

Industrial Hygiene Project Report, Lead Air Monitoring, WSSC Temple Hills Blasting

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1.0 Background and Executive Summary

Industrial Hygiene Air Sampling was conducted at the WSSC Temple Hills water tank blasting project on August 16, 2017. Four area air and two personal samples were collected during various activities associated with this project. This project report summarizes assessment methodologies and analytical results from the sampling.

2.0 Methodologies

Samples were collected at the four perimeter corners of the property to verify that lead particulates generated by blasting activities are not migrating to adjacent properties.

Personal air samples were collected on [REDACTED] and [REDACTED] to quantify their exposure to lead and for comparison to established occupational exposure limits (see Section 3.0). The samples were collected in the breathing zone of the two workers.

The samples were collected using low flow air sampling points at a flow rate of 2.5 liters per minute for 302 – 320 minutes, for a total air volume of between 740 – 800 liters. The sampling pumps were pre and post calibrated using a rotameter calibrated against a primary standard. The samples were hand delivered under chain-of-custody to AMA Analytical Services of Lanham, Maryland for analysis via NIOSH Method 7082 (Flame AA). AMA Analytical Services is an American Industrial Hygiene Association (AIHA) accredited analytical laboratory.

3.0 Regulatory/Project Benchmarks

Exposure to lead in construction is regulated by the Occupational Safety and Health Administration via 29 CFR 1926.62. The standard establishes an Action Level and Permissible Exposure Limit (PEL) of 30 and 50 micrograms per cubic meter of air ($\mu\text{g}/\text{m}^3$). Both the Action Level and Permissible Exposure Limit (PEL) are based on an eight-hour time-weighted average and apply to worker exposure (as opposed to area

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samples).

Section 02091, Paragraph 1.6.H of the WSSC project specifications establishes an ambient project action level of 30 µg/m³. Sample results above this limit require modification of abatement methods to bring concentrations to below 30 µg/m³.

4.0 Analytical Results

The analytical results of the four area and two personal samples collected on August 16, 2017 are summarized in Table 1. The results are presented by sample number, sample location and duration, and the analytical result.

As indicated by the data in Table 1, the results of the four area samples were below the analytical limit of detection (indicated by a less than symbol in the result). The analytical results of the two personal air samples collected on [REDACTED] and [REDACTED] were 700 µg/m³ and 450 µg/m³, respectively, which calculated to an eight-hour time-weighted average (TWA) of 445 µg/m³ and 283 µg/m³ (based on the sample durations), above the OSHA PEL of 50 µg/m³. Both workers were supplied air respiratory protection, which has an assigned protection factor of 1,000. As such, the maximum use concentration (MUC) for the use of supplied air respiratory protection for protection against lead is 50,000 µg/m³ (1,000 x 50 µg/m³). The eight-hour TWA of both employees were below the MUC.

Table 1 –Air Sampling Results

Sample Number	Sample/Type	Location and Duration	Analytical Result/ 8 Hour TWA
TH81617-1	Area/Ambient	NE Perimeter Fence 315 Minutes	<3.8 µg/m ³
TH81617-2	Area/Ambient	SE Perimeter Fence 316 Minutes	<3.8 µg/m ³
TH81617-3	Area/Ambient	SW Perimeter Fence 317 Minutes	<3.6 µg/m ³
TH81617-4	Area/Ambient	NW Perimeter Fence 320 Minutes	<3.8 µg/m ³
TH81617-5	Personal [REDACTED]	Blasting and Other Various Tasks 305 Minutes	455 µg/m ³
TH81617-6	Personal [REDACTED]	Blasting and Other Various Tasks 302 Minutes	283 µg/m ³

5.0 Recommendations

The following recommendations are presented in accordance with 29 CFR 1926.62.

- Provide each employee monitored with the results of their exposure within five working days of receipt of this report.
- Provide employees associated with this project with lead hazard awareness training in accordance with 29 CFR 1926.62(l). Incorporate into the training the importance of complying with personal hygiene practices to prevent the accidental ingestion of lead.
- Provide a clean change area for workers to change from their work clothes into their street clothes.
- Provide a means for employees to clean up at the end of their work shift. If water is not available, provide lead cleaning agents at the work site.
- Make available to exposed employees medical surveillance in accordance with 29 CFR 1926.62(j).

Sincerely,

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