Air Monitoring Plan for Remedial Activities at the Sherwin-Williams Facility Emeryville, California

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Prepared for
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AIR MONITORING PLAN FOR REMEDIAL ACTIVITIES AT THE SHERWIN-WILLIAMS FACILITY EMERYVILLE, CALIFORNIA

1.0 INTRODUCTION

This Air Monitoring Plan been written in conformance with standard regulatory guidelines for implementation of an ambient air and dust monitoring program during remedial construction activities. This plan is intended for implementation at the Sherwin-Williams Site ("the Site") located in Emeryville, California, as part of the project's health and safety procedures. The plan would be implemented during major earthwork activities and has two primary objectives:

- to use perimeter air monitoring to evaluate the effectiveness of the dust control measures implemented at the Site
- to use personal air monitoring (including portable organic vapor monitors [OVMs]) to evaluate the potential for worker exposure to contaminants and to determine appropriate levels of respiratory protection

2.0 AIR MONITORING

All air quality monitoring, personal sampling, and related recordkeeping will be performed by Levine·Fricke in conjunction with the selected remediation contractor.

The following four methods will be used for air monitoring:

- High-Volume Air Samplers. Three perimeter air sampling stations will be established at the boundary property lines of the site: one each at the upwind, downwind, and midspan locations of ongoing earthmoving operations. A fourth station may be deployed near stockpiling or loading operations, if necessary. Filter samples will be collected and analyzed as described below.

- Personal Air Monitors (PAM). Inhalation hazards caused by the inorganic chemicals of concern in the air will be monitored using PAM equipment to measure concentrations of target inorganic chemicals of concern in the breathing zone of workers on site.

- Portable Organic Vapor Monitors (OVM/PID). Inhalation hazards due to the organic chemicals of concern in the air will be monitored using a portable photoionization detector (PID) to measure concentrations of the target organic chemicals of concern in the breathing zone of workers on site.

- An MIE miniram dust monitoring device will be used to monitor dust levels generated by earthwork activities.

2.1 Perimeter Air Monitoring

Perimeter air monitoring will be used to assess the quality of dust control measures taken by the selected remediation contractor. Three high-volume air samplers will operate in accordance with the schedule described below for the duration of the project. These samplers will be placed along the boundary of the exclusion zone on the Site: one each at the upwind, downwind, and midspan locations in the area of excavation and backfill operations. A fourth sampler may be placed adjacent to stockpile loading operations (if utilized) to collect air samples for fugitive dust analysis. Prevailing winds at the Site are generally to the east; however, wind direction and speed at the Site will be measured and recorded daily.

All samples will be analyzed for the following compounds with associated action levels.

TABLE 1

Compound	Analyt. Method	Soil Max. Conc.	OSHA PEL	Level C Respiratory Protection Action Level	Dust Equivalent Level C Respiratory Protection Action Level
Arsenic	EPA 7060	52,000 mg/kg	0.10 mg/m^3	0.05 mg/m^3	0.1 mg/m^3
Lead	EPA 7421	2,300 mg/kg	0.05 mg/m^3	0.003 mg/m^3	10.9 mg/m^3

Note: mg/kg = milligrams per kilogram
mg/m^3 = milligrams per cubic meter
PEL = permissible exposure limit

Upon analysis of samples collected from the high volume air samplers, if the arsenic concentration exceeds the action level of 0.05 mg/m^3 or the lead concentration exceeds 0.03 mg/m^3, a modification to work methods is required. An immediate upgrade to Level C respiratory protection will be initiated, if not already in progress based upon dust monitoring, dust control measures will be re-evaluated and implemented, and the Health and Safety Officer will be notified before work begins again.

Perimeter air monitoring air samples (using the high-volume air samplers) will be collected three working days per week for the first two weeks. Once two weeks of continuous sample analysis results of below action levels are achieved, sampling will be reduced to once weekly. If at any time sample analysis results exceed the action level, the sampling schedule will return to three working days per week until two weeks of continuous sample analysis results of below action levels are achieved. These frequencies may be adjusted, depending on the analysis results of air monitoring or the type of work being performed.

A weather station with wind speed and direction recording capabilities will be installed and operated during on-site construction activities. The weather station will verify the correct placement of upwind and downwind monitoring stations.

Flow measurement recordings of the high-volume air samples will be made at the beginning and end of each work day, and will be checked periodically throughout the day. Should any anomalies be detected, the high-volume air sampler will be recalibrated. All air monitoring records will be kept on site for the duration of the field work.

2.2 Personal Air Monitoring

Levine•Fricke shall use a combination of standard industrial hygiene measurement techniques and portable organic vapor monitors (OVM/PID) to assess the potential for worker exposure to contaminants that could become airborne during remediation of the Site. The sampling will comprise collecting samples from the breathing zone of workers with the highest exposure risk during construction activities, as well as collecting area samples from two locations adjacent to the concentrated work zones. Both PAMs and portable OVM/PIDs will be used to monitor the potential exposure. PAMs are discussed below; portable OVM/PIDs are discussed in the next section.

All samples collected using the PAMs will be analyzed for the following compounds with associated action levels.

TABLE 2

Compound	Analytical Method	OSHA PEL	Level C Respiratory Protection Action Level
Arsenic	OSHA ID 105	0.10 mg/m^3	0.05 mg/m^3
Lead	OSHA ID 125	0.05 mg/m^3	0.03 mg/m^3

Upon analysis, if the arsenic concentration exceeds the action level of 0.05 mg/m^3 or the lead concentration exceeds 0.03 mg/m^3, a modification to work methods is required. An immediate upgrade to Level C respiratory protection will be initiated, if not already in progress based upon dust monitoring, dust control measures will be re-evaluated and implemented, and the Health and Safety Officer will be notified before work begins again.

Sampling pumps manufactured by SKC West, Model 224PCXR7, will be used for personal air monitoring at the Site. Each pump will be set for a flow rate of 1.5 liters per minute and will generally run for a period of between 7 and 8 hours during the

work day. The pumps will be connected to filter cassettes which will be fastened to construction workers within their breathing zones. Levine•Fricke will be in charge of the distribution and collection of sample pumps and sample collection tubes to the contractor's personnel selected by Levine•Fricke. The contractor shall fully comply with all aspects of the air monitoring program conducted by Levine•Fricke.

Pre- and post-use calibration of the pumps shall be performed in accordance with the manufacturer's specifications. A log documenting the calibration will be maintained on site by the contractor.

Samples will be collected three working days per calendar week for the first two weeks of each major remedial activity and once per week for the remainder of the project depending upon the results of the monitoring program. All samples will be analyzed for the compounds identified in Table 2 by a laboratory accredited by the American Industrial Hygiene Association (AIHA).

2.3 Organic Vapor Measurement

An OVM/PID will be used to measure organic vapors during excavation in areas known to contain organic compounds. As described in Table 3, should organic vapors exceed designated action levels in the breathing zone, the appropriate upgrade in the required level of protection will be implemented.

Any detections by using the portable OVM/PIDs will be compared to the following associated action levels:

TABLE 3

Compound	Analytical Method	OSHA PEL	Level C Respiratory Protection Action Level
Toluene	OVM/PID Direct Read	100 ppm	50 ppm
Ethylbenzene	OVM/PID Direct Read	100 ppm	50 ppm
Total Xylene Isomers	OVM/PID Direct Read	100 ppm	50 ppm

Note: ppm = parts per million

If the portable OVM/PID (equipped with a PID) indicates concentrations of volatile organics that exceed 50 ppm, a modification to work methods is required. An immediate upgrade to Level C respiratory protection will be initiated, if not already in progress based upon dust monitoring, and the Health and Safety Officer will be notified before work begins again. During the use of Level C respiratory protection, if the OVM/PID readings are greater than approximately 500 ppm, a temporary work stoppage will be required, work shall not begin in the area until the organic vapor concentrations are below 500 ppm. The Health and Safety Officer will be notified, and engineering controls will be evaluated before work begins again.

The OVM/PID used on site for the monitoring shall be a monitor that has a PID lamp sensitivity between 10.0 and 10.5 eV (such as a Photovac MicroTIP MP-100).

Pre- and post-use calibration of the OVM/PID shall be performed in accordance with the manufacturer's specifications. A log documenting the calibration will be maintained on site by Levine·Fricke.

2.4 Miniram Dust Monitoring

As noted below, dust monitoring will be performed to monitor dust (potentially affected by the target inorganics) generated by the earthwork activities. The dust will be monitored using an MIE Miniram, which is a passive collection dust monitoring instrument capable of monitoring dust to 0.01 mg/m^3. The equivalent action levels were calculated based on the maximum potential concentrations of metals in airborne dust at the Site. Comparing measured dust levels at the Site to the calculated equivalent action levels provides an additional method of evaluating the potential for worker exposure to metals in airborne dust, and determining the appropriate level of respiratory protection on site. Detections of dust at concentrations above the Dust Equivalent Action Levels at either the site fence line or in the worker breathing zone shall result in a modification to work methods. An immediate upgrade to Level C respiratory protection will be initiated, if not already in progress, dust control measures will be re-evaluated and implemented, and the Health and Safety Officer will be notified before work begins again.

Action levels for primary dustborne metals of concern are presented in the following table.

TABLE 4

Cmpd.	Analyt. Method	Soil Max. Conc.	OSHA PEL	Level C Respiratory Protection Action Level	Dust Equivalent Level C Respiratory Protection Action Level
Arsenic	EPA 7060	52000 mg/Kg	0.10 mg/m^3	0.05 mg/m^3	0.1 mg/m^3
Lead	EPA 7421	2300 mg/Kg	0.05 mg/m^3	0.03 mg/m^3	10.9 mg/m^3

2.5 Recordkeeping

All air monitoring results will be kept on site by Levine·Fricke field personnel. The results will be made available to the Site Safety Officer.

2.6 Notification

Each worker who wears the personal air monitoring pumps will receive written notice of his/her exposure monitoring. Levine·Fricke will submit these data in an air monitoring report to be written after project completion.

3.0 DUST CONTROL PLAN

3.1 Introduction

Dust control of the project is critical to reducing the hazardous airborne dust particles which are generated during earthmoving operations.

This project specific dust control plan follows the format recommended in Chapter Five of the "Handbook - Dust Control at Hazardous Waste Sites" published by the U.S. EPA (U.S. EPA/540/2-85/003, November 1985).

Before on-site construction activities begin, the selected remediation contractor will be required to develop and submit a dust control plan based upon the criteria and requirements outlined in this plan.

At a minimum, the dust control plan prepared by the contractor shall have the following elements.

3.2 Dust Monitoring

Dust levels will be measured periodically by Levine·Fricke during construction activities using a portable MIE Miniram dust meter. The Health and Safety Plan and Table 1 above contain information regarding equivalent action levels consisting of airborne dust levels in the breathing zone. The action levels were calculated based on the maximum potential concentrations of metals in airborne dust at the Site. Comparing measured dust levels at the Site to the calculated equivalent action levels provides an additional method of evaluating the potential for worker exposure to metals in airborne dust, and determining the appropriate level of respiratory protection on site.

Dust concentrations will be measured at various locations throughout the Site, but readings will generally be collected downwind from an active piece of operating equipment in the work zone.

3.3 Identification of Dust Sources

3.3.1 Excavation and Movement of Dirt

During excavation and earthmoving operations, dust will potentially be generated at the sites of excavation, soil treatment, and backfill.

At all sites where it is anticipated that dust may be generated, dust will be controlled by watering before any dirt is moved.

If dirt is to be transported from the Site, all vehicles will be securely tarped before departing the Site to prevent dust discharge while in transit.

3.3.2 Vehicular Traffic

On-site vehicular traffic will be minimized, and should be kept on the designated haul roads when possible. A site speed limit of 5 mph will be maintained near areas of active construction to reduce potential dust generation.

Truck spillage and mud carryout are not anticipated, though periodic cleanup and maintenance of off-site travel ways will be performed as needed.

3.3.3 Wind Erosion

Long- and short-term wind erosion are not anticipated to be a significant factor, since the Site is relatively stable at present. Temporary stockpile areas will be watered down as necessary to reduce the potential for airborne dust.

Before each day's work is completed, all exposed temporary stockpiles will be watered down with dust palliatives, or covered with a sturdy impermeable tarp and anchored. For long weekends the Site will be monitored, and will be sprayed down as needed.

3.4 Identification Of Applied Dust Control Methods

Control method alternatives for dust sources, which are summarized below, will follow Table 5.1 of the "Handbook - Dust Control at Hazardous Waste Sites," published by the U.S. EPA in November 1985. Area water spray is the recommended dust control method for all of the vehicle-related and dirt moving-related items.

A sufficient number of water trucks will be used to apply the water to the Site, and the number of water trucks or the work operations will be adjusted to ensure adequate dust control measures meet U.S. EPA specifications.

In the event that the application of water does not satisfactorily control the dust, suitable dust control water will be used to further control dust particles. The mixing and application of palliatives will be performed according to Caltrans specifications.

3.5 Development of the Implementation Plan

The method of application to the Site will be as follows.

Water trucks with 1,500- to 4,000-gallon capacities will apply suitable dust control water to all areas where dust may be generated. This will include, but not be limited to, the pre-wetting of cut areas and haul roads, and continual watering throughout the excavation, earthmoving, and stockpiling operations.

Should visible dust or monitoring indicate emissions above the action levels in Table 1, watering of the affected area will be performed immediately.

Dust control monitoring and recordkeeping will be performed by Levine·Fricke. The data generated from this program will be used to evaluate the adequacy of the dust control measures.

3.6 Development of Inspection, Recordkeeping, and Monitoring Program

3.6.1 Inspection and Recordkeeping

A dust control manager for the Site will be designated by the remediation contractor. During operations he/she will be responsible for dust control activities and dust control inspections.

Daily inspections of the excavation areas, haul roads, and stockpiles will determine the projected requirements for the day.

Daily reports will be generated, discussing all construction activities on the Site. Dust control methods and inspections will be addressed in the daily reports. These reports will remain on site at all times, and available for review by project coordinators.

3.6.2 Monitoring

All monitoring, as specified in the preceding sections shall be performed by Levine·Fricke. Results and required action based on the monitoring (including dust, OVM/PID, and samples collected) shall be addressed by the contractor.