

## **Background**

Metal shredding facilities process end-of-life vehicles, appliances, and other forms of scrap metal to recover iron, steel, aluminum, and copper for re-use in new metal products. The metal shredding process generates large amounts of metal shredder waste, which consists of plastics, rubber, glass, foam and fabrics, automobile fluids, dirt, and residual metals. The metal shredding process also has the potential to create significant amounts of environmental impacts through storm water runoff, contaminated soil, contaminated groundwater, and fugitive air emissions. This project focuses on air emissions from representative metal shredding facilities and land disposal sites that accept metal shredder waste.

Although metal shredder waste typically does not exceed the Federal regulatory levels established by the Resource Conservation and Recovery Act (RCRA), metal shredder waste is regulated as a California-only non-RCRA hazardous waste. Six large metal shredding facilities are currently authorized by DTSC to conduct metal shredding operations under "F" letters. Five of the facilities treat the metal shredding waste with a cement product to reduce the solubility of the metals in the waste. The sixth facility transfers their waste out of state for processing. The treated waste is then disposed in class II or class III landfills and largely used for alternative daily cover. Each year, approximately 480,000 tons of metal shredder waste is used as alternative daily cover in California landfills.

Senate Bill (SB) 1249 (Hill, Chapter 756, Statutes of 2014) became law on January 1, 2015 and requires DTSC to evaluate the risks and threats posed by metal shredders and the management of metal shredder waste. DTSC is authorized by the statute to develop alternative management standards for metal shredding facilities. DTSC has developed a three-year work plan to conduct the evaluation required by SB 1249, which includes an assessment of the potential impacts of off-site migration of air emissions from landfills that accept metal shredder waste.

The landfills specified in this Scope of Work (SOW) represent examples of larger disposal sites located in different geographical regions of the State, operating under different local Air Quality Management Districts (AQMDs). Selection of these landfills will provide for observing a cross-section of representative metal shredder waste management operations under a variety of geographic conditions.

## **Intent of Scope of Work**

The intent of this Scope of Work is to observe a cross-section of representative metal shredder waste management operations under a variety of geographic conditions. The Contractor will conduct air sampling, both upwind and downwind for particulate matter as outlined in Task 1. The Contractor will monitor all relevant meteorological data during the air sampling. Quantification of particulate matter species (TSP, PM10, and PM2.5) shall include quantification of metals associated with metal shredding operations and metal shredder waste disposal. The Contractor will conduct fence-line or nearby monitoring and quantification of emissions, as agreed to by DTSC, with the purpose of determining the fugitive emissions from each landfill facility. The specified sample collection and analysis plan (SAP) must be of sufficient quality to support evaluation by DTSC for risk to sensitive populations using criteria developed for the California Air Resources Board (ARB) Air Toxics "Hot Spots" Program (The Air Toxics Hot Spots Information and Assessment Act, AB 2588, Connelly as amended by SB 1731, Calderon), as found in the California Health and Safety Code sections 44300-44394.

The Contractor will provide a Draft and Final Summary Reports (Reports) in the form of a Letter Report for each facility. Each facility Report shall include all laboratory analytical data reports, all field observations such as photographs, meteorological observations, and notes, and summaries of each sampling event. The proposed landfills that accept metal shredder waste are identified in Table 1.

<b>Table 1: Proposed Metal Shredder Landfill Facilities</b>	
<b>METAL SHREDDER WASTE DISPOSAL FACILITIES</b>	<b>AIR DISTRICT AND CONTACTS</b>
Simi Valley Landfill & Recycling Center 2801 Madera Simi Valley, CA 93065	Ventura County Air Pollution Control District 669 County Square Drive, 2nd Floor, Ventura, CA 93003 Michael Villegas - Executive Officer Phone: (805) 645-1440 <a href="mailto:mike@vcapcd.org">mike@vcapcd.org</a>  Mallory Ham- Monitoring Division Manager (805) 662-6959 <a href="mailto:mallory@vcapcd.org">mallory@vcapcd.org</a>
Vasco Road Landfill 4001 N. Vasco Rd. Livermore, CA 94550	Bay Area Air Quality Management District 939 Ellis Street San Francisco, CA 94109-7799  Eric Stevenson Director of Meteorology, Measurement and Rules (415) 749-4695 <a href="mailto:estevenson@baaqmd.gov">estevenson@baaqmd.gov</a>

**Assumptions**

DTSC in preparing this scope of work provides the following assumption for conducting the activities.

- As identified in Task 1, the previous Sampling Work Plan prepared for air sampling at the metal shredder facilities shall be the basis for modifying the plan for application to this scope of work for air sampling at the landfills.
- DTSC will provide any site maps and coordinates, prepared from DTSC's visits to the landfill facilities conducted in January 2017, to assist the Contractor in identifying proposed air sampling locations.

- One day for set up, three days for sampling, one day for breakdown
- Sampling equipment rental is one month minimum
- Minimize non-field personnel labor and field labor overtime
- Report to include test results with relevant observational comments.
- Supporting appendices shall be minimized by referring to existing documents (i.e.: SOPs, QA/QC, Health and Safety Plan, etc.) provided in previous shredder facility summary report attachments.

## **SCOPE OF WORK**

The tasks necessary to meet the stated objective are described in detail in this section.

### **Task 1 – Updating of Sampling and Analysis Plan (SAP)**

The Contractors shall update the previous “SAMPLING AND ANALYSIS PLAN - AIR MONITORING AT VARIOUS METAL SHREDDING FACILITIES STATEWIDE” dated September 30, 2016, in preparing the SAP for the landfill facilities. The Contractor shall collaborate with the DTSC Project Manager in preparing the SAP. The SAP shall be final and approved by DTSC prior to commencing any field sampling activities. The final SAP shall be delivered fifteen (15) days after the contract is approved, unless otherwise agreed to in writing by the Project Manager.

The Sampling and Analysis Plan shall include:

#### **Air Monitoring Locations**

The SAP shall include four (4) sampling locations agreed to in consultation with the Project Manager. The Contractor shall utilize National Weather Service forecasts and review current conditions and recent trends from an onsite meteorological station to position the monitors prior to start of sampling. All relevant meteorological conditions during the sampling periods including wind direction, wind speed, relative humidity, and temperature shall be recorded. The location of each sampling station shall be determined by GPS and each location shall be photographed.

#### **Metals Analysis**

The SAP shall include sampling, analysis, and assessment of off-site migration of air emissions for particulate matter species that can be evaluated using the criteria developed for the ARB Air Toxics “Hot Spots” Program. The particulate matter species (TSP, PM10, and PM2.5) shall include quantification of metals associated with metal shredding operations. The proposed suite of analytical constituents is shown in Table 2.

Equipment for Metals Analysis

The SAP shall include sampling equipment and methods equivalent to the United States Environmental Protection Agency (US EPA) Reference Methods for measuring ambient air quality found in Appendices B, J, L, and O of Title 40 of the Code of Federal Regulations (CFR) Part 50.<sup>1</sup> The equipment and sampling methods employed shall provide a measurement of the mass concentration of total suspended particulate matter in ambient air, and the size of the sample collected shall be adequate for subsequent chemical analysis. The air sampler shall draw a measured quantity of ambient air through a filter during a 24-hr (nominal) sampling period. The filters specified shall have a minimum collection efficiency of 99 percent for 0.3 µm and greater sized particles.

<b>Table 2: Proposed Suite of Metallic Analytical Constituents</b>	
<b>METALLIC SPECIES ASSOCIATED WITH METAL SHREDDING OPERATIONS:</b>	
Copper <sup>1,3</sup>	Iron <sup>1</sup>
Cadmium	Chromium <sup>1,3</sup>
Lead <sup>1,3</sup>	Aluminum <sup>1</sup>
Zinc <sup>1</sup>	Manganese <sup>1,3</sup>
Nickel <sup>1,3</sup>	Tin <sup>1</sup>

Table 2 footnotes:

1. Example Analytical Methodology: EPA 200.7, EPA 6010B, EPA 6010C
2. Example Analytical Methodology: EPA 245.1/EPA 7470A, EPA 7471A/EPA 7471B
3. Substances listed in the Air Toxics "Hot Spots" Emission Inventory Criteria and Guidelines, Appendix A-1 list of "Substances for Which Emissions Must Be Quantified."
4. Toxic Air Contaminant

US EPA Designated Methods

US EPA Designated Methods for PM2.5 mass are found in Part 50 Appendix N and 40 CFR Part 50 App L. US EPA Designated Methods for PM10 (low-vol) mass are found in 40 CFR Part 50 App L. US EPA Designated Methods for TSP mass are found in 40 CFR Part 50 App B. Lead analysis from above methods are found in TSP-Pb: 40 CFR Part 50 App G, and PM10-Pb: 40 CFR Part 50 App Q. A Summary of Applicable Requirements for Reference and Equivalent Methods for Air Monitoring of Criteria Pollutants are shown in Table 3.

Sampling and Analysis Plan (SAP)

The SAP shall include the following: (1) sampling objectives, including a brief description of data gaps and how the field sampling plan will address these gaps; (2) on-site and/or off-site sample

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<sup>1</sup> Title 40 of the Code of Federal Regulations, Part 50, Appendix B - *Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere (High Volume Method)*; Appendix J - *Reference Method for the Determination of Particulate Matter as PM10 in the Atmosphere*; Appendix L - *Reference Method for the Determination of Fine Particulate Matter as PM2.5 in the Atmosphere*; and Appendix O - *Reference Method for the Determination of Coarse Particulate Matter as PM10-2.5 in the Atmosphere*.

locations, including a map showing these locations, and proposed frequency of sampling; (3) sample designation or numbering system; (4) specification of sampling equipment and procedures; (5) sample handling and analysis including preservation methods, shipping requirements and holding times; (6) analytical laboratory and analytical procedures, and (7) a waste management plan if wastes are to be generated.

**Table 3: Applicable Requirements for Reference and Equivalent Methods for Air Monitoring of Criteria Pollutants**

Pollutant	Reference or equivalent	Manual or automated	Applicable part 50 appendix	Applicable subparts of part 53					
				A	B	C	D	E	F
Pb	Reference	Manual	G						
	Equivalent	Manual	G	✓		✓			
		Automated	G	✓		✓			
PM <sub>10</sub> -Pb	Reference	Manual	Q						
	Equivalent	Manual	Q	✓		✓			
		Automated	Q	✓		✓			
PM <sub>10</sub>	Reference	Manual	J	✓			✓		
	Equivalent	Manual	J	✓		✓	✓		
		Automated	J	✓		✓	✓		
PM <sub>2.5</sub>	Reference	Manual	L	✓				✓	
	Equivalent Class I	Manual	L	✓		✓		✓	
	Equivalent Class II	Manual	L <sup>1</sup>	✓		✓ <sup>2</sup>		✓	✓ <sup>12</sup>
	Equivalent Class III	Automated	L <sup>1</sup>	✓		✓		✓	✓ <sup>1</sup>
PM <sub>10-2.5</sub>	Reference	Manual	L, O	✓				✓	
	Equivalent Class I	Manual	L, O	✓		✓		✓	
	Equivalent Class II	Manual	L, O	✓		✓ <sup>2</sup>		✓	✓ <sup>12</sup>
	Equivalent Class III	Automated	L <sup>1</sup> , O <sup>1</sup>	✓		✓		✓	✓ <sup>1</sup>

1. Some requirements may apply, based on the nature of each particular candidate method, as determined by the Administrator.
2. Alternative Class III requirements may be substituted.

Quality Assurance Project Plan (QAPP) and Health and Safety Plan (HSP)

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The Contractor shall update the QAPP and HSP prepared for the Air Sampling at the Metal Shredding Facilities to specify all procedures necessary to maintain consistent quality of field and laboratory data for the two-landfill facilities and site-specific health and safety issues.

**Task 2 – Data Collection at the Vasco Road Landfill Facility/Summary Report of Findings**

The Contractor shall coordinate with the Project Manager prior to any sample collection efforts. DTSC will assist the Contractor in obtaining the necessary access agreements for required field sampling. The Contractor shall collect sufficient meteorological data and field samples from upstream and downstream locations necessary to provide a statistically significant quantification of fugitive emissions of particulate matter and toxic organic species from the Vasco Landfill site. Particulate matter samples shall be analyzed for the metals associated with metal shredding operations listed in Table 2. The Contractor will provide a Draft Report of Findings of Task 2 for the Project Manager to review. Upon approval of the Project Manager, the Contractor will provide a Final Report of the Findings for Task 2. The final Summary Report for the Vasco Landfill site shall be delivered thirty (30) days after completion of the field sampling activities.

**Task 3 – Data Collection at the Simi Valley Landfill Facility/Summary Report of Findings**

The Contractor shall coordinate with the Project Manager prior to any sample collection efforts. DTSC will assist the Contractor in obtaining the necessary access agreements for required field sampling. The Contractor shall collect sufficient meteorological data and field samples from upstream and downstream locations necessary to provide a statistically significant quantification of fugitive emissions of particulate matter and toxic organic species from the Simi Valley Landfill site. Particulate matter samples shall be analyzed for metals associated with metal shredding operations listed in Table 2. The Contractor will provide a Draft Report of Findings of Task 2 for the Project Manager to review. Upon approval of the Project Manager, the Contractor will provide a Final Report of the Findings for Task 2. The final Summary Report for the Simi Valley Landfill Facility shall be delivered thirty (30) days after completion of the field sampling activities.