m. after a small explosion, which again prompted “health, emergency and air quality officials ... to [advise] residents ... to stay inside with the windows closed.”⁸⁹ DTSC also received complaints filed by a local business via the CalEPA Environmental Complaint System stating that employees had sore throats due to the smoke and were unable to come to work.

CUPA Inspections: Five hazardous waste inspection reports from 2009, 2010, 2011, 2014, and 2016 were provided to DTSC from the 10-year timeframe requested. In 2009 and 2010, no violations were cited, and in 2011, one violation regarding an unlabeled drip pan was found but corrected on-site.^{90,91,92} On March 18, 2014, four violations were cited pertaining to checking eyewash stations and fire extinguishers on a monthly basis, proper labeling of hazardous waste containers and tanks, keeping hazardous waste containers closed when not in use, and properly managing empty containers.⁹³ On April 18, 2016, two minor violations and one Class II violation were cited.⁹⁴ The minor violations included improper labeling for a container of hazardous waste antifreeze and improperly contained and labeled filters.

DTSC Inspections or Investigations: Following up on the US EPA report of the NPDES inspection (see *Storm Water Requirements* section above), DTSC conducted its own investigation of Sims after the soil and sediment sampling results indicated that “disposal of a non-Resource Conservation and Recovery Act (non-RCRA) hazardous waste” had occurred.⁹⁵ Results of the soil/sediment samples collected by US EPA revealed exceedances of DTSC’s TTLCs for cadmium, copper, lead and zinc. Prior to DTSC visiting the facility with US EPA for a reinspection, the San Francisco Bay RWQCB submitted a report to DTSC regarding observations of “man-made fibrous material (‘white fluff’) originating from the [Sims] Metal Management site in Redwood City.”⁹⁶ Release of light fibrous material has been an issue at the Sims facility since at least 2009, when discoloration, subsequently identified as light fibrous material, was found in the ponds at the neighboring Cargill Salt facility. Beginning on March 13, 2012, samples from various locations in and around the vicinity were collected, including treated shredder waste, fluff, soil,

⁸⁹ See “Redwood City Officials Meet with Recycling Plant After Second Blaze in Two Months,” San Francisco Examiner, December 20, 2013.

⁹⁰ See San Mateo County Environmental Health Division, Hazardous Waste Generator Inspection Report for Sims, February 25, 2009.

⁹¹ See San Mateo County Environmental Health Division, Hazardous Waste Generator Inspection Report for Sims Metal, November 18, 2010.

⁹² See San Mateo County Environmental Health Division, Hazardous Waste Generator Inspection Report for Sims Metal, December 9, 2011.

⁹³ See San Mateo County Environmental Health Division, Hazardous Waste Generator Inspection Report for Sims Metal Management, March 18, 2014.

⁹⁴ See San Mateo County Environmental Health Division, Hazardous Waste Generator Inspection Report for Sims Metal Management, April 18, 2016.

⁹⁵ See DTSC Statement of Facts in the Investigation of Sims Group USA Corporation, Case No. 14158-48.

⁹⁶ Ibid.

soil/fluff combination, and HVAC air filters. Of the samples collected, exceedances were noted for zinc, lead, and copper, demonstrating the illegal disposal of hazardous shredder residue.⁹⁷

DTSC referred the case to the California Attorney General's Office, alleging that Sims's scrap metal recycling operations released light fibrous material, some of which deposited onto nearby property. The release, migration, deposition, and accumulation of this hazardous waste outside the facility constituted the unlawful disposal of hazardous waste and a failure to minimize the possibility of a release of hazardous waste. The California Attorney General's Office filed an action in San Mateo County Superior Court and negotiated a settlement on behalf of DTSC.

In November 2014, Sims agreed to pay nearly \$2.4 million to settle the civil environmental enforcement action.⁹⁸ Under the settlement, Sims was directed to pay \$825,000 to DTSC in civil penalties and for reimbursement of DTSC's investigative costs; \$125,000 to the Environmental Enforcement and Training Account Program as a Supplemental Environmental Project; and at least \$1,443,814 to upgrade the facility. Additionally, Sims was directed to implement facility upgrades including construction of buildings to enclose the metal shredder and the screening unit and associated magnets; improving the air pollution control system; constructing additional perimeter fencing; and conducting regular sweeping of the public roadways outside of the facility. Interim measures outlined in the settlement included logged weekly visual inspections for accumulation of LFM in areas including private properties, public sidewalks, and streets adjacent to and downwind of Sims, immediate removal of any deposits, and proper characterization and management of any deposits.

SA Bakersfield

Fires/Explosions: On February 19, 2008, SA Bakersfield experienced a fire in a scrap metal pile that was about "150 feet, by 300 feet by 50 feet high, firefighters reported."⁹⁹ Ultimately, the fire was managed by using a large crane to pull metal pieces from the pile to reach the fire.

CUPA Inspections: Three hazardous waste inspection reports from 2009, 2012, and 2015 were provided to DTSC from the 10-year timeframe requested. During hazardous waste generator inspections conducted by the Kern County Environmental Health Services Department in 2012 and 2015, no violations were found.^{100,101} In 2009 and 2012, inspections for three program areas were conducted simultaneously: business plan, hazardous waste generator, and aboveground storage tank.¹⁰²

On April 10, 2009, a routine inspection found three violations under the hazardous waste generator program and two violations under the business plan requirements program. The three minor violations

⁹⁷ See DTSC's Supplemental Statement of Facts in the Investigation of Sims Group USA Corporation, Case No. 14158-48, March 12, 2013.

⁹⁸ See *People of the State of California, ex rel. Miriam Barcellona, Acting Director of the California Department of Toxic Substances Control v. Sims Group USA Corp.*, California Superior Court, San Mateo County, case no. CIV531456, Stipulation for Entry of Final Judgment and Order, filed November 24, 2014.

⁹⁹ See "Public Safety Digest: Golden State Metals Catches Fire," Bakersfield.com, February 19, 2008.

¹⁰⁰ See Kern County Public Health Services, Hazardous Waste Generator Inspector Report for SA Recycling LLC DBA SA Recycling, May 19, 2015.

¹⁰¹ See Environmental Health Division, Certified Unified Program Agency (CUPA) Hazardous Material Inspection Form, March 15, 2012.

¹⁰² See Environmental Health Services Department, (CUPA) Hazardous Material Inspection Form, April 10, 2009.

cited under generator requirements were related to improper labeling of hazardous waste storage containers, missing accumulation start dates on spent lead-acid batteries, and failure to dispose of lead-acid batteries within 180 days of generation. Of the two business plan requirements, one Class II violation was cited regarding inaccurate and out-of-date inventory of hazardous waste, and one minor violation related to improperly labeled hazardous waste containers.

DTSC Inspections: In 2014, soil and sludge samples collected by DTSC in areas surrounding the facility showed lead levels that exceeded the STLC. DTSC could not determine the source of the lead, and because the samples did not contain the light fibrous materials often associated with metal shredding facilities, the case was closed without further action. The source of the lead has not been determined. In 2015, SA Bakersfield was issued a letter by DTSC for improper housekeeping on-site including improperly managing shredded materials that escaped the property boundaries as hazardous waste.¹⁰³ DTSC warned that failure to prevent metal shredder waste from leaving the site would result in the facility being subject to additional enforcement action.

Ecology Auto Parts

CUPA Inspections: Three hazardous waste inspection reports from 2011, 2012, and 2015 were provided to DTSC from the timeframe requested. On September 25, 2015, the San Bernardino County Fire Department conducted an inspection of the facility and found a violation relating to the failure to update the business plan within 30 days. The facility subsequently submitted updated business plan elements electronically to the California Environmental Reporting System (CERS), and the violation was corrected on October 12, 2015. The facility was previously inspected on June 19, 2012, and November 1, 2011, and no violations were found.^{104,105}

DTSC Inspections or Investigations: In 2014, LFM was found in the public access areas outside of the property boundaries, indicating that waste material was migrating from the facility. In 2014 and 2015, it was found that Ecology had “significantly reduced” the amount of LFM that was being generated by the facility based on an observation and on-site inspection conducted by DTSC. Due to the improved management practices employed by the facility, DTSC did not pursue the issue further.

On June 2 and 3, 2015, DTSC conducted an inspection of the Ecology facility.¹⁰⁶ During a walk-through tour of the facility DTSC observed metal processing operations being conducted on bare ground, stained soils collected on paved surfaces, and contaminated soils collected in piles. Inspectors also observed light fibrous material, similar to a heavy dust, that had settled on surfaces and covering piles of other material. DTSC collected samples from each of these locations and found that the collected samples exhibited the following characteristics:

- Soil from the torch cutting area exceeded the STLC for lead.
- Soil from the railroad processing area exceeded the STLC for lead.
- Material from an aggregate pile exceeded the STLCs for cadmium, lead, and zinc.

¹⁰³ See DTSC Letter to Adams, Re Operational Expectations During Implementation of SB 1249, April 13, 2015.

¹⁰⁴ See CUPA San Bernardino Fire Department Hazardous Materials Division, Hazardous Waste Generator and Hazardous Materials Handler Inspection Report, June 19, 2012.

¹⁰⁵ See CUPA San Bernardino Fire Department Hazardous Materials Division, Preliminary Field Inspection Report, November 1, 2011.

¹⁰⁶ See DTSC Report of Investigation on Ecology, Inc., Colton, dba: Pacific Rail Industries, December 16, 2015.

- Material from an aggregate pile exceeded the TTLCs for copper, lead, and zinc.
- Shredder residue on the ground under the conveyors exceeded the STLCs for cadmium and zinc.
- Shredder residue on the ground under the conveyors exceeded the TTLCs for copper, lead, and zinc.
- LFM exceeded the STLC for zinc, and the TTLCs for copper, lead, and zinc.
- Soil collected near the aggregate lines exceeded the STLCs for cadmium, lead, and zinc.
- Soil collected near the aggregate lines exceeded the TTLCs for copper, lead, and zinc

DTSC has shared a copy of the Report of Investigation with Ecology and is evaluating appropriate enforcement.

2.6 Evaluation Findings and Conclusions

Each of the metal shredding facilities is under the jurisdiction of various environmental and health agencies, and their oversight is often specific to particular media or activities. However, even though several agencies have jurisdiction and provide oversight, certain aspects of the operation of the metal shredding facilities appear to be either not regulated adequately or entirely unregulated. DTSC found that the level of regulation clearly differs among local agencies for air pollution control, water pollution programs, and the oversight of hazardous waste management activities. DTSC found that this has resulted in the release of contaminants to the surrounding communities.

Several of the facilities were found to have had storm water runoff exceedances. Two of the four metal shredding facilities had exceedances of the water quality thresholds for specific conductance, chemical oxygen demand, iron, and lead. One metal shredding facility had violations of both its NPDES permit and the Clean Water Act, in which material associated with metal shredding activities was found to have exited the property boundary and contaminated surrounding areas. Subsequent soil and sediment samples from the areas surrounding the property revealed TTLC exceedances of lead, zinc, copper, and cadmium.

Two facilities were required to install an impermeable concrete cap over part of the property due to contamination found in both the soil and groundwater, which was attributed to their metal shredding activities. Three facilities required soil cleanup due to the presence of contaminants associated with metal shredding activities.

Two facilities have had soils collected and analyzed by DTSC in areas where metal processing and storage operations occur, revealing STLC and TTLC exceedances for lead, copper, zinc, and cadmium. During DTSC's 2015 inspection of Schnitzer, soil samples collected from bare ground where scrap metal was stored or being processed, from piles of swept material from paved surfaces, and from areas adjacent to and under the joint products plant where the non-ferrous metals are removed from metal shredder aggregate, were found to exceed regulatory thresholds for metals.

DTSC inspections at Ecology found similar soil contamination. DTSC observed metal processing operations being conducted on bare ground, stained soils accumulating on paved surfaces, and piles of contaminated soils. DTSC collected samples from these areas, and found that the piles often exceeded TTLCs and STLCs for lead, cadmium, copper, and zinc.

Four metal shredding facilities have had fires on their properties, either in the metal shredding machinery or in piles of scrap metal, with a total of six known fires over the past 10 years. Two of the four had more than one fire from 2009 to 2013.

Several of the facilities were found to have had accidents that resulted in releases of hazardous constituents to the air, or to have had ongoing emissions of hazardous constituents resulting from their routine, normal operations. DTSC found that the explosion in the air pollution control system at SA Terminal Island resulted in the release of an estimated 52 pounds per hour of VOCs, and approximately 28.3 tons of particulate matter, over the course of the 120 days that the shredder was in operation after the explosion. DTSC found that the normal, routine operations at Sims had resulted in emissions of light fibrous material from that facility since at least 2009, when the material was found in the ponds at the neighboring Cargill Salt facility. Samples collected of the LFM were found to contain zinc, lead, and copper. The off-site release of this material was found to demonstrate the illegal disposal of hazardous metal shredder residue.

These examples show that while each metal shredding facility is under the jurisdiction of environmental and health agencies, each of those agencies implements a program that is tailored to the priorities that have been established for its district. Notably, the metal shredding facilities in SCAQMD have been required to install and maintain RTO units to control the emissions of VOCs because SCAQMD has identified the emission of VOCs as a priority in its district. BAAQMD does not require the use of RTO, but allows the use of air scrubbers to control the emission of all pollutants, including VOCs. SJVAPCD does not mandate control of VOCs at all.

Given the similarity of the material being shredded, and the common use of a hammer mill to shred the vehicles, appliances and other scrap metals, each metal shredding facility is likely to emit similar pollutants, from its similar processes, to the air, water, and soil surrounding its facilities. These jurisdictional differences indicate that unequal levels of public health or environmental protection may result near the metal shredding facilities.

These jurisdictional differences, coupled with the continued effect of DTSC's "f letters" and OPP 88-6, have resulted in inadequate regulatory oversight of the operations being conducted at the metal shredding facilities.

3 ANALYSIS REQUIRED TO ADOPT REGULATIONS

Pursuant to HSC Sections 25150.82(d)(3)(A) through 25150.82(d)(3)(D), the Metal Shredding Facilities Law requires DTSC to prepare an analysis addressing specific factors relating to activities that would be subject to the alternative management standards, if promulgated, or to existing hazardous waste control law.

DTSC, in its evaluation of the metal shredding facilities and their hazardous waste management activities, has determined that the activities that would most significantly relate to the establishment of alternative management standards or to the requirements of existing hazardous waste control law would be the hazardous waste treatment and storage activities that have been historically “authorized” or otherwise exempted from regulation as a result of OPP 88-6. Therefore, as required by the Metal Shredding Facilities Law, these hazardous waste management activities are the subject of this Analysis.

The following sections present DTSC’s analysis of the factors specified in the Metal Shredding Facilities Law as they pertain to the treatment and storage of metal shredder wastes. All of these wastes are hazardous wastes, and all are activities that would otherwise require a hazardous waste permit or other form of authorization from DTSC to perform. Any alternative management standards proposed would be substituted for the hazardous waste management requirements and permitting standards that apply to these types of hazardous waste management activities under existing statutes and regulations. (Note that the disposal of CTMSR to landfills, which would otherwise require a hazardous waste permit to perform if not for the nonhazardous classifications provided in the “f letters,” is discussed in Section 5.0.)

3.1 Types of Hazardous Waste and Estimated Amounts That Are Managed as Part of the Activity

Health and Safety Code Section 25150.82(d)(3)(A) requires DTSC, if it intends to promulgate alternative management standards, to prepare an analysis of the types of hazardous waste and the estimated amounts of each hazardous waste that are managed as part of the activity. Unless alternative management standards are developed, these activities would be regulated by the hazardous waste management requirements and permitting standards that apply to these types of hazardous waste management activities under existing statutes and regulations.

Metal Shredder Aggregate: The facilities treat the aggregate using physical separation processes to separate ferrous and non-ferrous metals. Except in two instances where the metal shredding facilities claimed the information was confidential business information, each of the facilities provided an estimate of the amount of scrap metal it processed in 2014 (the year prior to the survey responses. According to the surveys, the incoming scrap composition typically consists of end-of-life vehicles (20 to 50 percent), appliances (10 to 70 percent), and other forms of scrap metal (9 to 40 percent).

The total amount of metal shredder aggregate estimated to be processed by all the metal shredding facilities in 2014 was 1.9 million tons. This amount was assumed to be equivalent to the amount of scrap metal received; in other words, the weight of the material before it is shredded in the hammer mill would be the same as the weight of the material after it is shredded. This may overestimate the actual amount of metal shredder aggregate, depending on how much of the scrap metal that is received includes scrap metal that is already “clean” and does not require shredding or separation before being

managed as sorted ferrous or non-ferrous metals. However, the estimated amount correlates well with the amount of CTMSR that was reported as alternative daily cover in the same year. To the extent the aggregate contains hazardous wastes, some portion of the estimated amount of aggregate would be a measure of hazardous waste, depending on specific circumstances.

Metal Shredder Residue: After the metal shredder aggregate has been treated to separate the ferrous and non-ferrous metals, the portion that remains is referred to as “metal shredder residue.”

The total amount of metal shredder residue estimated to be generated by all of the metal shredding facilities is 536,000 tons. According to the survey responses, the metal shredding facilities provided, the amount of metal shredder residue generated by each facility was reported to range from 29 to 38 percent of the facility’s total scrap metal throughput. To approximate the amount of metal shredder residue being generated in 2014, an average of 33.5 percent was applied to the estimated amount of metal shredder aggregate being generated. Again, although it may not provide a precise amount, the calculated estimate correlates well with the amount of CTMSR that was reported as alternative daily cover in the same year.

CTMSR: After the metal shredder waste has been chemically treated, the facilities store it in piles at their facilities. Later, it is loaded onto trucks and transported to solid waste landfills, where it is disposed or used as alternative daily cover. According to information reported to CalRecycle by the solid waste landfills that use CTMSR for alternative daily cover, an estimated 517,000 tons of CTMSR were used as alternative daily cover in 2014. This number does not include the amount of CTMSR sent to H.M. Holloway by SA Bakersfield. CTMSR received by H.M. Holloway is disposed of, and is not used for alternative daily cover. The amount of CTMSR sent to H.M. Holloway by SA Bakersfield in 2014 was approximately 25,000 tons. The total estimated amount of CTMSR generated by metal shredding facilities in 2014 was 542,000 tons.

Quantities of Hazardous Waste Managed at Metal Shredding Facilities: Table 6 summarizes the Quantities of Throughput and Waste Generation from Metal Shredding Facilities reported for 2014. The amount of scrap metal shredded annually was reported by each metal shredding facility in the questionnaires provided to DTSC. The amount of metal shredder aggregate generated is considered to be the same as the amount of scrap metal shredded, because no ferrous or non-ferrous materials have yet been removed. Metal shredder residue remains once the ferrous and non-ferrous metals have been removed. The amount of chemically treated metal shredder residue that was transported offsite for disposal was also reported in the questionnaires from each facility. CalRecycle provides a public record of the amount of CTMSR being used as alternative daily cover. Additional data was provided by the landfills in response to DTSC’s survey. The other values in Table 6 were calculated as functions of the known data. Because some facilities claimed that their production and generation volumes were confidential business information, some of the values in Table 6 are estimates based on overall industry averages. Although some of the values are estimated, they provide a reliable approximation of the scale of hazardous waste management activities being conducted at the metal shredding facilities.

Table 6. Quantities of Throughput and Waste Generation and Management at Metal Shredding Facilities				
Facility	Scrap Metal Shredded (Tons)	Metal Shredder Aggregate Generated and Treated (Tons)^b	Metal Shredder Residue (Approximate Tons)^c	CTMSR Disposed (Tons)^d
SA TERMINAL ISLAND	330,000	330,000	110,550	115,172
SCHNITZER STEEL PRODUCTS^a	582,000 ^g	582,000 ^f	195,000 ^f	195,000 ^e
SA ANAHEIM	247,000	247,000	82,745	87,093
SIMS METAL MANAGEMENT^a	358,000 ^g	358,000 ^f	120,000 ^f	120,000 ^e
SA BAKERSFIELD	83,000	83,000	27,805	24,567
ECOLOGY AUTO PARTS	264,000	264,000	N/A	N/A

- ^a Some information was claimed as Confidential Business Information. Estimates based on overall industry averages were used to in place of data that was unavailable.
- ^b Amount assumed to be the same as the amount of scrap metal processed.
- ^c Calculated based on the industry's estimate that the amount of metal shredder residue generated by each facility ranged from 29 to 38 percent of its total throughput. An average of 33.5 percent was applied to approximate the amount generated.
- ^d Based on information provided to CalRecycle on the amount of CTMSR that was reported to be used as alternative daily cover.
- ^e Estimated from amount of CTMSR used as alternative daily cover reported to CalRecycle.
- ^f Calculated using the estimated amount of CTMSR used as alternative daily cover as reported to CalRecycle.
- ^g Calculated using the estimated amount of metal shredder residue, using the ratio of metal shredder residue to total throughput of 33.5 percent.

Hazards to Human Health or Safety or to the Environment Posed by Reasonably Foreseeable Mismanagement of Those Hazardous Wastes and Their Constituents

The risks and hazards associated with the management and mismanagement of hazardous wastes are directly related to the hazardous constituents present in the hazardous waste and the characteristics the hazardous waste exhibits. California regulates waste based on the toxicity and hazard to humans and to other biological organisms. The risk posed by hazardous wastes is also a function of the routes of release into the environment and the potential exposure that can take place as a result of that release.

Chemical Hazards of Hazardous Waste Constituents in Metal Shredder Wastes

The primary hazardous waste constituents in metal shredder wastes, shown in previous DTSC sampling and in the treatability study, are lead, copper, and zinc. Each of these contaminants is present at concentrations that exceed their respective STLCs and TTLCs, and the soluble concentrations are only decreased in CTMSR—but even then, not to levels below the STLC. Cadmium has also occasionally been observed in some samples at levels that exceed its STLC. Historically, metal shredder wastes have also contained mercury and PCBs, but these constituents have not recently been found in chemical testing performed.

The primary health and environmental concerns with these hazardous waste constituents are as follows:

Lead: Lead can present health hazards if it is inhaled, ingested, or absorbed as particles.¹⁰⁷ Inhalation presents the greatest risk, because the body absorbs higher levels of lead through this exposure pathway. Lead is absorbed and stored in bones, blood, and tissues. Bones can be demineralized by lead, which replaces other natural elements in the bone structure.

Lead poisoning can happen if a person is exposed to very high levels of lead over a short period of time. This can cause abdominal pain, fatigue, weakness, memory loss, and pain or loss of feeling in the hands and/or feet. Exposure to high levels of lead may cause anemia, weakness, and kidney and brain damage. Prolonged exposure to lead can cause abdominal pain, nausea, and changes in personality, and can increase the risk for high blood pressure, heart disease, kidney disease, and reduced fertility. Very high levels of lead exposure can cause death. The U.S. Department of Health and Human Services, US EPA, and the International Agency for Research on Cancer (IARC) have determined that lead is probably cancer-causing in humans.¹⁰⁸

Generally, children tend to show signs of severe lead toxicity at lower levels than adults. Lead poisoning has occurred in children whose parents accidentally brought home lead dust on their clothing. Neurological effects and mental retardation have also occurred in children whose parents may have job-related lead exposure. Lead can cross the placental barrier, which means that the fetuses of pregnant women who are exposed to lead are also exposed. Lead can damage a developing baby's nervous system and even low-level lead exposures in developing babies have been found to affect behavior and intelligence. Lead exposure can cause miscarriage, stillbirths, and infertility.

Cadmium: Cadmium has an inhalation hazard that can cause pulmonary irritation.¹⁰⁹ Long-term exposure to cadmium through inhalation or oral ingestion can cause kidney disease due to the build-up of cadmium in the kidneys. Similarly, cadmium is classified by US EPA as a probable human carcinogen, with animal studies concluding increased rates of lung cancer due to chronic exposure.¹¹⁰

Cadmium (as an oxide, chloride, or sulfate) will exist in the air as particles or vapors from high-temperature processes. It can be transported long distances in the atmosphere, where it will deposit (wet or dry) onto soils and water surfaces. Cadmium and its compounds may travel through soil, but its mobility depends on several factors such as pH and the amount of organic matter in the soil, which will vary depending on the local environment. Generally, cadmium binds strongly to organic matter, where it will be immobile in soil and be taken up by plant life, eventually entering the food supply.

Copper: Exposure to high doses of copper can cause liver and kidney damage and even death.¹¹¹ Long-term exposure to copper dust can irritate the nose, mouth, and eyes, and cause headaches, dizziness,

¹⁰⁷ See Health effects of Lead, The National Institute for Occupational Safety and Health (NIOSH), available at <https://www.cdc.gov/niosh/topics/lead/health.html>

¹⁰⁸ Toxicological Profile for Lead, U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, 2007.

¹⁰⁹ Toxicological Profile for Cadmium, U.S. Department of Health and Human Services, Public Health Service, Agency for Toxic Substances and Disease Registry, 2012.

¹¹⁰ See www.epa.gov/sites/production/files/2016-09/documents/cadmium-compounds.pdf

¹¹¹ See Public Health Statement for Copper, U.S. Department of Health and Human Services Agency for Toxic Substances and Disease Registry, 2004.

nausea, and diarrhea. If water that contains higher than normal levels of copper is consumed, it can cause nausea, vomiting, stomach cramps, or diarrhea. It is not known if copper can cause cancer in humans. US EPA does not classify copper as a human carcinogen because there are no adequate human or animal cancer studies.

Elemental copper does not break down in the environment. Copper can be found in plants and animals, and at high concentrations in filter feeders such as mussels and oysters. Copper is also found in a range of concentrations in many foods and beverages that we eat and drink, including drinking water. When copper and copper compounds are released into water, the copper that dissolves can be carried in surface waters either in the form of copper compounds or as free copper or, more likely, copper bound to particles suspended in the water. Even though copper binds strongly to suspended particles and sediments, there is evidence to suggest that some water-soluble copper compounds do enter groundwater. When copper is released into soil, it can become strongly attached to organic material and other soil components (clay, sand, etc.) in the top layers of soil, and may not move very far when it is released. Copper that enters water eventually collects in the sediments of rivers, lakes, and estuaries.

Zinc: Zinc exposure can cause stomach cramps, anemia, and changes in cholesterol levels.¹¹² Inhaling large amounts of zinc (as dusts or fumes) can cause a specific short-term disease called metal fume fever. However, DHHS and IARC have not classified zinc for carcinogenicity, and US EPA has determined that zinc is not classifiable as to its human carcinogenicity. Zinc is not listed by the State of California as a naturally occurring or synthetic chemical that is known to cause cancer or birth defects or other reproductive harm.

Zinc dust can travel in the air and be deposited by rain and snow. Depending on the type of soil, some zinc compounds can move into the groundwater and into lakes, streams, and rivers. The zinc dissolved in water can build up in fish and other organisms.

Research conducted by US EPA has shown that zinc is a strong aquatic pollutant.¹¹³ Inherent water quality parameters like pH, hardness, and alkalinity change the biological activity of zinc. This is significant because calcium hardness and carbonate alkalinity are both important factors in governing the toxicity of zinc to fish. In the US EPA study, the sensitivity of various fish species to zinc was found to vary by a factor of 2.7 between hard and soft water.

The rulemaking documents that established California's hazardous waste criteria stated that "[z]inc appears to have low toxicity to higher animals, but is highly toxic to fish, especially in soft waters. Moreover, zinc has a synergistic, toxic effect with copper compounds on fish. Zinc is an essential nutrient for plants and animals, but also has an appreciable phytotoxicity which is dependent on soil pH. Liming the soil reduces the phytotoxic effects of zinc. There is a recommended limit of 2.0 milligrams of zinc per liter of water applied to limed soils."¹¹⁴

¹¹² See Toxic Facts for Zinc, U.S. Department of Health and Human Services, The Agency for Toxic Substances and Disease Registry (ATSDR), U.S. Department of Health and Human Services, available at: <https://www.atsdr.cdc.gov>

¹¹³ See Holcombe, G.W. and Andrew, R.W., The Acute Toxicity of Zinc to Rainbow and Brook Trout: Comparisons in Hard and Soft Water, Ecological Research Series, Research and Development. US EPA Environmental Research Lab, Duluth, MN. EPA-600/3-78-094PB-289 939, October 1978.

¹¹⁴ See Final Statement of Reasons, Criteria for Identification of Hazardous and Extremely Hazardous Wastes, Department of Health Services, R-45-78, July 20, 1984, p. 22.

Hazards from Reasonably Foreseeable Releases of Metal Shredder Wastes

The hazards to human health or safety or to the environment posed by hazardous wastes that exceed any of the TTLCs and STLCs are associated both with the toxic constituents that are present in excess of the TTLC as well as how the hazardous waste is being managed.

Wastes that contain constituents that exceed their respective TTLCs can pose hazards to human health and the environment if managed in ways that do not prevent them from being released into the environment. In addition, wastes that contain constituents that exceed their respective STLCs can pose hazards to human health and the environment if mismanaged in ways that allow the soluble constituents to migrate via surface or groundwater to sensitive aquifer systems such as drinking water supplies or aquatic wildlife environments.

The Department of Health Services (DHS) described potential routes of release of and exposure to particulate toxics, for which TTLCs were developed. The potential routes include:

- Surface run-off and contamination of land and water
- Direct discharge into waterways
- Volatilization of organics
- Airborne dispersal before, during, and after disposal
- Direct on-site land contamination
- Long-term solubilization

As further explained in the rulemaking establishing the hazardous waste criteria, “It was decided to consider the potential impacts on land, resulting from improper disposal of particulate toxic wastes, in establishing TTLC values. The most direct impact of indiscriminate disposal is contamination of the land and the attendant potential impact on organisms which contact the land. These can include persons, animals, or plants.”¹¹⁵

In its rulemaking documents in which the STLCs were established, DHS explained that “the establishment of the STLC was based upon the potential for soluble substances from improperly disposed wastes to migrate via surface or groundwater to sensitive aquifer systems such as drinking water supplies or aquatic wildlife environments. Several steps can be envisioned in such a process: (a) dissolving of toxic substance from the waste by the leaching action of rain, surface water, ground water, or landfill leachate; (b) movement of the resulting extractant from the disposal area; (c) attenuation (dilution) of toxic substance in the extractant through soil absorption or through mixing with ground or surface waters; and (d) pollution of the aquifer.”¹¹⁶

The establishment of the STLCs and TTLCs assumed that the “proper” management of hazardous wastes would prevent releases consistent with the potential routes of dissemination and exposure listed above. The primary method of controlling the hazards posed by the hazardous constituents in the waste would be to manage it so that releases cannot occur that could allow it to contaminate land or water, and potentially come into contact with human or biological receptors.

¹¹⁵ See Final Statement of Reasons, Criteria for Identification of Hazardous and Extremely Hazardous Wastes, Department of Health Services, R-45-78, July 20, 1984, pp. 95 – 98.

¹¹⁶ See Final Statement of Reasons, Criteria for Identification of Hazardous and Extremely Hazardous Wastes, Department of Health Services, R-45-78, July 20, 1984, pp. 89–91.

The hazardous waste management requirements that would otherwise apply to the metal shredder wastes are all designed to prevent the release of the hazardous waste and hazardous waste constituents into the environment. In all cases, the management of hazardous waste from the point of its generation through its treatment and storage, and ultimately to its transportation to a disposal facility, is required to be performed inside tanks or containers so that the hazardous constituents are controlled and contained. In some cases, these containment standards can be accomplished by performing them inside buildings that meet the standards for containment buildings (see Article 29, Chapter 14, Title 22, California Code of Regulations, Section 66264.1101 et seq.), or in units that meet specific design and operating standards to prevent the release of hazardous wastes into the environment (e.g., waste piles designed and operated in accordance with Article 12, Chapter 14, Title 22, California Code of Regulations, Section 66264.250 et seq.).

The information presented in Section 2.3 demonstrates that metal shredder wastes are not currently managed within tanks or containers, inside containment buildings that meet the Article 29 standards, nor in waste piles that meet the design and operating standards in Article 12. At metal shredding facilities, the metal shredder wastes are not being managed in accordance with existing hazardous waste requirements for transfer, storage, or treatment of hazardous wastes. This has allowed hazardous wastes to be released, causing potential impacts to human health and the environment.

3.2 Complexity of Treatment and Storage Activities at Metal Shredding Facilities

Health and Safety Code Section 25150.82(d)(3)(B) requires DTSC, if it intends to promulgate alternative management standards, to prepare an analysis of the complexity of the activity, and the amount and complexity of operator training, equipment installation and maintenance, and monitoring that are required to ensure that the activity is conducted in a manner that safely and effectively manages each hazardous waste

Complexity of Treatment Activities

Ferrous and Non-ferrous Metal Separation – For ferrous metal separation, the amount of charge placed on the electromagnet and the rate at which the metal shredder aggregate is passed under the magnet affect the efficiency and effectiveness of the retrieval of ferrous metal. For non-ferrous metal separation, the equipment's air flow, timing, and feed rates that account for the density of materials all affect the efficiency and effectiveness of the retrieval and separation. The efficiency or effectiveness of the removal of the ferrous and non-ferrous metals does not affect the amount or toxicity of the hazardous constituents in the metal shredder aggregate or the subsequent metal shredder residue. It may, based on the mass of the metals that are not removed, effectively decrease the concentrations of the hazardous constituents in the remaining wastes.

The most complex aspects of the ferrous and non-ferrous metal separation processes, with regards to containment of hazardous wastes, appear to be controlling releases of hazardous wastes from the processes. Observations by DTSC and other regulatory agencies as noted in Section 2.3 have documented the release of LFM and particulate matter from the separation processes, and have also documented metal shredder aggregate falling outside of the separation process and off of conveyor systems throughout the facilities.

Chemical Stabilization – Chemical stabilization is a common chemical treatment process. It is used to stabilize soluble concentrations of metals in a variety of circumstances and wastes (for site remediation,

as well as mandated treatment standards for land disposal restrictions for many hazardous wastes). Stabilization is a common remediation technology employed at state and federal Superfund sites. US EPA estimates that 23 percent of the source control remedies performed at these sites between 1982 and 2005 involved the use of solidification or stabilization, and 94 percent of the solidification/stabilization remediations performed included inorganic binders such as cement, fly ash, lime, phosphate, soluble silicates, or sulfur.

The most complex aspect of the chemical treatment of metal shredder residue is due to its highly heterogeneous composition. Metal shredder residue is a mixture of materials (including plastics, rubber, foam, fabric, carpet, glass, wood, road dirt, and debris, along with a small amount of residual metal). These materials are present in a complex assortment of sizes, shapes, and densities with various physical and chemical properties. Each sample of metal shredder residue can be composed of different ratios and sizes of these materials, making the application of the treatment chemicals and even distribution of them throughout the metal shredder residue more difficult.

The chemical stabilization treatment of the metal shredder residue requires careful control of the application rates of silicate solution and alkaline cement to achieve the needed stabilization of the soluble lead, cadmium, copper, and zinc. The treatment process requires an accurate delivery of the required cement and sodium or potassium silicate mixture to the residue for the treatment to be effective. The effectiveness of the treatment, and the immobilization of the soluble metals, are directly affected by how the treatment process is carried out. Higher concentrations of lead, cadmium, copper, or zinc can result from insufficient application of treatment chemicals.

Hazardous Waste Sampling and Analysis – In addition to the complexity of the application of the treatment chemicals, the methods to verify or validate the effectiveness of the treatment are also complex. Not only is each sample likely to contain different proportions of the material that it is composed of, but the techniques used to take samples must account for the composition of the waste.

Sample preparation and laboratory procedures to measure the concentrations of the chemical constituents are also complex. Because the metal shredder residue is composed of many different materials, it is uniquely heterogeneous, and it is extremely difficult to collect and prepare samples for analysis that are representative of this waste stream. The sample preparation procedures require the sample to be milled to a consistent particle size before mixing with the specified extraction liquid. The varying composition requires special milling equipment to reduce the particle size of the material, and additional time spent by the laboratory staff to ensure the sample can pass through the designated sample sieve. Laboratory staff must also pay close attention to the required procedures to decide whether any of the sample is considered extraneous (not needing to be analyzed) or needs to be retained and processed with the remainder of the sample. Significant variation in analytical results can occur if samples are not collected or prepared for analysis as required to address the unique heterogeneous nature of this waste stream.

Complexity of Storage Activities: Storage of the metal shredder aggregate, the metal shredder residue, and CTMSR at the metal shredding facilities is in piles due to the volume of the waste being managed. Where these piles contain hazardous wastes, they must be managed in compliance with regulations. The requirements for storage of hazardous waste in waste piles are much more complex than what is currently practiced at the metal shredding facilities. To store hazardous waste in a waste pile, the waste pile must be designed and managed in accordance with the Waste Pile standards in Article 12 of Chapter

14, Title 22, California Code of Regulations, Section 66264.250 et seq. These standards include but are not limited to an impermeable liner beneath the pile, a leachate collection system, a leak detection system, and an ongoing monitoring program to detect the migration of contaminants from the waste pile. Storage of hazardous waste in waste piles that are not designed or managed in accordance with the prescribed standards allows for contamination of soils, leakage of contaminants into the subsurface, and the potential for migration of hazardous constituents via surface water runoff and air dispersion throughout the site as well as off-site.

Amount and Complexity of Operator Training Associated with Treatment and Storage of Metal Shredder Wastes

As described above, the operational personnel at the metal shredding facilities must be familiar with, and be trained on, the treatment processes and equipment to ensure they are performing efficiently and effectively.

Improper or inadequate screening of incoming waste scrap metals to confirm they have been adequately de-polluted could result in hazardous materials remaining in the scrap metal that is being fed into the hammer mill. These hazardous materials would further contaminate the metal shredder wastes, potentially exposing operational personnel to unexpected risks and hazards as they operate the equipment used to treat the wastes. There have also been occasions that resulted in catastrophic results. For instance, explosions have occurred within the hammer mill that could have been caused by compressed gas cylinders or explosive ordnance that was not detected in the incoming waste scrap metal being detonated by the hammer mill. These explosions create tremendous risk to the hammer mill operator, potentially causing injury or death, and they could also result in the hammer mill or its pollution control equipment becoming disabled, resulting in process stoppage and release of hazardous constituents into the environment.

Improperly operated ferrous and non-ferrous separation processes could result in ferrous and non-ferrous metals remaining in the metal shredder residue, increasing the amount of metal shredder residue requiring chemical treatment, increasing the amount of CTMSR requiring disposal, and decreasing the profitability of the metal shredding facility's metal recovery operation.

The chemical treatment system is automated to reflect belt scale and speed, but it does not measure the amount of contaminants present to adjust the treatment chemicals accordingly. Therefore, operational personnel must be trained to inspect the metering pump system and associated tank gauges in the chemical treatment system to ensure that the required amount of the sodium or potassium silicate solution and cement is added to metal shredder residue in the pug mill to achieve the required treatment outcomes. Failure to operate the chemical treatment system correctly could result in potential harm. CTMSR that is insufficiently treated could result in contamination at the solid waste landfill and possible harm to the landfill personnel who come in contact with it.

Operational personnel must also be trained on the operation and maintenance of all pollution control equipment, and in the facilities' pollution control best management practices, to ensure that they are functioning properly and are not allowing for discharges that exceed permit standards or allowable limits. Failure to properly operate and maintain pollution control equipment, or to implement pollution control best management practices, could result in releases of hazardous waste or hazardous waste

constituents that could expose people to health risks, contaminate the environment, or injure or harm other biological receptors outside the facilities' boundaries.

Required Monitoring to Ensure That Treatment and Storage of Metal Shredder Wastes Are Conducted in a Manner Which Safely and Effectively Manages Each Hazardous Waste

As discussed above, the treatment processes, and the pollution control equipment and pollution control best management practices, must be constantly monitored to ensure they are being operated and implemented effectively. Properly operating pollution control devices reduce emissions from the equipment and the potential for off-site migration and resulting risks due to inhalation, dermal absorption, air deposition, or surface water runoff. Local air districts require periodic analysis of the air emissions to verify that the equipment is operating properly and that emissions are within the allowable limits. Similarly, the RWQCBs require routine monitoring of surface water discharges (if any), and industrial sewer discharges (if any). This monitoring is also intended to verify that wastewater treatment systems are operating properly and that the discharges are within allowable limits. At some metal shredding facilities that have previous cases of soil contamination, the RWQCBs have also required groundwater to be monitored (where subsurface contamination has been confirmed). This monitoring is intended to identify migration of contaminants and potential threats to groundwater or drinking water sources.

3.3 Chemical and Physical Hazards Associated with Treatment and Storage

Health and Safety Code Section 25150.82(d)(3)(C) requires DTSC, if it intends to promulgate alternative management standards, to prepare an analysis of the chemical or physical hazards that are associated with the treatment and storage of metal shredder wastes and the degree to which those hazards are similar to, or different from, the chemical or physical hazards that are associated with the production processes that are carried out in the facilities that produce the hazardous waste that is managed as part of the activity.

The primary chemical hazards associated with the treatment and storage of metal shredder wastes are posed by the elevated soluble and total levels of lead, cadmium, copper, and zinc that are present in the wastes. The waste management practices that are common to the metal shredding facilities do not sufficiently contain or control the metal shredder aggregate, which allows the aggregate and its constituents to be released into the environment (both on and off-site). Metal shredder facility waste management practices have resulted in LFM and particulate containing the contaminants being released onto and outside of the metal shredding facilities. They have also resulted in the dispersion of metal shredder wastes outside of waste treatment equipment, arguably creating circumstances of unintentional disposal when the metal shredder waste is released or becomes separated from the waste treatment equipment or storage areas.

The greatest chemical hazards these hazardous waste constituents pose is when they or the waste they are within are not contained or otherwise controlled, and they are allowed to be released into the environment. This can result in contamination of the metal shredding facilities and potentially the areas near the metal shredding facilities, and may result in both the public and other biological organisms coming into contact with or being exposed to these hazardous constituents, and potentially suffering negative health impacts and harm.

The physical hazards associated with the treatment and storage of metal shredder wastes are hazards that would be common to the operation of large industrial equipment that is managing large amounts of material. The operation of the ferrous and non-ferrous separation processes and equipment must be done in conformance with Cal/OSHA worker safety requirements. DTSC collected reported incidents of worker injury reported to Cal/OSHA but did not find any incidents of accident or injury associated with the operation of the ferrous and non-ferrous separation equipment. DTSC also identified a 2004 fire at Vasco Road Landfill in Livermore in a pile of CTMSR that was being stored for use as alternative daily cover (which is further discussed in Section 5 of this Analysis). Fires in this waste would result in large plumes of dense smoke consistent with the burning of plastics and other synthetic materials that comprise the majority of the metal shredder wastes. The chemical constituents in this smoke can harm those who come in contact with it by, for example, exacerbating existing respiratory problems.

Additional chemical hazards associated with the treatment and storage of metal shredder residue and CTMSR are associated with the sodium or potassium silicate and alkaline cement treatment chemicals. The Material Safety Data Sheet for one brand of silicate solution indicates that it has no fire or explosion hazard, but also indicates that mist or sprays from the solution can cause chest discomfort and coughing; that direct contact can cause eye irritation; that prolonged or repeated contact can remove body oils from skin causing slight irritation; and that swallowing large amounts can cause nausea and vomiting. The Material Safety Data Sheet for cement indicates that it has no fire or explosion hazard but that inhalation of dust should be avoided, and that the cement can cause irritation of the eyes, skin and respiratory tract. Ingestion can also cause irritation of the gastrointestinal tract, which could be introduced to the scrap metal feed as MRSR.

Degree to Which Hazards Are Similar to, or Different From, Chemical or Physical Hazards Associated with Production Processes Carried Out in Facilities That Produce Metal Shredder Wastes

The metal shredder aggregate and metal shredder residue are produced at the same locations where their treatment and storage take place. They are not being produced at a different location, and are not transported to the metal shredding facilities to be treated. Landfill disposal of CTMSR, which occurs at locations other than the metal shredding facilities, is discussed in Section 5 of this Analysis.

3.4 Types of Accidents That Might Reasonably Be Foreseen During Treatment and Storage

Health and Safety Code Section 25150.82(d)(3)(D) requires DTSC, if it intends to promulgate alternative management standards, to prepare an analysis of the types of accidents that might reasonably be foreseen to occur during the management of particular types of hazardous waste streams, the likely consequences of those accidents, and the reasonably available actual accident history associated with the activity. In the context of this Analysis, the focus has been on accidents related to the treatment and storage of metal shredder wastes. As defined in Section 66260.10 of Title 22, California Code of Regulations, an accidental occurrence is an accident, including continuous or repeated exposure to conditions, which results in bodily injury, property damage or environmental degradation neither expected nor intended from the standpoint of the insured.

The types of accidents that might reasonably be foreseen to occur during the treatment and storage of metal shredder wastes include the following:

- Spills or releases of metal shredder wastes outside of conveyor systems and the ferrous and non-ferrous metal separation equipment
- Spills or releases of metal shredder residue and CTMSR outside of conveyor systems and the metal shredder residue treatment equipment
- Spills or releases of sodium or potassium silicate treatment solution outside the containers and tanks it is stored in
- Spills or releases of alkaline cement outside the containers and tanks it is stored in
- Failure of air pollution control equipment
- Fires in piles of the stored metal shredder waste, or in the metal shredder waste treatment equipment
- Meteorological events with high winds causing the wind-borne dispersal of metal shredder wastes outside the boundaries of the metal shredding facilities
- Earthquakes that could result in collapse or damage of buildings or equipment at the metal shredding facilities where metal shredder wastes are managed
- Flooding associated with local or regional events or unanticipated rainfall events

Likely Consequences of Accidents Reasonably Foreseen to Occur During Treatment and Storage of Metal Shredder Wastes

DTSC considered the likely consequences of the accidents reasonably foreseen to occur during the treatment and storage of metal shredder wastes. The waste management practices that are common to the metal shredding facilities do not sufficiently contain or control the metal shredder wastes, which has consistently allowed the metal shredder wastes and their constituents to be released into the environment, both on-site and off-site.

The consequence of any of the accidents listed above related to spills or releases of metal shredder wastes would be a contribution of additional contaminants to areas already impacted by releases of metal shredder wastes and their constituents, as well as to additional areas possibly well outside of the facility or areas in proximity that may already be impacted. The significance of the consequence of some of the more catastrophic events is amplified by the waste management practices being used by the metal shredding facilities. Because the metal shredder wastes are largely not contained at the facility, there is no factor that would limit or inhibit their release to the environment well outside of the facility boundaries, which could potentially result in more widespread impacts of the event.

The consequences of spills or releases of sodium or potassium silicate solution or alkaline cement would be localized in the area of the spill, likely limited to on-site impacts, and could result in both worker health and safety concerns, and could contribute additional chemical contaminants to areas already impacted by releases of metal shredder wastes and their constituents.

Reasonably Available Actual Accident History Associated with Treatment and Storage of Metal Shredder Wastes

In its search for accident history related to the treatment and storage of metal shredder wastes, DTSC could not find any records of accident events specifically related to the subject activities. The only accidents at locations associated with the subject activities were a fire and explosion in 2007 at SA Terminal Island (in the air pollution control equipment used to control emissions from its hammer mill) and a fire in 2004 at Vasco Road Landfill in Livermore (in a pile of CTMSR that was being stored for use

as alternative daily cover). All other available accident history at metal shredding facilities was related to either the storage of vehicles, appliances, or other scrap metal prior to its processing in the facilities' hammer mill (2007 and 2012 incidents at Sims Metal Management in Redwood City), or to fires and explosions in a facility's hammer mill (a 2012 incident at Sims Metal Management in Redwood City). None of these accidents occurred in the treatment or storage of metal shredder wastes.

3.5 Demographics of Communities Around Metal Shredders

Health and Safety Code Section 25150.82(d)(3)(E) requires DTSC, if it intends to promulgate alternative management standards, to prepare an analysis of the types of locations where hazardous waste management activities associated with metal shredding and management of treated metal shredder waste may be carried out and the types of hazards or risks that may be posed by proximity to the land uses described in Section 25227 of the Health and Safety Code. The six metal shredding facilities are located in the cities of Anaheim, Bakersfield, Colton, Long Beach, Oakland, and Redwood City. These cities are some of California's most densely populated communities, and together they account for 10 percent of the state's population. According to City-Data.com, the majority of California's industrial workforce is located in the major manufacturing centers of Los Angeles–Long Beach–Orange County and the San Francisco–Oakland–San Jose area. Demographic information related to the areas where each metal shredding facility is located is presented in Table 7.

	Population ^a	Unemployment Rate ^b	Poverty Rate ^c
Anaheim	351,043	5.4%	16.5%
Bakersfield	376,380	8.4%	19.8%
Colton	54,712	5.8%	22.1%
Oakland	420,005	5.4%	20.4%
Redwood City	84,950	2.9%	9.4%
Long Beach	470,130	5.9%	20.6%
^a United States Census Bureau, July 1, 2016 ^b California Employment Development Department, Labor Market Information Division, August 2017 ^c United States Census Bureau, 2015 American Community Survey, 5 Year Estimates			

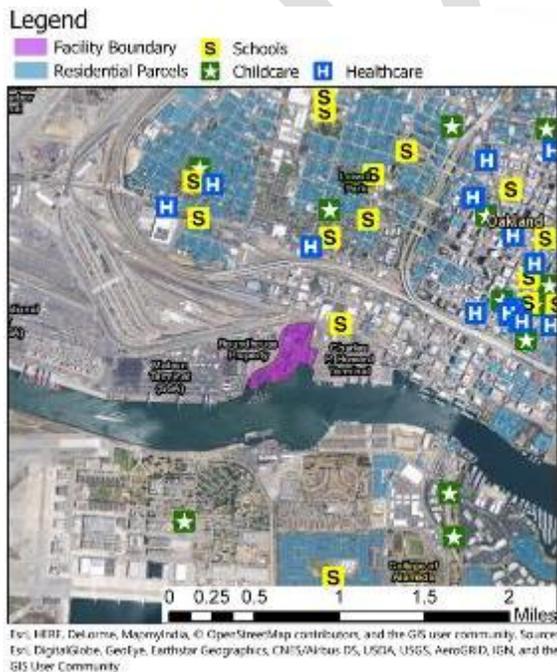
Proximity of Treatment and Storage of Metal Shredder Wastes to Land Uses Described in Section 25227 of the Health and Safety Code

Section 25227 of the Health and Safety Code lists the following sensitive land uses:

- 1) Residences, including mobile homes or factory-built housing constructed or installed for use as permanently occupied human habitation;
- 2) Hospitals for humans;
- 3) Schools for persons under 21 years of age;
- 4) Day care centers for children; and
- 5) Any permanently occupied human habitation, other than those used for industrial purposes.

A Geographical Information System (GIS) tool was used to evaluate the proximity of sensitive receptors (child care facilities, health care facilities, census housing data, and kindergarten through twelfth-grade schools, as identified in section 25227(c)(1)(B), Health and Safety Code) to metal shredding facilities and landfills that accept CTMSR. The location of each of the identified land uses was marked by geographic coordinates, and the property boundary was used for the metal shredding facilities and landfills. A tool was developed that found the closest sensitive receptor to each of the metal shredding facilities and landfills. In the case of residences, the tool evaluated the distance between the property boundary of the metal shredding facility or landfill and land parcels that are designated as residential, whether an occupied residential structure was on the parcel or not.

The following images of Schnitzer Steel in Oakland and Simi Valley Landfill in Simi Valley show the results of the geographic information system (GIS) mapping for the facilities and landfills. The location and proximity of child care facilities, health care facilities, residential housing, and schools are shown for the two facilities. Images for the additional facilities are included in Appendix C.



GIS mapping of Schnitzer Steel Products, Oakland CA, showing proximity to sensitive receptors.



GIS mapping of Simi Valley Landfill, Simi Valley CA.

Table 8 displays the results of DTSC’s analysis, showing the closest distance between the metal shredding facilities and any of the identified land uses.

Table 8.				
Distance to Sensitive Receptors				
Location	Hospital for Humans	Schools (For Persons Under 21 Years of Age)	Day Care Centers (Children)	Residences
	Closest (in miles)	Closest (in miles)	Closest (in miles)	Closest (in miles)
SA Terminal Island	1.37	1.22	1.22	1.01
SA Anaheim	0.4	1.1	1.1	0.18
SA Bakersfield	1.6	1.4	1.12	0.1
Ecology Auto Parts	0.48	0.5	0.5	0.06
Sims Metal Management	1.58	1.57	1.79	0.73
Schnitzer Steel	0.35	0.12	0.39	0.23
Altamont Landfill	No health care facilities within 5 miles	3.8	No day care facilities within 3 miles	0.79
Holloway Landfill	3.89	3.59	No Day care facilities within 3 miles	3.68
Vasco Road Landfill	No health care facilities within 5 miles	1.37	1.85	0.02
Chiquita Canyon Landfill	0.91	1.2	0.91	0.12
Simi Valley Landfill	1.33	0.34	1.11	0.75

Table 8 shows that some of the metal shredder facilities or landfills where wastes are managed have sensitive land uses located within a mile of the facility. Sensitive land uses that are in close proximity would be especially vulnerable to releases that occur at metal shredding facilities or landfills.

Types of Potential Hazards Posed by Proximity of Metal Shredder Waste Activities to Land Uses Described in Health and Safety Code § 25227

The most likely hazard or risk posed by proximity to residences, hospitals, schools, day care centers, and other human habitation is the risk posed by off-site releases of hazardous waste, hazardous waste constituents, or treatment reagents. Releases of metal shredder waste and metal shredder waste constituents occur either as a result of routine, ongoing treatment or storage activities, or as a result of accidental occurrences. The proximity of these residential land uses to sites where metal shredder waste is being managed increases the risk and likelihood of exposure to those releases.

Regarding the potential impact of releases, it is important to consider the ambient background conditions that exist in communities near the metal shredding facilities evaluated and the landfills that accept CTMSR. To assess ambient conditions, DTSC used the CalEnviroScreen version 3.0 (CES) screening tool, created for CalEPA by the Office of Environmental Health Hazard Assessment (OEHHA). CES is a geospatial screening tool that evaluates a variety of factors, such as unemployment, potential exposures to pollutants, adverse environmental conditions, and the prevalence of certain health conditions, within census-designated tracts in California. Each census tract is assigned a unique CES score that incorporates the pollution and population factors specific to that census tract; a higher CES score indicates a greater burden on the community from activities occurring in the surrounding environment.¹¹⁷ Vulnerable communities are identified by CalEPA as geographic areas with CES scores between the 75th and 100th percentiles.¹¹⁸ The percentile indicates how each specific census tract ranks in relation to all of the census tracts throughout California (e.g., if a census tract is in the 80th percentile, it ranked higher than 80 percent of the remaining census tracts in California). Access to the mapping tool and additional information on the mapping tool development and application of indicators can be accessed on OEHHA's Web page.¹¹⁹

DTSC used the addresses of the metal shredding facilities and landfills that accept CTMSR to identify the census-designated tracts they are in, allowing the CES score and respective pollution and population information to be extracted. Census tract information for each metal shredding facility and landfill that accepts CTMSR is provided in Tables 9 and 10, respectively.

¹¹⁷ See Faust, J., August, L., Bangia, K., Galaviz, V., Leichty, J., Prasad, S., Schmitz, R., Slocombe, A., Welling, R., Wieland, W., and Zeise, L. Update to the California Communities Environmental Health Screening Tool, CalEnviroScreen 3.0. CalEPA OEEHA, January 2017.

<https://oehha.ca.gov/media/downloads/calenviroscreen/report/ces3report.pdf>

¹¹⁸ See Designation of Disadvantaged Communities Pursuant to Senate Bill 535 (De León), April 2017.

¹¹⁹ See OHEHA <https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30>

Table 9. CalEnviroScreen 3.0 Population and Pollution Characteristics Near Metal Shredding Facilities				
Facility Name & Address	CalEnviroScreen Percentile Range ^a	Population in Census Tract	Pollution Burden Percentile ^b	Population Characteristics Percentile ^c
SA Recycling, Terminal Island 901 New Dock Street Terminal Island, CA 90731	Not evaluated; low population, and health data are unreliable	61	99%	Incomplete evaluation; only asthma and cardiovascular disease contained data
SA Recycling, Anaheim 3200 East Frontera Street Anaheim, CA 92806	96 – 100%	6,488	97%	78%
SA Recycling, Bakersfield 2000 East Brundage Lane Bakersfield, CA 93307	96 – 100%	3,378	86%	99%
Ecology Auto Parts, Inc. DBA Pacific Rail Industries 785 East M Street Colton, CA 92324	96 – 100%	4,268	97%	96%
Sims Metal Management 699 Seaport Boulevard Redwood City, CA 94063	61 – 65%	2,108	86%	42%
Schnitzer Steel Products 1101 Embarcadero West Street Oakland, CA 94607	Not evaluated; low population, and health data are unreliable	71	63%	Incomplete evaluation; only asthma and cardiovascular disease contained data
^a The CES score for each census tract is the product of multiplying the pollution burden by population characteristics. The CES percentile range displayed allows for a relative ranking of CES scores for all census tracts throughout California. ^b Pollution burden is the average of the seven <u>exposure indicator percentiles</u> (ozone concentrations, PM 2.5 concentrations, diesel particulate matter emissions, drinking water contaminants, use of certain high-hazard and high-volatility pesticides, toxic releases from facilities, and traffic density) and the average of the five <u>environmental effect indicator percentiles</u> (toxic cleanup sites, groundwater threats from leaking underground storage sites and cleanups, hazardous waste facilities and generators, impaired water bodies, and solid waste sites and facilities). Note that the environmental effect indicator value was given half the weight of the exposure indicator when calculating the pollution burden value. ^c Population characteristics is the average of the three <u>sensitive population indicator percentiles</u> (asthma emergency department visits, cardiovascular disease as indicated by emergency department visits for heart attacks, and low birth-weight infants) and the average of the five <u>socioeconomic factor indicator percentiles</u> (educational attainment, housing burdened low income households, linguistic isolation, poverty, and unemployment).				

Three of the six metal shredding facilities are in census tracts with CES scores that fall between the 96th and 100th percentiles, meaning they are not only located in disadvantaged communities in California but are among those most burdened by pollution and population characteristics (SA Recycling in Anaheim, SA Recycling in Bakersfield, and Ecology Auto Parts; Table 9). Four of the six metal shredding facilities have a calculated pollution burden greater than 86 percent, and three of the six metal shredding facilities have a calculated population characteristic burden greater than 78 percent (Table 9). The location of these metal shredding facilities in disadvantaged communities demonstrates that any release of metal shredder wastes or metal shredder waste constituents would impact populations that are already burdened by other environmental factors, and those populations may exhibit greater sensitivity

due to a variety of factors. The population and pollution characteristics near landfills that accept CTMSR are shown in Table 10.

Table 10.				
CalEnviroScreen 3.0 Population and Pollution Characteristics Near Landfills That Accept CTMSR				
Facility Name & Address	CalEnviroScreen Percentile Range ^a	Population in Census Tract	Pollution Burden Percentile ^b	Population Characteristics Percentile ^c
Altamont Landfill & Resource Recovery 10840 Altamont Pass Livermore, CA 94550	41 – 45%	7,081	93%	16%
H.M. Holloway Surface Mine Landfill 13850 Holloway Road Lost Hills, CA 93249	86 – 90%	3,937	95%	64%
Vasco Road Sanitary Landfill 4001 N. Vasco Road Livermore, CA 94550	41 – 45%	7,081	93%	16%
Chiquita Canyon Sanitary Landfill 29201 Henry Mayo Drive Castaic, CA 91384	66 – 70%	3,110	66%	59%
Simi Valley Landfill & Recycling Center 2801 Madera Road Simi Valley, CA 93065	31 – 35%	8,420	50%	24%
Potrero Hills Landfill 3675 Potrero Hills Lane Suisun City, CA 94585	56 – 60%	6,808	52%	55%
<p>^a The CES score for each census tract is the product of multiplying the pollution burden by population characteristics. The CES percentile range displayed allows for a relative ranking of CES scores for all census tracts throughout California.</p> <p>^b Pollution burden is the average of the seven <u>exposure indicator percentiles</u> (ozone concentrations, PM 2.5 concentrations, diesel particulate matter emissions, drinking water contaminants, use of certain high-hazard and high-volatility pesticides, toxic releases from facilities, and traffic density) and the average of the five <u>environmental effect indicator percentiles</u> (toxic cleanup sites, groundwater threats from leaking underground storage sites and cleanups, hazardous waste facilities and generators, impaired water bodies, and solid waste sites and facilities). Note that the environmental effect indicator value was given half the weight of the exposure indicator when calculating the pollution burden value.</p> <p>^c Population characteristics is the average of the three <u>sensitive population indicator percentiles</u> (asthma emergency department visits, cardiovascular disease as indicated by emergency department visits for heart attacks, and low birth-weight infants) and the average of the five <u>socioeconomic factor indicator percentiles</u> (educational attainment, housing burdened low income households, linguistic isolation, poverty, and unemployment).</p>				

One of the six landfills that accepts CTMSR is located in a disadvantaged community (H.M. Holloway Surface Mine Landfill). Three of the six landfills have a calculated pollution burden greater than 93 percent, and three of the six landfills have a calculated population characteristic burden between 55 percent and 64 percent, with the remaining three below 24 percent. While the CES scores and respective calculated pollution and population characteristic burdens are lower for landfills, the same

conclusion regarding the populations' lowered ability to tolerate additional off-site releases could be made based on population size.

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4 DEMONSTRATIONS REQUIRED TO ADOPT REGULATIONS

Pursuant to HSC Sections 25150.82(e)(1) through 25150.82(e)(4), the Legislature directed DTSC to make certain demonstrations in order to be authorized to adopt any alternative management standards.

According to the Metal Shredding Facilities Law, DTSC cannot adopt alternative management standards unless it can make one of the following demonstrations:

1. The requirements that the alternative management standards replace are not significant or important in either of the following situations (Health and Safety Code Section 25150.82(e)(1)):
 - a. Preventing or mitigating potential hazards to human health or safety or to the environment posed by the activity; or
 - b. Ensuring that the activity is conducted in compliance with other applicable requirements of this chapter and the regulations adopted pursuant to this chapter.
2. A requirement is imposed and enforced by another public agency that provides protection of human health and safety and the environment that is as effective as, and equivalent to, the protection provided by the requirement, or requirements, that the alternative management standards replace (Health and Safety Code Section 25150.82(e)(2)).
3. Conditions or limitations imposed as part of the alternative management standards will provide protection of human health and safety and the environment that are equivalent to the requirement, or requirements, that the alternative management standards replace (Health and Safety Code Section 25150.82(e)(3)).
4. Conditions or limitations imposed as part of the alternative management standards accomplish the same regulatory purpose as the requirement, or requirements, that the alternative management standards replace, but at less cost or with greater administrative efficiency, and without increasing potential risks to human health or safety or to the environment (Health and Safety Code Section 25150.82(e)(4)).

DTSC must therefore satisfy one of the above required demonstrations in order to adopt any regulations establishing alternative management standards.

4.1 Hazardous Waste Management Requirements That Any Proposed Alternative Management Standards Would Replace

Each of the demonstrations in Section 25150.82(e) asks DTSC to analyze the requirements that the alternative management standards would replace, which are the existing hazardous waste management requirements. DTSC must therefore identify the existing hazardous waste management requirements that apply to metal shredding facilities. Any person who stores, treats, or disposes of hazardous waste must obtain either a full permit or a standardized permit from DTSC, unless the operation qualifies for coverage under a permit by rule. A full permit is a type of permit that is generally required for hazardous waste facilities that are managing federally regulated hazardous wastes, as well as for certain types of hazardous waste facilities managing California-regulated hazardous wastes (e.g., used oil recycling facilities). A standardized permit is a type of permit that is generally available for California facilities managing hazardous wastes that are not federally regulated. A facility with a standardized permit must comply with most of the operational requirements applicable to a full-permit facility, but the permit application process has been simplified. A permit by rule establishes management standards for

covered facilities as a class, rather than on a facility-specific basis. The following is a description of the permit standards that would apply to metal shredding facilities under a full or a standardized permit.

Facility-wide Standards

Article 2. General Facility Standards – The requirements in this article ensure that a metal shredding facility is being operated according to standards that apply to all hazardous waste facilities. It includes operating requirements such as obtaining an identification number and conducting a waste analysis. It also includes inspection requirements, personnel training, location standards (relative to seismic faults and floodplains, e.g.), and construction quality standards (to ensure the constructed units meet or exceed all design criteria and specifications in the permit). Design standards must also be addressed for issues such as foundations, low-permeability soil liners, geomembranes (flexible membrane liners), leachate collection and removal systems and leak detection systems, and final cover systems.

Article 3. Preparedness and Prevention – The requirements in this article ensure that a metal shredding facility is located, designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned sudden or non-sudden release of metal shredder waste or metal shredder waste constituents to air, soil, or surface water.

Article 4. Contingency Plan and Emergency Procedures – The requirements in this article ensure a metal shredding facility has a plan and procedures in place for responding to emergencies.

Article 5. Manifest System, Recordkeeping, and Reporting – The requirements in this article ensure that a metal shredding facility is keeping accurate and complete records to document the disposition of metal shredder wastes under its management.

Article 7. Closure and Post-closure – The requirements in this article ensure that a metal shredding facility has developed a plan for when the facility eventually will close (and for post-closure if metal shredder wastes will remain), the required elements of that plan, and that the plan satisfies the requirements to certify that closure is complete.

Article 8. Financial Requirements – The requirements in this article ensure that a metal shredding facility has preserved sufficient financial resources to carry out its closure plan and certify closure of the facility, as well as to carry out a post-closure plan if applicable. This article also specifies insurance requirements to ensure a metal shredding facility has resources available to respond to sudden and non-sudden releases.

Article 9. Use and Management of Containers – The requirements in this article ensure that a metal shredding facility manages hazardous wastes in containers safely.

Article 10. Tank Systems – The requirements in this article ensure that a metal shredding facility manages metal shredder wastes in tanks (if used) safely.

Article 17. Environmental Monitoring and Response Programs for Air, Soil, and Soil-pore Gas for Permitted Facilities – The requirements of this article ensure that impacts resulting from metal shredder waste management activities are detected and responded to as quickly as possible.

Waste Pile Standards

As presented in both Section 1 and Section 3, the common way that metal shredder facilities store metal shredder wastes is in waste piles. In addition to the above requirements, “land disposal”¹²⁰ of metal shredder waste is subject to additional requirements; some generally apply to all land disposal methods, and some are specific to the method being used. “Land disposal method” is defined in Section 66260.10, Title 22, California Code of Regulations as “disposal of hazardous wastes on or into the land, including, but not limited to, landfill, surface impoundment, *waste piles*, deep-well injection, land spreading and co-burial with municipal garbage” (emphasis added), as well as “storage of hazardous wastes on or in the land, such as *waste piles* and surface impoundments, other than neutralization and evaporation ponds, for longer than one year” (emphasis added). “Pile or waste pile” is defined in that same section of regulations as “any noncontainerized accumulation of solid, nonflowing hazardous waste that is used for treatment or storage and that is not a containment building.”

Because metal shredder wastes are stored in waste piles, the following articles in Chapter 14, Title 22, California Code of Regulations would apply to metal shredding facilities:

Article 6. Water Quality Monitoring and Response Programs for Permitted Facilities – The requirements in this article ensure that metal shredder waste constituents are not migrating from the waste pile, and mandate that the metal shredding facility perform corrective action when releases are detected.

Article 12. Waste Piles – The requirements in this article ensure that the metal shredder waste being stored in waste piles does not migrate via wind, surface water, or groundwater, and specify monitoring and leak detection requirements.

Waste Management Unit Specific Standards Applicable to Metal Shredding Facilities

Containment Building Standards: Many of the metal shredder waste management activities at metal shredding facilities are not conducted in containers or tanks or other devices that would prevent the release of metal shredder wastes and metal shredder waste constituents into the environment. One method to contain potential releases is to conduct the metal shredder waste management activities inside a “Containment Building.” A “Containment Building” is, according to Section 66264.1100, Title 22, California Code of Regulations, “a completely enclosed, self-supporting structure that is designed and constructed of manmade materials” meeting specified design standards, “has controls sufficient to prevent fugitive dust emissions,” and “is designed and operated to ensure containment and prevent the tracking of materials from the unit by personnel or equipment.” None of the metal shredding facilities evaluated by DTSC have installed or constructed a building that meets the design standards required by the regulation and would meet the definition of a containment building. If a metal shredding facility chose to use a containment building to demonstrate that it was conducting treatment in a building that was equivalent to a container or tank or other device, it would need to meet the standards applicable to Containment Buildings found in Article 29 in Chapter 14.

¹²⁰ According to Section 66260.10, Title 22, California Code of Regulations, “‘Land disposal’ means placement in or on the land, except in a corrective action management unit, and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, salt dome formation, salt bed formation, underground mine or cave, or placement in a concrete vault or bunker intended for disposal purposes.”

Article 16. Miscellaneous Unit Standards: The metal shredding facilities are also using metal shredder waste management methods for which DTSC has not established specific management standards (e.g., conveyor systems used to transport metal shredder wastes between locations where it is being stored and treated). DTSC applies the standards applicable to Miscellaneous Units for any metal shredder waste management activities that are conducted in units for which no specific standards have been developed. The standards applicable to Miscellaneous Units are found in Article 16 in Chapter 14:

The requirements in this article ensure that the unit is located, designed, constructed, operated, maintained, and closed in a manner that ensures protection of human health and the environment. This article establishes performance and operating standards for hazardous waste management units that do not fit into any of the other unit descriptions. The applicable standards include requirements for monitoring, testing, analytical data, inspections, response, and reporting procedures and frequency.

The above hazardous waste permit standards are applied through a review of an application submitted by the facility operator to DTSC, unless the facility is covered by a permit by rule. The review is followed by the development of tailored specific permit conditions that are incorporated into an operations plan, and that detail the requirements applicable to the metal shredder facility, the metal shredder wastes being managed, the equipment and management methods being used, and the operator conducting the metal shredder waste management activities. These elements of the operations plan form the basis of the metal shredding facility's permit, and would provide the grant of authorization for the metal shredding facility to operate.

4.2 Demonstrations Required to Adopt Alternative Management Standard Regulations

The demonstrations in Section 25150.82(e) require DTSC to compare the alternative management standards to the requirements the alternative management standards would replace. In preparing this Analysis and its demonstrations, DTSC contemplated whether the Legislature intended DTSC to compare possible alternative management standards to the requirements currently in place under the "f letters" and OPP 88-6. DTSC dismissed this approach because the legislative intent of the Metal Shredding Facilities Law stated that "[i]t is the intent of the Legislature that the conditional nonhazardous waste classifications, as documented through the historical 'f letters,' be revoked and that metal shredding facilities be thoroughly evaluated and regulated to ensure adequate protection of human health and the environment." Furthermore, the regulation authorizing the "f letters" (subdivision (f) of Section 66260.200, Title 22, California Code of Regulations) merely addresses how waste is classified, not how it is managed. OPP 88-6 does contain such standards, but it is intended as policy for DTSC only, and is not authorized by any law. DTSC therefore must compare any proposed alternative management standards to existing hazardous waste control law.

4.2.1 First Demonstration Required by HSC § 25150.82(e)(1)

Pursuant to HSC Sections 25150.82(e)(1) through 25150.82(e)(4), the Legislature directed DTSC to make certain demonstrations in order to be authorized to adopt any alternative management standards. According to HSC Section 25150.82(e)(1), DTSC cannot adopt alternative management standards under the law's authority unless the requirements which the alternative management standards would replace are not significant or important in either of the following situations:

- a. Preventing or mitigating potential hazards to human health or safety or to the environment posed by the activity; or
- b. Ensuring that the activity is conducted in compliance with other applicable requirements of this chapter and the regulations adopted pursuant to this chapter.

Under this demonstration, DTSC must first evaluate whether permit requirements for metal shredding facilities are significant or important in 1) preventing or mitigating potential hazards to human health or safety and the environment or 2) ensuring compliance with other hazardous waste requirements.

Risks Addressed by Permit Standards Are Significant

Based on DTSC's analysis, the current treatment and storage practices of metal shredding facilities allow for releases of metal shredder wastes and their constituents into the environment. Releases also occur throughout the facilities' entire operational areas. These releases have resulted in significant soil contamination at each of the sites in areas of the metal shredding facilities where pavement had not been installed. For those metal shredding facilities which are paved, DTSC has not evaluated the construction or integrity of the pavement. The heavy metals stored on pavement and equipment used to transport metals easily degrade most types of pavement over time. The pavement's long-term integrity is therefore unknown.

In addition, as described in the information DTSC received from the RWQCBs (presented in Section 2.3), the pavement at most facilities has not been present for the entire operational history. In some cases, pavement was required in response to releases or enforcement actions. Soil contamination is likely to be present beneath the paved surfaces at all of them because these facilities lacked suitable safeguards to prevent releases of the metal shredder wastes.

DTSC has also identified (as presented in Section 2.3) many documented incidents of the dispersion of metal shredder wastes outside of facility boundaries. These emissions of light fibrous materials have been found to exceed regulatory thresholds when the LFM have been chemically tested.

DTSC has determined that the permitting standards are significant and important in addressing the soil and air releases identified above. Permit requirements are comprehensive, as outlined in Section 4.1. They address every aspect of hazardous waste management and would be tailored to each facility's operations. The installation of pavement would protect against further contamination of soil beneath the facilities, and approved treatment processes and structures would mitigate releases to areas outside of the facility perimeter. DTSC's permit application and review process will correct the potential for releases before they can result in impacts to human health or the environment.

DTSC has also determined that the permitting standards would ensure that metal shredding waste management is conducted in compliance with the Hazardous Waste Control Law and its implementation regulations. The permit mandates the most robust management standards that can govern a metal shredding facility. The permit addresses every aspect of hazardous waste management and ensure comprehensive oversight of the facility, providing the best guarantee that Chapter 6.5 of the Health and Safety Code and Title 22, California Code of Regulations are followed. Storage, treatment, and disposal are all overseen by a permit's authority. No other level of oversight is as equipped to ensure compliance with hazardous waste management as a facility permit issued by DTSC.

Based on these factors, DTSC cannot conclude that the existing hazardous waste management regulations and the hazardous waste facility standards are not significant or important in either:

- 1) preventing or mitigating potential hazards to human health or safety or to the environment, or
- 2) ensuring that the activity is conducted in compliance with other applicable requirements of Chapter 6.5 of the Health and Safety Code and Title 22, California Code of Regulations. DTSC was therefore unable to make this demonstration.

4.2.2 Second Demonstration Required by HSC § 25150.82(e)(2)

According to HSC Section 25150.82(e)(2), DTSC cannot adopt alternative management standards under the law's authority unless a requirement is imposed and enforced by another public agency that provides protection of human health and safety and the environment that is as effective as, and equivalent to, the protection provided by the requirement, or requirements, that the alternative management standards replace. In analyzing this second demonstration, DTSC evaluated whether the requirements imposed and enforced by other public agencies are equivalent to, or as effective as, the existing hazardous waste management regulations and the hazardous waste facility standards that are presented in detail in Section 4.1 above. As presented in Section 2.3, there are several environmental regulatory agencies that oversee or exercise jurisdiction over some activities at metal shredding facilities. These other environmental regulatory agencies exercise their jurisdiction and authority over the environmental media they are mandated to protect (e.g., the requirements implemented and enforced by the local air districts are intended to protect air quality, and the requirements implemented and enforced by the RWQCBs are intended to protect water quality). Still other agencies, such as Cal/OSHA, implement and enforce requirements intended to protect worker health and safety. None of these agencies oversee the entirety of the metal shredding facilities' treatment and storage of metal shredder wastes.

DTSC implements and enforces requirements intended to ensure that the treatment and storage of hazardous wastes are performed in a manner that protects the broader spectrum of public health and safety and the environment. The metal shredding facilities' generation and management of metal shredder wastes are all hazardous waste management activities. DTSC is the primary regulatory agency that oversees and regulates the treatment, storage, and disposal of hazardous wastes. No other agency provides oversight as broad as DTSC.

Lastly, DTSC's determination that metal shredder waste is hazardous is relied upon by other agencies. These agencies determine the scope of their respective authorities based on DTSC's classifications. No other agency can therefore regulate metal shredding facilities absent the regulatory involvement of DTSC and its requirements as the first line of defense for risks to human health and the environment.

Based on this, DTSC was not able to conclude that the requirements imposed and enforced by other public agencies are equivalent to, or as effective as, existing hazardous waste management regulations and hazardous waste facility standards.

DTSC was therefore unable to make the demonstration required by HSC Section 25150.82(e)(2).

4.2.3 Third Demonstration Required by HSC § 25150.82(e)(3)

According to HSC Section 25150.82(e)(3), DTSC cannot adopt alternative management standards under the law's authority unless conditions or limitations imposed as part of the alternative management standards will provide protection of human health and safety and the environment equivalent to the requirement, or requirements, that the alternative management standards replace.

DTSC evaluates here whether any alternative management standards could achieve an equivalent level of protection as the existing hazardous waste management regulations and the hazardous waste facility standards described in detail in Section 4.1 above. The highest level of protection is offered by a hazardous waste facility permit. These permits are tailored to ensure that permitted facilities are located, designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned releases to the environment.

As discussed throughout this Analysis, the current storage and treatment practices of metal shredding facilities have allowed for the release of metal shredder wastes and their constituents into the environment and their dispersal throughout the facilities' entire operational areas. These releases have resulted in significant amounts of soil contamination at each of the sites as well as impacts outside of facility boundaries.

Based on the observations of releases at metal shredding facilities, in addition to operational standards that are intended to prevent releases, alternative management standards must require the use of containment buildings that meet the Chapter 14, Article 29 standards for Containment Buildings, the pavement and liner requirements for Waste Piles in Chapter 14, Article 12, the environmental monitoring requirements for Water Quality Monitoring and Response Programs for Permitted Facilities in Chapter 14, Article 6, and the general requirements for Preparedness and Prevention in Chapter 14, Article 3 facility standards. These detailed requirements are not established within the regulations. Rather, the regulations establish the general objectives that are to be achieved, but the detailed requirements that would be carried out at each site are developed as part of the permitting process.

These permits must also consider the variability between facilities' operations, treatment equipment, pollution control equipment and practices, and environmental setting and proximity to nearby sensitive land uses, such as residences, schools, day care centers, and hospitals. Permits are also the only way to develop and apply standards to waste management units and activities for which specific standards do not exist. The development of a permit, and the application of the general permit standards to the site and the specific operations, equipment, and operator, tailor the hazardous waste management requirements in a way that can account for each facility's unique operations and location. In DTSC's view, this has been and continues to be the most effective method to achieve protection of human health or safety and the environment from risks and hazards posed by the treatment and storage of metal shredder wastes.

Considering the waste management practices that are being implemented by the metal shredding facilities, DTSC cannot envision a set of alternative management standards that could provide the required amount of detail within the regulations to achieve the intended safeguards and protections. The hazardous waste management requirements for permitted facilities are tailored or adapted to the industry-specific circumstances through the administration of the unique permit standards. Absent this tailoring, the safeguards and protections that could be achieved through alternative management

standards would not be considered “equivalent” to those provided by the hazardous waste management requirements for permitted facilities.

DTSC was therefore unable to make the demonstration required by HSC Section 25150.82(e)(3).

4.2.4 Fourth Demonstration Required by HSC § 25150.82(e)(4)

According to HSC Section 25150.82(e)(4), DTSC cannot adopt alternative management standards under the law’s authority unless conditions or limitations imposed as part of the alternative management standards accomplish the same regulatory purpose as the requirement, or requirements, that the alternative management standards replace, but at less cost or with greater administrative efficiency, and without increasing potential risks to human health or safety or to the environment.

DTSC evaluated whether any conditions or limitations that could be imposed as part of the proposed alternative management standards could accomplish the same regulatory purpose as the existing hazardous waste management regulations and the hazardous waste facility standards, regardless of their cost or administrative efficiency.

As described in the discussion of the Second and Third Demonstrations (see Sections 4.2.2 and 4.2.3 above), metal shredding facilities’ treatment and storage of metal shredder wastes has allowed the release of metal shredder wastes and their constituents into the environment and throughout the facilities’ operational areas.

DTSC has previously adopted alternative management standards of other hazardous wastes to promote administrative efficiency and lower costs (e.g., the Standards for Universal Waste Management in Chapter 23 of Title 22, California Code of Regulations or the Requirements for Units and Facilities Deemed to Have a Permit by Rule in Chapter 45 of Title 22, California Code of Regulations). In those cases, DTSC could make the required demonstration that reduced compliances costs and added administrative efficiency offered by those regulations did not sacrifice the necessary protections to human health and safety and to the environment. DTSC was able to make the demonstrations because the quantities of hazardous waste being managed under those alternative management standards were much smaller. In addition, the types of waste management activities being used with those wastes were limited, and because of that, detailed operating requirements could be developed and included in the alternative management standards that were adopted.

DTSC evaluated requirements that apply to permitted facilities to assess whether DTSC can propose a less costly or more administratively streamlined option that would not increase potential risks to human health or the environment.

Article 7. Closure and Post-closure – The requirements in this article ensure that metal shredding facilities develop a plan for when the facility eventually will close (and for post-closure, if hazardous wastes will remain). The article specifies the required elements of those plans, and the requirements to certify that closure is complete.

As described in this Analysis, the metal shredding facilities have been designed and operated in a manner that has resulted in significant surface and subsurface contamination. The facilities also manage significant quantities of hazardous wastes. Upon closure, these facilities may require a significant amount of waste disposal and environmental cleanup. In DTSC’s experience, a closure plan becomes more complicated, and its contents more critical, when larger volumes of hazardous waste and numbers

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of hazardous waste units are present at a permitted hazardous waste facility. In addition, a closure plan is increasingly more complicated when the soil beneath waste management units, or beyond waste management units, has been contaminated with hazardous wastes or constituents of the hazardous wastes. As documented in the Analysis, each metal shredding facility manages significant quantities of metal shredder waste. The shredder waste management areas encompass large proportions of their sites. As also documented in the Analysis, there have been significant releases of metal shredder wastes over the facilities' many years of operation, which has contaminated not only those areas where metal shredder wastes have been managed, but also areas well outside the metal shredder waste management areas, including areas outside of their site boundaries. These facts make closure of metal shredding facilities complex and expensive and in need of significant regulatory oversight. The lack of a robust closure plan could result in unaddressed long-term contamination at a site that could impact public health and the environment, with the cost of remediation to be paid for by public funds, if the contamination is remediated at all.

Closure plans for metal shredding facilities will require significant effort to prepare and are likely to require significant review and feedback from DTSC, as well as revisions based on that feedback. DTSC has imposed limited closure requirements in other alternative management standards it has adopted. In those instances, the closure requirements are either overseen by CUPAs or self-implemented and verified afterwards by DTSC. DTSC has included closure requirements in other alternative management standards it has previously adopted, such as its Universal Waste standards and its Permit by Rule standards. In those cases, the volumes of hazardous waste being managed are much more limited. In addition, the types of waste management activities and the types of waste management equipment being used are also more limited, and DTSC was able to tailor the regulations to include sufficient detail for them to be self-implemented, and later verified by either DTSC or a CUPA as being complete.

Because of the volume of metal shredder waste involved, the number of metal shredder waste management units present, and the amount of contamination that exists, DTSC does not believe a self-implementing or post-implementation verification could achieve an equivalent standard of protecting human health and the environment. A permit is necessary.

Article 8. Financial Requirements – The requirements in this article ensure that permitted metal shredding facilities preserve sufficient financial resources to carry out their closure plan and certify closure of the facility, as well as to carry out an approved post-closure plan if applicable. This article also specifies insurance requirements to ensure the facility has resources available to respond to sudden and non-sudden releases.

As described in this Analysis, the historical operation of the metal shredding facilities in their locations has resulted in significant surface and subsurface contamination. Because of this, the cost of closing the facilities, as well as potential post-closure and corrective action costs, are likely to be substantial. If the metal shredding facilities fail to set aside sufficient funds to pay for the costs of closure, post-closure and corrective action, the costs are likely to fall on California taxpayers and fee payers.

DTSC has imposed financial assurance requirements in other alternative management standards it has adopted. In those instances, the financial assurance mechanisms are for far lower values than metal shredding operations, management, and closure would entail because the amounts of hazardous waste are much smaller and the costs of closure much lower.

The metal shredding facilities manage very large amounts of metal shredder waste. They also employ a large number of metal shredder waste management units. Finally, each of the metal shredding facilities reviewed has significant amounts of soil contamination. The costs of closure (and, potentially, corrective action) may be significant. DTSC believes administering financial assurance requirements through alternative management standards would jeopardize California taxpayers and fee payers, increasing their risk of being required to pay the price of closing and cleaning up the metal shredding facilities. The permitting process will go further to ensure accurate financial assurance is implemented under stricter oversight.

Article 6. Water Quality Monitoring and Response Programs for Permitted Facilities; and Article 17. Environmental Monitoring and Response Programs for Air, Soil, and Soil-pore Gas for Permitted Facilities:

The requirements in these articles, applicable to surface impoundments, waste piles, land treatment units, or landfills, ensure that metal shredder waste constituents are not migrating from the metal shredder waste management units, and mandate that corrective action be performed when releases are detected.

As described in this Analysis, the metal shredding facilities have caused significant environmental contamination. In addition, the metal shredding facilities' current metal shredder waste management activities (e.g., management of hazardous wastes in piles) continue to contaminate the environment. The environmental monitoring programs described in this article are essential to both define the extent of contamination and to determine whether the releases from the metal shredding facilities are migrating off-site and posing a threat to the public and the environment, including groundwater. DTSC believes the environmental monitoring requirements are essential to protect human health and safety and the environment from the impacts of releases that occur during management of hazardous wastes. DTSC also believes administering the environmental monitoring requirements through alternative management standards would increase potential risks to human health or the environment. Requirements that could be implemented as alternative management standards would need to incorporate all of the detail necessary to ensure that the monitoring to be performed collects sufficient samples of the appropriate environmental media, in the appropriate locations, and to ensure that they are chemically analyzed for the contaminants of concern. Except in very limited cases, these details cannot be generalized or anticipated, but must be developed based on specific information. This is why the environmental monitoring requirements for permitted facilities are developed based on specific information that is gathered and evaluated as part of the permitting process.

Article 12. Waste Piles – The requirements in this article ensure that the metal shredder waste being stored in waste piles does not migrate via wind, surface water, or groundwater. The article specifies design and operating standards for the storage of metal shredder waste in waste piles, and specifies monitoring and leak detection requirements.

As presented in this Analysis, most of the management of metal shredder wastes is taking place in waste piles. This historical practice has resulted in significant environmental contamination and migration of contaminants from the metal shredder wastes, including LFM. DTSC believes the design and operating requirements for waste piles are essential to protect human health and safety and the environment from threats posed by the storage of metal shredder waste in waste piles on ground surfaces. DTSC also believes administering the waste pile requirements through alternative management standards would increase potential risks to human health or the environment.

Article 29. Containment Buildings – The requirements in this article ensure that metal shredder wastes managed in containment buildings are not released into the environment. The article establishes the design and operating standards for containment buildings.

The only management standard that DTSC could envision that would limit the risks and hazards posed by the storage of metal shredder waste in waste piles would be a prohibition on the use of waste piles. Releases from the metal shredder waste treatment and storage activities at the metal shredding facilities could be significantly controlled if they were conducted within containment buildings that met the Article 29 standards.

As described in this Analysis, the metal shredding facilities manage significant quantities of hazardous wastes. The design and construction of containment buildings that meet the Article 29 standards becomes more complicated, and the contents of proposed plans more critical, when larger volumes of hazardous wastes are being managed at the permitted hazardous waste facility. In addition, the shredder waste management areas encompass large proportions of their sites, which would require larger structures to contain the metal shredder waste management operations and releases from those operations.

The design plans for containment buildings at the metal shredding facilities will require significant effort to prepare, and are likely to require significant review and feedback from DTSC, with revisions based on that feedback. DTSC is aware of occasions where generators without permits have been able to install containment structures that meet their secondary containment requirements for container and tank storage. However, those instances involve much smaller quantities of hazardous wastes and far smaller containment buildings.

Because of the large volume of metal shredder waste involved and the large number of metal shredder waste management units that would need to be covered by a containment building, DTSC does not believe a containment building requirement that is self-implementing could control the potential risks to human health and the environment.

Based on these factors, DTSC cannot conclude that any alternative management standard DTSC could propose, or any conditions or limitations that could be imposed as part of those alternative management standards, could accomplish the same regulatory purpose as the existing hazardous waste management regulations and the hazardous waste facility standards, regardless of their cost or administrative efficiency. DTSC is therefore unable to make this demonstration.

4.3 Conclusions of the Required Demonstrations

DTSC evaluated the hazardous waste management activities at metal shredding facilities, and analyzed those activities to determine the hazards and risks that are posed to the surrounding communities. Based on those evaluations and analyses, the Metal Shredding Facilities Law authorizes DTSC to adopt alternative management standards if it can satisfy one of the demonstrations required by HSC Sections 25150.82(e)(1) through 25150.82(e)(4). DTSC has assessed each of the four demonstrations to determine whether alternative management standards would provide adequate safeguards for human health and safety and the environment.

In the first demonstration, DTSC evaluated whether the requirements of existing hazardous waste control law, including the requirement to obtain a permit to conduct hazardous waste treatment and

storage activities, are significant or important in preventing or mitigating potential hazards to human health or safety and the environment, or in ensuring compliance with other hazardous waste requirements.

DTSC found that the current practices for treatment and storage of hazardous waste at the facilities have allowed for releases of metal shredder wastes and their constituents into the environment. DTSC documented releases that resulted in soil contamination, contaminated storm water runoff, and emissions of light fibrous materials outside the boundaries of the facility. DTSC found that current practices create potential hazards to human health or safety and the environment.

DTSC determined that the existing permitting standards would ensure that metal shredding waste is managed in compliance with existing hazardous waste control law. The facility permit mandates the most robust management standards that can govern a metal shredding facility. No other level of oversight is as equipped to prevent or mitigate potential hazards to human health or safety and the environment, or to ensure compliance with other hazardous waste requirements, as a facility permit issued by DTSC; however depending on certain factors, a permit by rule may provide adequate protections.

In the second demonstration, DTSC evaluated whether the requirements imposed and enforced by other public agencies are equivalent to, or as effective as, the existing hazardous waste control law. Several public agencies exercise jurisdiction and provide regulatory oversight of metal shredding facilities, including local air districts, the regional water boards, and the CUPAs. However, DTSC found that none of these agencies oversee the entire range of hazardous waste management activities at the metal shredding facilities.

DTSC found that the requirements of hazardous waste control law are the most effective means to ensure that hazardous waste management activities are performed in a manner that protects the broader spectrum of public health and safety and the environment. DTSC is the primary regulatory agency that oversees and regulates the treatment, storage, and disposal of hazardous wastes.

Further, those other agencies rely upon DTSC's determination that metal shredder waste is hazardous waste. The scope of the agencies' respective authorities is then based on DTSC's determination. Therefore, no other agency can regulate metal shredding facilities absent the regulatory involvement of DTSC.

In the third demonstration, DTSC evaluated whether conditions or limitations could be developed that would provide protection of human health and safety and the environment equivalent to the requirement, or requirements, of existing hazardous waste control law. DTSC determined that the highest level of protection of human health and safety and the environment is offered by a hazardous waste facility permit.

These permits are tailored to ensure that facilities are located, designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned releases to the environment. These detailed requirements are not established within the regulations. Rather, the regulations establish the general objectives that are to be achieved at the facility, but the detailed requirements that would be established at each permitted site are developed as part of the hazardous waste permitting process.

DTSC found that the hazardous waste permit is the most effective method to achieve protection of human health or safety and the environment from risks and hazards posed by the treatment and storage of hazardous wastes. Absent this industry-specific tailoring, any safeguards and protections that could be developed would not be considered “equivalent” to those provided by the hazardous waste management requirements for permitted facilities.

In the fourth demonstration, DTSC evaluated whether conditions or limitations could be imposed that would accomplish the same regulatory purpose as the requirement, or requirements, of existing hazardous waste control law, but at less cost or with greater administrative efficiency, and while preventing potential risks to human health or safety or to the environment.

DTSC evaluated requirements that apply to permitted facilities to assess whether DTSC could propose a less costly or more administratively efficient option that would not increase potential risks to human health or the environment. Requirements on permitted facilities include Closure and Post-closure plans, Financial Assurance, and Environmental Monitoring and Response Programs.

DTSC found that because of the volume of metal shredder waste involved, the number of metal shredder waste management units present, and the amount of contamination that already exists, no self-implementing or post-implementation verification of these requirements could achieve an equivalent standard of protection for human health and safety and the environment, unless key conditions can be addressed to ensure effectiveness of a permit by rule.

Based on these four determinations, DTSC cannot conclude that alternative management standards would provide adequate safeguards for human health and safety and the environment:

- DTSC was not able to conclude that the existing hazardous waste management regulations are not significant or important in preventing or mitigating potential hazards to human health or safety or to the environment, or in ensuring that the activity is conducted in compliance with other applicable requirements.
- DTSC could not conclude that the requirements imposed and enforced by other public agencies are equivalent to, or as effective as, existing hazardous waste management regulations and hazardous waste facility standards.
- DTSC did not find any safeguards and protections that could be achieved through alternative management standards that would be considered “equivalent” to those provided by the hazardous waste management requirements for permitted facilities.
- DTSC found that any alternative management standards, conditions, or limitations that DTSC could propose would not accomplish the same regulatory purpose as existing hazardous waste management regulations and the hazardous waste facility standards, regardless of their cost or administrative efficiency.

DTSC has shown that there is no factual basis to make any of the four demonstrations required by the Metal Shredding Facilities Law. Therefore, DTSC will not adopt regulations to establish alternative management standards under the authority of the Metal Shredding Facilities Law.

5 CLASSIFICATION AND DISPOSAL OF CTMSR

Subdivision (i) of Section 25150.82 of the Health and Safety Code authorizes the alternative management standards adopted by DTSC to allow Chemically Treated Metal Shredder Residue to be classified and managed as nonhazardous waste. In order for this allowance to occur, DTSC's analysis must demonstrate that classification and management as hazardous waste is not necessary to prevent or mitigate potential hazards posed by CTMSR to human health or safety or to the environment.

CTMSR is currently disposed in six landfills (although 22 landfills are authorized to accept the waste for disposal). Altamont Canyon Landfill and Simi Valley Landfill typically receive approximately 60 percent of the state's total CTMSR for disposal.¹²¹ The six California landfills currently accepting CTMSR for disposal or for use as alternative daily cover (ADC) are shown in Table 11.

Table 11. Landfills Accepting CTMSR			
Landfill	Amount Accepted in 2014	Amount Accepted in 2015	Amount Accepted in 2016
Altamont Landfill & Resource Recovery 10840 Altamont Pass Livermore, CA 94550	163,402	146,058	167,179
Simi Valley Landfill & Recycling Center 2801 Madera Road Simi Valley, CA 93065	142,727	141,677	151,633
Vasco Road Sanitary Landfill 4001 Vasco Livermore, CA 94550	94,969	73,137	83,785
Chiquita Canyon Sanitary Landfill 29201 Henry Mayo Drive Castaic, CA 91384	60,351	73,406	85,999
Potrero Hills Landfill 3675 Potrero Hills Lane Suisun City, CA 94585	56,137	43,198	30,612
H.M. Holloway Surface Mine Landfill Lost Hills, CA 93249	24,396	N/A	N/A

The H.M. Holloway Landfill is an industrial landfill that does not accept municipal solid waste and does not use CTMSR as alternative daily cover. At Altamont and Vasco Road landfills, CTMSR is also used to

¹²¹ See Disposal Reporting System, California Solid Waste Statistics, CalRecycle, available at: <http://www.calrecycle.ca.gov/lgcentral/Reports/DRS>

absorb free liquids from other liquid or semi-solid wastes. Wastes which have free liquids are mixed with CTMSR until the combined material has greater than 50 percent solids by volume. The solidified waste is then transported to the active face of the landfill for use as ADC.

In the surveys they completed, the landfills reported that, except for rare occasions, CTMSR is used almost immediately for ADC and is not stored for periods exceeding two weeks or in amounts exceeding 300 tons at any of the landfills. The information from their surveys also indicated that the handling of CTMSR used as ADC at each of the landfills is similar. Upon arrival, the load of CTMSR is deposited in piles near the active face of the landfill where putrescible municipal wastes are being deposited. The municipal wastes are deposited into cells which contain one day's waste. As the cell is filled, the waste is compacted and then covered with CTMSR. At the end of each working day, the active face is completely covered with CTMSR that acts as a daily cover. ADC is placed over the municipal wastes at the end of each operating day to control vectors, fires, odors, blowing litter, and scavenging. The handling at H.M. Holloway is different, because it does not accept municipal solid waste that requires the use of ADC, but instead disposes CTMSR directly.

5.1 Regulatory Oversight of Disposal of CTMSR

5.1.1 Water Quality: Regulation of Landfills by RWQCBs

According to the Santa Ana RWQCB: "The State Water Resources Control Board (SWRCB) issued two General Permits (General Industrial Activities Storm Water Permit and the General Construction Activity Storm Water Permit) to address most of the industrial facilities and the construction-sites within California. Individual storm water permits were adopted by a number of regional boards, including the Santa Ana Regional Board in Region 8. The regional boards administer the State's General Permits and the regional board's individual permits. The Santa Ana Regional Board adopted a sector-specific General Permit for storm water discharges from certain industrial facilities identified by the Standard Industrial Classification (SIC) Code 5093, specifically identifying metal scrap recyclers (excluding recycling facilities that only receive recyclable materials where no processes are performed on the metal scrap other than sorting, compaction, storage and transport). This sector-specific permit (R8-2012-0012, CAG 618001) was adopted on February 10, 2012."¹²² The Industrial General Permit (2014-0057-DWQ) became effective on July 1, 2015.

Per information provided by the SWRCB, facilities are required to obtain permit coverage under the Industrial General Permit (IGP) if they operate under a SIC code that is subject to the permit. Typically, recyclers fall into SIC 5015 or 5093, and landfills fall under SIC 4953, which all generally require permit coverage. These industrial activities are federally defined, and the IGP lists applicable activities in "Attachment A" of the general permit order (2014-0057-DWQ).¹²³

A facility covered under the IGP is assigned a Waste Discharge Identification (WDID) number, and a facility with Notice of Intent (NOI) coverage is required to adhere to all requirements in the IGP. Facilities with NOI coverage are generally required to create and implement a storm water pollution prevention plan (SWPPP) and site map, conduct monitoring and reporting, and install best management practices. The facilities would be required to identify monitoring locations in the SWPPP and site map,

¹²² https://www.waterboards.ca.gov/santaana/water_issues/programs/stormwater/index.html

¹²³ Electronic correspondence between DTSC and the SWRCB.

and would be responsible for making those determinations, which are addressed in Section X of the permit.¹²⁴

Sampling and monitoring requirements are outlined in Section XI.B. of the permit. The discharger is required to sample two Qualifying Storm Events (QSEs) from July 1 to December 31, and two QSEs from January 1 to June 30 of the Reporting Year, and report results in the Storm Water Multiple Application and Report Tracking System (SMARTS). A QSE is defined as a storm event that produces a discharge for at least one drainage area and is preceded by 48 hours with no discharge from any drainage area at the industrial facility.¹²⁵

Similarly, the Santa Ana Region 8 sector-specific permit (R8-2012-0012, CAG 618001) addresses the monitoring, reporting and permit requirements in Sections I through X in the “Monitoring and Reporting Program No. R8-2012-0012” section of the permit. The test methods and minimum levels of constituents are provided in a revision of Table 3.¹²⁶ A facility would need to maintain all requirements of the permit to stay in compliance.

5.1.2 Solid Waste: Regulation of Landfills by CalRecycle and Local Enforcement Agencies

Municipal solid waste landfills are required to cover the “active face” of the landfill with earthen material at the end of each operating day to control vectors, fires, odors, blowing litter, and scavenging. The active face is the working surface of a landfill where solid wastes are deposited during operation. Vectors include insects, rodents, or other animals capable of transmitting the causative agents of human disease.

CalRecycle has approved 11 types of earthen materials for use as alternative daily cover and established Alternative Daily/Intermediate Cover Guidelines to govern their use. The local enforcement agency must approve the use of any ADC on a site-by-site basis.

Section 41781.3 of the Public Resources Code states that the use of solid waste for beneficial reuse, including use as ADC, constitutes diversion through recycling, and is not considered disposal. In addition to CTMSR, CalRecycle has approved other waste-derived materials for use as ADC including construction and demolition waste, contaminated sediments, municipal waste water treatment plant sludge, and shredded tires. In total, CTMSR accounts for approximately 15 percent of all waste materials diverted for use as ADC statewide.¹²⁷

5.1.3 Air Quality: Regulation of Landfills by Local Air Districts

Local Air Districts also regulate activities at solid waste landfills related to the handling, storage, transportation and disposal of CTMSR. The solid waste landfills are required to employ management practices that minimize the fugitive emissions of dirt and debris from the downstream processes. Each

¹²⁴ Ibid.

¹²⁵ Ibid.

¹²⁶

https://www.waterboards.ca.gov/santaana/water_issues/programs/stormwater/docs/scrap_metal/REVISED_TABLE_3.pdf

¹²⁷ Alternative Daily Cover White Paper, California Integrated Waste Management Board, October 2009.

particulate-emitting operation at a landfill is required to be abated to the extent necessary to ensure compliance with the Ringelmann No. 1 limitation. Controls include use of water sprays and dust suppressants at the active face of the landfill and for stockpiles at the rate and frequency necessary to ensure compliance with limits for visible emissions of particulate matter and to prevent wind erosion from these areas.

5.2 Hazardous Waste Management Activities

Transportation: CTMSR is transported from metal shredding facilities to California solid waste landfills by nonhazardous waste transporters in loads of 20 to 25 tons using standard end-dump trailers. CTMSR continues to exhibit hazardous waste characteristics, even after chemical treatment to stabilize the soluble metals in the waste. If the “f letters” were not in place, transportation of CTMSR would be regulated as a hazardous waste management activity, and a transporter would be required to be registered as a California hazardous waste transporter, to comply with all hazardous waste transportation regulations, and to accompany each shipment with a Uniform Hazardous Waste Manifest.

Landfill Management: CTMSR is managed at solid waste landfill facilities. There are two primary dispositions of the chemically treated metal shredder waste at landfills: disposal and use as alternative daily cover. CTMSR is either disposed along with the other solid wastes shipped to the landfill facility, or it is used as alternative daily cover. As previously discussed, CTMSR continues to exhibit hazardous waste characteristics, even after chemical treatment to stabilize the soluble metals in the waste. If the “f letters” were not in place, its disposal or use as alternative daily cover would be regulated as a hazardous waste management activity, and a metal shredding facility could not send CTMSR to a solid waste landfill. Instead, the waste would need to be sent to a hazardous waste landfill that has a hazardous waste facility permit issued by DTSC to conduct this activity, or to a landfill site that has received a variance from DTSC to accept this waste. Alternately, CTMSR could be transported to a landfill in another state or jurisdiction where it may not be regulated as a hazardous waste. In that case, the receiving facility would need to hold the appropriate authorization from the jurisdiction where it is located.

5.3 Assessment of Hazards Associated with Transportation of CTMSR

The hazards associated with the transportation of CTMSR to landfills include:

- A release of CTMSR to the environment if an accident occurs during transport to the landfill
- A release of CTMSR, or particulate from the waste, if the waste is not appropriately covered during transport

As discussed previously, CTMSR exceeds STLCs for zinc and occasionally for lead, and TTLCs for lead, zinc, and copper. These hazardous constituents can pose risks and hazards to public health and the environment if CTMSR were to be released into the environment.

Reasonably foreseeable releases of CTMSR, or of particulate from CTMSR, could occur if a truck transporting CTMSR is involved in an accident and the contents of its load are spilled, or if CTMSR is not adequately covered or contained during transport, and thus can be carried out of the truck due to wind dispersion.

The concerns of release during transport may be reduced if there is assurance that trucks remain covered during transport, and if CTMSR remains moist. California Vehicle Code Section 23114 requires that the operator of any vehicle on California's roadways must prevent any of the vehicle's contents from dropping, sifting, leaking, blowing, spilling, or otherwise escaping from the vehicle. These requirements apply equally to both hazardous wastes and nonhazardous wastes.

In addition, for trucks transporting CTMSR:

- Drivers must be adequately trained in the risks and hazards associated with CTMSR to ensure that they adequately respond to any transportation incidents.
- Transportation companies must possess adequate insurance coverage to be able to pay for costs associated with any accidents or transportation incidents.
- Shipments of CTMSR need to be adequately tracked from point of generation to disposal location to ensure that they are received and disposed of at the landfill as intended.

The regulatory requirements that would otherwise be applicable to the transportation of CTMSR if it is considered nonhazardous waste may be adequate, on their own, to ensure the prevention of the associated risks to public health and the environment. As was stated previously, most metal shredding facilities use a variety of best management practices to minimize the risks and hazards related to the transportation of CTMSR, and to the extent that they are used they are not adequate.

Although the requirements that govern the transportation of hazardous waste are designed to address all of the identified concerns, DTSC has also determined they are not necessary, specifically because the requirements in the Vehicle Code effectively regulate the release of CTMSR or hazardous constituents of CTMSR from vehicles during transportation. Additionally, based on its assessment, DTSC has not seen evidence of accidents or other transportation incidents that warrant the hazardous waste transportation requirements.

5.4 Assessment of Hazards Associated with CTMSR Use or Disposal at Landfills in California

The hazards associated with the acceptance and use or disposal of CTMSR at landfills include the migration of contaminants via leachate and groundwater, the migration of contaminants via surface water, and the migration of contaminants via the air. Each of these potential pathways is discussed in detail in the following sections.

5.4.1 Migration of Contaminants via Leachate and Groundwater

Contaminants in wastes that have been disposed to landfills have the potential to migrate via leachate and impact the subsurface and, potentially, groundwater and drinking water sources. Leachate is water in the landfill that either emanates from the moisture content of the disposed wastes or enters the landfill through rainfall that percolates through the waste and picks up soluble contaminants from the waste and ADC. If not captured in the landfills' systems designed to capture it, or if the systems are damaged or fail to perform as designed, the leachate can migrate into the environment, seeping to the surface or deep below ground surface to threaten groundwater and drinking water.

STLC is used to identify wastes that are hazardous due to the solubility of its regulated constituents. DTSC's Waste Extraction Test was designed to mimic the conditions a waste would be expected to

encounter in a solid waste landfill environment. The test serves as a predictor of the mobilization of hazardous constituents from wastes disposed in a solid waste landfill.

CTMSR has historically exceeded STLCs for zinc and occasionally for lead. It has also, for most of the past 30 years, been disposed or used as ADC in certain solid waste landfills that were authorized to receive it. Because both metal shredder residue and CTMSR have been disposed for a long period of time in some solid waste landfills, DTSC could reasonably assume that the leachate from those landfills would contain elevated levels of lead and zinc.

To validate this assumption, DTSC evaluated a comparative analysis, provided by one of the landfills, which compared leachate from landfills that accepted CTMSR for use as ADC with landfills that did not. Additionally, DTSC assessed leachate and surface water quality results using publicly available leachate and surface water monitoring data from SWRCB.

Geo-Logic Associates Comparative Leachate Study

In response to DTSC’s requests for information in preparation for this Analysis, Republic Services, owner and operator of several landfills in California (some of which use CTMSR as ADC), commissioned Geo-Logic Associates (Geo-Logic)¹²⁸ in 2014 to prepare a study to compare leachate from landfills that do accept CTMSR to landfills that do not. Geo-Logic concluded that landfills that accepted and used CTMSR as ADC did not have increased metals in leachate when compared to landfills that did not accept any CTMSR. Since Geo-Logic did not provide the raw data they used to draw these conclusions, DTSC was unable to confirm the report’s analysis or conclusions.

Geo-Logic compared leachate data from the landfills shown in Table 12 below:

Table 12. Landfill Data Used by Geo-Logic Comparative Leachate Study			
Landfill	Location	Received CTMSR	Number of Years CTMSR in the Landfill
Forward/Austin Landfill	Manteca, CA	Yes	20 years
Vasco Road Landfill	Livermore, CA	Yes	22 years
Ox Mountain Landfill	Half Moon Bay, CA	No	N/A
Keller Canyon Landfill	Pittsburg, CA	No	N/A

The narrative in Geo-Logic’s report offered the following data conclusions (excerpted here):

DTSC Comparative Leachate Analysis

Since lead and zinc in CTMSR have historically exceeded STLCs, DTSC conducted a comparative evaluation of the concentrations of lead and zinc in leachate from the landfills that accepted CTMSR to concentrations in leachate from landfills that had never accepted CTMSR. Leachate data for landfills was accessed through SWRCB’s GeoTracker system. Quarterly reports from February 2005 to March 2017

¹²⁸ Evaluation of Metal Shredding Residue Waste for Alternative Daily Cover, Geo-Logic Associates, January 21, 2014.

were reviewed from Vasco Road Landfill (Vasco Road), which accepts CTMSR. Monitoring reports from February 2005 to October 2016 were reviewed for Ox Mountain Landfill (Ox Mountain), which never accepted CTMSR. Analyte concentrations are shown in Table 13.

For Vasco Road, DTSC also evaluated lead and zinc concentrations in the leachate over time. There was a weak trend of decreasing concentrations of lead and zinc in the leachate during the time period evaluated. The decreasing trend is considered weak because 84 percent of the samples for lead were non-detect (r-squared of -0.35), and 52 percent of the samples for zinc were non-detect (r-squared of -0.34).

ProUCL 5.1 (US EPA) was used to conduct the comparative statistical analysis, using the Kaplan-Meier nonparametric method for the large numbers of non-detect values and the Gehan and Tarone-Ware tests (for non-detects and multiple detection limits) in two-sample hypothesis testing. Comparable hypothesis testing for lead concentrations was not found to be significantly different between Vasco Road and Ox Mountain. However, the zinc concentration was found to be significantly different, with Ox Mountain showing higher average zinc concentrations compared to Vasco Road. These comparisons of the concentrations of soluble metals in the leachate from landfills that accept CTMSR and those that do not accept CTMSR do not indicate that the soluble metals in CTMSR are solubilizing and migrating in the municipal solid waste landfills.

DTSC's assumption that the leachate from the landfills in which CTMSR has been consistently disposed of or used as ADC would show higher soluble lead and zinc results was not confirmed by the leachate data analyzed. DTSC concludes from this analysis that constituents from CTMSR are not migrating from the solid waste landfills.

Table 13. Landfill Leachate Analyte Concentrations for a Landfill That Accepts CTMSR and a Landfill That Does not accept CTMSR						
Analyte	Vasco Road			Ox Mountain		
	Number of Samples	Average Concentration (µg/L)	Number of Non-detects	Number of Samples	Average Concentration (µg/L)	Number of Non-detects
Lead	176	6.9	147	52	3.2	19
Zinc	176	9.8	91	51	19.3	6

5.4.2 Migration of Contaminants via Surface Water

Contaminants in wastes that have been disposed to landfills have the potential to migrate via surface water runoff during periods of rainfall. The surface water runoff, if not captured in the landfills' systems designed to capture it, or if the systems are damaged or fail to perform as designed, can migrate into the environment. Any off-site migration could contaminate the surface water drainages of the solid waste landfills and potentially migrate off-site, where it can come into contact with people or animals, or contaminate the environment. Because CTMSR is currently being disposed in some solid waste landfills, DTSC could reasonably assume that the surface water runoff from the solid waste landfills in which CTMSR is being disposed or used as ADC would contain elevated levels of constituents in CTMSR.

Similar to the leachate data evaluation from landfills that do, and do not, accept CTMSR, DTSC examined storm water sampling data for lead and zinc, since these were known constituents in CTMSR that exceeded STLC values. DTSC evaluated whether the averages of the reported sample results were statistically different from Simi Valley Landfill (Simi Valley), which accepts CTMSR, and from Sunshine Canyon Landfill (Sunshine Canyon), which does not accept CTMSR. Storm water monitoring data is dependent upon rainfall events, which are unpredictable and do not always result in sufficient water volume to sample, which is why the landfills chosen for the storm water evaluation differ from those used for the leachate evaluation. Storm water monitoring data from landfills was accessed from SWRCB's SMARTS database. Data contained in the SMARTS database is self-reported by the holders of the storm water permits. Where available, DTSC corroborates the data in the SMARTS database against respective laboratory reports uploaded by the permit holders. Analyte concentrations from those reports are shown in Table 14.

For Simi Valley, sample results for lead and zinc from 2008 to 2014 were uploaded for five qualifying storm events. In 2014, water samples were collected from two different locations around Simi Valley. Data on lead was available, but zinc was not analyzed in all sampling events. For Sunshine Canyon, sample results for lead and zinc from 2013 to 2017 were uploaded for 17 qualifying storm events. ProUCL 5.1 (US EPA) was used to conduct the comparative statistical analysis.¹²⁹ Visual data comparisons were also conducted utilizing box-whisker and quantile-quantile plots. Comparable hypothesis testing results for lead and zinc concentrations were not found to be significantly different between Simi Valley and Sunshine Canyon. These comparisons demonstrate that the concentrations of soluble metals in the surface water runoff from landfills that accept CTMSR and those that do not accept CTMSR are not significantly different.

DTSC's hypothesis that the surface water at solid waste landfills in which CTMSR has been disposed or used as ADC would have higher concentrations of lead and zinc migrating via surface water into the environment was not confirmed by the analysis of surface water data. DTSC concludes from this analysis that constituents from CTMSR do not appear to be migrating from the solid waste landfills via surface water.

For Leachate: For Vasco Road, DTSC also evaluated lead and zinc concentrations in the leachate. A visual inspection of the data indicated that there was weak trend of decreasing concentrations of lead and zinc in the leachate during the time period evaluated. The decreasing trend is considered weak because 84 percent of the samples for lead were non-detect, and 52 percent of the samples for zinc were non-detect.

ProUCL 5.1 (US EPA) was used to conduct the comparative statistical analysis of lead and zinc concentrations in the leachate.¹³⁰ Visual data comparisons were also conducted utilizing box-whisker and quantile-quantile plots. Comparable hypothesis testing for lead concentrations was not found to be significantly different between Vasco Road and Ox Mountain. However, the zinc concentration was

¹²⁹ US EPA's ProUCL software used the Kaplan-Meier nonparametric methods for Gehan, Tarone-Ware, and Wilcoxon-Mann-Whitney tests in two-sample hypothesis testing

¹³⁰ US EPA's ProUCL software used the Kaplan-Meier nonparametric method for the large numbers of non-detect values and the Gehan and Tarone-Ware tests (for non-detects and multiple detection limits) in two-sample hypothesis testing.

found to be significantly different, with Ox Mountain showing higher average zinc concentrations compared to Vasco Road. These comparisons of the concentrations of soluble metals in the leachate from landfills that accept CTMSR, and those that do not accept CTMSR, do not indicate that the soluble metals in CTMSR are solubilizing and migrating in the municipal solid waste landfills.

Table 14.
Storm Water Monitoring Analyte Concentrations from a Landfill That Accepts CTMSR and a Landfill That Does Not Accept CTMSR

Analyte	Simi Valley Landfill			Sunshine Canyon Landfill		
	Number of Samples	Average Concentration (ug/l)	Number of Non-detects	Number of Samples	Average Concentration (ug/l)	Number of Non-detects
Lead	6	11.9	0	17	39.1	0
Zinc	4	200	0	17	829	0

5.4.3 Migration of Contaminants from Landfills via Air

Contaminants in wastes that have been disposed to landfills have the potential to migrate through airborne dispersion from wind. Windborne particulate dispersion, if not prevented through the landfills' management practices, can migrate into the environment, contaminating the area surrounding the active face of the landfill, including the surface water drainages of the solid waste landfills. It could also potentially migrate off-site, where it could come into contact with people or animals, or contaminate the environment.

If CTMSR being disposed or used as ADC in solid waste landfills, or particulates from it, were to migrate through the air, DTSC could reasonably assume that measurable concentrations of contaminants commonly found in CTMSR would also be found in samples of air collected at the landfill. DTSC could also reasonably assume that measurable concentrations of the same contaminants would be found in storm water samples, since particulate migrating from a source will come to rest downwind at a distance that varies by particle size, density, wind speed, and topography.

As discussed above, DTSC did not observe a statistical difference between concentrations of contaminants commonly found in CTMSR in surface water samples collected at a landfill that accepted CTMSR and a landfill that did not. The surface water analysis is evidence that DTSC's hypothesis of windborne dispersion is not confirmed, and that chemically treated metal shredder waste, and constituents from the waste, do not appear to be migrating via air from the landfills where it is being placed or disposed.

In addition to the analysis of the surface water data, DTSC contracted to collect air samples at two landfills that receive CTMSR: Vasco Road Landfill and Simi Valley Landfill. The sampling was based on previous air studies conducted at three metal shredding facilities, and was designed to determine the

potential for migration of particulate matter from the two landfills.¹³¹ Sampling was conducted at the landfills between August and September of 2017.¹³²

The air samples were analyzed for TSP, PM 10, and PM 2.5, and the collected particulate matter samples were further analyzed for metals, including lead. Samples from both landfills frequently exceeded the annual or 24-hour ambient air quality standards for PM10 or PM2.5. Lead is the major metal contaminant of concern which has an established regulatory threshold. However, the sampling results showed that the highest concentration of lead at either landfill was 0.0161 ug/m³. This value is just over 1/10 of the National Ambient Air Quality Standard for lead of 0.15 ug/m³ (3-Month Average). Further, DTSC's review of the data indicated that the measured lead concentrations were well below National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limits and the OSHA Permissible Exposure Limits of 0.050 mg/m³.¹³³

Based on DTSC's review of the air monitoring data from the shredders and landfills, DTSC does not expect CTMSR or contaminants commonly found in CTMSR to migrate off-site at a landfill via the pathway of windborne particle dispersion. The measured concentrations of hazardous metals in the air monitoring samples collected from the landfills were skewed towards the larger particle sizes (which are not expected to travel long distances before dropping out of the air). Based on these results, DTSC does not expect the CTMSR used as ADC, nor contaminants commonly contained in it, to migrate off-site at a landfill via windborne particulate dispersion. The measured concentrations of hazardous metals in samples collected from the landfills were also skewed toward the larger particle sizes based on the differences between the TSP and smaller sizes, and were in general even lower than the concentrations measured at the shredder facilities. This supports DTSC's assumption, based on the air sampling data collected from the metal shredding facilities, that neither CTMSR used as ADC, nor contaminants commonly contained in it, would be expected to migrate off-site at a landfill via windborne particulate dispersion.

5.5 Evaluation Findings and Conclusions

CTMSR exceeds hazardous waste regulatory threshold levels. The metal shredding industry, through its treatability study, has demonstrated that it can improve the performance of the treatment, but that it still cannot achieve a reduction in soluble levels below STLCs for zinc and, in some instances, lead. It also verified that the chemical treatment cannot affect the total concentrations of lead, copper, or zinc.

In evaluating the potential hazards and possible harm that could be associated with the management of this residue when disposed in solid waste landfills for the past 30 years, DTSC has concluded that its continued disposal as nonhazardous waste, including its use as ADC, has not resulted in harm to human health or safety or to the environment, and that there is no evidence available that demonstrates its ability to contribute to the solubilization and migration of heavy metals from the solid waste landfills into which it has been placed as a nonhazardous waste.

¹³¹ See Air Monitoring Summary Reports for SA Recycling – Terminal Island, SA Recycling – Bakersfield, and Sims Metal Management, December 2016, available at: <http://www.dtsc.ca.gov/HazardousWaste/MetalDocLib.cfm>

¹³² See Sampling and Analysis Plans for Air Sampling at Vasco Road Landfill and Simi Valley Landfill, August 2017, available at: <http://www.dtsc.ca.gov/HazardousWaste/MetalDocLib.cfm>

¹³³ See "NIOSH Pocket Guide to Chemical Hazards"; Department of Health and Human Services, Center for Disease Control and Prevention, National Institute for Occupational Safety and Health, 2010.

However, although CTMSR is identified as a hazardous waste, DTSC believes that the classification and management of it as a hazardous waste is not necessary to prevent or mitigate potential hazards to human health or safety or to the environment posed by it, if appropriate conditions are developed.

DTSC therefore concludes that CTMSR does not need to be classified and managed as a hazardous waste to prevent or mitigate potential hazards to human health or safety or to the environment. As a result, DTSC concludes that it may continue to be classified as a nonhazardous waste, and continue to be disposed of, or used as ADC, in solid waste landfills in California with certain limitations. Because DTSC's conclusions are based on comparative analyses using data from landfills that are currently receiving CTMSR, DTSC's conclusions would continue to be supported only if the solid waste landfills to which CTMSR is sent meet the same general description as those to which it has been sent historically. The landfills that have historically received CTMSR have disposed or used as ADC in a composite-lined portion of their solid waste landfill unit which meet all requirements applicable to disposal of municipal solid waste in California after October 9, 1993, and the landfills are authorized to accept it by the appropriate RWQCB.

6 CONCLUSION

DTSC has prepared this report to evaluate and analyze metal shredding facilities and the wastes they generate, in order to identify the most appropriate level of regulatory oversight necessary to protect public health and safety and the environment. DTSC's purpose in issuing this report is to describe the public health and environmental threats posed by metal shredding facilities and their wastes and to begin the process of ensuring that these facilities comply with existing hazardous waste control law, so that the important public health and environmental protections that existing law provides are afforded to the communities near these facilities.

In conducting the evaluation of metal shredding facilities and their hazardous waste management practices, DTSC found numerous examples of accidents, improper hazardous waste storage, soil contamination, and hazardous waste releases outside the facilities that were found to be contaminating the surrounding community. DTSC noted an explosion in the air pollution control system at the SA Recycling facility in Terminal Island in 2007 that resulted in the release of contaminants to the community; the Los Angeles County District Attorney's Office reached a \$2.9 million settlement for those violations. DTSC identified releases of light fibrous material from the Sims facility in Redwood City in 2012, with light fibrous material subsequently found in ponds at the neighboring Cargill Salt facility; DTSC referred the case to the California Attorney General's Office, and Sims agreed to pay \$2.4 million to settle the civil environmental enforcement action. DTSC also noted a series of fires at Sims in 2013 that resulted in shelter-in-place orders for nearby residents. At the Schnitzer facility in Oakland in 2015, DTSC inspectors collected samples from areas where scrap metal was stored or being processed and found exceedances for chromium, lead, nickel, zinc, and copper. Also in 2015, DTSC conducted an inspection at the Ecology facility in Colton and found similar releases and contamination. DTSC is evaluating appropriate enforcement actions for these facilities.

DTSC then performed an analysis of the treatment and storage activities at the metal shredding facilities, the chemical and physical hazards that those activities present, the types of accidents that could occur, and the risks those activities pose to nearby communities. DTSC found that the hazardous waste management activities pose substantial risks to nearby communities. DTSC next evaluated whether alternative management standards—alternative regulations to existing hazardous waste control law—could be developed that would provide adequate protection for human health and safety and the environment. DTSC showed through a series of demonstrations that the most appropriate level of regulation for facilities of this size, that are managing hazardous wastes of these types and in these volumes, is a hazardous waste permit. As a result of this analysis, DTSC will not be adopting alternative management standards as authorized by the Metal Shredding Facilities Law.

DTSC also evaluated the longstanding practice of disposal of chemically treated metal shredder waste in municipal landfills to identify threats and risks that would warrant a change in these practices. DTSC found no evidence of migration from landfills that have been accepting this material for over 30 years. DTSC evaluated the potential for migration of the waste through air dispersion, surface water runoff, and leaching into groundwater. DTSC found minimal impacts to air from the standard management practices at the landfills. Comparing surface water and leachate data from landfills that receive the waste with data from landfills that have never accepted the waste, DTSC found no discernable difference in the data from the compared landfills, which indicates that there is no additional risk posed by continued disposal of the waste in municipal landfills under specified conditions. DTSC concluded that

classification of CTMSR as a hazardous waste is not necessary to prevent or mitigate potential hazards to human health or safety or to the environment posed by the treated metal shredder waste. DTSC intends to promulgate regulations that exclude CTMSR from classification as a hazardous waste under separate statutory authority.

DTSC's evaluation and analysis of metal shredding facilities and their hazardous waste management practices have demonstrated that, although the Metal Shredding Facilities Law authorized DTSC to adopt management standards as an alternative to the existing hazardous waste management requirements, the risks and hazards posed by the hazardous waste management activities conducted at metal shredding facilities require the protections that can only be provided by the existing hazardous waste management requirements. This report is intended to serve as a basis for establishing enforceable requirements for metal shredding facilities through a hazardous waste permit. Through the formal permitting process, DTSC will ensure that these facilities come into compliance with existing law, and that adequate protections are developed and implemented for human health and safety and the environment. DTSC intends to work with the metal shredding industry and other stakeholders during a transition period to develop and implement the new permitting requirements.

DTSC looks forward to working in an open and cooperative way with the public, the regulated community, and other stakeholders in the permitting process and when the department announces its proposed rulemaking. DTSC is committed to work transparently to implement safeguards for public health and safety and the environment. DTSC anticipates conducting public workshops on the proposed regulatory action in early 2018, and DTSC welcomes input from all stakeholders.

**APPENDIX A: DTSC QUESTIONNAIRE RESPONSES FROM ALL SHREDDERS
(REDACTED)**

SIMS METAL MANAGEMENT REDWOOD CITY RESPONSE 7/17/15

DTSC METAL SHREDDING QUESTIONNAIRE 5/8/15

1. Describe your facility's scrap metal acceptance policy and describe all materials you bring into your facility for shredding, metals recovery or both

The Redwood City Facility of Sims Metal Management (Sims) purchases mainly shreddable ferrous scrap that is managed in the Shredder. The Facility's scrap metal acceptance policy is described as follows: The Facility maintains a Prohibited Materials List (see attached) that clearly identifies items prohibited from purchase with inbound material. Regular suppliers are informed of Prohibited Materials through their Account Managers. They are required to sign a Scrap Acceptance Agreement (see attached) through which they certify that they will not send the facility Prohibited Materials. Suppliers such as peddlers who do not execute a Scrap Acceptance Agreement warrant that their inbound materials do not contain Prohibited Materials. The scale operator also provides peddlers and other suppliers the list of Prohibited Materials in both English and Spanish. In addition, for all suppliers: The Facility has prohibited materials signage located at the entrance to the Facility. Loads are inspected at the scale and by inspectors in the unloading areas. Material handlers also assist in the inspection process. If prohibited materials are identified in inbound materials during the inspection process the prohibited materials and/or the entire load are rejected.

2. How much material by weight did your facility shred from January 1, 2015 through January 1, 2015. Include the percentage of total materials shredded annually for each of the following: vehicles, appliances, and other forms of scrap metal.

CONFIDENTIAL BUSINESS INFORMATION (CBI) – The information provided in response to Question #2 is considered Proprietary Confidential Business Information by Sims.

[REDACTED]

3. What type of shredder (e.g., the model, brand, and its horse power) is used by your facility?

CONFIDENTIAL BUSINESS INFORMATION (CBI) – The information provided in response to Question #3 is considered Proprietary Confidential Business Information by Sims.

[REDACTED]

**4. Is your facility's shredder equipped with an Air Pollution Control Device (APCD)?
How else does our facility control any particulate emissions throughout the facility?**

The Shredder at the Redwood City Facility has an Air Pollution Control Device (APCD) which is a permitted source with the BAAQMD. The APCD collects emissions from the Shredder from the Undermill Oscillator (UOM) and directs the air through a cyclone and then a wet scrubber system. This system is more fully described in response to Question 6.

The Facility utilizes multiple BMPs for fugitive dust control including buildings and other structures, coverings or containment around conveyor systems, fabric covered fencing with candy cane tops, sprinklers, dust bosses, sweepers, and manual sweeping/portable vacuum units. Sims is currently working with the BAAQMD on the finalization of the Redwood City Facility Emissions Minimization Plan (EMP) which addresses fugitive emissions in accordance with the BAAQMD Regulation 6. Rule 4: Metal Recycling and Shredder Operations (see attached Draft EMP).

5. Provide a copy of all permits and other forms of authorization issued to your facility by any governmental entity related to metal shredding activities.

Sims Metal Management Redwood City Permits

- BAAQMD - Air Permit – Shredder - attached
 - DTSC - Certified Appliance Recycler Permit - attached
 - RWQCB - Industrial Storm Water Permit – Notice of Intent(NOI) attached
 - San Mateo County Environmental Health - CUPA Permit - attached
 - State of CA DOSH – Air Pressure Tanks/LPG Gas Permits attached
 -
- 6. Describe the ferrous metals separation process, including how shredded material is sent to the ferrous metals separation process, the type of magnet used, if any and under what circumstances would materials exiting the ferrous metals separation process be reintroduced. Also indicate if your facility recovers ferrous metals from any material that is not shredded at your facility. If so, please describe that process. Please include representative pictures of the ferrous recovery process and a site map of where activities occur when applicable.**

CONFIDENTIAL BUSINESS INFORMATION (CBI) – The information provided in response to Question #6 is considered Proprietary Confidential Business Information by Sims.

[REDACTED]

[REDACTED]

7. Is the shredded material ever stored onsite before ferrous metal recovery occurs? Is so, on average how much and for how long is it stored, how is it stored (e.g., on a paved surface), and where in the facility is it stored?

The magnets are in line with the Shredder and thus ferrous metal recovery occurs immediately following shredding. There is some ferrous metal recovery in the Non-Ferrous Separation process including an over-band ferrous metal magnet on the final aggregate conveyor after treatment.

8. If ferrous metals recovery does not occur onsite, please respond to the following questions:

- How much shredded material is stored onsite?
- How long is shredded material stored onsite?
- How is the shredded material stored (e.g. on paved ground)?"?
- Where in the facility is the shredded material stored?
- Where is the shredded material sent (please include addresses)?

Not Applicable to the Redwood City Facility

9. Describe the nonferrous metals separation process at your facility, if any. Describe how aggregate (i.e. the shredded material remaining after ferrous metals separation) is introduced into that process, the type of system (s) used, where in your facility it occurs, and under what circumstances would materials exiting nonferrous metals separation processes be reintroduced. Also indicate if your facility recovers nonferrous metals from any material that is not shredded at your facility. Please provide a site map of where activities occur.

CONFIDENTIAL BUSINESS INFORMATION (CBI) – The information provided in response to Question #9 is considered Proprietary Confidential Business Information by Sims.

[Redacted content]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

10. Is aggregate ever stored onsite prior to or during the nonferrous metals separation process, if so, how much is stored and for how long? Identify where in your facility it is stored.

Aggregate is stored in Building E at the MRP. Approximately 2100 tons of aggregate could potentially be stored in the building but the Facility makes an effort to process the aggregate "to the ground" every day. Daily processing can range from 200 to 500 tons of aggregate. On average, there is no more than 300 tons present in the building each day.

11. If nonferrous metals recovered does not occur onsite, please respond to the following questions:

- How much aggregate is store onsite?
- How long is aggregate stored onsite:
- How is the aggregate stored (e.g., on pave ground)?
- Where in the facility is the aggregate stored? Where is the aggregate sent (please include addresses)?
- Describe the offsite transportation and if any Department of Transportation (DOT) requirements are followed.

This question is not applicable to the Redwood City Facility.

12. Describe how your facility chemically treats metal shredder waste. For the purposes of this document only, “metal shredder waste” shall mean the material remaining after metal recovery is complete. Include how metal shredder waste not chemically treated is sent to the treatment process, how screening is conducted, the type of equipment used to perform the chemical treatment, chemical formulas and doses, and the sampling and analysis performed on the chemically treated metal shredder waste to ensure adequate treatment.

CONFIDENTIAL BUSINESS INFORMATION (CBI) – The information provided in response to Question #12 is considered Proprietary Confidential Business Information by Sims.

[Redacted content]

13. Do landfills, regional water quality control boards, or other regulating authority impose any requirement on treated metal shredder waste sent for disposal or use as Alternative Daily Cover (ADC)? If so, what are the requirements?

The Redwood City Facility complies with all the requirements from the landfills for the management of treated metal shredder waste (treated auto shredder waste or TASW). Each landfill received approval from the Regional Water Quality Control Board to utilize this material as ADC at their landfill and to our knowledge follows the Waste Disposal Requirements (WDRs) under those approvals.

14. Is untreated metal shredder waste stored onsite prior to treatment? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?

No - All aggregate exiting the non-ferrous separation area immediately goes through treatment, so no untreated metal shredder waste is stored at the Facility.

- 15. Is treated metal shredder waste stored on site before disposal? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?**

CONFIDENTIAL BUSINESS INFORMATION (CBI) – The information provided in response to Question #15 is considered Proprietary Confidential Business Information by Sims.

[REDACTED]

- 16. How much treated metal shredder waste, if any, was transported offsite in the calendar year January 1, 2014, through January 1, 2015? List all destinations with addresses.**

CONFIDENTIAL BUSINESS INFORMATION (CBI) – The information provided in response to Question #16 is considered Proprietary Confidential Business Information by Sims.

[REDACTED]

[REDACTED]

- 17. Describe the offsite transportation of metal shredder wastes. Are there any DOT requirements followed during transportation?**

Treated metal shredder waste or TASW is shipped to the landfills by subcontracted trucks hauling end dumps. The empty trucks drive into an enclosed structure specifically designed and constructed to load TASW into the trailers. The doors of the structure are closed while the end dumps are loaded inside, in order to minimize fugitive emissions. Once loaded the trucks are tarped before they travel on-road to the landfills. The subcontracted trucks are required to comply with those California DOT requirements pertaining to vehicles hauling non-hazardous waste materials.



Schnitzer Steel Products Company
1101 Embarcadero West
Oakland, CA 94607

Metal Shredding Facility Questionnaire- Schnitzer Steel

1. Describe your facility's scrap metal acceptance policy and describe all materials you bring into your facility for shredding, metals recovery or both.

Schnitzer Steel recycles the following types of metal at our facility:

Ferrous Metals to Be Shredded

- Ferrous (Iron containing scrap) Metals of light gauges, grades and sizes.
 - a. End of life vehicles-depolluted only.
 - b. End of life appliances-depolluted only.
 - c. Ferrous demolition scrap.

Ferrous Metals to Be Sheared and/or Torch Cut (Not Shredded)

- Ferrous (Iron containing scrap) metals of heavy grades, gauges, and sizes.

Non-Ferrous Metals to Be Collected, Packaged, and Shipped to End Users (Not Shredded):

- Copper scrap metal
- Aluminum scrap metal
- Stainless steel scrap metal
- Some limited electronic scrap (Schnitzer Steel is an authorized E-wastecollector)
- Lead acid batteries (purchased and resold as commodities; not shredded)

Schnitzer Steel has a robust written scrap acceptance policy which prohibits acceptance of hazardous materials and/or waste in our incoming scrap metal streams. This policy is designed to keep prohibited material out of Ferrous scrap streams and especially shredder feedstock. This policy includes, but is not limited to prohibitions on materials such as:

- Items with elemental Mercury.
- Batteries such as NiCad, Li Ion, Alkaline, etc.
- E-waste (Schnitzer Steel will purchase some electronic scrap for recycling as a separate commodity)
- Scrap with free-flowing liquids (i.e. used oil, etc.)
- Scrap with CFC's (i.e. Refrigerants)

- Scrap with PCBs (i.e. capacitors, ballasts, transformer oil, etc.)
- Military Munitions and other explosives.
- Scrap metal with asbestos
- Radioactive scrap metal
- Materials which contained hazardous materials or waste not meeting the definition of empty (22 CCR 66261.7)

See attached Schnitzer Steel's attached Scrap Acceptance Policy and attached ISRI material specification document.

2. How much material by weight did your facility shred from January 1, 2014 to January 1, 2015? Include the percentage of total materials shredded annually for each of the following: vehicles, appliances, and other forms of scrap metal.

Schnitzer considers the amount of metal shredded at our facility to be Confidential Business Information/Proprietary.

[REDACTED]

3. What type of shredder (e.g., the model, brand, and its horsepower) is used by your facility?

Riverside Engineering Model 122 x 102 which is 9000hp.

4. Is your facility's shredder equipped with an Air Pollution Control Device (APCD)? How else does your facility control any particulate matter emissions throughout the facility?

Yes, our shredder emissions are abated by a water spray system, irrigated cyclone scrubber (venturi scrubber), mist eliminator, moving dry belt filter, and simple cyclone (This simple cyclone is downstream of the magnets and is used to further remove non-metallic material from the shred prior to the conveyor that sends shred to the pile. By minimizing non-metallic in the shred, emissions are minimized when discharging shred to the stockpile.), and regulated by the BAAQMD under a Permit to Operate (PTO) for plant # 208.

Additionally, Schnitzer Steel Oakland is regulated by BAAQMD Regulation 6, Particulate Matter, Rule 4 Metal Recycling and Shredding Operations which is designed to minimize particulate

fugitive emissions from our operations. We have developed an Emissions Minimization Plan (EMP) in compliance with this rule. (Attached) BMP's to minimize fugitive emissions at our Oakland facility include but are not limited to the following:

- Frequent sweeping of paved traffic surfaces with a mobile sweeper to minimize dust from equipment traffic.
 - Frequent application of water to all traffic surfaces and stockpiles.
 - Use of Dust Boss mist turbines at key material handling areas to minimize fugitive emissions.
 - Enclosure of many material conveyance systems to minimize exposure to ambient wind and minimize generation of fugitive emissions.
 - Use of an industrial wheel wash at facility exit to minimize tracking of soil/sediment offsite.
 - Enforcement of a facility speed limit of no more than 5 miles per hour.
 - Maintaining a high moisture content in our Aggregate and Treated Auto Shredder Residue. (Typically 15 to 20% by weight)
 - Daily facility housekeeping in areas prone to fugitive emissions.
5. Provide a copy of all permits and other forms of authorization issued to your facility by any governmental entity related to metal shredding activities.

Copies of the following permits are attached:

- a) Notice of Intent Receipt Letter from the CA State Water Resources Control Board (Storm water permit)
 - b) EPA Generator Identification Number Verification (Hazardous Waste Generator)
 - c) Business License, City of Oakland
 - d) Bay Area Air Quality Management District (BAAQMD) Permit to Operate (PTO)
 - e) East Bay Municipal Utility District (EBMUD) Waste Water Discharge Permit
 - f) DTSC Certified Appliance Recycler Certificate
 - g) DTSC/CAL Recycle Electronic Waste Collector Registration
6. Describe the ferrous metals separation process, including how shredded material is sent to the ferrous metals separation process, the type of magnet used, if any, and under what circumstances would materials exiting the ferrous metals separation process be reintroduced. Also indicated if your facility recovers ferrous metals from any material not shredded at your facility. If so, please describe that process. Please include representative pictures of the ferrous recovery process and a site map of where activities occur when applicable.

The shredding process at Schnitzer is a continuous, in-line process from the infeed belt of the shredder hammermill to the outputs of ferrous shred and aggregate material. After shredder feed stock is processed through the hammermill, the resulting material is conveyed downstream for ferrous separation on a conveyor belt. Large, rotating drum electromagnets are used to separate most of the ferrous metal (e.g., steel and iron) from the nonferrous metals (e.g., copper, aluminum and stainless steel) and other non-metallic materials contained in the shredder output. The aggregate (the mixture of non-ferrous metal and non-metallic material remaining after removal of ferrous metal) is conveyed under the magnet drums to the aggregate output conveyor, while the ferrous metal is conveyed to the ferrous line conveyor. The ferrous material is then further cleaned of incidental, remaining rag and fiber via a closed loop air aspiration system which uses material density to further separate residual non-metallics from the ferrous shred. This enclosed system returns the separated material (which contains some nonferrous metals) to the aggregate output conveyor for further processing. A final quality assurance step involves a hand picking operation to remove copper and other nonferrous materials that may have been carried through the ferrous line prior to the radial conveyor stacker which stages the final shred product for export. Schnitzer Steel Oakland does not recover ferrous metal from any material that is not shredded onsite. See attached site map for location of shredder activities.

7. Is the shredded material ever stored onsite before ferrous metal recovery occurs? If so, on average how much and for how long is it stored, how is it stored (e.g. on a paved surface), and where in the facility is it stored?

No, see response to question number 6.

8. If ferrous metal recovery does not occur onsite, please respond to the following questions:
- How much shredded material is stored onsite?
 - How long is the shredded material stored onsite?
 - How is the shredded material stored?
 - Where in the facility is the shredded material stored?
 - Where is the shredded material sent (please include addresses)?

This question and sub questions are not applicable as Schnitzer Steel Oakland shreds and recovers ferrous onsite.

9. Describe the nonferrous metals separation process at your facility, if any. Describe how aggregate (i.e. the shredded material remaining after ferrous materials separation) is introduced into the process, the type of system(s) used, where in your facility it occurs, and under what circumstances would materials exiting nonferrous metals separation processes be

reintroduced. Also indicate if your facility recovers nonferrous metals from any material that is not shredded at your facility. Please provide a map of where activities occur.

Once the ferrous metal (or “shred”) has been separated from the shredder output, the remaining material (aggregate or “Nonferrous Raw”) moves through a series of trommels, screens and other “downstream” sizing equipment to separate and size the remaining materials into different fractions so that they can be further processed to optimize removal of nonferrous metals. These fractions are based on size. The sizing equipment separates the aggregate into 3/8” minus, 3/8” to 3/4”, 2.5”, and 2.5” to 5” fractions. The nonferrous metal is typically separated from the non-metallic material by eddy current separators (which create a means for magnetic separation of the nonferrous metals) and advanced mechanical separation methods (e.g., inductive or optical sensor sorting systems). An inductive sorter uses metal sensing technology to detect and target metals from nonmetals. An optical sensor uses infrared or visual light spectrum to detect and target shapes or specific nonmetallic metals from metals. Manual hand picking is also used at various points in the process to maintain quality and collect specific high value materials that cannot be recovered via mechanical means. After the majority of non-ferrous metals separation has occurred, the remaining material is sent through the shredder residue treatment process. Prior to exiting the treatment process a belt magnet is used to recover any remaining ferrous metals that were not removed in the ferrous metal recovery operations.

In-process material (i.e., material that has not yet reached the residue treatment process and that still contains recoverable nonferrous metals) may fall off moving conveyors and is periodically collected and placed back into the aggregate pile for reprocessing to further extract valuable metal.

Schnitzer Steel Oakland does not accept aggregate from other metal shredding facilities. On rare occasions, the facility accepts coarse screenings with recoverable metal from other Schnitzer feeder yards to recover economically valuable metal.

The majority of the conveyors in the non-ferrous recovery system have been covered to minimize the generation and/or escape of fugitive emissions. Additionally, an elevated, oscillating Dust Boss mister turbine has been installed to blanket the area in a mist of atomized water further minimizing fugitive emissions.

See attached facility map which indicates location of the non-ferrous recovery operations.

10. Is aggregate ever stored onsite prior to or during the nonferrous metals separation process? If so, how much is stored and for how long? Identify where in your facility it is stored.

Yes, aggregate processing is a more complex process than shredding metal. To ensure efficient recovery of non-ferrous metals and adequate treatment of the resulting residue (by maximizing metals recovery prior to treatment), the nonferrous metals separation process is necessarily slower than the shredding process. As a consequence, there is generally a stockpile of aggregate onsite awaiting non-ferrous metal separation and processing. On average, there may be 300 to 500 tons of aggregate stockpiled near the shredder and the non-ferrous separation plant. Aggregate is moved from the shredder output area to the non-ferrous separation plant via front end loader and rock trucks. The aggregate has a high moisture content due to the water added during the shredding process. Typically, the moisture content is 15 to 20% by weight. This high residual moisture content helps to minimize the amount of potential fugitive emissions from stockpiles and material handling. Additionally, the aggregate stockpile near the non-ferrous separation plant is wetted during plant operation by a Dust Boss turbine mister further reducing fugitive emissions.

See attached facility map which indicates the location of the aggregate storage stockpiles.

11. If non-ferrous metals recovery does not occur onsite, please respond to the following questions:

- How much aggregate is stored onsite?
- How long is aggregate stored onsite?
- How is the aggregate stored (e.g. on paved ground)?
- Where in the facility is the aggregate stored?
- Where is the aggregate sent (please include addresses)?
- Describe the offsite transportation and if any Department of Transportation (DOT) requirements are followed.

This question is not applicable as Schnitzer Steel conducts non-ferrous metals recovery onsite.

12. Describe how your facility chemically treats metal shredder waste. For the purposes of this document only, "shredder metal waste" shall mean the material remaining after metal recovery is complete. Include how metal shredder waste not chemically treated is sent to the treatment process, how screening is conducted, the types of equipment used to perform the chemical treatment, chemical formulas and doses, and the sampling and analysis performed on the chemically treated metal shredder waste to ensure adequate treatment.

Schnitzer Oakland treats its metal shredder residue prior to the final metal separation step. After all non-ferrous metal recovery is complete; the material is conveyed via covered belt to the treatment process. Shredder residue passes through an enclosure where a metered water

and silicate mixture is sprayed onto the material as it passes through. Next, the material passes through a second enclosure where the alkaline cement activator is applied along with additional water spray to aid in mixing and minimize the cement dust. Schnitzer currently uses a chemical dose of 0.3 lbs. of Metabond MCX 90 (silicate compound) chemical per ton of residue. Schnitzer then applies Portland cement at a rate 6 percent (120 pounds) by weight per ton of residue. The material then enters a pug mill with two large metal screws that mix the treatment chemicals and shredder residue. After exiting the pug mill, the material is transported via conveyor belt for final ferrous metal recovery by a belt magnet and is then added to the treated shredder residue stockpile for transport offsite.

As discussed in the DTSC requested May 2012 report "Treatment of Auto Shredder Residue" written by Dr. George Trezek et al., the process for treatment of auto shredder residue is similar to "Stabilization Treatment" as described by the EPA. According to EPA, "Stabilization has been shown to be effective for a wide range of constituents including lead, arsenic, and chromium" (USEPA, 2009).¹ Stabilization is a process that chemically renders metals less soluble, thereby reducing their leachability in a landfill situation. It should be noted that the Metal Recycling industry, in cooperation with the DTSC, is performing a concurrent treatability study of Metal Shredder Residue to demonstrate the effectiveness of the industry treatment process, determine optimum treatment chemical ratios, and identify appropriate treatment standards. The treatment process, chemistry, and efficacy will be discussed in detail in the forthcoming treatability study report. Additionally, DTSC staff is involved and will continue to be involved with this ongoing process.

Schnitzer collects daily samples of treated shredder residue which are composited into samples for various types of analysis. These analyses include total PCBs for every 1000 tons of shredder residue, quarterly metals leachability analysis using landfill leachate, and occasional total metals analysis as requested by the landfills.

13. Do landfills, regional water quality control boards, or other regulating authority impose any requirements on treated metal shredder waste sent for disposal or use as Alternative Daily Cover (ADC)? If so, what are the requirements?

Yes, both Waste Management's Altamont landfill and Republic's Vasco Road landfill require Schnitzer to perform periodic analysis related to their material acceptance policies and their respective WDRs.

Republic Service's Vasco Road Landfill requires Schnitzer to conduct a quarterly landfill leachate extraction test for Lead, Zinc, Cadmium, Chromium, Nickel, and Copper. This process utilizes landfill supplied leachate (From Vasco Road) to provide a realistic simulation of the landfill conditions that the material will be subject to. In addition, Schnitzer performs total PCB analysis for every 1000 tons of treated shredder residue on an ongoing basis.

Waste Management's Altamont landfill requires total metal analysis for Cadmium, Chromium, Lead, Copper, and Mercury for profile renewal every three years. Waste Management also requires total PCB analysis for every 1000 tons of treated shredder residue on an ongoing basis.

14. Is untreated metal shredder waste stored onsite before disposal? If so, how much and for how long is it stored, how is it stored, and where on the facility is it stored?

Schnitzer Steel does not store untreated metal shredder waste onsite, nor does Schnitzer Steel dispose of untreated shredder waste. All treated shredder residue is transported offsite for beneficial reuse as alternative daily cover (ADC).

15. Is treated metal shredder waste stored onsite before disposal? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?

Although shredder residue is typically shipped offsite Monday through Friday, there is always some amount of material onsite. Typically, there is anywhere from 250 to 500 tons of treated shredder residue onsite awaiting transport to the landfill for use as alternative daily cover. Typically, 20 loads per day are transported offsite to the landfill. This material is accumulated in a stockpile near the treated shredder residue output belt of the treatment system and is indicated on the attached facility site map.

16. How much treated metal shredder waste, if any, was transported offsite in the calendar year January 1, 2014 through January 1, 2015? List destinations with addresses.

- 1) Republic Services, Vasco Road Landfill
4001 N. Vasco Rd.
Livermore, CA 94550

Schnitzer considers the amount of treated metal shredder waste to be Confidential Business Information/Proprietary.

- 2) Waste Management, Altamont Landfill
10840 Altamont Pass Road
Livermore, CA 94551

Schnitzer considers the amount of treated metal shredder waste to be Confidential Business Information/Proprietary.

17. Describe the offsite transportation of metal shredder wastes. Are there any DOT requirements followed during transportation?

Treated Metal Shredder Residue is loaded into end dump trailers for transport to the above-mentioned landfills for beneficial reuse as alternative daily cover (ADC). The high residual moisture content of this material helps to minimize generation of fugitive emissions (typically 15 to 20%). All trucks exiting the facility must pass through an industrial wheel wash to minimize tracking of material offsite. These trailers are tarped prior to leaving the site to contain material during transport to the landfill.

Standard DOT requirements related to the movement of goods, safe operation of tractor and trailer, proper license/endorsements of drivers apply. Auto Shredder Residue is not a RCRA hazardous waste; therefore, no DOT Hazardous Materials Rules apply. All Shredder Waste transported is documented with a standard Bill of Lading (BOL).

¹USEPA, (2009) *Technology Performance Review: Selecting and Using Solidification/Stabilization Treatment for Site Remediation*, document EPA/600/R-09/148.

DTSC QUESTIONNAIRE
METAL SHREDDING FACILITIES
SA RECYCLING TERMINAL ISLAND FACILITY
901 New Dock Street, Terminal Island, CA 90731

1. *Describe your facility's scrap metal acceptance policy, and describe all materials you bring into your facility for shredding, metals recovery, or both.*

The SA Recycling material acceptance policy is contained in the attached document titled "Supplier Source Control Procedure" (revised 3/27/15). (See Attachment 1)

The facility receives every type of scrap metal material including Automobiles, consumer and industrial appliances, manufacturing scrap, curbside collection scrap, demolition scrap, consumer/homeowner scrap, industrial scrap. The facility receives scrap from industrial accounts, including materials from other scrap metal recycling facilities. All materials received meet the definition of "scrap metal" under title 22, CCR, section 66260.10.

The "Supplier Source Control Procedure" document contains a Prohibited Materials List which details the types of materials that are not accepted at the shredder. Automobiles must have all fluids drained to the extent practical, and batteries and mercury switches removed. Appliances such as refrigerators must be properly depolluted prior to being sent to the shredder infeed area. In some circumstances, appliances and vehicles will be de-polluted on site, pursuant to applicable law, in a specially designated area, prior to being sent to the shredder.

Items removed/recovered from the de-polluting process including waste oil, diesel/gasoline fuel, batteries, capacitors etc. are all managed under separate programs per State regulations.

2. *How much material by weight did your facility shred from January 1, 2014, through January 1, 2015? Include the percentage of total materials shredded annually for each of the following: vehicles, appliances, and other forms of scrap metal.*

A total weight of approximately 300,000 MT of material was shredded for the year 2014.

Annual percentages of material are as follows:

Vehicles:	42.16%
Appliances/Tin:	43.63%
Other/Misc:	14.21%

3. *What type of shredder (e.g., the model, brand and its horsepower) is used by your facility?*

Shredder is manufactured by Riverside Engineering. Model RIV 122X112 Mega Shredder. 9,000 horse power.

4. *Is your facility's shredder equipped with an Air Pollution Control Device (APCD)?*

Yes. The shredder is controlled by a four-stage air pollution control system (APCS), which has a Permit to Operate (R-G27566, attached) issued by the South Coast Air Quality Management District.

APCS Stage One

Shredder overhead exhaust system hood designed to capture at least 90% of all particulate matter (PM) and volatile organic compounds (VOC's), and send those emissions through to the second stage.

APCS Stage Two

Dust/Mist Collector – Custom designed and manufactured, Model No. TAME-40K-2008, dual parallel compartments designed to capture oils, PM and moisture present in the exhaust stream.

- Mist Eliminating Wall manufactured by UDC and poly pad (coarse PM, moisture and oils control)
- Drop Safe Rigid Pocket Bag Filters (Microscopic water molecules filtration)
- DP-40 Synthetic PM Filters (additional PM filtration at MERV 8)
- Legacy PM Filters (additional PM filtration at MERV 11)
- HydroVee, High Efficiency PM Filters (additional PM filtration at MERV 15)

APCS Stage Three

40K SCFM Regenerative Thermal Oxidizer (RTO) - The 40K SCFM RTO, Model No. RETOX 40.0 RTO095 was manufactured by CECO-ADWEST Technologies.

APCS Stage Four

HEE Environmental Chemical Scrubber - The vertical, counter-current chemical scrubber neutralizes the exhaust from the RTO.

How else does your facility control any particulate emissions throughout the facility?

Terminal Island employs a number of measures to control particulate matter emissions, as follows:

The entire shredding chamber is enclosed and connected to the air pollution control system. Many of the conveyors and magnet systems are all covered or enclosed. All shredded material (Aggregate) that is processed following ferrous metal removal, including Treated Auto Shredder Residue (TASR), is staged within covered containment buildings.

Material stacking areas are swept periodically throughout the day, as necessary. The sweeping is performed with a mechanical broom. During operations, the mechanical broom is used to

maintain the outer boundary of the intake piles of feedstock material by pushing material on the edge of the piles back toward the center of the pile.

A TYMCO sweeper is used to clean-up the entrances and driveways in the yard on a regular basis, as necessary throughout the day. There are track-out devices (to minimize dirt track-out) for all of the trucks that exit the facility.

Water is applied extensively to the yard haul roads and piles of materials throughout the day with a water truck, as necessary. The entire facility is concrete paved, and is designed to collect all of the water and direct it to an industrial waste water facility where the water is recycled for re-use onsite.

Most incoming trucks that are self-dumping are doused with water before unloading scrap metal to minimize airborne emissions during the unloading process

The Metals Recovery Plant (MRP) is equipped with dust collectors to control particulate matter emissions during the non-ferrous metals recovery process. The MRP utilizes a series of pulse-jet type dust collectors on all of its cyclones to control particulate emissions. Many of the process areas are enclosed as well as the aggregate and TASR staging areas.

5. *Provide a copy of all permits and other forms of authorization issued to your facility by any governmental entity related to metal shredding activities.*

Terminal Island holds SCAQMD Permits to Operate for the shredder (R-G27565), the MRP (R-G18947), and the shredder APCS (R-G27566). The facility also holds a CAR Permit and an NOI issued by the State Water Resources Control Board. Copies of permits are provided. (See Attachment 2)

6. *Describe the ferrous metals separation process, including how shredded material is sent to the ferrous metals separation process, the type of magnet used, if any.*

The shredder feed materials, including automobiles and appliances, are loaded onto the conveyor and conveyed into the enclosed shredding chamber (vented to the Air Pollution Control System). The shredder shreds the cars and scrap metal materials into fist sized pieces. (Everything exits the shredder chamber through eight-inch square openings.) This stream of material collectively is called "Aggregate".

All shredded Aggregate exits the shredder onto a shaker table, which then transfers the materials to a single conveyor belt. That single flow of Aggregate is split into two equal streams of material and continues through two parallel processing lines. Each stream is run over a first drum magnet (Steinert Drum Magnet, 60-inch diameter by 96-inch wide). The magnetic fraction, which primarily consists of steel and iron materials, is conveyed via a short length shaker table to a second identical Steinert drum magnet, which further separates the magnetic fraction from the non-magnetic fraction. The two non-magnetic fractions are combined and run through a similar but smaller magnetic recovery system consisting of two 24-inch diameter by 48-inch-wide drum magnets. The non-magnetic Aggregate contains non-magnetic metals such as aluminum,

copper, zinc and stainless steel. After the magnetic separation process, the aggregate is conveyed to a trommel where the oversized fraction (pieces typically larger than 4-5 inches) is screened out. The oversized materials are re-shredded on a daily basis. The screened aggregate is conveyed to the Interim Aggregate Staging Building.

...and under what circumstances would materials exiting the ferrous metals separation process be reintroduced?

The non-magnetic aggregate fraction is screened through a trommel, and all materials over 4- 5 inches are returned to the shredder in-feed for re-shredding.

Materials that have accumulated on and under the conveyor belts and picking stations and related equipment described above are returned to the shredder in-feed for re-shredding.

Also, indicate if your facility recovers ferrous metals from any material that is not shredded at your facility. If so, please describe that process and a site map of where activities occur when applicable.

The Terminal Island facility receives all types of scrap metal, including prepared and unprepared materials that are not shredded at the facility. The prepared materials, including HMS (Heavy Melt Steel) and P&S (Plate and Structural) are received and stockpiled for future shipment via bulk vessels. The unprepared materials are sheared or cut in the areas designated for those activities on the site map. The facility operates a 2,000 ton guillotine type shear which is used to size longer pieces of steel into lengths typically under 5 feet. Scrap materials that are too big to fit into the shear or contain metal that is too thick to cut with the shear, are sent to a designated torch cutting area.

After processing to reduce the size and length of the scrap metal, the material is transferred to the "prepared" stockpiles to await shipment via bulk vessels.

Please include representative pictures of the ferrous recovery process and a site map of where activities occur when applicable.

- Site Map (See Attachment 3)
- Magnet Photos (See Attachment 4)

7. *Is the shredded material ever stored onsite before ferrous metal recovery occurs? If so, on average how much and for how long is it stored, how is it stored (e.g., on a paved surface), and where in the facility is it stored?*

No, shredder output is always processed in-line after it leaves the shredder. Material may temporarily be located on a conveyance system in the event of an emergency shut-down; however, it is not stored in the system.

8. *If ferrous metals recovery does not occur onsite, please respond to the following questions:*

How much shredded material is stored onsite?

How long is shredded material stored onsite?

How is the shredded material stored (e.g., on paved ground)?

Where in the facility is the shredded material stored?

Where is the shredded material sent (please include addresses)?

Not-applicable

9. *Describe the nonferrous metals separation process at your facility, if any. Describe how aggregate (i.e., the shredded material remaining after ferrous metals separation) is introduced into that process, the type of system(s) used, where in your facility it occurs,*

Aggregate materials exiting the shredder go through the ferrous recovery stage described above in question #6 and then are conveyed by an enclosed conveyor to the first aggregate staging building (enclosed, covered, concrete floor). At the Interim Aggregate Staging Building, aggregate materials are loaded onto a 45 ton Terex dump truck via a front-end wheel loader. The Terex truck transfers the material to the enclosed, covered Primary Aggregate Staging Area in the non-ferrous metal recovery plant (MRP) building. From the covered Primary Aggregate Staging Area, the aggregate material is loaded onto a track feeder that meters the flow of the aggregate into the MRP.

In the first step of the non-ferrous recovery process, aggregate is separated into three size fractions through the use of screens and trommels.

Each of these three size fractions continues through the MRP, which utilizes three types of technology to separate and recover non-ferrous materials, as well conventional magnets for residual ferrous material recovery.

The three technologies used for non-ferrous metal recovery include:

1. Eddy- current magnetic separators for most aluminum, zinc and copper materials
2. Sensors (air actuated) for stainless and copper wire
3. Density separators for fine copper materials

.....and under what circumstances would materials exiting nonferrous metals separation processes be reintroduced.

Materials that accumulate under or on the equipment are in-progress materials and are routinely returned to the MRP infeed area using front-end loaders and skid-steer type tractors. Any recovered product that does not meet a quality standard is returned to the aggregate in-feed area for re-processing. There are several product streams that require a second pass through the MRP.

Also indicate if your facility recovers nonferrous metals from any material that is not shredded at your facility. Please provide a site map of where activities occur.

The facility does not typically receive or handle any non-ferrous material other than what is generated from the shredding activity. The facility does not receive any previously shredded material from another location for non-ferrous recovery through the MRP.

10. Is aggregate ever stored onsite prior to or during the nonferrous metals separation process? If so, how much is stored and for how long? Identify where in your facility it is stored.

Yes, aggregate is staged in two locations on site: The Interim Aggregate Staging Building and the Primary Aggregate Staging Area (as designated on the site map).

The amount of aggregate on site ranges from 1,000 to 4,000 tons. Aggregate is typically processed through the MRP within 7 to 10 days of production.

11. If nonferrous metals recovery does not occur onsite, please respond to the following questions:

Not Applicable

- *How much aggregate is stored onsite?*
- *How long is aggregate store onsite?*
- *How is the aggregate stored (e.g., on paved ground)?*
- *Where in the facility is the aggregate stored?*
- *Where is the aggregate sent (please include addresses)?*
- *Describe the offsite transportation and if any Department of Transportation (DOT) requirements are followed.*

12. Describe how your facility chemically treats metal shredder waste. For the purposes of this document only, "metal shredder waste" shall mean the material remaining after metal recovery is complete. Include how metal shredder waste not chemically treated is sent to the treatment process, how screening is conducted, the types of equipment used to perform the chemical treatment, chemical formulas and doses, and the sampling and analysis performed on the chemically treated metal shredder waste to ensure adequate treatment.

Treatment of aggregate that has been fully processed for recovery of non-ferrous metal occurs in-line at the end of the non-ferrous metals recovery process. Residual materials from all of the various non-ferrous recovery steps as previously described are combined on a single, scaled (weigh belt) conveyor which delivers material to the treatment auger. A proprietary silicate-phosphate liquid is applied first. Silicate-phosphate is drawn from a tote into a foamer/tank where it is blended with a 9 – 13x volume of water. This solution is pumped from the foamer tank and is combined with the metal shredder waste in the auger chamber. The auger blends and pushes the treated material toward the cement feeds. The proprietary, non-hydraulic cement is formulated to reduce the leachability of metals. The incoming weigh belt scale is used

to control the by-weight cement allocation, 9.0 – 10.0%, at the treatment auger. Cement is fed into the auger chamber from adjacent silos and applied to the material in the remaining length of the auger chamber, approximately five (5) meters, before being deposited onto the outgoing conveyor. The auger mixes and blends the material with the cement and silicate phosphate solution. The total residence time in the auger is approximately 60 seconds. Fully treated material is then passed under a magnet for final ferrous metal recovery and then conveyed to the enclosed, paved TASR staging area before loading and transport to the receiving landfill.

Sampling of the treated metal shredder waste occurs approximately six (6) meters from the exit of the treatment auger chamber. Samples are taken manually from the conveyor and added to a composite, shift sample, each half-hour. Samples from a given week are combined - mixed, coned and quartered – before being submitted to the receiving laboratory for analysis of volatile organic compounds (VOCs) via EPA method 8260B, poly-chlorinated biphenyls (PCBs) via EPA method 8082, and soluble cadmium, chromium, copper, lead, mercury, nickel and zinc via the Waste Extraction Test (WET). One such weekly composite sample is analyzed per month.

The Terminal Island facility is participating in an ongoing MSR Treatability Study that is evaluating the effectiveness of the treatment process and will serve as a basis for uniform, statewide treatment standards appropriate to TASR.

13. *Do landfills, regional water quality control boards, or other regulating authority impose any requirements on treated metal shredder waste sent for disposal or use as Alternative Daily Cover (ADC)? If so, what are the requirements?*

TASR is shipped to two landfills: Chiquita Canyon Landfill in Castaic CA, and Simi Valley Landfill in Simi CA. Both landfills operate under the jurisdiction of the Los Angeles Regional Water Quality Control Board. There are sampling and analysis and reporting requirements specified by the Waste Discharge Requirements (WDRs) of the receiving landfills for treated auto shredder waste (TASR) regardless of whether it is employed as alternative daily cover (ADC) or disposed of as waste. SA's understanding is that essentially all of the TASR received at both of these landfills is used as ADC.

The landfill is required to record the quantity of TASR deposited each month and the number of loads deposited from each generator. The landfill must report the TASR laboratory analysis results provided by the generator, in addition to those from the landfill's own monitoring per the WDR's.

Per the WDR's the analysis of TASR samples include analysis of volatile organic compounds via EPA method 8260B, polychlorinated biphenyls via EPA method 8082, and soluble cadmium, chromium, copper, lead, mercury, nickel and zinc via the Waste Extraction Test (WET).

The WDRs for Simi Valley Landfill also specify the sampling procedure and SA has adopted this procedure, as described above. Composite samples of TASR are collected daily; one (1)-pound sample each half-hour per shift. Samples from a given week are combined – mixed, coned and quartered – before being submitted to the receiving laboratory. One weekly composite sample, prepared as described, is submitted per month for the above-mentioned analyses.

Additionally, Simi Valley Landfill requires that one such sample, per quarter, be analyzed for the solubility of the full suite of "CAM-17" metals using the Synthetic Precipitation Leaching Procedure (EPA method 1312).

14. *Is untreated metal shredder waste stored onsite before disposal? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?*

There is no untreated shredder waste stored on-site. At the conclusion of the non-ferrous recovery process, fully processed aggregate is conveyed directly to the treatment process and treated in-line as discussed above.

15. *Is treated metal shredder waste stored onsite before disposal? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?*

TASR is staged for shipment in the MRP building under a roof on a concrete floor. There is typically 1,500 - 2,000 tons of TASR on site at any one time, which is approximately one week's worth of production. TASR is typically transported off-site within 5 to 7 days of production.

16. *How much treated metal shredder waste, if any, was transported offsite in the calendar year January 1, 2014, through January 1, 2015? List all destinations with addresses.*

From January 1st, 2014 to January 1st, 2015, the facility shipped 115,172 tons of treated metal shredder waste to two (2) landfills:

- Simi Valley Landfill
2801 Madera Rd
Simi Valley, CA 93065
- Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, CA 91384

37,662 tons of treated metal shredder waste shipped to Chiquita Canyon Landfill.

77,510 tons of treated metal shredder waste shipped to Simi Valley Landfill.

17. *Describe the offsite transportation of metal shredder wastes. Are there any DOT requirements followed during transportation?*

Treated metal shredder waste is transported on a non-hazardous waste manifest. Material is loaded into end dumps and a tarpaulin placed over the exposed surface. The transportation activity is conducted in compliance with the US Department of Transportation regulations and the Federal Motor Carrier Safety Administration (49 CFR Parts 300-399).

DTSC QUESTIONNAIRE
METAL SHREDDING FACILITIES
SA RECYCLING BAKERSFIELD FACILITY
2000 East Brundage Lane, Bakersfield CA 93387

1. *Describe your facility's scrap metal acceptance policy, and describe all materials you bring into your facility for shredding, metals recovery, or both.*

The SA Recycling material acceptance policy is contained in the attached document titled "Supplier Source Control Procedure" (revised 3/27/15). (See Attachment 1)

The facility receives every type of scrap metal material including:

Automobiles, consumer and industrial appliances, manufacturing scrap, curbside collection scrap, demolition scrap, consumer/homeowner scrap, industrial scrap. The facility receives scrap from industrial accounts, including materials from other scrap metal recycling facilities. All materials received meet the definition of "scrap metal" under title 22, CCR, section 66260.10.

The "Supplier Source Control Procedure" document contains a Prohibited Materials List which details the types of materials that are not accepted at the shredder.

Automobiles must have all fluids drained to the extent practical, and batteries and mercury switches removed.

Appliances such as refrigerators must be properly depolluted prior to being sent to the shredder infeed area. In some circumstances, appliances and vehicles will be de-polluted on site, pursuant to applicable law, in a specially designated area, prior to being sent to the shredder.

Items removed/recovered from the de-polluting process including waste oil, diesel/gasoline fuel, batteries, capacitors, etc. are all managed under separate programs per State regulations.

2. *How much material by weight did your facility shred from January 1, 2014, through January 1, 2015? Include the percentage of total materials shredded annually for each of the following: vehicles, appliances, and other forms of scrap metal.*

A total weight of approximately 75,000 MT of material was shredded for the year 2014.

Annual percentages of material are as follows:

Vehicles:	52.34%
Appliances/Tin:	30.10%
Other/Misc:	17.56%

3. *What type of shredder (e.g., the model, brand and its horsepower) is used by your facility?*

Shredder is manufactured by The Shredder Company. Model #124-SXS Mega Shredder 6,000 Horse Power

4. *Is your facility's shredder equipped with an Air Pollution Control Device (APCD)?*

Yes. The shredder is controlled by a two-stage air pollution control system (APCS). Both the shredder and the APCS are included in permits to operate (S-1256-7-2 and S-1256-3-10) issued by the San Joaquin Valley Air Pollution Control District.

APCS Stage One

Shredder overhead, multi-hood exhaust system that captures particulate matter (PM) and volatile organic compounds (VOC's) and sends those emissions through the next stage.

APCS Stage Two

Dust/Mist Collector - Custom made, Model No. TAME-40K-2008, dual parallel compartments designed to capture oils, PM and moisture present in the gas stream.

Two-inch thick poly pad (coarse PM, and oils control)

HS Aluminum Filters (additional moisture control)

Moisture Separator Cell (PM and microscopic water molecules filtration)

DP-40 Synthetic PM Filters (additional PM filtration at MERV 8)

Very Plus (Total Filtration Solutions) High Efficiency PM Filters (additional PM filtration at MERV 15)

How else does your facility control any particulate emissions throughout the facility?

Bakersfield employs a number of measures to control particulate matter emissions, as follows:

Material stacking areas are swept periodically throughout the day, as necessary. The sweeping is performed with a mechanical broom. During operations, the mechanical broom is used to maintain the outer boundary of the intake piles by pushing material on the edge of the piles back toward the center of the pile.

A TYMCO PM-10 compliant sweeper is used to clean-up the entrances and driveways in the yard on a regular basis, as necessary throughout the day. Water is applied to the yard haul roads and piles of materials throughout the day with a water truck, as necessary.

Track out is monitored and managed in accordance to the San Joaquin Valley Air Pollution Control District Regulation VIII.

District's guidance for relevant source category is followed, as applicable.

The Metals Recovery Plant (MRP) is equipped with dust collectors to control particulate matter emissions during the non-ferrous metals recovery process, as necessary.

5. *Provide a copy of all permits and other forms of authorization issued to your facility by any governmental entity related to metal shredding activities.*

Bakersfield holds San Joaquin Valley Air Pollution Control District permits to operate the shredder and air pollution control system (1256-7-2) and the MRP (1256-3-10).

The facility also holds a CAR permit and an NOI issued by the State Water Resources Control Board. Copies of permits are provided in attachment 2.

6. *Describe the ferrous metals separation process, including how shredded material is sent to the ferrous metals separation process, the type of magnet used, if any*

The shredder feed materials, including automobiles and appliances, are loaded onto the conveyor using grapple cranes and front-end loaders and are conveyed into the hooded shredding chamber (vented to the Air Pollution Control System).

The shredder shreds the cars and scrap metal materials into fist sized pieces. (Everything exits the shredder chamber through eight-inch square grate openings.) This stream of material collectively is called "Aggregate". All shredded Aggregate exits the shredder onto a shaker table, which then transfers the materials to a single conveyor belt. That single flow of Aggregate is split into two equal streams of material and continues through two parallel processing lines. Each stream is run over a first drum magnet (SGM Drum Magnet, Model TMR-60"/98" 60 inch diameter by 98 inch wide). The magnetic fraction, which primarily consists of steel and iron materials, is conveyed via a short length shaker table to a second identical SGM drum magnet, which further separates the magnetic fraction from the non-magnetic fraction. The two non-magnetic fractions are combined onto a conveyer which runs under a 36 inch diameter by 48 inch wide magnetic tail pulley to recover residual magnetic steel and returns that steel to the larger SGM drum magnets via a conveyer.

The non-magnetic aggregate contains non-magnetic metals such as aluminum, copper, zinc and stainless steel. After the magnetic separation process, the Aggregate is conveyed to the concrete paved Aggregate staging area prior to being fed into the MRP.

.....and under what circumstances would materials exiting the ferrous metals separation process be reintroduced.

The MRP process screens out oversized Aggregate material (+ 5 inches), which is then returned to the shredder in-feed area for re-shredding.

Materials that have accumulated on and under the conveyor belts and picking stations and related equipment described above are returned to the shredder in-feed for re-shredding.

Also, indicate if your facility recovers ferrous metals from any material that is not shredded at your facility. If so, please describe that process and a site map of where activities occur when applicable.

The Bakersfield facility receives all types of scrap metal, including prepared and unprepared materials that are not shredded at the facility. The prepared materials, including HMS (Heavy Melt Steel) and P&S (Plate and Structural) are received and stockpiled for shipment to the SA Terminal Island facility or directly loaded into overseas shipping containers or shipped to domestic markets. The unprepared materials are sheared or cut in the areas designated for those activities on the site map. The facility operates a portable hydraulic "alligator" type shear mounted on a back-hoe type tractor which is used to shear longer pieces of steel into lengths typically under 5 feet.

Scrap materials that are too heavy to be cut by the shear are directed to a designated torch cutting area. After processing to reduce the size and length of the scrap metal, the material is loaded into trucks using an electro-magnet attached to a crane.

Please include representative pictures of the ferrous recovery process and a site map of where activities occur when applicable.

- Site Map (See Attachment 3)
- Magnet Photos (See Attachment 4)

7. *Is the shredded material ever stored onsite before ferrous metal recovery occurs? If so, on average how much and for how long is it stored, how is it stored (e.g., on a paved surface), and where in the facility is it stored?*

No, shredder output is always processed in-line after it leaves the shredder. Material may temporarily be located on a conveyance system in the event of an emergency shut-down; however, it is not stored in the system.

8. *If ferrous metals recovery does not occur onsite, please respond to the following questions:*

How much shredded material is stored onsite?

How long is shredded material stored onsite?

How is the shredded material stored (e.g., on paved ground)?

Where in the facility is the shredded material stored?

Where is the shredded material sent (please include addresses)?

Not Applicable.

9. *Describe the nonferrous metals separation process at your facility, if any. Describe how aggregate (i.e., the shredded material remaining after ferrous metals separation) is introduced into that process, the type of system(s) used, where in your facility it occurs, and under what circumstances would materials exiting nonferrous metals separation processes be reintroduced.*

Aggregate materials exiting the shredder go through the ferrous recovery stage, described above in question #6, and then are transferred by a conveyor directly to the aggregate staging area. From this staging area, the aggregate material is loaded onto a track feeder that meters the flow of the aggregate into the MRP plant.

The MRP uses a series of trommels and shaker screens to initially separate the aggregate into three different fractions based on size.

Each of these size fractions continues through the MRP, which utilizes three primary types of technology to separate and recover non-ferrous materials, as well as conventional magnets for the recovery of residual ferrous materials.

The three primary technologies used for the recovery of non-ferrous metals include:

1. Eddy- current magnetic separators for most aluminum, zinc and copper materials
2. Sensors (air actuated) for stainless and copper wire
3. Density separators for fine copper materials

.....and under what circumstances would materials exiting nonferrous metals separation processes be reintroduced.

Materials that accumulate under or on the equipment are in-progress materials and are routinely returned to the infeed area using front-end loaders and skid-steer type tractors. Any recovered product that does not meet a quality standard is returned to the aggregate in-feed area for re-processing. There are several product streams that require a second pass through the MRP.

Also indicate if your facility recovers nonferrous metals from any material that is not shredded at your facility. Please provide a site map of where activities occur.

The facility receives typical non-ferrous materials like aluminum and copper that is sorted and segregated into salable products, not associated with the shredder or MRP. The facility does not receive any previously shredded material from another location for non-ferrous recovery through the MRP.

10. *Is aggregate ever stored onsite prior to or during the nonferrous metals separation process? If so, how much is stored and for how long? Identify where in your facility it is stored.*

Yes, aggregate is staged on a concrete paved area. (As designated on the site map)

The amount of aggregate on site ranges from 300 to 800 tons, which equates to 3 to 10 days of production.

11. *If nonferrous metals recovery does not occur onsite, please respond to the following questions:*

Not Applicable.

- How much aggregate is stored onsite?
- How long is aggregate store onsite?
- How is the aggregate stored (e.g., on paved ground)?
- Where in the facility is the aggregate stored?
- Where is the aggregate sent (please include addresses)?
- Describe the offsite transportation and if any Department of Transportation (DOT) requirements are followed.

12. *Describe how your facility chemically treats metal shredder waste. For the purposes of this document only, "metal shredder waste" shall mean the material remaining after metal recovery is complete. Include how metal shredder waste not chemically treated is sent to the treatment process, how screening is conducted, the types of equipment used to perform the chemical treatment, chemical formulas and doses, and the sampling and analysis performed on the chemically treated metal shredder waste to ensure adequate treatment.*

Treatment of aggregate that has been fully processed for non-ferrous metals occurs in-line at the end of the non-ferrous metals recovery process. Residual materials from all of the various non-ferrous recovery steps as previously described are combined on a single, scaled (weigh belt) conveyor which delivers material to the treatment auger. A proprietary silicate-phosphate liquid is applied first. Silicate-phosphate is drawn from a tote into a foamer/tank where it is blended with a 9 – 13x volume of water. This solution is pumped from the foamer tank and is combined with the metal shredder waste in the auger chamber. The auger blends and pushes the treated material toward the cement feeds. The proprietary, non-hydraulic cement is formulated to reduce the leachability of metals. The incoming weigh belt scale is used to control the by-weight cement allocation, 9.0 – 10.0%, at the treatment auger. Cement is fed into the auger chamber from adjacent silos and applied to the material in the remaining length of the auger chamber, approximately five (5) meters, before being deposited onto the outgoing conveyor. The auger mixes and blends the material with the cement and silicate phosphate solution. The resident time in the auger is approximately sixty seconds. Fully treated material is then passed under a magnet for final ferrous metal recovery and then conveyed to a stacking conveyor. The treated aggregate (TASR) is then loaded into end dumps and then transported to the receiving landfill.

Treated metal shredder waste is sampled from the TASR staging area. Multiple grab samples, of 200 – 500 grams/each, are taken from random locations from the surface and accessible depths of the stored treated waste, per shift. These are added to a one (1)-gallon plastic bag during or following each shift of a production run; defined as consecutive or near-consecutive days during which the non-ferrous recovery plant is operated and metal shredder waste is treated. The resulting composite sample is coned and quartered before being submitted to the receiving laboratory. Analysis of this composite sample includes analysis of volatile organic compounds (VOCs) via EPA method 8260B, poly-chlorinated biphenyls (PCBs) via EPA method 8082, and

soluble cadmium, chromium, copper, lead, mercury, nickel and zinc via the Waste Extraction Test (WET). One such composite sample is analyzed per month.

The Bakersfield facility is participating in an ongoing MSR Treatability Study that is evaluating the effectiveness of the treatment process and will serve as a basis for uniform, statewide treatment standards appropriate to TASR.

13. *Do landfills, regional water quality control boards, or other regulating authority impose any requirements on treated metal shredder waste sent for disposal or use as Alternative Daily Cover (ADC)? If so, what are the requirements?*

There are reporting and sampling and analysis requirements specified by the Waste Discharge Requirements (WDRs) of receiving landfills. These WDRs apply to all treated auto shredder residue (TASR) deposited at the landfill, regardless of whether or not it is put to beneficial reuse.

The landfill is required to record the quantity of TASR deposited each month and the number of loads deposited from each generator. The landfill must also report the TASR laboratory analysis results provided by the generator, in addition to those from the landfill's own monitoring.

Analysis of TASR samples include analysis of volatile organic compounds via EPA method 8260B, polychlorinated biphenyls via EPA method 8082, and soluble cadmium, chromium, copper, lead, mercury, nickel and zinc via the Waste Extraction Test (WET). Results are reported to the receiving landfill quarterly and upon request.

14. *Is untreated metal shredder waste stored onsite before disposal? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?*

There is no untreated shredder waste stored on-site. At the conclusion of the non-ferrous recovery process, processed aggregate is conveyed directly to the treatment process and treated in-line as discussed above.

15. *Is treated metal shredder waste stored onsite before disposal? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?*

TASR is staged for shipment near the MRP plant on a concrete floor. There is typically 100-300 tons of TASR on site at any one time, which is approximately three days' worth of production.

16. *How much treated metal shredder waste, if any, was transported offsite in the calendar year January 1, 2014, through January 1, 2015? List all destinations with addresses.*

From January 1st, 2014 to January 1st, 2015, the facility shipped 24,567 tons of treated metal shredder waste to:

H.M. Holloway, Inc.

Office address:

2019 Westwind Drive, STE B
Bakersfield, CA 93301-3030

Landfill Facility address:

13850 Holloway Rd, Lost Hills, CA 93249

17. *Describe the offsite transportation of metal shredder wastes. Are there any DOT requirements followed during transportation?*

Treated metal shredder waste is transported on a non-hazardous waste manifest. Material is loaded into end dumps and a tarpaulin is placed over the exposed surface. The transportation activity is conducted in compliance with the US Department of Transportation regulations and the Federal Motor Carrier Safety Administration (49 CFR Parts 300-399).

DTSC QUESTIONNAIRE
METAL SHREDDING FACILITIES
SA RECYCLING ANAHEIM FACILITY
3200 E. Frontera Street, Anaheim, CA 92806

1. *Describe your facility's scrap metal acceptance policy, and describe all materials you bring into your facility for shredding, metals recovery, or both.*

The SA Recycling material acceptance policy is contained in the attached document titled "Supplier Source Control Procedure" (revised 3/27/15). (See Attachment 1)

The facility receives every type of metal material including:

Automobiles, consumer and industrial appliances, manufacturing scrap, curbside collection scrap, demolition scrap, consumer/homeowner scrap, industrial scrap. The facility receives scrap from industrial accounts, including materials from other scrap metal recycling facilities. All materials received meet the definition of "scrap metal" under title 22, CCR, section 66260.10.

The "Supplier Source Control Procedure" document contains a Prohibited Materials List which details the types of materials that are not accepted at the shredder. Automobiles must have all fluids drained to the extent practical, and batteries and mercury switches removed. Appliances such as refrigerators must be properly depolluted prior to being sent to the shredder infeed area. In some circumstances, appliances and vehicles will be de-polluted on site, pursuant to applicable law, in a specially designated area, prior to being sent to the shredder. Items removed/recovered from the de-polluting process including waste oil, diesel/gasoline fuel, batteries, capacitors etc. are all managed under separate programs per State regulations.

2. *How much material by weight did your facility shred from January 1, 2014, through January 1, 2015? Include the percentage of total materials shredded annually for each of the following: vehicles, appliances, and other forms of scrap metal.*

A total weight of approximately 225,000 MT of material was shredded for the year 2014.

Annual percentages of material are as follows:

Vehicles:	39.25%
Appliances/Tin:	34.63%
Other/Misc:	26.11%

3. *What type of shredder (e.g., the model, brand and its horsepower) is used by your facility?*

Shredder is manufactured by The Shredder Company. Model #124-SXS Mega Shredder
7,000 Horse Power

4. *Is your facility's shredder equipped with an Air Pollution Control Device (APCD)?*

Yes. The shredder is controlled by a five-stage air pollution control system (APCS), which has a permit to construct (A/N 495678, attached) issued by the South Coast Air Quality Management District. The permit to operate is pending until a final compliance source test approval is granted by the SCAQMD.

APCS Stage One

Shredder overhead, multi-hood exhaust system that captures 90% of all particulate matter (PM) and volatile organic compounds (VOC's) and send those emissions through the second stage.

APCS Stage Two

Dust/Mist Collector - Custom designed and manufactured, Model No. TAME-40K-2008, dual parallel compartments designed to capture oils, PM and moisture present in the gas stream. VOC's are not controlled at this stage and are carried into stage three and four, and are abated in stage five, in the RTO.

- Mist Eliminating Wall manufactured by AAF International (initial moisture control)
- Two -inch thick poly pad (coarse PM, and oils control)
- HS Aluminum Filters (additional moisture control)
- Drop Safe Rigid Pocket Bag Filters (PM and microscopic water molecules filtration)*
- DP-40 Synthetic PM Filters (additional PM filtration at MERV 8)*
- HydroVee, High Efficiency PM Filters (additional PM filtration at MERV 15)*

*All PM filters in the TAME Unit indicated by an asterisk above will be removed if the Donaldson Baghouse listed below is in operation. The SCAQMD has directed additional PM testing of the Donaldson Baghouse, without PM filters in the TAME Unit. Additional PM testing will be completed by August 2015.

APCS Stage Three

This stage is a PM control stage that uses a 484-RF Donaldson Baghouse. This unit is a continuous duty dust collector with 484 oleophobic, bag-style filters designed to handle upwards of 100,000 SCFM applications with heavy dust loads.

APCS Stage Four

40K SCFM Regenerative Thermal Oxidizer (RTO). The 40K SCFM RTO, Model No. RETOX 40.0 RTO095, was manufactured by CECO-ADWEST Technologies.

APCS Stage Five

HEE Environmental Chemical Scrubber – The vertical, counter-current chemical scrubber neutralizes the exhaust from the RTO.

How else does your facility control any particulate emissions throughout the facility?

Anaheim employs a number of measures to control particulate matter emissions as follows:

- The shredding chamber is enclosed by a large hood.
- The ferrous magnet system is enclosed within a building.
- The entire Metals Recovery Plant (MRP) operation, from receipt of aggregate via conveyor through non-ferrous and ferrous recovery operations to loading out TARS in trucks, is conducted within an enclosed structure.

Material stacking areas are swept periodically throughout the day, as necessary. The sweeping is performed with a mechanical broom. During operations, the mechanical broom is used to maintain the outer boundary of the intake piles of feedstock material by pushing material on the edge of the piles back toward the center of the pile.

A TYMCO sweeper is used to clean-up the entrances and driveways on a regular basis, as necessary throughout the day. Water is applied to the yard haul roads and piles of materials throughout the day with a water truck, as necessary.

The entire facility is concrete paved and is designed to collect/divert all residual process water to an on-site waste water treatment facility, where the water is recycled for re-use on-site.

In addition to being completely enclosed in a building, the MRP is equipped with dust collectors to control particulate matter during the non-ferrous metals recovery process. The MRP uses a series of pulse-jet type dust collectors on all of its cyclones to control particulate emissions.

5. *Provide a copy of all permits and other forms of authorization issued to your facility by any governmental entity related to metal shredding activities.*

Anaheim holds SCAQMD permits to construct/operate the shredder (Permit to Construct/Modify No. 502884), the MRP (G16984), and the shredder APCS (Permit to Construct No. 495678). The facility also holds a CAR permit and an NOI issued by the State Water Resources Control Board. Copies of permits are provided in attachment 2.

6. *Describe the ferrous metals separation process, including how shredded material is sent to the ferrous metals separation process, the type of magnet used, if any,*

The shredder feed materials, including automobiles and appliances, are loaded onto the conveyor using grapple cranes and front-end loaders and are conveyed into the hooded shredding chamber (vented to the Air Pollution Control System).

The shredder shreds the cars and scrap metal materials into fist sized pieces. (All shredded material must exit the shredder chamber through eight inch square grate openings). This stream of material collectively is called "Aggregate".

All shredded Aggregate exits the shredder onto a shaker table, which then transfers the materials to a single conveyor belt. That single flow of Aggregate is split into two equal streams of material and continues through two parallel processing lines. Each stream is run over a first drum magnet (SGM Drum Magnet, Model TMR-60"/98" 60 inch diameter by 98 inch wide). The magnetic fraction, which primarily consists of steel and iron materials, is conveyed via a short length shaker table to a second identical SGM drum magnet, which further separates the magnetic fraction from the non-magnetic fraction. The two non-magnetic fractions are combined onto a conveyer which runs under a 36 inch diameter by 48 inch wide magnetic tail pulley to recover residual magnetic steel and returns that steel to the larger SGM drum magnets via a conveyer.

The non-magnetic Aggregate contains non-magnetic metals such as aluminum, copper, zinc and stainless steel. After the magnetic separation process, the Aggregate is conveyed to the enclosed MRP building where it is staged prior to being fed into the MRP.

...and under what circumstances would materials exiting the ferrous metals separation process be reintroduced?

The MRP process screens out oversized material (+ 5 inches) which can be returned to the shredder in-feed area for re-shredding.

Materials that have accumulated on and under the conveyor belts and picking stations and related equipment described above are returned to the shredder in-feed for re-shredding.

Also, indicate if your facility recovers ferrous metals from any material that is not shredded at your facility. If so, please describe that process and a site map of where activities occur when applicable.

The Anaheim facility receives all types of scrap metal, including prepared and unprepared materials that are not shredded at the facility. The prepared materials, including HMS (Heavy Melt Steel) and P&S (Plate and Structural) are received and stockpiled for shipment to the SA Terminal Island facility or loaded directly into overseas shipping containers or shipped to other domestic markets. The unprepared materials are sheared or cut in the areas designated for those activities on the site map. The facility operates a portable hydraulic "alligator" type shear mounted on a back-hoe type tractor which is used to size longer pieces of steel into lengths typically under 5 feet.

Scrap materials that are too heavy to be cut by the shear are directed to a designated torch cutting area. After processing to reduce the size and length of the scrap metal, the material is loaded into trucks using an electro-magnet attached to a crane.

Please include representative pictures of the ferrous recovery process and a site map of where activities occur when applicable.

- Site Map (See Attachment 3)
- Magnet Photos (See Attachment 4)

7. *Is the shredded material ever stored onsite before ferrous metal recovery occurs? If so, on average how much and for how long is it stored, how is it stored (e.g., on a paved surface), and where in the facility is it stored?*

No, shredder output is always processed in-line after it leaves the shredder. Material may temporarily be located on a conveyance system in the event of an emergency shut-down; however, it is not stored in the system.

8. *If ferrous metals recovery does not occur onsite, please respond to the following questions:*

How much shredded material is stored onsite?

How long is shredded material stored onsite?

How is the shredded material stored (e.g., on paved ground)?

Where in the facility is the shredded material stored?

Where is the shredded material sent (please include addresses)?

Not-applicable

9. *Describe the nonferrous metals separation process at your facility, if any. Describe how aggregate (i.e., the shredded material remaining after ferrous metals separation) is introduced into that process, the type of system(s) used, where in your facility it occurs,*

Aggregate materials exiting the shredder go through the ferrous recovery stage, described above in question #6, and then are transferred by a conveyor directly to the aggregate staging area within the 85,000 square foot MRP building (enclosed, covered, concrete floor). From this staging area, the aggregate material is loaded onto a track feeder that meters the flow of the aggregate into the MRP.

The MRP uses a series of trommels, shaker screens, and water tanks to initially separate the aggregate into different fractions based on size and density.

Each of these fractions continues through the MRP, which utilizes three primary types of technology to separate and recover non-ferrous materials, as well as conventional magnets to recover residual ferrous materials.

The three primary technologies used for non-ferrous metal recovery include:

1. Eddy- current magnetic separators for most aluminum, zinc and copper materials
2. Sensors (air actuated) for stainless and copper wire
3. Density separators for fine copper materials

.....and under what circumstances would materials exiting nonferrous metals separation processes be reintroduced.

Materials that accumulate under or on the equipment are in-progress materials and are routinely returned to the infeed area using front-end loaders and skid-steer type tractors.

Any recovered product that does not meet a quality standard is returned to the aggregate in-feed area for re-processing. There are several product streams that require a second pass through the MRP.

Also indicate if your facility recovers nonferrous metals from any material that is not shredded at your facility. Please provide a site map of where activities occur.

The facility receives typical non-ferrous materials like aluminum and copper that is sorted and segregated into salable products, not associated with the shredder or MRP. The facility does not receive any previously shredded material from another location for non-ferrous recovery through the MRP.

10. *Is aggregate ever stored onsite prior to or during the nonferrous metals separation process? If so, how much is stored and for how long? Identify where in your facility it is stored.*

Yes, aggregate is staged within the MRP Building. (As designated on the site map)

The amount of aggregate on site ranges from 500 to 1,500 tons, which equates to 3 to 5 days of production.

11. *If nonferrous metals recovery does not occur onsite, please respond to the following questions:*

Not Applicable

- *How much aggregate is stored onsite?*
- *How long is aggregate store onsite?*
- *How is the aggregate stored (e.g., on paved ground)?*
- *Where in the facility is the aggregate stored?*
- *Where is the aggregate sent (please include addresses)?*
- *Describe the offsite transportation and if any Department of Transportation (DOT) requirements are followed.*

12. *Describe how your facility chemically treats metal shredder waste. For the purposes of this document only, "metal shredder waste" shall mean the material remaining after metal recovery is complete. Include how metal shredder waste not chemically treated is sent to the treatment process, how screening is conducted, the types of equipment used to perform the chemical treatment, chemical formulas and doses, and the sampling and analysis performed on the chemically treated metal shredder waste to ensure adequate treatment.*

Treatment of aggregate that has been fully processed for recovery of non-ferrous metals occurs in-line at the end of the non-ferrous metals recovery process. Residual materials from all of the various non-ferrous recovery steps as previously described are combined on a single, scaled (weigh belt) conveyor which delivers material to the treatment auger. A proprietary silicate-phosphate liquid is applied first. Silicate-phosphate is drawn from a tote into a foamer/tank

where it is blended with a 9 – 13x volume of water. This solution is pumped from the foamer tank and is combined with the metal shredder waste in the auger chamber. The auger blends and pushes the treated material toward the cement feeds. The proprietary, non-hydraulic cement is formulated to reduce the leachability of metals. The incoming weigh belt scale is used to control the by-weight cement allocation, 9.0 – 10.0%, at the treatment auger. Cement is fed into the auger chamber from adjacent silos and applied to the material in the remaining length of the auger chamber, approximately five (5) meters, before being deposited onto the outgoing conveyor. The auger mixes and blends the material along with the cement and silicate phosphate solution. The residence time in the auger is approximately sixty seconds. Fully treated material is then passed under a magnet for final ferrous metal recovery and then conveyed to a stacking conveyor, all within the enclosed MRP building. The treated aggregate (TASR) is then loaded into end dumps (all within the MRP building) and then transported to the receiving landfill.

Sampling of the treated metal shredder waste occurs approximately six (6) meters from the exit of the treatment auger chamber. Samples are taken manually from the conveyor and added to a composite, shift sample, each half-hour. Samples from a given week are combined - mixed, coned and quartered – before being submitted to the receiving laboratory for analysis of volatile organic compounds (VOCs) via EPA method 8260B, poly-chlorinated biphenyls (PCBs) via EPA method 8082, and soluble cadmium, chromium, copper, lead, mercury, nickel and zinc via the Waste Extraction Test (WET). One such weekly composite sample is analyzed per month.

The Anaheim facility is participating in an ongoing MSR Treatability Study that is evaluating the effectiveness of the treatment process and will serve as a basis for uniform, statewide treatment standards appropriate to TASR.

13. Do landfills, regional water quality control boards, or other regulating authority impose any requirements on treated metal shredder waste sent for disposal or use as Alternative Daily Cover (ADC)? If so, what are the requirements?

TASR is shipped to two landfills: Chiquita Canyon Landfill in Castaic CA, and Simi Valley Landfill in Simi CA. Both landfills operate under the jurisdiction of the Los Angeles Regional Quality Control Board. There are sampling and analysis and reporting requirements specified by the Waste Discharge Requirements (WDRs) of the receiving landfills for treated auto shredder residue (TASR) regardless of whether it is employed as alternative daily cover (ADC) or disposed of as waste. SA's understanding is that essentially all of the TASR received at both of these landfills is used as ADC.

The landfill is required to record the quantity of TASR deposited each month and the number of loads deposited from each generator. The landfill must report the TASR laboratory analysis results provided by the generator, in addition to those from the landfill's own monitoring per the WDR's.

Per the WDR's the analysis of TASR samples include analysis of volatile organic compounds via EPA method 8260B, polychlorinated biphenyls via EPA method 8082, and soluble cadmium, chromium, copper, lead, mercury, nickel and zinc via the Waste Extraction Test (WET).

The WDR's for Simi Valley Landfill also specify the sampling procedure and SA has adopted this procedure, as described above. Composite samples of TASR are collected daily; one (1)-pound sample each half-hour per shift. Samples from a given week are combined – mixed, coned and quartered – before being submitted to the receiving laboratory. One weekly composite sample, prepared as described, is submitted per month for the above-mentioned analysis.

Additionally, Simi Valley Landfill requires that one such sample, per quarter, be analyzed for the solubility of the full suite of “CAM-17” metals using the Synthetic Precipitation Leaching Procedure (EPA method 1312).

14. Is untreated metal shredder waste stored onsite before disposal? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?

There is no untreated shredder waste stored on-site. At the conclusion of the non-ferrous recovery process, fully processed aggregate is conveyed directly to the treatment process and treated in-line as discussed above.

15. Is treated metal shredder waste stored onsite before disposal? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?

TASR is staged for shipment in the MRP building under a roof on a concrete floor. There is typically 500-1,000 tons of TASR on site at any one time, which is approximately three or four days' worth of production.

16. How much treated metal shredder waste, if any, was transported offsite in the calendar year January 1, 2014, through January 1, 2015? List all destinations with addresses.

From January 1st, 2014 to January 1st, 2015, the facility shipped 87,093 tons of treated metal shredder waste to two (2) landfills:

- Simi Valley Landfill
2801 Madera Rd
Simi Valley, CA 93065
- Chiquita Canyon Landfill
29201 Henry Mayo Drive
Castaic, CA 91384

21,988 tons of treated metal shredder waste shipped to Chiquita Canyon Landfill.

65,105 tons of treated metal shredder waste shipped to Simi Valley Landfill.

17. Describe the offsite transportation of metal shredder wastes. Are there any DOT requirements followed during transportation?

Treated metal shredder waste is transported on a non-hazardous waste manifest. Material is loaded into end dumps and a tarpaulin placed over the exposed surface. The transportation activity is conducted in compliance with the US Department of Transportation regulations and the Federal Motor Carrier Safety Administration (49 CFR Parts 300-399).

**Ecology Auto Parts, Inc.'s Responses to DTSC's
Questionnaire to Metal Shredding Facilities
Dated May 8, 2015**

Question 1. Describe your facility's scrap metal acceptance policy and describe all materials you bring into your facility for shredding, metals recovery, or both.

Answer 1. Ecology Auto Parts, Inc. ("Ecology") accepts various types of materials for shredding, including vehicles, appliances and tin, and other forms of scrap metal. However, Ecology does *not* accept the following materials at its shredder facility:

- dross, slag, or dust containing lead;
- electrical transformers;
- unattached oil filters or oil-contaminated products;
- asbestos;
- sealed or crushed drums, or pails with lids (unless thoroughly cleaned and opened on one end);
- compressed gas cylinders;
- magnesium borings, turnings, grindings, or fines;
- steel, zirconium, or non-ferrous turnings or borings that contain oil;
- radioactive substances or wastes;
- munitions scrap of any kind;
- mercury or mercury switches;
- wood, concrete, unattached tires, paint, cathode ray tubes in equipment, or other non-metallic waste debris;
- infectious waste;
- storage tanks or batteries;
- railcars with fiberglass insulation.

In most instances, un-screened automobile bodies (i.e., auto bodies that have not been de-polluted) are *not* accepted directly at Ecology's shredder facility; that is, they have been pre-screened (de-polluted) at a scrap vehicle yard before delivery to the shredder facility and had the following items removed beforehand (or otherwise, such items will be removed by Ecology):

- automotive fluids drained, including gasoline, oil, and antifreeze;
- refrigerants collected for recycling;
- all mercury-containing materials, such as light switches, anti-lock braking system (ABS) components, and televisions.

Other sources of scrap metal material are screened in the scale area of the facility in the customers' presence. All rejected materials are retained by the customers.

Question 2. How much material by weight did your facility shred from January 1, 2014, through January 1, 2015? Include the percentage of total materials shredded annually for each of the following: vehicles, appliances, and other forms of scrap metal.

Answer 2. During the fourth quarter of 2014, Ecology averaged approximately 22,000 tons of shredded materials per month. During that same period, the percentage breakdown per month of materials shredded averaged as follows:

- Vehicles - 35%
- Appliances and tin --, 56%
- Other forms of metal --, 9%

These percentages tend to be consistent from quarter to quarter.

Question 3. What type of shredder (e.g., the model, brand, and its horse power) is used by your facility?

Answer 3. Ecology uses the following type of shredder:

- Model: Hammer Mill (dimensions: 96 in. x 104 in.)
- Brand: Metso
- Horse Power: 6000

Question 4. Is your facility's shredder equipped with an Air Pollution Control Device (APCD)? How else does your facility control any particulate emissions throughout the facility?

Answer 4. Yes, Ecology's shredder is equipped with multiple Air Pollution Control Devices, including a HEPA-equipped mechanical filtration system for ultra-fine particulate control, as well as a regenerative thermal oxidizer (RTO) for volatile organic compound (VOC)-control. Ecology also uses spray nozzles inside of the mill-box during the shredding process.

Ecology has implemented multiple dust-control and fugitive emissions-control measures throughout the facility. The entire shredding area, including the receiving and stockpile areas, is completely paved, and all incoming and outgoing trucks are tarped. Ecology employs a full-time mechanical street sweeper for continuous cleaning throughout the day, and the shredder area is swept again at night once operations are completed for that day. Ecology uses a 40-foot high overhead, remote-controlled water cannon and a Dust Boss to spray down the shredder area and stockpile. Ecology also uses a water truck to wash down specific areas when needed.

Question 5. Provide a copy of all permits and other forms of authorization issued to your facility by any governmental entity related to metal shredding activities.

Answer 5. Ecology is attaching copies of the following permits and authorizations as they relate to its metal shredding activities:

- South Coast Air Quality Management District "Permit to Operate" for the shredder system;
- South Coast Air Quality Management District "Permit" for the regenerative thermal oxidizer and auto body shredding (among other listed permitted activities, e.g. storage and dispensing of gasoline);
- *San Bernardino County CUPA "Annual Permit";
- *State Water Resources Control Board "Notice of Intent" listing the waste discharge identification number (WDID) under the General Industrial Storm Water Permit;

- Cal. EPA Department of Toxic Substances Control "Appliance Recycler Certification" listing the Cal. EPA identification number;
- Department of Toxic Substances Control letter dated August I, 2005 giving confirmation of non-hazardous waste classification;
- Department of Toxic Substances Control Declassification letter dated September 24, 1987 (originally issued to Clean Steel);
- **Colton Fire Department Permit.

* Pacific Rail Industries is a dba of Ecology Auto Parts, Inc.

** Pacific Rail Dismantling Services, Inc. is a wholly owned subsidiary of Ecology Auto Parts, Inc.

Question 6. Describe the ferrous metals separation process, including how shredded material is sent to the ferrous metals separation process, the type of magnet used, if any, and under what circumstances would materials exiting the ferrous metals separation process be reintroduced. Also indicate if your facility recovers ferrous metals from any material that is not shredded at your facility. If so, please describe that process. Please include representative pictures of the ferrous recovery process and a site map of where activities occur when applicable.

Answer 6. After materials are shredded, they are sent by conveyor to a pan feeder that delivers the materials to a Steinert (brand) drum magnet. At that point, the shredder output falls onto a second conveyor, which delivers the steel to a second feeder, which in turn transfers the steel to a second drum magnet for more cleaning. A third conveyor brings the steel underneath a "Z-box" cyclone, which functions as a large vacuum to pull out the light non-metallic material. Thereafter, the steel travels to a picking station where employees, by hand, pull out the rubber and any other remaining debris. A fourth conveyor then brings the steel to a finished stockpile. Photos of the shredder box, the drum magnets, and "Z-box" cyclone are included.

Ecology does not recover any ferrous metals from other shredder facilities. Occasionally, Ecology will receive a heavy piece of steel that cannot be shredded due to its size. In those instances, the steel is processed in a separate area of the facility by using a hydraulic shear.

Question 7. Is the shredded material ever stored onsite before ferrous metal recovery occurs? If so, on average how much and for how long is it stored, how is it stored (e.g., on a paved surface), -and where in the facility is it stored?

Answer 7. No, the shredded material is not stored onsite before performing ferrous metal recovery.

Question 8. If ferrous metals recovery does not occur onsite, please respond to the following questions:

- How much shredded material is stored onsite?
- How long is shredded material stored onsite?
- How is the shredded material stored (e.g., on paved ground)?
- Where in the facility is the shredded material stored?
- Where is the shredded material sent (please include addresses)?

Answer 8. Not applicable, because ferrous metal recovery *does* occur onsite.

Question 9. Describe the nonferrous metals separation process at your facility, if any. Describe how aggregate (i.e., the shredded material remaining after ferrous metals separation) is introduced into that process, the type of system(s) used, where in your facility it occurs, and under what circumstances would materials exiting nonferrous metals separation processes be reintroduced. Also indicate if your facility recovers nonferrous metals from any material that is not shredded at your facility. Please provide a site map of where activities occur.

Answer 9. Not applicable, because nonferrous metals separation does *not* occur at this facility. See Answer 11 below.

Question 10. Is aggregate ever stored onsite prior to or during the nonferrous metals separation process? If so, how much is stored and for how long? Identify where in your facility it is stored.

Answer 10. See Answer 11 below, although nonferrous metals separation does *not* occur at this facility.

Question 11. If nonferrous metals recovery does not occur onsite, please respond to the following questions:

- How much aggregate is stored onsite?
- How long is aggregate stored onsite?
- How is the aggregate stored (e.g., on paved ground)?
- Where in the facility is the aggregate stored?
- Where is the aggregate sent (please include addresses)?
- Describe the offsite transportation and if any Department of Transportation (DOT) requirements are followed.

Answer 11. Ecology does not perform nonferrous metals recovery onsite.

- Ecology temporarily stages anywhere from zero tons up to approximately 800 tons of aggregate onsite.
- The aggregate may be staged onsite for up to approximately two days.
- The aggregate is staged underneath a three-sided steel building (receiving bay). The building has a 12-inch thick concrete floor, with a half-inch, solid steel plate above it. Any water that may drain from the aggregate travels to a floor drain, where it is pumped to a one-million gallon tank for reuse in the shredding process.
- The receiving bay is located approximately 150-feet north of the drum magnets.
- The aggregate is sent to Ecology's Arizona facility for nonferrous recovery, which is located at 59260 Highway 72, Salome, Arizona, 85348.
- The aggregate is trucked by Ecology employees in Ecology-owned trailers. Ecology hauls the aggregate primarily in end-dump trailers, which are tarped and have rubber seals on their back doors. The aggregate is *not* handled or held at any interim location during transit. Ecology complies with all applicable DOT requirements.

Question 12. Describe how your facility chemically treats metal shredder waste. For the purposes of this document only, "metal shredder waste" shall mean the material remaining after metal recovery is complete. Include how metal shredder waste not chemically treated is sent to the treatment process, how screening is conducted, the types of equipment used to perform the

chemical treatment, chemical formulas and doses, and the sampling and analysis performed on the chemically treated metal shredder waste to ensure adequate treatment.

Answer 12. Not applicable. See Answer 11 above.

Question 13. Do landfills, regional water quality control boards, or other regulating authority impose any requirements on treated metal shredder waste sent for disposal or use as Alternative Daily Cover (ADC)? If so, what are the requirements?

Answer 13. Not applicable. See Answer 11 above.

Question 14. Is untreated metal shredder waste stored onsite prior to treatment? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?

Answer 14. Not applicable. See Answer 11 above.

Question 15. Is treated metal shredder waste stored onsite before disposal? If so, how much and for how long is it stored, how is it stored and where on the facility is it stored?

Answer 15. Not applicable. See Answer 11 above.

Question 16. How much treated metal shredder waste, if any, was transported offsite in the calendar year January 1,2014, through January 1,2015? List all destinations with addresses.

Answer 16. Not applicable. See Answer 11 above.

Question 17. Describe the offsite transportation of metal shredder wastes. Are there any DOT requirements followed during transportation?

Answer 17. Not applicable. See Answer 11 above.

APPENDIX B: COMBINED LANDFILL QUESTIONNAIRES



**Altamont Landfill & Resource Recovery Facility
10840 Altamont Pass Road, Livermore, CA 94551**

July 27, 2015

Mr. Rick Brausch
Policy and Program Support Division
Hazardous Waste Management Program
Department of Toxic Substances Control
1001 I Street, 23rd Floor
P.O. Box 8006
Sacramento, California 95812-0806

Re: Information Request for Implementation of Senate Bill (SB) 1249 (Hill, Chapter 756, Statutes of 2014)

Dear Mr. Brausch:

This letter is in response to your letter dated May 20, 2015 regarding the management of metal shredder waste that occurs at Waste Management of Alameda County, Inc.'s (WMAC) Altamont Landfill & Resource Recovery Facility (ALRRF) in Livermore, California.

The following questions are those that you requested be answered in the questionnaire attached to your original letter.

- 1. Please provide the policy that applies to the acceptance of metal shredder waste.*

WMAC Response: Metal shredder waste is allowed through ALRRF's Waste Discharge Requirements (WDR). The language that addresses metal shredder waste in the WDR (Findings 16 and 17) is attached.

- 2. How much metal shredder waste by weight did your facility accept from January 1, 2014, through January 1, 2015? Please include the name and address of each metal shredding facility that sent the metal shredder waste and how much they sent during the calendar year.*

WMAC Response: ALRRF accepts metal shredder waste from two companies:

Sims Metal Management
699 Seaport Ave.

Redwood City, CA, 94063
63,505.78 tons accepted 1/1/14-1/1/15

Schnitzer Steel
1101 Embarcadero West
Oakland, CA, 94607
99,897.19 tons accepted 1/1/14-1/1/15

3. *What percentage of metal shredder waste was used as Alternative Daily Cover (ADC)?*

WMAC Response: 100% of metal shredder waste was used as ADC.

4. a. *How much metal shredder waste is stored onsite prior to its use as ADC?*

WMAC Response: ALRRF tries to minimize the amount of stockpiled metal shredder waste by using it as it is received. The amount that is stored onsite varies based on the amount coming in, placement availability, and the classification of the area currently being filled (i.e., Class II or Class III). At times, the stockpile size may grow to up to 300 tons, but this is not the norm.

- b. *How long is it stored?*

WMAC Response: ALRRF tries to use metal shredder waste as it is received. It is normally used within two weeks of receipt but may be stored longer based on operational needs.

- c. *How is it stored?*

WMAC Response: It is stored in the Class II unit (Fill Area 1, Unit 2).

- d. *Where in the facility is it stored? Please provide a site map of the location.*

WMAC Response: Metal shredder waste is stored in the landfill footprint, in the Class II unit. Stockpiles move based on the location of the active fill area. See attached map. The Class II unit is Fill Area 1, Unit 2.

5. *Please answer the following questions (5.A.—5.D.) pertaining to metal shredder waste accepted at your facility but not used as ADC:*

- a. *How much metal shredder waste is stored onsite prior to its use as ADC?*

- b. *How long is it stored?*

- c. *How is it stored (e.g., on a paved surface)?*

d. Where in the facility is it stored? Please provide a site map of the location

WMAC Response: N/A. All metal shredder waste at ALRRF is used as ADC.

6. *Do the regional water quality control boards or other regulating authorities impose any requirements on your facility concerning metal shredder wastes? If so, what are those requirements?*

WMAC Response: The WDR referenced in question #1 above is attached. Findings 16 and 17 address metal shredder waste.

7. *Provide a copy of all permits and other forms of documented authorization issued to your facility by any governmental entity related to metal shredder waste management activities, and a copy of any data your facility may have regarding the toxicity characteristics of metal shredder waste.*

WMAC Response: The WDR referenced in questions #1 and #6 above is attached. ALRRF's Solid Waste Facility Permit (SWFP) is attached. Section 7, page 15, of ALRRF's Joint Technical Document (JTD) addressing metal shredder waste is attached. Metal shredder waste generators provide PCB data for every 1000 tons of metal shredder waste disposed of.

8. *Are other management requirements followed by your facility for metal shredder waste when accepting, handling, storing and ultimately disposing of or using metal shredder waste as ADC? If so, please describe those requirements.*

WMAC Response: Metal shredder waste is generally placed on semi-flat surfaces and interior slopes. It is applied with a minimum compacted thickness layer of six inches and average compacted thickness of less than 24 inches. A D6 dozer performs application as needed. To maximize efficiency and facilitate its timely use in cover operations, metal shredder waste is initially unloaded near the active disposal area.

Metal shredder waste is also used as an extender for solidification of liquid or semi-solid waste (i.e., waste containing less than 50% solids) and dewatered sewage or water treatment sludge prior. The liquid/semi-solid waste is mixed with the metal shredder waste in a clay-lined pit or solidification basin in the Class II unit until the combined material is greater than 50% solids by volume. The solidified waste is then loaded by the excavator into a dump truck and transported to the active face. At the active face, the ADC material is spread using bulldozers.

If you have any questions regarding the content of this report, please contact me at (925) 455-7305.

Sincerely,



Sarah Fockler
Environmental Protection Specialist

Altamont Landfill and Resource Recovery Facility

Attachments:

Attachment A – ALRRF WDR

Attachment B – Site Map

Attachment C –ALRRF SWFP

Attachment D – ALRRF JTD

Attachment A

ALRRF WDR

15. The Discharger accepts for disposal and discharges wastes containing greater than one percent (>1%) friable asbestos to the landfill units. These wastes are classified as 'hazardous' under CCR title 22. However, these wastes do not pose a threat to groundwater quality and Section 25143.7 of California's Health and Safety Code permits their disposal in any landfill that has WDRs that specifically permit the discharge, provided that the wastes are handled and disposed of in accordance with applicable statutes and regulations.
16. The State Water Resources Control Board adopted Resolution No. 87-22 on 19 March 1987. This Resolution allows the discharge of shredder wastes to Class III landfills where WDRs allow such disposal.
17. Treated (stabilized) auto shredder waste (TASW) is any non-recyclable waste from the shredding of automobile bodies (from which batteries, mufflers, mercury switches, and exhaust pipes have been removed), household appliances, and sheet metal. The Discharger proposed to continue to discharge TASW in the top lift of Fill Area 1, Unit 1 where it will not be exposed to acidic leachate. The Discharger also proposes to continue to use TASW as alternative daily cover, beneficial reuse material, or to dispose of it in all the applicable Class II landfill areas. In the past, TASW has been discharged at the landfill under a waiver from the Department of Toxic Substances Control (DTSC), and at the Class III unit, pursuant to Resolution No. 87-22. DTSC's waiver is currently under review and may be rescinded due to new data and information indicating it should be managed as a hazardous waste due to increasingly high concentrations of toxic metals, and concerns about the long-term effectiveness of the stabilization treatment process. If DTSC makes the determination that TASW is a special hazardous waste and requires management at a Class I facility, this Order prohibits the discharge of auto shredder waste (treated or untreated) at the Altamont Landfill.
18. The Discharger proposes to discharge treated wood waste at the landfill. CCR title 22 defines "Treated wood" to mean wood that has been treated with a chemical preservative for purposes of protecting the wood against attacks from insects, microorganisms, fungi, and other environmental conditions that can lead to decay of the wood and the chemical preservative is registered pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. Sec. 136 and following). This may include but is not limited to waste wood that has been treated with chromated copper arsenate (CCA), pentachlorophenol, creosote, acid copper chromate (ACC), ammoniacal copper arsenate (ACA), ammoniacal copper zinc arsenate (ACZA), or chromated zinc chloride (CZC).
19. Findings and specifications in these WDRs apply only to treated wood waste that is a hazardous waste, solely due to the presence of a preservative in the wood, and is not subject to regulation as a hazardous waste under the federal act. Treated wood that is not a hazardous waste can be handled as C&D debris or

Attachment B

Site Map

Attachment C

ALRRF SWFP

SOLID WASTE FACILITY PERMIT

1. Facility/Permit Number:
01-AA-0009

2. Name and Street Address of Facility:
Altamont Landfill and Resource Recovery Facility
10840 Altamont Pass Road, Livermore CA 94551

3. Name and Mailing Address of Operator:
Waste Management of Alameda County
172 98th Avenue
Oakland, CA 94503

4. Name and Mailing Address of Owner:
Waste Management of Alameda County
172 98th Avenue
Oakland, CA 94503

5. Specifications:

- a. Permitted Operations:
- Composting Facility (mixed wastes)
 - Composting Facility (yard waste)
 - Landfill Disposal Site
 - Material Recovery Facility
 - Processing Facility
 - Transfer Station
 - Transformation Facility
 - Other:

b. Permitted Hours of Operation: (Receipt of Refuse/Waste) 24 hours
(Ancillary Operations/Facility Operation Hours) 24 hours
(Public Hours) Monday through Friday 6 a.m. to 6 p.m.

c. Permitted Tons per Operating Day: 11,150 Tons per Day for Disposal

d. Permitted Traffic Volume: 557 Refuse Vehicles per Day

e. Key Design Parameters (Detailed parameters are shown on site plans bearing LEA and CIWMB validations):

	Total	Disposal	Transfer	MRF	Composting	Transformation
Permitted Area (In acres)	2,170	472	N/A	N/A	N/A	N/A
Design Capacity		87.1 million tons 124.4 million cubic yard	N/A	N/A	N/A	N/A
Max. Elevation (Ft. MSL)		1200 feet				
Max. Depth (Ft. BGS)		540 feet				
Estimated Closure Date		2025				

Upon a significant change in design or operation from that described herein, this permit is subject to revocation or suspension. The stipulated permit findings and conditions are integral parts of this permit & supersede the conditions of any previously issued permit.

6. Approval:
Arii Levi
Director, Environmental Health
Approving Officer Signature

7. Enforcement Agency Name and Address:
Alameda County Environmental Health
Office of Solid/Medical Waste Management
1131 Harbor Bay Parkway
Alameda, CA 94502

8. Received by CIWMB:
07/18/2005

9. CIWMB Concurrence Date:
08/16/2005

10. Permit Issued Date:
08/22/2005

11A. Next Permit Review Due Date:
08/22/2015

11B. Permit Transfer Date:

11C. Permit Review Date:
08/20/2010

SOLID WASTE FACILITY PERMIT

Facility Number:

01-AA-0009

12. Legal Description of Facility:

The legal description of this facility is contained in page 2-4 of the Joint Technical Document dated September 15, 2004, Revised on 1 April 7, 2005.

13. Findings:

- a. This permit is consistent with the Alameda County Integrated Waste Management Plan, which was approved by the CIWMB on December 12, 2000. The location of the facility is identified in the Countywide Siting Element, pursuant to Public Resources Code (PRC), Section 50001(a).
- b. This permit is consistent with the standards adopted by the CIWMB, pursuant to PRC 44010.
- c. The design and operation of the facility is consistent with the State Minimum Standards for Solid Waste Handling and Disposal as determined by the enforcement agency, pursuant to PRC 44009.
- d. The Alameda County Fire Department has determined that the facility is in conformance with applicable fire standards, pursuant to PRC, 44151.
- e. An EIR was filed with the State Clearinghouse (SCH #1992083047) and certified by the Board of Supervisors on March 9, 2000. The EIR describes and supports the design and operation, which will be authorized by the issuance of this permit. A Notice of Determination was filed with the State Clearinghouse on March 9, 2000.
- f. The EIR consists of the EIR dated September 29, 1995, the Response to Comments Addendum dated March 29, 1996 and the Revised Final EIR dated January 2000.
- g. The Alameda County Planning Department has determined that the facility expansion is compatible with surrounding land use through the approval of Conditional Use Permit C-5512.

14. Prohibitions:

The permittee is prohibited from accepting the following wastes:

Hazardous, radioactive, medical (as defined in Chapter 6.1, Division 20 of the Health and Safety Code), liquid, designated, or other wastes requiring special treatment or handling, except as identified in the Report of Facility Information and approved amendments thereto and as approved by the enforcement agency and other federal, state, and local agencies.

15. The following documents describe and/or restrict the operation of this facility:

	Date		Date
Report of Disposal Site Information Revised	Sept. 15, 2004 April 7 2005	Preliminary Closure and Postclosure Maintenance Plan	pending
Waste Discharge Requirements Order No. R5-2002-0119	June 7, 2002	Closure Financial Assurance Documentation	pending
BAAQMD Permit to Operate #A2066	Feb. 1, 2005	Operating Liability Certification	pending
<u>EIR (SCH #1992083047)</u>	<u>March 9, 2000</u>	Land Use and/or Conditional Use Permit	March 9, 2000
EPA Major Facility Review Permit Administered by BAAQMD pursuant to Federal Title V	Dec. 1, 2003	NPDES No. 0083763	June 7, 2002
Alameda County Waste Management Authority Resolution No. 2000-10	May 24, 2000		

SOLID WASTE FACILITY PERMIT

Facility Number:

01-AA-0009

16. Self Monitoring

The owner/operator shall submit all self monitoring programs to the Enforcement Agency within 30 days of the end of the reporting period

Program	Reporting Frequency
a. The types and quantities (in tons) of waste, including separated or commingled recyclables, entering the facility per day.	Monthly*
b. The number of refuse vehicles using the facility per day.	Monthly*
c. Results of the hazardous waste load checking program, including the quantities and types of hazardous wastes, medical wastes or otherwise prohibited wastes found in the waste stream and the disposition of these materials.	Available on site
d. Copies of all written complaints regarding this facility and the operator's actions taken to resolve these complaints.	Quarterly*
e. Results of the perimeter landfill gas migration monitoring program.	Quarterly*
f. Remaining site capacity with aerial surveys.	Annual by June 30
g. Annual mitigation monitoring program report.	Annually
h. Type, source and quantity of alternative daily cover materials received.	Available on site ,

*All reports with monthly or quarterly frequency shall be due on the last day of the month following the reporting period.

SOLID WASTE FACILITY PERMIT

Facility Number:

01-AA-0009

17. Enforcement Agency (EA) Conditions:

- a. The operator shall comply with all State Minimum Standards for solid waste handling and disposal as specified in Title 27, California Code of Regulations.
- b. The operator shall maintain a log of special/unusual occurrences. This log shall include, but is not limited to, fires, explosions, the discharge and disposition of hazardous or unpermitted wastes, and significant injuries, accidents or property damage. Each log entry shall be accompanied by a summary of any actions taken by the operator to mitigate the occurrence. The log shall be available to site personnel and the EA at all times.
- c. Additional information concerning the design and operation of the facility shall be furnished upon request and within the time frame specified by the EA.
- d. The maximum permitted daily tonnage for this facility is 11,150 disposal tons per day, and the facility shall not receive more than this amount without a revision of this permit.
- e. This permit is subject to review by the EA and may be suspended, revoked, or revised at any time for sufficient cause.
- f. The EA reserves the right to suspend or modify waste receiving and handling operations when deemed necessary due to an emergency, a potential health hazard, or the creation of a public nuisance.
- g. Any change that would cause the design or operation of the facility not to conform to the terms and conditions of this permit is prohibited. Such a change may be considered a significant change, requiring a permit revision. In no case shall the operator implement any change without first submitting a written notice of the proposed change, in the form of an RFI amendment, to the EA at least 150 days in advance of the change.
- h. A copy of this permit shall be maintained at the facility.
- i. Daily cover will be applied in an ongoing process during the "working day" which is up to 6.5 days long. No area of waste is to be exposed that will not be receiving waste or cover within 24 hours. At the end of the working day, the entire site is to be covered with at least 6 inches of soil or approved ADC.
- j. Covering of friable asbestos containing waste must begin within one hour of receipt of the final load of the day pursuant to the Asbestos Management Plan for the facility in the JTD.
- k. Operator shall implement all components of the litter control program as described in the JTD. The EA may require revisions to the program and implementation of additional control mechanisms if the facility is continuously in violation of State Minimum Standards for litter control.

Attachment D

ALRRF JTD

the working face, processed green material shall comply with a grain size specification by volume of 95% less than 6 inches. Alternative processing and grain size specification requirements may be approved by the EA if the EA determines that the alternative meets the performance requirements of ¶(a)(2) and (a)(3) of this section and the CIWMB concurs.”

Section 20690(b)(3)(C) restricts the use of processed green material “... to a minimum compacted thickness of 6 inches and average compacted thickness of less than or equal to 12 inches...” Section 20690(b)(3)(D) requires that “... processed green material placed as cover shall not be exposed for more than 21 days.”

In accordance with Alameda County Ordinance 2008-01, the ALRRF no longer uses processed green waste materials as ADC.

Green waste material may be used as erosion protection in accordance with Alameda County Ordinance 2008-01.

Processed C&D Wastes

Section 20690(b)(9) of Title 27 allows for use of processed C&D waste, as well as the fines derived from processing of such materials, as ADC. The ALRRF accepts for use as ADC material screened from the C&D processing line at the Davis Street Transfer Station Material Recovery Facility. This screened material is less than 6 in. in diameter with average grain size around 1 in. It consists mainly of ground plant material that is commingled with the C&D wastes from construction work as well as soil, sand, and small amounts of wood products.

This material is typically used as ADC as an extender in solidification. This material is thought to work well in this process and compacts well to form a good cover material free of voids. The ALRRF may use this material by itself as ADC at some point but would be cognizant of potentially dusty conditions and would implement control mechanisms to ensure safety and compliance.

Treated Auto Shredder Waste (TASW)

Section 20690(b)(6)(B) of Title 27 states that “... treated auto shredder waste used for alternative daily cover shall be restricted to a minimum compacted thickness of 6 inches and average compacted thickness of less than 24 inches.”

TASW at the ALRRF is utilized in accordance with these requirements. The material is unloaded near the active disposal area to facilitate its use in cover operations in Class II areas.



CHIQUITA CANYON

A Waste Connections Company

July 17, 2015

Mr. Rick Brauson, Chief
Policy and Program Support Division
Hazardous Waste Program

Dear Mr. Brauson:

In response to your letter titled; RE: INFORMATION FOR IMPLEMENTATION OF SENATE BILL (SB) 1249 (Hill, Chapter 756, Statutes of 2014), I would like to offer these responses to question 1-8 below for Chiquita Canyon Landfill.

1. Please provide the policy that applies to the acceptance of shredder waste. If no such policy exists, describe any practices and procedures used by your facility to accept such waste.
See attachment #1
2. How much metal shredder waste by weight did your facility accept from January 1, 2014 through January 1, 2015? Please include the name and address of each metal shredding facility that sent the metal shredder waste and how much they sent during the calendar year.
60,350.68 tons total.
 - SA Recycling LLC. 901 New Dock, San Pedro, CA 93731. 38,225.74 tons
 - SA Recycling LLC. 3200 E. Frontera St. Anaheim, CA. 92806. 22,124.94 tons
3. What percentage of metal shredder waste was used as Alternative Daily Cover (ADC)?
100%
4. Please answer the following questions (4.A. – 4.D.) pertaining to metal shredder waste accepted at your facility and used as ADC:
 - a. How much metal shredder waste is stored onsite prior to its use as ADC?
We generally do not store this material because the daily amount we get is usually less than or equal to our daily cover need. If we do store some it is typically only 1 or 2 days worth.
 - b. How long is it stored?
About one or two days.
 - c. How is it stored (e.g., on a paved surface)?
Near the working face of the landfill to facilitate its use the next day. The



material is placed on an already filled portion of the landfill which is underlain by a composite liner and leachate collection and removal system.

- d. Where in the facility is it stored? Please provide a site map of the location.
The working face moves around the landfill as the fill sequence progresses so the material is not ever really stored in the same location, therefore no map is provided.
5. Please answer the following questions (5.A. – 5.D.) pertaining to metal shredder waste accepted at your facility but not used as ADC: **N/A see answer on number 3.**
 - a. How much metal shredder waste is stored onsite prior to its use as ADC?
 - b. How long is it stored?
 - c. How is it stored (e.g., on a paved surface)?
 - d. Where in the facility is it stored? Please provide a site map of the location.
6. Do the regional water quality control board or other regulating authorization impose any requirement on your facility concerning metal shredder waste? If so, what are those requirements? You may exclude any permits or other forms of documented authorizations answered in question 7, below.
Cal Recycle has requirements governing the thickness of ADC in Title 27. The Los Angeles Regional Water Quality Control Board specified the testing requirements for acceptance of metal shredder waste in the landfills Waste Discharge Requirements.
7. Provide a copy of all permits and other forms of documented authorization issued to your facility by any governmental entity related to metal shredder waste management activities, and a copy of any data your facility may have regarding the toxicity characteristics of metal shredder waste. **See attachment 2**
8. Are other management requirements followed by your facility for metal shredder waste when accepting, handling, storing and ultimately disposing of or using metal shredder waste as ADC? If so, please describe those requirements. **N/A**

Please call me with any question at 661-371-9214 or email at steveca@wasteconnections.com

Sincerely



Steve Cassulo
District Manager
Chiquita Canyon Landfill

Cc:

Mr. Christopher Cho
Staff Attorney
Office of Legal Affairs
DTSC
1001 I Street, 23rd Floor
PO Box 806
Sacramento, CA. 95812-0806

Ms. Valetti Lang, Chief
Research and Policy Development Branch
Policy and Program Support Division
Hazardous Waste Program
DTSC
1001 I Street, 11rd Floor
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Mr. Kevin Sanchez
Senior Environmental Scientist (Specialist)
Research and Policy Development Branch
Policy and Program Support Division
Hazardous Waste Program
DTSC
1001 I Street, 11rd Floor
PO Box 806
Sacramento, CA. 95812-0806

Attachment 1

10.0 COVER AND BENEFICIAL USE

10.1 Cover Materials

27 CCR 21600(b)(6)(A)

Soil cover, consisting of excavated on-site soil and soil delivered to the landfill, is placed and compacted as required by 27 CCR 21600(b)(6), 20680, and 20700. Standards for cover are followed as described in 27 CCR 20705. This requires 6 inches of compacted daily soil cover and 1 foot of compacted intermediate soil cover to be placed on the working face, and the top and sideslopes, respectively, of each advancing lift. Cover materials are graded and compacted to: (1) prevent ponding of surface water over wastes, (2) direct runoff from the active waste area, and (3) minimize potential erosion.

On-site cover soil will be excavated from one of the excavation cells or borrow areas (Drawing B-2, Appendix B).

The Saugus Formation accounts for 80 percent of bedrock exposure and is as much as 1,800 feet thick above the Pico Formation within the site boundaries. It is composed mainly of fine- to medium-grain sandstone with 10 to 50 percent fines. Lenticular discontinuous beds of conglomerate lie within the sandstone. Highly plastic mudstone lenses have also been identified.

The Pico Formation, exposed at the extreme northern portion of the site, consists of cemented sandstone with interbedded conglomerate and siltstone. This formation, which is generally more resistant to weathering than the Saugus Formation, accounts for the steep cliffs to the north. The upper 200 to 300 feet of this formation may also contain soft siltstone and mudstone.

Excavation will take place as described in Section 6.3. Table 5 provides the estimated soil required for daily and intermediate cover.

10.2 Alternative Daily Cover

27 CCR 21600(b)(6)(B), 21600(b)(6)(C)

Waste is delivered to CCL in transfer trucks, collection trucks, and various other vehicles by commercial haulers, contract haulers, and the general public. The landfill is constructed using the area fill method. In general, waste is placed in 10- to 30-foot-thick lifts, and compacted in 2-foot-thick layers with typical working face slopes of 4:1 and maximum working face slopes of about 3:1. The size and shape of the working face varies daily depending on the specific geometry of where on the site the active filling is taking place. During the day, the size of the working face also varies. To control odors and blowing litter, the working face is kept as small as practical by placing ADC during the operating day. For example, in order to safely accommodate the truck traffic during the busiest time of day, the working face is at its largest. During slower periods of the day, daily cover may be placed on the working face to minimize the

size of the active face and to efficiently use the landfill's equipment and operator resources. Over the course of a typical day the total area requiring daily cover is about 60,000 sf (200 feet by 300 feet).

Daily cover is placed at the end of the operating day. However, as described above, daily cover may be placed over portions of the active area at various times during the operating day. At a time when the facility operates 24-hours per day, Monday through Saturday, daily cover is placed and compacted at least once during the 24-hour period and on Saturday at the end of the operating day.

ADC may be utilized consistent with 27 CCR 20690. ADC includes any material pre-approved in 27 CCR 20690: geosynthetic materials, foam, processed green material, ash and cement kiln dust materials, treated auto shredder waste, contaminated sediment, dredge spoils, foundry sands, energy resource exploration and production waste, compost materials, construction and demolition wastes, shredded tires, and spray applied cementitious products. Other materials may be approved as ADC by the EA based on a successful demonstration project consistent with 27 CCR 20690 .

ADC is used consistent with the requirements contained in 27 CCR 20690. Currently, CCL uses treated auto shredder waste as the primary material for ADC. Depending on the daily flow of materials, CCL also uses ground green waste, processed construction and demolition wastes, and energy resource exploration and production wastes as ADC. Should a change in the type of ADC be needed, CCL will notify the EA. If the quantity of ADC materials received exceeds the daily requirements, the excess ADC materials are stockpiled for future use.

10.3 Intermediate Cover 27 CCR 21600(b)(6)(D)

Consistent with 27 CCR 21600(b)(6)(C), 20680, and 20700, a minimum 1 foot of compacted intermediate soil cover is placed on the top and sideslopes of each advancing lift. At all times, intermediate cover is placed and compacted as landfilling progresses to minimize areas exposed to precipitation and to reduce blowing litter. Intermediate soil cover is usually placed and compacted on areas where additional waste disposal cells are not to be constructed for extended periods of time, and therefore must resist erosion for a longer period of time than daily cover. Waste disposal areas not receiving wastes for more than 180 days will also be covered with 1 foot of soil. Soil for intermediate cover is obtained from on-site excavations or soil stockpiles. Clean import soil received at CCL may also be used for intermediate cover. Soil is transported to the area to receive intermediate cover by scrapers. The scrapers will unload the soil while traversing across the area to receive intermediate cover. Compactors or dozers will then spread and compact the soil to a minimum thickness of 1 foot.

In addition, landfill operations include compacting and covering the waste with these soils, thereby significantly reducing the potential escape of odors, emergence of flies, and progress of fires. Combined

LACFCD-owned Sediment Placement Sites (SPSs), but some is also taken to landfills for disposal or beneficial on-site use.

The LACFCD completed a report analyzing soil samples at seven of the most active SPSs, located across the County of Los Angeles. The soil in these SPSs is representative of the sediment removed from the County's dams and debris basins. The analysis indicates that constituents in the soil samples are well below threshold levels for all contaminants specified in Order No. R4-2011-0052. Therefore, this material or similar material from other sediment and debris basins will not be profiled at CCL.

Acceptable wastes are defined in WDR Order No. 98-086 (A. Acceptable Materials) as follows:

2... certain nonhazardous solid wastes and inert solid wastes, as described in Section 20220(a) and Section 20230 of Title 27.

3... all putrescible and nonputrescible solid, semi-solid and liquid wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid and semi-solid wastes, and other discarded waste (whether of solid and semi-solid consistency); provided that such wastes do not contain wastes which must be managed as hazardous wastes, or wastes which contain soluble pollutants in concentrations which exceed applicable water quality objectives, or could cause degradation to waters of the State (i.e., designated waste).

1.4.2 Wastes That Require Profiling

CCL is authorized to accept various types of Special Wastes. Special Wastes are defined in Title 22, CCR as a hazardous waste which meets all of the following criteria and requirements:

It is a solid, a water-based sludge or a water-based slurry of which the solid constituents are substantially insoluble in water;

It is a hazardous waste only because it contains a persistent or bioaccumulative substance at a solubilized and extractable concentration exceeding its Soluble Threshold Limit Concentration (STLC), or at a total concentration exceeding its Total Threshold Limit Concentration (TTLC), except that:

- It shall contain no persistent or bioaccumulative listed substances at a solubilized and extractable concentration in milligrams per kilogram of waste exceeding the TTLC value for the substance; and
- It shall contain no persistent or bioaccumulative inorganic substance at a concentration equal to or exceeding the TTLC value of the substance.

For purposes of this WAP, Special Wastes are wastes that require analysis and testing (profiling) prior to acceptance due to their component make-up. Special Waste acceptance procedures, documentation, and reporting are discussed in sections 2.0 and 3.0.

Acceptable wastes that require profiling or that can only be accepted through special Orders from

the RWQCB are defined in WDR Order No. 98-086 (A. Acceptable Materials) as follows:

- 4. Treated auto shredder waste may be disposed provided that it is nonhazardous pursuant to Title 22, California Code of Regulations.*
- 5. The landfill will accept waste for disposal as deemed acceptable at this class of facility by the Regional Board through Orders or regulations.*

Examples of materials that fall under the special Order category are Treated Wood Waste (Order No. R4-2006-0007) and Contaminated Soil (Order No. R4-2011-0052).

1.5 Prohibited Wastes

CCL is a Class III waste disposal facility that operates under the requirements of WDRs (Order No. 98-086) and Conditional Use Permit No. 89-081(5). In accordance with the provisions of these two permits, CCL does not accept:

- 1) Hazardous wastes which are wastes that fall into the hazardous category based on criteria contained in the Title 22, CCR;
- 2) Designated wastes as defined in Section 13173 of the California Water Code as either:
 - a) Hazardous waste that has been granted a variance from hazardous waste management requirements pursuant to §25143 of the Health and Safety Code; or
 - b) Non-hazardous waste that consists of, or contains, pollutants that, under ambient environmental conditions at a waste management unit, could be released in concentrations exceeding applicable water quality objectives or that could reasonably be expected to affect beneficial uses of the waters of the state as contained in the appropriate state water quality control plan.

There are no quantitative values or concentrations associated with the definition of Designated Waste. To address this issue, CCL conducted site-specific modeling to determine the acceptable threshold concentrations for specific chemicals below which the water quality objectives for the site would be met. The methodology is provided in Appendix B and further discussed in Section 2.2.2.

The WDRs Order No. 98-086 (B. Unacceptable Materials) states the following regarding unacceptable materials:

- 1. No hazardous wastes, designated wastes, or special wastes, such as liquids, oils, waxes, tars, soaps, solvents, or readily water-soluble solids, such as salts, borax, lye, caustic, or acids shall be disposed of at this waste management facility.*
- 2. No semi-solid wastes shall be disposed of at this waste management facility, except as noted above. Semi-solid waste means waste containing less than 50 percent solids, as described in Section 20200 of Title 27.*
- 3. No materials which are of a toxic nature, such as insecticides, poisons, or radioactive materials, shall be disposed of at this waste management facility.*

4. *No infectious materials or hospital or laboratory wastes, except those authorized for disposal to land by official agencies charged with control of plant, animal, and human disease, shall be disposed of at this waste management facility.*
5. *No pesticide containers shall be disposed of at this waste management facility, unless they are rendered nonhazardous by triple rinsing. Otherwise, they must be hauled off site to a legal point of disposal.*
6. *No septic tank or chemical toilet wastes shall be disposed of at this waste management facility.*

The Conditional Use Permit No. 89-081(5) (Conditions of Approval Item 9.a) states the following:

Liquid or hazardous waste or radioactive waste/material shall not be accepted. Should such prohibited waste be nevertheless received at the landfill, it shall be handled and disposed of as provided in Condition 26. The term "liquid waste" as used herein includes non-hazardous sludges meeting the requirements contained in Title 23, Chapter 15 of the California Code of Regulations for disposal in a Class III landfill. The landfill shall not accept sludge or sludge components at any time.

1.6 Load-Checking Program

A load-checking program was developed to screen incoming loads for the presence of prohibited wastes. The load-checking program includes signs to notify landfill customers of acceptable and unacceptable materials, visual inspections at the scale house, inspection at the landfill working face, and physical inspections of random loads.

During inspections, observations are made for prohibited wastes. Designated, trained personnel identify the nature of materials received in a load, and whether they are regulated wastes. Visual inspections are performed daily by trained personnel stationed at the scale house and at the working face of the landfill during waste disposal hours to observe for the disposal of prohibited wastes. The load-checking program (Appendix C of the Joint Technical Document [JTD]) also includes requirements for record keeping, personnel training and monitoring, and for notifying the appropriate regulatory agencies if a regulated or hazardous waste is discovered in a waste load.

The load-checking program also includes a prequalification check for Special Wastes that is conducted at the waste source, before transport to the disposal facility. In general, the prequalification program is directed at industrial waste streams.

2.0 SPECIAL WASTE ACCEPTANCE PROCEDURES

The following describes the procedures for acceptance of wastes that require prequalification and profiling.

Attachment 2

V. MONITORING OF ONSITE USE OF WATER

- A. If water purged from the wells and leachate removed from the site's leachate collection and removal systems were used onsite in accordance with Provision F of this Regional Board's Order No. 98-086, the discharger shall analyze constituents listed in Provision F.6 and Provision F.7 of Order No. 98-086 and submit the data in the semi-annual monitoring report.

VI. MONITORING OF TREATED AUTO SHREDDER WASTE

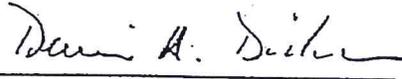
- A. Treated auto shredder waste (TASW) samples from Hugo Neu-Proler Company or future TASW generators shall be sampled and analyzed according to the Waste Extraction Test procedure described in Title 22, California Code of Regulations, Section 66261.126, Appendix II (Metals) and Appendix II-Table 4 (PCBs), for the following constituents:

Constituent	Unit	Analysis
STLC		
Cadmium and/or cadmium compounds	mg/L	Monthly
Chromium and/or chromium compounds	mg/L	Monthly
Copper and/or copper compounds	mg/L	Monthly
Lead and/or lead compounds	mg/L	Monthly
Mercury and/or mercury compounds	mg/L	Monthly
Nickel and/or nickel compounds	mg/L	Monthly
Zinc and/or zinc compounds	mg/L	Monthly
TTLC		
Polychlorinated biphenyls (PCBs)	mg/Kg	Monthly

- B. Shredder waste samples from each source shall also be analyzed once per month for volatile organic compounds using EPA Method 8240. A grab sample shall be randomly obtained from the sampler for this analysis and immediately sealed in an appropriate container.
- C. Composite samples of the waste stream from each shredder source shall be collected daily according to the following procedure: The waste stream will be cut every half-hour and approximately a one pound sample obtained. At the end of eight hours the sample will be coned, quartered and two samples obtained. The combined samples for one week will be mixed, coned and quartered prior to submission to the laboratory. One weekly composite shall be subjected to the monthly testing. The shredder waste producers may present an alternate procedure for compositing samples for Executive Officer approval.

- D. The discharger shall submit copies of all analytical results of TASW deposited with the semi-annual monitoring report.

Ordered By:



DENNIS A. DICKERSON
Executive Officer

Date: November 2, 1998

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5906 Fax (909) 590-8907

Date: May 1, 2015

Mr. Todd F. Peterson
SA Recycling Of Anaheim
3200 E. Frontera Street
Anaheim, CA 92806
Tel(714)688-4940 Email:TPeterson@sarecycling.com

Project: Anaheim HP Weekly 04.13-18.15
Lab I.D.: 150427-28

Dear Mr. Peterson:

The **analytical results** for the solid sample, received by our lab on April 27, 2015, are attached. The sample was received intact, accompanying chain of custody.

Enviro-Chem appreciates the opportunity to provide you and your company this and other services. Please do not hesitate to call us if you have any questions.

Sincerely,



Curtis Desilets
Vice President/Program Manager



Andy Wang
Laboratory Manager

Laboratory Report

CUSTOMER: SA Recycling Of Anaheim
3200 E. Frontera Street, Anaheim, CA 92806
Tel (714) 688-4940 Email:TPeterson@sarecycling.com

PROJECT: Anaheim HP Weekly 04.13-18.15 DATE RECEIVED: 04/27/15
MATRIX: SOLID DATE EXTRACTED: 04/27/15
DATE COLLECTED: 04/13-18/15 DATE ANALYZED: 04/27/15
REPORT TO: MR. TODD F. PETERSON DATE REPORTED: 05/01/15

SAMPLE I.D.: Anaheim HP Weekly 04.13-18.15 LAB I.D.: 150427-28

PCBs ANALYSIS, EPA 8082
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL	DF
PCB-1016	ND	2.00	1
PCB-1221	ND	2.00	1
PCB-1232	ND	2.00	1
PCB-1242	ND	2.00	1
PCB-1248	ND	2.00	1
PCB-1254	ND	2.00	1
PCB-1260	ND	2.00	1
TOTAL PCBs IN THE SAMPLE*	ND	2.00	1

COMMENTS

DF = Dilution Factor

PQL = Practical Quantitation Limit

Actual Detection Limit = PQL X DF

ND = Non-Detected or Below the Actual Detection Limit

* = Sum of the PCB 1016, 1221, 1232, 1242, 1248, 1254 and 1260

*** = The concentration exceeds the TTLC Limit of 50, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)

DATA REVIEWED AND APPROVED BY: 
CAL-DHS ELAP CERTIFICATE No.: 1555

Laboratory Report

CUSTOMER: SA Recycling Of Anaheim
3200 E. Frontera Street, Anaheim, CA 92806
Tel (714) 688-4940 Email:TPeterson@sarecycling.com

PROJECT: Anaheim HP Weekly 04.13-18.15

MATRIX: SOLID

DATE COLLECTED: 04/13-18/15

REPORT TO: MR. TODD F. PETERSON

DATE RECEIVED: 04/27/15

DATE ANALYZED: 04/28-30/15

DATE REPORTED: 05/01/15

SAMPLE I.D.: Anaheim HP Weekly 04.13-18.15 LAB I.D.: 150427-28

SOLUBLE THRESHOLD LIMIT CONCENTRATION (STLC) ANALYSIS

UNIT: mg/L IN THE STLC LEACHATE

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD USED
Cadmium (Cd)	ND	0.05	10	100	1.0	6010B
Chromium Total (Cr)	0.777	0.05	10	2,500	560/5.0@	6010B
Copper (Cu)	13.7	0.1	10	2,500	25	6010B
Lead (Pb)	4.27	0.05	10	1,000	50.0*	6010B
Mercury (Hg)	ND	0.02	1	20	0.2	7470A
Nickel (Ni)	ND	0.25	10	2,000	20	6010B
Zinc (Zn)	28.3	0.05	10	5,000	250	6010B

COMMENTS:

mg/L = Milligram per Liter = PPM

DF = Dilution Factor

PQL = Practical Quantitation Limit

Actual Detection Limit = PQL X DF

ND = Below Actual Detection Limit or non-detected

TTLC = Total Threshold Limit Concentration

STLC = Soluble Threshold Limit Concentration

@ = Must meet the TCLP limit/chromium (5.0 mg/L in TCLP leachate)

* = The STLC-Lead Limit for SA Recycling is 50 mg/L instead of 5 mg/L

** = TCLP Chromium required (if marked)

*** = The concentration exceeds the STLC Limit, and the sample is defined as hazardous waste as per CAL-TITLE 22 (if marked)

Data Reviewed and Approved by: 

CAL-DHS ELAP CERTIFICATE No.: 1555

Laboratory Report

CUSTOMER: SA Recycling Of Anaheim
3200 E. Frontera Street, Anaheim, CA 92806
Tel (714) 688-4940 Email:TPeterson@sarecycling.com

PROJECT: Anaheim HP Weekly 04.13-18.15

MATRIX: SOLID

DATE COLLECTED: 04/13-18/15

REPORT TO: MR. TODD F. PETERSON

DATE RECEIVED: 04/27/15

DATE ANALYZED: 04/27/15

DATE REPORTED: 05/01/15

SAMPLE I.D.: Anaheim HP Weekly 04.13-18.15

LAB I.D.: 150427-28

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 5030B/8260B, PAGE 1 OF 2
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL X500
ACETONE	ND	0.020
BENZENE	ND	0.005
BROMOBENZENE	ND	0.005
BROMOCHLOROMETHANE	ND	0.005
BROMODICHLOROMETHANE	ND	0.005
BROMOFORM	ND	0.005
BROMOMETHANE	ND	0.005
2-BUTANONE (MEK)	ND	0.020
N-BUTYLBENZENE	ND	0.005
SEC-BUTYLBENZENE	ND	0.005
TERT-BUTYLBENZENE	ND	0.005
CARBON DISULFIDE	ND	0.010
CARBON TETRACHLORIDE	ND	0.005
CHLOROBENZENE	ND	0.005
CHLOROETHANE	ND	0.005
CHLOROFORM	ND	0.005
CHLOROMETHANE	ND	0.005
2-CHLOROTOLUENE	ND	0.005
4-CHLOROTOLUENE	ND	0.005
DIBROMOCHLOROMETHANE	ND	0.005
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.005
1,2-DIBROMOETHANE	ND	0.005
DIBROMOMETHANE	ND	0.005
1,2-DICHLOROBENZENE	ND	0.005
1,3-DICHLOROBENZENE	ND	0.005
1,4-DICHLOROBENZENE	ND	0.005
DICHLORODIFLUOROMETHANE	ND	0.005
1,1-DICHLOROETHANE	ND	0.005
1,2-DICHLOROETHANE	ND	0.005
1,1-DICHLOROETHENE	ND	0.005
CIS-1,2-DICHLOROETHENE	ND	0.005
TRANS-1,2-DICHLOROETHENE	ND	0.005
1,2-DICHLOROPROPANE	ND	0.005

----- TO BE CONTINUED ON PAGE #2 -----

DATA REVIEWED AND APPROVED BY: 

Laboratory Report

CUSTOMER: SA Recycling Of Anaheim
 3200 E. Frontera Street, Anaheim, CA 92806
 Tel (714) 688-4940 Email:TPeterson@sarecycling.com

PROJECT: Anaheim HP Weekly 04.13-18.15

MATRIX: SOLID

DATE COLLECTED: 04/13-18/15

REPORT TO: MR. TODD F. PETERSON

DATE RECEIVED: 04/27/15

DATE ANALYZED: 04/27/15

DATE REPORTED: 05/01/15

SAMPLE I.D.: Anaheim HP Weekly 04.13-18.15

LAB I.D.: 150427-28

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 5030B/8260B, PAGE 2 OF 2
 UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL X500
1,3-DICHLOROPROPANE	ND	0.005
2,2-DICHLOROPROPANE	ND	0.005
1,1-DICHLOROPROPENE	ND	0.005
CIS-1,3-DICHLOROPROPENE	ND	0.005
TRANS-1,3-DICHLOROPROPENE	ND	0.005
ETHYLBENZENE	ND	0.005
2-HEXANONE	ND	0.020
HEXACHLOROBUTADIENE	ND	0.005
ISOPROPYLBENZENE	ND	0.005
4-ISOPROPYLTOLUENE	ND	0.005
4-METHYL-2-PENTANONE (MIBK)	ND	0.020
METHYL tert-BUTYL ETHER (MTBE)	ND	0.005
METHYLENE CHLORIDE	ND	0.010
NAPHTHALENE	ND	0.005
N-PROPYLBENZENE	ND	0.005
STYRENE	ND	0.005
1,1,1,2-TETRACHLOROETHANE	ND	0.005
1,1,2,2-TETRACHLOROETHANE	ND	0.005
TETRACHLOROETHENE (PCE)	ND	0.005
TOLUENE	ND	0.005
1,2,3-TRICHLOROBENZENE	ND	0.005
1,2,4-TRICHLOROBENZENE	ND	0.005
1,1,1-TRICHLOROETHANE	ND	0.005
1,1,2-TRICHLOROETHANE	ND	0.005
TRICHLOROETHENE (TCE)	ND	0.005
TRICHLOROFLUOROMETHANE	9.28	0.005
1,2,3-TRICHLOROPROPANE	ND	0.005
1,2,4-TRIMETHYLBENZENE	ND	0.005
1,3,5-TRIMETHYLBENZENE	ND	0.005
VINYL CHLORIDE	ND	0.005
M/P-XYLENE	ND	0.010
O-XYLENE	ND	0.005

COMMENTS PQL = PRACTICAL QUANTITATION LIMIT

ND = NON-DETECTED OR BELOW THE PQL

DATA REVIEWED AND APPROVED BY:

CAL-DHS CERTIFICATE # 1555



Enviro - Chem, Inc.

1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Date: May 28, 2015

Mr. Todd F. Peterson
SA Recycling Of Anaheim
3200 E. Frontera Street
Anaheim, CA 92806
Tel (714) 688-4940
E-mail: TPeterson@sarecycling.com

Project: **Anaheim HP Weekly 05.04-09.15**
Lab I.D.: 150522-16

Dear Mr. Peterson:

The **Analysis results** for the solid sample, received by our lab on May 22, 2015, are attached. The sample was received intact, accompanying chain of custody.

Enviro-Chem appreciates the opportunity to provide you and your company this and other services. Please do not hesitate to call us if you have any questions.

Sincerely,



Curtis Desilets
Vice President/Program Manager



Andy Wang
Laboratory Manager

Laboratory Report

CUSTOMER: SA Recycling Of Anaheim
 3200 E. Frontera Street,
 Anaheim, CA 92806
 Tel (714) 688-4940 E-mail: TPeterson@sarecycling.com

PROJECT: Anaheim HP Weekly 05.04-09.15

MATRIX: SOLID
 DATE COLLECTED: 05/04-09/15
 REPORT TO: MR. TODD F. PETERSON

DATE RECEIVED: 05/22/15
 DATE EXTRACTED: 05/26/15
 DATE ANALYZED: 05/26/15
 DATE REPORTED: 05/28/15

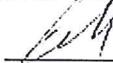
SAMPLE I.D.: Anaheim HP Weekly 05.04-09.15
 LAB I.D.: 150522-16

PCBs ANALYSIS, EPA 8082
 UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL	DF
PCB-1016	ND	2.00	1
PCB-1221	ND	2.00	1
PCB-1232	ND	2.00	1
PCB-1242	8.16	2.00	1
PCB-1248	ND	2.00	1
PCB-1254	ND	2.00	1
PCB-1260	ND	2.00	1
TOTAL PCBs IN THE SAMPLE*	8.16	2.00	1

COMMENTS

DF = Dilution Factor
 PQL = Practical Quantitation Limit
 Actual Detection Limit = PQL X DF
 ND = Non-Detected or Below the Actual Detection Limit
 * = Sum of the PCB 1016, 1221, 1232, 1242, 1248, 1254 and 1260
 *** = The concentration exceeds the TTLC Limit of 50, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)

DATA REVIEWED AND APPROVED BY: 
 CAL-DHS ELAP CERTIFICATE No.: 1555

Laboratory Report

CUSTOMER: SA Recycling Of Anaheim
3200 E. Frontera Street
Anaheim, CA 92806
Tel (714) 688-4940 E-mail: TPeterson@sarecycling.com

PROJECT: Anaheim HP Weekly 05.04-09.15

MATRIX: SOLID

DATE RECEIVED: 05/22/15

DATE COLLECTED: 05/04-09/15

DATE ANALYZED: 05/22/15

REPORT TO: MR. TODD F. PETERSON

DATE REPORTED: 05/28/15

SAMPLE I.D.: Anaheim HP Weekly 05.04-09.15

LAB I.D.: 150522-16

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 5030B/8260B, PAGE 1 OF 2
UNIT: MG/KG = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL X250
ACETONE	ND	0.020
BENZENE	ND	0.005
BROMOBENZENE	ND	0.005
BROMOCHLOROMETHANE	ND	0.005
BROMODICHLOROMETHANE	ND	0.005
BROMOFORM	ND	0.005
BROMOMETHANE	ND	0.005
2-BUTANONE (MEK)	ND	0.020
N-BUTYLBENZENE	ND	0.005
SEC-BUTYLBENZENE	ND	0.005
TERT-BUTYLBENZENE	ND	0.005
CARBON DISULFIDE	ND	0.010
CARBON TETRACHLORIDE	ND	0.005
CHLOROBENZENE	ND	0.005
CHLOROETHANE	ND	0.005
CHLOROFORM	ND	0.005
CHLOROMETHANE	ND	0.005
2-CHLOROTOLUENE	ND	0.005
4-CHLOROTOLUENE	ND	0.005
DIBROMOCHLOROMETHANE	ND	0.005
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.005
1,2-DIBROMOETHANE	ND	0.005
DIBROMOMETHANE	ND	0.005
1,2-DICHLOROBENZENE	ND	0.005
1,3-DICHLOROBENZENE	ND	0.005
1,4-DICHLOROBENZENE	ND	0.005
DICHLORODIFLUOROMETHANE	ND	0.005
1,1-DICHLOROETHANE	ND	0.005
1,2-DICHLOROETHANE	ND	0.005
1,1-DICHLOROETHENE	ND	0.005
CIS-1,2-DICHLOROETHENE	ND	0.005
TRANS-1,2-DICHLOROETHENE	ND	0.005
1,2-DICHLOROPROPANE	ND	0.005

----- TO BE CONTINUED ON PAGE #2 -----

DATA REVIEWED AND APPROVED BY: 

Laboratory Report

CUSTOMER: SA Recycling Of Anaheim
3200 E. Frontera Street
Anaheim, CA 92806
Tel (714) 688-4940 E-mail: TPeterson@sarecycling.com

PROJECT: Anaheim HP Weekly 05.04-09.15

MATRIX: SOLID

DATE COLLECTED: 05/04-09/15

DATE RECEIVED: 05/22/15

REPORT TO: MR. TODD F. PETERSON

DATE ANALYZED: 05/22/15

DATE REPORTED: 05/28/15

SAMPLE I.D.: Anaheim HP Weekly 05.04-09.15

LAB I.D.: 150522-16

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 5030B/8260B, PAGE 2 OF 2
UNIT: MG/KG = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL X250
1,3-DICHLOROPROPANE	ND	0.005
2,2-DICHLOROPROPANE	ND	0.005
1,1-DICHLOROPROPENE	ND	0.005
CIS-1,3-DICHLOROPROPENE	ND	0.005
TRANS-1,3-DICHLOROPROPENE	ND	0.005
ETHYLBENZENE	ND	0.005
2-HEXANONE	ND	0.020
HEXACHLOROBUTADIENE	ND	0.005
ISOPROPYLBENZENE	ND	0.005
4-ISOPROPYLTOLUENE	ND	0.005
4-METHYL-2-PENTANONE (MIBK)	ND	0.020
METHYL tert-BUTYL ETHER (MTBE)	ND	0.005
METHYLENE CHLORIDE	ND	0.010
NAPHTHALENE	ND	0.005
N-PROPYLBENZENE	ND	0.005
STYRENE	ND	0.005
1,1,1,2-TETRACHLOROETHANE	ND	0.005
1,1,2,2-TETRACHLOROETHANE	ND	0.005
TETRACHLOROETHENE (PCE)	ND	0.005
TOLUENE	ND	0.005
1,2,3-TRICHLOROBENZENE	ND	0.005
1,2,4-TRICHLOROBENZENE	ND	0.005
1,1,1-TRICHLOROETHANE	ND	0.005
1,1,2-TRICHLOROETHANE	ND	0.005
TRICHLOROETHENE (TCE)	ND	0.005
TRICHLOROFLUOROMETHANE	24.1	0.005
1,2,3-TRICHLOROPROPANE	ND	0.005
1,2,4-TRIMETHYLBENZENE	ND	0.005
1,3,5-TRIMETHYLBENZENE	ND	0.005
VINYL CHLORIDE	ND	0.005
M/P-XYLENE	ND	0.010
O-XYLENE	ND	0.005

COMMENTS PQL = PRACTICAL QUANTITATION LIMIT

ND = NON-DETECTED OR BELOW THE PQL

DATA REVIEWED AND APPROVED BY:

CAL-DHS CERTIFICATE # 1555

Laboratory Report

CUSTOMER: SA Recycling Of Anaheim
3200 E. Frontera Street
Anaheim, CA 92806
Tel (714) 688-4940 E-mail: TPeterson@sarecycling.com

PROJECT: Anaheim HP Weekly 05.04-09.15

MATRIX: SOLID

DATE RECEIVED: 05/22/15

DATE COLLECTED: 05/04-09/15

DATE ANALYZED: 05/24-26/15

REPORT TO: MR. TODD F. PETERSON

DATE REPORTED: 05/28/15

SAMPLE I.D.: Anaheim HP Weekly 05.04-09.15

LAB I.D.: 150522-16

SOLUBLE THRESHOLD LIMIT CONCENTRATION (STLC) ANALYSIS
UNIT: mg/L IN THE STLC LEACHATE

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD USED
Cadmium (Cd)	ND	0.05	10	100	1.0	6010B
Chromium Total (Cr)	0.697	0.05	10	2,500	560/5.0@	6010B
Copper (Cu)	11.7	0.1	10	2,500	25	6010B
Lead (Pb)	5.39	0.05	10	1,000	50.0*	6010B
Mercury (Hg)	ND	0.02	1	20	0.2	7470A
Nickel (Ni)	ND	0.25	10	2,000	20	6010B
Zinc (Zn)	47.2	0.05	10	5,000	250	6010B

COMMENTS:

MG/L = Milligram per Liter = PPM

DF = Dilution Factor

PQL = Practical Quantitation Limit

Actual Detection Limit = PQL X DF

ND = Below Actual Detection Limit or non-detected

TTLC = Total Threshold Limit Concentration

STLC = Soluble Threshold Limit Concentration

@ = Must meet the TCLP limit/chromium (5.0 mg/L in TCLP leachate)

* = The STLC-Lead Limit for SA Recycling is 50 mg/L instead of 5 mg/L

** = TCLP Chromium required (if marked)

*** = The concentration exceeds the STLC Limit, and the sample is defined as hazardous waste as per CAL-TITLE 22 (if marked)

Data Reviewed and Approved by: 

CAL-DHS ELAP CERTIFICATE No.: 1555

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Date: April 23, 2015

Mr. Todd F. Peterson
SA Recycling Of Los Angeles
901 New Dock Street
San Pedro, CA 90731
Tel (714) 688-4940 Email:TPeterson@sarecycling.com

Project: TI HP Weekly 04.05-11.15
Lab I.D.: 150421-20

Dear Mr. Peterson:

The analytical results for the solid sample, received by our lab on April 21, 2015, are attached. The sample was received intact, accompanying chain of custody.

Enviro-Chem appreciates the opportunity to provide you and your company this and other services. Please do not hesitate to call us if you have any questions.

Sincerely,



Curtis Desilets
Vice President/Program Manager



Andy Wang
Laboratory Manager

Laboratory Report

CUSTOMER: SA Recycling Of Los Angeles
 901 New Dock Street, San Pedro, CA 90731
 Tel (714) 688-4940 Email:TPeterson@sarecycling.com

PROJECT: TI HP Weekly 04.05-11.15 DATE RECEIVED: 04/21/15
 MATRIX: SOLID DATE EXTRACTED: 04/21/15
 DATE COLLECTED: 04/05-11/15 DATE ANALYZED: 04/21/15
 REPORT TO: MR. TODD F. PETERSON DATE REPORTED: 04/23/15

SAMPLE I.D.: TI HP Weekly 04.05-11.15 LAB I.D.: 150421-20

PCBs ANALYSIS, EPA 8082
 UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL	DF
PCB-1016	ND	2.00	1
PCB-1221	ND	2.00	1
PCB-1232	ND	2.00	1
PCB-1242	4.92	2.00	1
PCB-1248	ND	2.00	1
PCB-1254	ND	2.00	1
PCB-1260	ND	2.00	1
TOTAL PCBs IN THE SAMPLE*	4.92	2.00	1

COMMENTS

DF = Dilution Factor
 PQL = Practical Quantitation Limit
 Actual Detection Limit = PQL X DF
 ND = Non-Detected or Below the PQL
 * = Sum of the PCB 1016, 1221, 1232, 1242, 1248, 1254 and 1260
 *** = The concentration exceeds the TTLC Limit of 50, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)

DATA REVIEWED AND APPROVED BY: 
 CAL-DHS ELAP CERTIFICATE No.: 1555

Laboratory Report

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SAMPLE I.D.: TI HP Weekly 04.05-11.15

LAB I.D.: 150421-20

SOLUBLE THRESHOLD LIMIT CONCENTRATION (STLC) ANALYSIS

UNIT: mg/L IN THE STLC LEACHATE

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD USED
Cadmium (Cd)	ND	0.05	10	100	1.0	6010B
Chromium Total (Cr)	1.52	0.05	10	2,500	560/5.0@	6010B
Copper (Cu)	12.8	0.1	10	2,500	25	6010B
Lead (Pb)	2.09	0.05	10	1,000	50.0*	6010B
Mercury (Hg)	ND	0.01	1	20	0.2	7470A
Nickel (Ni)	ND	0.25	10	2,000	20	6010B
Zinc (Zn)	19.3	0.05	10	5,000	250	6010B

COMMENTS:

mg/L = Milligram per Liter = PPM

DF = Dilution Factor

PQL = Practical Quantitation Limit

Actual Detection Limit = PQL X DF

ND = Below Actual Detection Limit or non-detected

TTLC = Total Threshold Limit Concentration

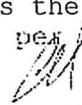
STLC = Soluble Threshold Limit Concentration

@ = Must meet the TCLP limit/chromium (5.0 Mg/L in TCLP leachate)

* = The STLC-Lead Limit for SA Recycling is 50 Mg/L instead of 5 Mg/L

** = TCLP Chromium required (if marked)

*** = The concentration exceeds the STLC Limit, and the sample is defined as hazardous waste as per CAL-TITLE 22 (if marked)

Data Reviewed and Approved by: 

CAL-DHS ELAP CERTIFICATE No.: 1555

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SAMPLE I.D.: TI HP Weekly 04.05-11.15

LAB I.D.: 150421-20

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 5030B/8260B, PAGE 1 OF 2
 UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL X1000
ACETONE	ND	0.020
BENZENE	ND	0.005
BROMOBENZENE	ND	0.005
BROMOCHLOROMETHANE	ND	0.005
BROMODICHLOROMETHANE	ND	0.005
BROMOFORM	ND	0.005
BROMOMETHANE	ND	0.005
2-BUTANONE (MEK)	ND	0.020
N-BUTYLBENZENE	ND	0.005
SEC-BUTYLBENZENE	ND	0.005
TERT-BUTYLBENZENE	ND	0.005
CARBON DISULFIDE	ND	0.010
CARBON TETRACHLORIDE	ND	0.005
CHLOROBENZENE	ND	0.005
CHLOROETHANE	ND	0.005
CHLOROFORM	ND	0.005
CHLOROMETHANE	ND	0.005
2-CHLOROTOLUENE	ND	0.005
4-CHLOROTOLUENE	ND	0.005
DIBROMOCHLOROMETHANE	ND	0.005
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.005
1,2-DIBROMOETHANE	ND	0.005
DIBROMOMETHANE	ND	0.005
1,2-DICHLOROBENZENE	ND	0.005
1,3-DICHLOROBENZENE	ND	0.005
1,4-DICHLOROBENZENE	ND	0.005
DICHLORODIFLUOROMETHANE	ND	0.005
1,1-DICHLOROETHANE	ND	0.005
1,2-DICHLOROETHANE	ND	0.005
1,1-DICHLOROETHENE	ND	0.005
CIS-1,2-DICHLOROETHENE	ND	0.005
TRANS-1,2-DICHLOROETHENE	ND	0.005
1,2-DICHLOROPROPANE	ND	0.005

----- TO BE CONTINUED ON PAGE #2 -----

DATA REVIEWED AND APPROVED BY: 

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PROJECT: TI HP Weekly 04.05-11.15

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SAMPLE I.D.: TI HP Weekly 04.05-11.15

LAB I.D.: 150421-20

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 5030B/8260B, PAGE 2 OF 2
 UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

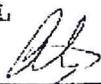
PARAMETER	SAMPLE RESULT	PQL X1000
1,3-DICHLOROPROPANE	ND	0.005
2,2-DICHLOROPROPANE	ND	0.005
1,1-DICHLOROPROPENE	ND	0.005
CIS-1,3-DICHLOROPROPENE	ND	0.005
TRANS-1,3-DICHLOROPROPENE	ND	0.005
ETHYLBENZENE	ND	0.005
2-HEXANONE	ND	0.020
HEXACHLOROBUTADIENE	ND	0.005
ISOPROPYLBENZENE	ND	0.005
4-ISOPROPYLTOLUENE	ND	0.005
4-METHYL-2-PENTANONE (MIBK)	ND	0.020
METHYL tert-BUTYL ETHER (MTBE)	ND	0.005
METHYLENE CHLORIDE	ND	0.010
NAPHTHALENE	ND	0.005
N-PROPYLBENZENE	ND	0.005
STYRENE	ND	0.005
1,1,1,2-TETRACHLOROETHANE	ND	0.005
1,1,2,2-TETRACHLOROETHANE	ND	0.005
TETRACHLOROETHENE (PCE)	ND	0.005
TOLUENE	ND	0.005
1,2,3-TRICHLOROBENZENE	ND	0.005
1,2,4-TRICHLOROBENZENE	ND	0.005
1,1,1-TRICHLOROETHANE	ND	0.005
1,1,2-TRICHLOROETHANE	ND	0.005
TRICHLOROETHENE (TCE)	ND	0.005
TRICHLOROFLUOROMETHANE	180	0.005
1,2,3-TRICHLOROPROPANE	ND	0.005
1,2,4-TRIMETHYLBENZENE	ND	0.005
1,3,5-TRIMETHYLBENZENE	ND	0.005
VINYL CHLORIDE	ND	0.005
M/P-XYLENE	ND	0.010
O-XYLENE	ND	0.005

COMMENTS PQL = PRACTICAL QUANTITATION LIMIT

ND = NON-DETECTED OR BELOW THE PQL

DATA REVIEWED AND APPROVED BY:

CAL-DHS CERTIFICATE # 1555



Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Date: June 5, 2015

Mr. Todd F. Peterson
SA Recycling Of Los Angeles
901 New Dock Street
San Pedro, CA 90731
Tel (714) 688-4940
E-mail: TPeterson@sarecycling.com

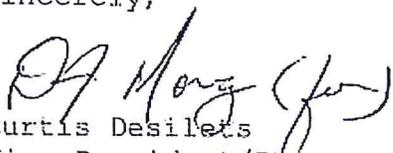
Project: TI HP Weekly 05.17-23.15
Lab I.D.: 150602-22

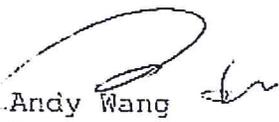
Dear Mr. Peterson:

The **Analysis results** for the solid sample, received by our lab on June 2, 2015 are attached. The sample was received intact, accompanying chain of custody.

Enviro-Chem appreciates the opportunity to provide you and your company this and other services. Please do not hesitate to call us if you have any questions.

Sincerely,


Curtis Desilets
Vice President/Program Manager


Andy Wang
Laboratory Manager

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Tel (714) 688-4940
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PROJECT: TI HP Weekly 05.17-23.15

MATRIX: SOLID

DATE COLLECTED: 05/17-23/15

REPORT TO: MR. TODD F. PETERSON

DATE RECEIVED: 06/02/15

DATE EXTRACTED: 06/03/15

DATE ANALYZED: 06/03/15

DATE REPORTED: 06/05/15

SAMPLE I.D.: TI HP Weekly 05.17-23.15

LAB I.D.: 150602-22

PCBs ANALYSIS, EPA 8082
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL	DF
PCB-1016	ND	2.00	1
PCB-1221	ND	2.00	1
PCB-1232	ND	2.00	1
PCB-1242	11.6	2.00	1
PCB-1248	ND	2.00	1
PCB-1254	ND	2.00	1
PCB-1260	ND	2.00	1
TOTAL PCBs IN THE SAMPLE*	11.6	2.00	1

COMMENTS

DF = Dilution Factor

PQL = Practical Quantitation Limit

Actual Detection Limit = PQL X DF

ND = Non-Detected or Below the PQL

* = Sum of the PCB 1016, 1221, 1232, 1242, 1248, 1254 and 1260

*** = The concentration exceeds the TTLC Limit of 50, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)

DATA REVIEWED AND APPROVED BY: 
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PROJECT: TI HP Weekly 05.17-23.15

MATRIX: SOLID

DATE RECEIVED: 06/02/15

DATE COLLECTED: 05/17-23/15

DATE ANALYZED: 06/02-04/15

REPORT TO: MR. TODD F. PETERSON

DATE REPORTED: 06/05/15

SAMPLE I.D.: TI HP Weekly 05.17-23.15

LAB I.D.: 150602-22

SOLUBLE THRESHOLD LIMIT CONCENTRATION (STLC) ANALYSIS
UNIT: MG/L IN THE STLC LEACHATE

ELEMENT ANALYZED	SAMPLE RESULT	PQL	DF	TTLC LIMIT	STLC LIMIT	EPA METHOD USED
Cadmium (Cd)	ND	0.05	1	100	1.0	6010B
Chromium Total (Cr)	0.992	0.05	1	2,500	560/5.0@	6010B
Copper (Cu)	14.0	0.1	1	2,500	25	6010B
Lead (Pb)	2.62	0.05	1	1,000	50.0*	6010B
Mercury (Hg)	ND	0.02	1	20	0.2	7470A
Nickel (Ni)	ND	0.25	1	2,000	20	6010B
Zinc (Zn)	23.0	0.05	1	5,000	250	6010B

COMMENTS:

MG/L = Milligram per Liter = PPM

DF = Dilution Factor

PQL = Practical Quantitation Limit

Actual Detection Limit = PQL X DF

ND = Below Actual Detection Limit or non-detected

TTLC = Total Threshold Limit Concentration

STLC = Soluble Threshold Limit Concentration

@ = Must meet the TCLP limit/chromium (5.0 Mg/L in TCLP leachate)

* = The STLC-Lead Limit for SA Recycling is 50 Mg/L instead of 5 Mg/L

** = TCLP Chromium required (if marked)

*** = The concentration exceeds the STLC Limit, and the sample is defined as hazardous waste as per CAL-TITLE 22 (if marked)

Data Reviewed and Approved by: _____
CAL-DHS ELAP CERTIFICATE No.: 1555



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LAB I.D.: 150602-22

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 5030B/8260B, PAGE 1 OF 2
UNIT: MG/KG = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL X250
ACETONE	ND	0.020
BENZENE	ND	0.005
BROMOBENZENE	ND	0.005
BROMOCHLOROMETHANE	ND	0.005
BROMODICHLOROMETHANE	ND	0.005
BROMOFORM	ND	0.005
BROMOMETHANE	ND	0.005
2-BUTANONE (MEK)	ND	0.020
N-BUTYLBENZENE	ND	0.005
SEC-BUTYLBENZENE	ND	0.005
TERT-BUTYLBENZENE	ND	0.005
CARBON DISULFIDE	ND	0.010
CARBON TETRACHLORIDE	ND	0.005
CHLOROBENZENE	ND	0.005
CHLOROETHANE	ND	0.005
CHLOROFORM	ND	0.005
CHLOROMETHANE	ND	0.005
2-CHLOROTOLUENE	ND	0.005
4-CHLOROTOLUENE	ND	0.005
DIBROMOCHLOROMETHANE	ND	0.005
1,2-DIBROMO-3-CHLOROPROPANE	ND	0.005
1,2-DIBROMOETHANE	ND	0.005
DIBROMOMETHANE	ND	0.005
1,2-DICHLOROBENZENE	ND	0.005
1,3-DICHLOROBENZENE	ND	0.005
1,4-DICHLOROBENZENE	ND	0.005
DICHLORODIFLUOROMETHANE	ND	0.005
1,1-DICHLOROETHANE	ND	0.005
1,2-DICHLOROETHANE	ND	0.005
1,1-DICHLOROETHENE	ND	0.005
CIS-1,2-DICHLOROETHENE	ND	0.005
TRANS-1,2-DICHLOROETHENE	ND	0.005
1,2-DICHLOROPROPANE	ND	0.005

----- TO BE CONTINUED ON PAGE #2 -----

DATA REVIEWED AND APPROVED BY: _____



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LAB I.D.: 150602-22

ANALYSIS: VOLATILE ORGANICS, EPA METHOD 5030B/8260B, PAGE 2 OF 2

UNIT: MG/KG = MILLIGRAM PER KILOGRAM = PPM

PARAMETER	SAMPLE RESULT	PQL X250
1,3-DICHLOROPROPANE	ND	0.005
2,2-DICHLOROPROPANE	ND	0.005
1,1-DICHLOROPROPENE	ND	0.005
CIS-1,3-DICHLOROPROPENE	ND	0.005
TRANS-1,3-DICHLOROPROPENE	ND	0.005
ETHYLBENZENE	ND	0.005
2-HEXANONE	ND	0.020
HEXACHLOROBUTADIENE	ND	0.005
ISOPROPYLBENZENE	ND	0.005
4-ISOPROPYLTOLUENE	ND	0.005
4-METHYL-2-PENTANONE (MIBK)	ND	0.020
METHYL tert-BUTYL ETHER (MTBE)	ND	0.005
METHYLENE CHLORIDE	ND	0.010
NAPHTHALENE	ND	0.005
N-PROPYLBENZENE	ND	0.005
STYRENE	2.50	0.005
1,1,1,2-TETRACHLOROETHANE	ND	0.005
1,1,2,2-TETRACHLOROETHANE	ND	0.005
TETRACHLOROETHENE (PCE)	ND	0.005
TOLUENE	ND	0.005
1,2,3-TRICHLOROBENZENE	ND	0.005
1,2,4-TRICHLOROBENZENE	ND	0.005
1,1,1-TRICHLOROETHANE	ND	0.005
1,1,2-TRICHLOROETHANE	ND	0.005
TRICHLOROETHENE (TCE)	ND	0.005
TRICHLOROFLUOROMETHANE	24.0	0.005
1,2,3-TRICHLOROPROPANE	ND	0.005
1,2,4-TRIMETHYLBENZENE	ND	0.005
1,3,5-TRIMETHYLBENZENE	ND	0.005
VINYL CHLORIDE	ND	0.005
M/P-XYLENE	ND	0.010
O-XYLENE	ND	0.005

COMMENTS PQL = PRACTICAL QUANTITATION LIMIT

ND = NON-DETECTED OR BELOW THE PQL.

DATA REVIEWED AND APPROVED BY:

CAL-DHS CERTIFICATE # 1555



Dear Mr. Sanchez,

In accordance with the Department of Toxic Substances Control's letter and questionnaire dated 20 May 2015, responses to the questions are as follows:

1. Please provide the policy that applies to the acceptance of metal shredder waste. If no such policy exists, describe any practices and procedures used by your facility to accept such waste.
Forward is permitted to accept treated auto shredder waste in accordance with requirements set forth in the Solid Waste Facility Permit 39-AA-0015, Waste Discharge Requirements Order No. R5-2014-0006, and Joint Technical Document (April 2014 – Amended June 2014).
2. How much metal shredder waste by weight did your facility accept from January 1, 2014, through January 1, 2015? Please include the name and address of each metal shredding facility that sent the metal shredder waste and how much they sent during the calendar year.
There was no treated auto shredder waste accepted between 1 January 2014 and 1 January 2015.
3. What percentage of metal shredder waste was used as Alternative Daily Cover (ADC)?
N/A
4. Please answer the following questions (4.A. – 4.D.) pertaining to metal shredder waste accepted at your facility and used as ADC:
 - A. How much metal shredder waste is stored onsite prior to its use as ADC?
 - B. How long is it stored?
 - C. How is it stored (e.g., on a paved surface)?
 - D. Where in the facility is it stored? Please provide a site map of the location.*N/A*
5. Please answer the following questions (5.A. – 5.D.) pertaining to metal shredder waste accepted at your facility but not used as ADC:
 - A. How much metal shredder waste is stored onsite prior to its use as ADC?
 - B. How long is it stored?
 - C. How is it stored (e.g., on a paved surface)?
 - D. Where in the facility is it stored? Please provide a site map of the location.*N/A*
6. Do the regional water quality control boards or other regulating authorities impose any requirements on your facility concerning metal shredder waste? If so, what are those requirements? You may exclude any permits or other forms of documented authorizations answered in question 7, below.
The Regional Water Quality Control Board does not have any requirements other than auto shredder waste must be placed in a Subtitle D cell.
7. Provide a copy of all permits and other forms of documented authorization issued to your facility by any governmental entity related to metal shredder waste management activities, and a copy of any data your facility may have regarding the toxicity characteristics of metal shredder waste.
See attached Solid Waste Facility Permit 39-AA-0015, Waste Discharge Requirements Order No. R5-2014-0006, and excerpt from Joint Technical Document (April 2014 – Amended June 2014) describing use of treated auto shredder waste as ADC.
8. Are other management requirements followed by your facility for metal shredder waste when accepting, handling, storing and ultimately disposing of or using metal shredder waste as ADC? If so, please describe those requirements.
N/A

Thank you very much for your time, and please do not hesitate to contact me with any questions.

Kindest regards,

Erin



We'll handle it from here.™

Erin Fanning Environmental Manager

9999 South Austin Road, Manteca, CA 95336

e efanning@republicservices.com

o 209-982-4298

f 209-982-1009

w republicservices.com

QUESTIONNAIRE
SOLID WASTE DISPOSAL FACILITIES MANAGING METAL SHREDDER WASTE
May 20, 2015

1. Please provide the policy that applies to the acceptance of metal shredder waste. If no such policy exists, describe any practices and procedures used by your facility to accept such waste.

(A) Holloway receives treated auto shredder waste (predominately non-metallic solid material including plastic, broken glass, rubber, foam, soil, and fabric). All trucks delivering approved waste streams are weighed loaded and unloaded, at the mine headquarters compound. Each truck load is accompanied with a weigh ticket and material manifest from the generator. All records or copies are available for inspection at the Holloway office, at 2019 Westwind Drive Suite B, Bakersfield, California 93310 with copies being kept at the Landfill headquarters office, adjacent to the Landfill. Tonnage by material type and generator are and will be tabulated each month, at the Landfill headquarters office.

The waste material is spread in rows in designated areas of the disposal pit floor for processing. The waste is then either blended with stockpiled soil overburden in a minimum 1:1 ratio by volume of soil to waste, and spread and compacted into 1-2 foot thick lifts, or is spread in a monolayer lift of 6 inches to 1 foot thick, and then covered with an equivalent thickness of stockpiled soil overburden and compacted, or is spread in monolayer lifts of 1-2 foot thick and covered with an equivalent thickness of stockpiled soil overburden and compacted. All waste stream blending, spreading and initial compaction is accomplished by Michigan 210 self-loaders. Michigan 380B bulldozers are also used for compaction.

Note that prior to the acceptance of Treated Automobile Shredder Waste (TAS) to any approved Pit, representative samples of waste from sources are analyzed by the generator and then by Holloway for Inorganic Persistent, Bioaccumulative Toxic Substances, Polychlorinated Biphenyls (PCBs) and Volatile Organic Compounds (VOCs). Generators that have received a letter from the Department of Toxic Substances Control in accordance with Section 66260.200(f) of Title 22 CCR, can manage TAS as a nonhazardous waste. This characterization of nonhazardous waste is further classified as “designated” waste in accordance with Section 2522(a)(2) of Title 23, CCR.

2. How much metal shredder waste by weight did your facility accept from January 1, 2014, through January 1, 2015? Please include the name and address of each metal shredding facility that sent the metal shredder waste and how much they sent during the calendar year.

(A) 24,396.48 tons delivered from SA Recycling, 2411 North Glassell St. Orange, CA. 92865

3. What percentage of metal shredder waste was used as Alternative Daily Cover (ADC)?

(A) All auto shredder waste delivered was buried in Holloway landfill, zero tonnage delivered was used for daily cover.

The only cover material used that has been and will be used in the Holloway Landfill operation is

on-site native soils that have been stockpiled during the mining operations. At present, Holloway does not intend to use any Alternate Daily Cover (ADC) material.

4. Please answer the following questions (4.A.–4.D.) pertaining to metal shredder waste accepted at your facility and used as ADC:

A. How much metal shredder waste is stored onsite prior to its use as ADC?

(A) None

B. How long is it stored?

(A) N/A

C. How is it stored (e.g., on a paved surface)?

(A) N/A

D. Where in the facility is it stored? Please provide a site map of the location.

(A) N/A

5. Please answer the following questions (5.A.–5.D.) pertaining to metal shredder waste accepted at your facility but not used as ADC:

A. How much metal shredder waste is stored onsite prior to its use as ADC?

(A) N/A, see process description question No. 1

B. How long is it stored?

(A) N/A see process description question No. 1

C. How is it stored (e.g., on a paved surface)?

(A) N/A see process description question No. 1

D. Where in the facility is it stored? Please provide a site map of the location.

(A) N/A see process description question No. 1

6. Do the regional water quality control boards or other regulating authorities impose any requirements on your facility concerning metal shredder waste? If so, what are those requirements? You may exclude any permits or other forms of documented authorizations answered in question 7, below.

(A) Please see permits provided for question No. 7

7. Provide a copy of all permits and other forms of documented authorization issued to your facility by any governmental entity related to metal shredder waste management activities, and a copy of any data your facility may have regarding the toxicity characteristics of metal shredder waste.

(A) Please see attached permits for the Holloway landfill facility.

8. Are other management requirements followed by your facility for metal shredder waste when accepting, handling, storing and ultimately disposing of or using metal shredder waste as ADC? If so, please describe those requirements. (A) None that I am aware.

From: [David Ratto](mailto:David.Ratto@sanjose.ca.gov)
To: [Kevin Steinberg](mailto:Kevin.Steinberg@sanjose.ca.gov)
CC: [John Cook](mailto:John.Cook@sanjose.ca.gov), [John Cook](mailto:John.Cook@sanjose.ca.gov), [John Cook](mailto:John.Cook@sanjose.ca.gov)
Subject: Question re SWP Managing Metal Shredder Waste (Treated Auto In?)
Date: Monday, June 01, 2015 3:28:23 PM
Attachments: [Screenshot.png](#)
[Screenshot.png](#)
[Screenshot.png](#)
[Screenshot.png](#)
[Screenshot.png](#)
[Screenshot.png](#)

Hi Kevin

Per our conversation on Friday May 29 2015 regarding the Metal Shredder Waste which we call (Treated Auto Shredder Waste) TASW.

Vasco Road Landfill Practice and Procedures:

- 1) Treated auto shredder waste is mixed with Bio-Solid sludge and used for alternative daily cover. Vasco LF has to cover the active face daily per SWFP.
- 2) /1/14-1/1/2015 total received from only one Customer – Schnitzer Steel 94 969.92 tons
- 3) 00% is used for daily cover. It is our primary material source of covering out our daily active working face area.
- 4) A.) We stockpile the TASW near the active face
B.) Normally within a week the stockpile is depleted
C.) On soil/concrete deck
D.) TASW is only stockpiled near the active working face; which moves daily.
- 5) A.) TASW not stored on site. (Only used for ADC).
B.) NA
C.) NA
D.) NA
- 6) Regional Water Quality Control Board does not have special requirements other than (Auto-shredder waste must be in a Sub-Title D cell)
- 7) SWFP/STD Attached
- 8) None (See attached Permit)

Should you have any further questions please feel free to contact me.

Thank you





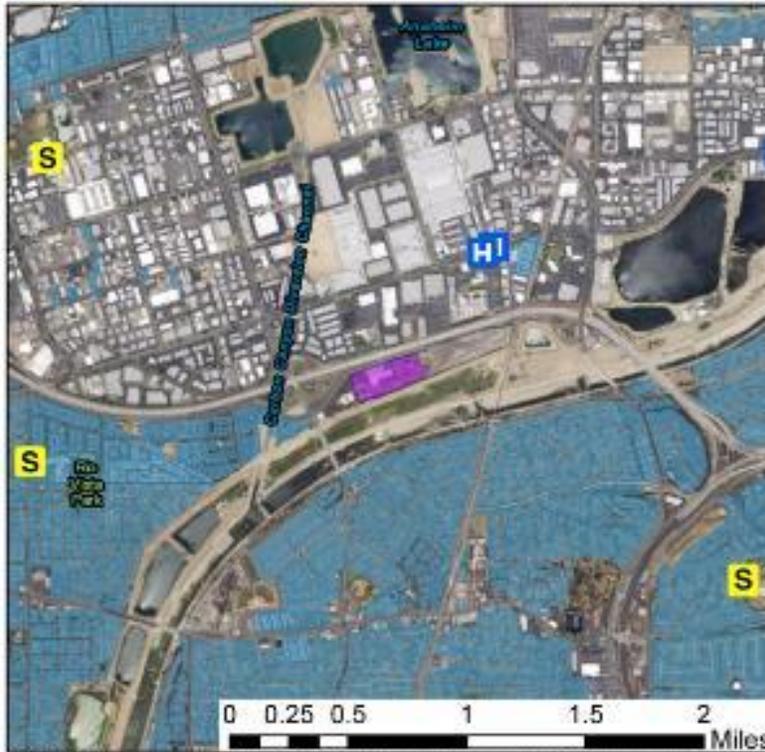
Diana Ratto Operations Manager
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• 925-261-2091
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APPENDIX C: GIS IMAGES OF METAL SHREDDING FACILITIES AND LANDFILLS

SA Anaheim

Legend

- Facility Boundary
- Residential Parcels
- Schools
- Childcare
- Healthcare

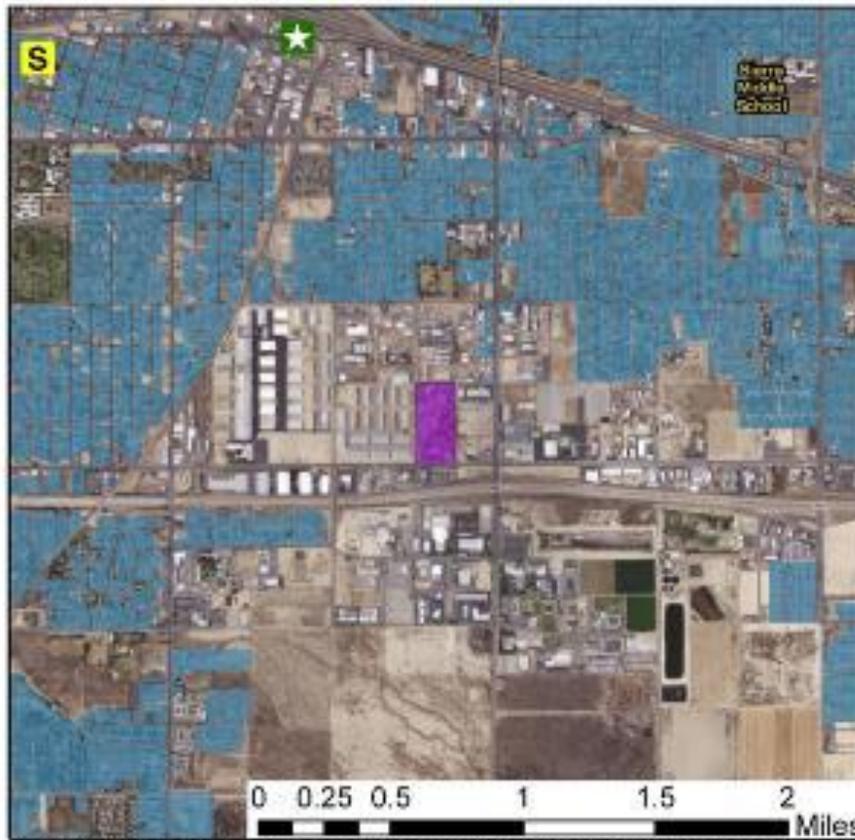


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SA Bakersfield

Legend

- Facility Boundary
- Residential Parcels
- Schools
- Childcare
- Healthcare



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SA Terminal Island

Legend

- Facility Boundary
- S Schools
- Residential Parcels
- + Childcare
- H Healthcare



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Schnitzer



Sims

Legend

- Facility Boundary
- Residential Parcels
- Schools
- Childcare
- Healthcare



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Ecology



Altamont Landfill

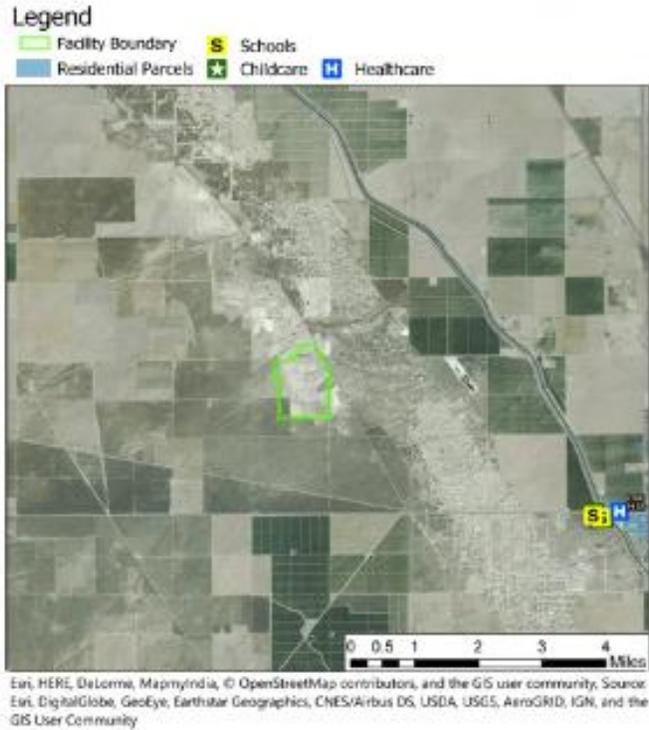


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Chiquita Canyon Landfill



HM Holloway Surface Mine and Landfill



Potrero Hills Landfill



Simi Valley Landfill



Vasco Road Landfill

