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Report on Aerially Deposited Lead in Soils
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This report is a meta study of air monitoring conducted during excavation works at various locations throughout California. The air monitoring data was collected at various locations throughout California. All tests were conducted while operating during excavation work on soils that were contaminated with aerially deposited lead. Air Monitoring was conducted in compliance with OSHA and NIOSH Standards. All data was collected during operations using standard dust control methods. An onsite water truck was utilized to keep dust controlled. A single set of data found that failure to have adequate dust control can lead to an exceedance of the 'Action Level" in the operators zone, but not in the adjacent work areas was noted. This data includes locations throughout the State of California the dates are indicated on the table, as well as the general location. The levels were below the detection limit for the NIOSH Method 7082 Issue 2, or NIOSH 7300, unless the dust was not effectively controlled. In that single event the dust cloud was visible, and persisted at the worksite. The dust cloud was clearly visible and persisted for more than thirty minutes per hour. The level of detection (LOD) for NIOSH Method 7082 Issue 2 is 2.6 µg. The maximum air volume permitted by the method is 1500 liters of air. The minimum air volume is 200 liters and provides a LOD of 50 $\mu g/m^3$.

The report was originally presented at the American Industrial Hygiene Conference and Exposition in 2014 in San Antonio, Texas. The additional data supports and replicates the original report.

Date	Location	Lead level $\mu g/m^3$
23JAN01	San Diego 405 Freeway North near the Ventura Freeway Interchange.	Below Detection $<3\mu g/m^3$
7APR04	State Route 60 @ Heacock, Four points loader operator, grade checker, upwind @ downwind	Below Detection $<2\mu g/m^3$
1APR07	State Route 23 @ kp 9.8 Five points three employee points loader operator, grade checker & water truck	Below Detection

	operator/driver, up wind and down wind	<2µg/m^3
25OCT07	Route I 5 sb 912+00 TO 907+15. Three points, loader operator, upwind and downwind	Below Detection <2µg/m^3
22JUL08	State Route 101 near Salinas Avenue Four points loader operator, grade checker, upwind @ downwind	Below Detection <2µg/m^3
27MAY09	Lewis Road, Camarillo Four points loader operator, grade checker, tractor operator and excavator operator. Method 7105, Issue 2 was utilized for this work.	Below Detection <0.05µg/m^3
10AUG09	State Route 78 at Rancho Santa Fe, loader operator, grade checker, up wind.	Below Detection <2µg/m^3
28NOV11	State Route 14, @ I Street Four points loader operator, grade checker, upwind @ downwind.	Below Detection <2µg/m^3
8AUG12	08-0M8304 State Route 18, from 43 rd Street to 48th Street, San Bernardino CA NIOSH 7300 (RL 2.5 µg)	Below detection < 5.2 µg/m^3
6AUG13	This site had dense dust clouds, the water truck was on site continuously, but it was not operated. The work presented a dense dust cloud, with significant dust remaining on the equipment. Lead levels were above the Action Level only for the loader operator, levels adjacent to the loader were below the Action Level. Work practices were corrected the following work day.	31 µg/m^3 on loader operator-- 10 µg/m^3 at Grade Checker
8AUG13	State Route 134 @ Bob Hope Drive, NIOSH Method 7082 (RL <2 µg)	Below detection <3.0 µg/m^3
30SEP13	I-8 at Brock Research Road, West End of Job, Loading ADL soil	Below Detection <2µg/m^3
14SEP15	163 south bound off ramp @ Clairmont Mesa, Cat operator moving ADL	Below Detection <2µg/m^3
2FEB16	State Route 91 Near Lakewood Blvd intersection, labor removing vegetation on ADL soil hand tools.	Below Detection <0.38µg/m^3

21JUN16	I-10 Near Holt Area Sample, Removing, ADL loading trucks	Below Detection <0.38µg/m^3
18AUG16	I-10 Grand Avenue, West Covina 07-119304. Up and downwind of excavation	Below Detection <0.38µg/m^3
29AUG16	I 10 Grand Avenue, West Covina 07-119304. Up and downwind of excavation	Below Detection <0.38µg/m^3
14SEP16	210 Freeway 07-4X9204 samples taken East and West of work	Below Detection <0.38µg/m^3
20OCT16	SR 1 @ Calle-Mayor, Torrance, CA, up and downwind of work	Below Detection <0.38µg/m^3
19DEC16	SR 60 @ Lemon, Inside Cab of Excavator, down wind of excavation Upwind of Excavation, South of work.	Below Detection <0.38µg/m^3
20DEC16	SR 60 @ Lemon, Inside Cab of Excavator, down wind of excavation Upwind of Excavation	Below Detection <0.38µg/m^3
21DEC16	SR 60 @ Lemon, Upwind of Excavation, Downwind of excavation, inside cab of excavator. South of work	Below Detection <0.38µg/m^3
28DEC16	SR 60 @ Lemon, Inside Cab of Dozer up and downwind of excavation, Cab of Excavator	Below Detection <0.38µg/m^3
29DEC16	SR 60 @ Lemon, down wind of excavation, cab of excavator, inside dozer, up and down wind of work	Below Detection <0.38µg/m^3
3JAN17	SR 60 @ Lemon, Inside Cab of Excavator, south of work, upwind of work, downwind of work	Below Detection <0.38µg/m^3
4JAN17	SR 60- @ Lemon, upwind of excavation, downwind of work, inside cab of excavator, south of excavation	Below Detection <0.38µg/m^3

10OCT18	33.803330, 118.117774 Long Beach Excavator Operator Caltrans Project No. 07-286604	0.75µg/m^3
17OCT18	Location 10 Caltrans Project No. 07-286604	Below Detection <0.38µg/m^3
15NOV18	Excavator Operator Location 10 Caltrans Project No. 07-286604	Below Detection <0.38µg/m^3
16NOV18	Excavator Operator Location 10 Caltrans Project No. 07-286604	Below Detection <0.38µg/m^3
19NOV18	Excavator Operator Location 10 Caltrans Project No. 07-286604	Below Detection <0.38µg/m^3

All levels measured were conducted by a Certified Industrial Hygienist (CIH), the data clearly demonstrates that excavation of ADL can not and does not create an exposure above the 30 µg/m^3 action level. The only event that could possibly trigger an exposure approaching the Action Level (AL) or Permissible Exposure Limits (PEL) would be accompanied with a dense dust cloud that persisted during the entire work day. The presence of visible dust is regulated by the local air quality districts, and the presence of visible dust is regulated by both State and Federal code. The proper use of dust control by the application of water does not create measurable levels using NIOSH Method 7082 Issue 2 or NIOSH 7300. The detection level is (2 µg Pb). Improper work practices such as failure to use water to control dust could create a low level of exposure, but it is readily discernable since it is accompanied by a dense dust cloud.

This is a META Study, it is based on many air monitoring incidents. The copies of the lab data and specific information is available for on-site review. The specific reports are the sole property of the Organizations that ordered the air monitoring. The information on each specific report is confidential and has been released to workers and agencies if requested by those Agencies. Air monitoring data has been analysed and reviewed by the author. Any persons who have any other data are invited to provide copies of that data in confidence. If the data meets the criteria for this work it will be included in the next publication. Anyone who wishes to review the individual documents can make an appointment to review the documents, lab data and all notes in our office.

Respectfully Submitted;

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Certified Industrial Hygienist