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INDUSTRIAL HYGIENE

LICENSE #773462

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Meta Study for MRL and Bobcat Automated Stripe removal Equipment

I have reviewed the air monitoring data collected at various locations throughout California. All tests were conducted while operating the MRL (Mark Rite Lines, MRL Equipment Company, Inc. ®) lead based paint removal truck. Air Monitoring was conducted in compliance with OSHA and NIOSH Standards. All data was collected during operations using the MRL containerized equipment. This data includes locations throughout the State of California the dates are indicated on the table, as well as the general location. In all cases the levels were below the detection limit for the NIOSH Method is NIOSH Method 7082 Issue 2. That method was utilized unless otherwise so stated.

Date	Location	Lead level $\mu\text{g}/\text{m}^3$
23Mar07	SR 405 / 22 Interchange	Below Detection $<2\mu\text{g}/\text{m}^3$
23Mar07	SR 405 / 22 Interchange (Significant Visible dust cloud was created when the system was opened during operation by operator. Operator was subsequently dismissed.	$2.3 \mu\text{g}/\text{m}^3$
21Mar07	Mentone Blvd & State Highway 38	Below Detection $<2\mu\text{g}/\text{m}^3$
16Jun08	Route 243/10 Separation, Banning	Below Detection $<2\mu\text{g}/\text{m}^3$
24July08	11-SD-8-9.6/R52.6, San Diego	Below Detection $<2\mu\text{g}/\text{m}^3$
23Sept08	SR 57 near Alpine	Below Detection $<2\mu\text{g}/\text{m}^3$
26Jun09	I 405 at Crenshaw (Driver Location) NIOSH Method 7105	Below Detection $<0.03\mu\text{g}/\text{m}^3$

26Jun09	I405 at Crenshaw (At Planer Head) NIOSH Method 7105	0.06 µg/m <sup>3</sup>
15Sept09	SR 14 Northbound Mojave	Below Detection <2µg/m <sup>3</sup>
8Aug09	SR 15 at Foothill	Below Detection <2µg/m <sup>3</sup>
20Jun10	07-166814	Below Detection <2µg/m <sup>3</sup>
1Jun10	Transbay Essex Street Widening San Francisco NIOSH Method 7105 Operator station	Below detection <0.2 µg/m <sup>3</sup>
1Jun10	Transbay Essex Street Widening San Francisco NIOSH Method 7105 at planer head	0.3 µg/m <sup>3</sup>
8July11	SR 170 near and North of SR 101 Interchange North bound and South bound lanes.	Below Detection <2µg/m <sup>3</sup>
12Jun12	SR 5 in Santa Clarita at Lyons Avenue Operators Station	Below detection <2 µg/m <sup>3</sup>
12Jun12	SR 5 in Santa Clarita at Lyons Avenue At planer head	Below detection <2 µg/m <sup>3</sup>
11Jul13	08-0P3804 MRU Operators Station	Below detection <2 µg/m <sup>3</sup>
11Jul13	08-0P3804 At Planer Head	Below detection <2 µg/m <sup>3</sup>
11Jul13	08-0P3804 at Sweeper Operators Station	Below detection <2 µg/m <sup>3</sup>
7Apr14	SR 145 Road 27 @ Ave 51/2 Operator	Below detection <2 µg/m <sup>3</sup>
7Apr14	SR 145 Road 27 @ Ave 51/2 Sweeper	Below detection <2 µg/m <sup>3</sup>
7apr14	SR 145 Road 27 @ Ave 51/2 Sweeper	Below detection <2 µg/m <sup>3</sup>
7Apr14	SR 145 Road 27 @ Ave 51/2 Bobcat Ope.	Below detection <2 µg/m <sup>3</sup>
29Apr14	07-1W5804 CA 105 Operator	Below detection <2 µg/m <sup>3</sup>
29Apr14	07-1W5804 CA 105 Operator Sweeper	Below detection <2 µg/m <sup>3</sup>
29Apr14	07-1W5804 CA 105 HEPA Exhaust	2.5 µg/m <sup>3</sup>
8Jun15	SR 710 @ SR 105 Operator MRL	Below detection <2 µg/m <sup>3</sup>
8Jun15	SR 710 @ SR 105 Sweeper Operator	Below detection <2 µg/m <sup>3</sup>

29Jun16	SR 710 @ Florence Sweeper Operator	Below detection <0.38 µg/m <sup>3</sup>
29 Jun16	SR 710 @ Florence MRL Operator	Below detection <0.38 µg/m <sup>3</sup>
7Aug16	SB I-405 @ Carson MRL Operator	Below detection <0.38 µg/m <sup>3</sup>
7Aug16	SB I-405 @ Carson Sweeper	Below detection <0.38 µg/m <sup>3</sup>
17Jan17	I-5 NB Newhall MRL Operator	Below detection <0.38 µg/m <sup>3</sup>

All levels measured were conducted or managed by a Certified Industrial Hygienist (CIH)<sup>1</sup>, the data clearly demonstrates that the system can not and does not create an exposure above the 30 µg/m<sup>3</sup> action level. During conditions that should trigger a stop work condition, such as a removal or by-passing of the filter system, the measurements were still below the Action Level. The proper use of this equipment does not create measurable levels using NIOSH Method 7082 Issue 2. The detection level is (2 µg Pb). Improper use does create a low level of exposure, but it is readily discernable since it is accompanied by a significant visible and dense dust cloud. That level is however substantially less than the action level.

The OSHA code discusses several classes of work that require annual monitoring, and cannot be designated as qualifying for Section (5) *Negative initial determination*. The Code discusses the operation of tools with HEPA Vacuum systems. The definition of a tool is a : a handheld device that aids in accomplishing a task<sup>2</sup>, clearly the MRL Planer unit is not “*power tool cleaning with dust collection system(s)*” The MRL is a very large piece of construction equipment, the planer head is the only part of the equipment that can be considered as a “*regulated area*”. It is less than one cubic foot in area. Therefore the equipment operator is never inside a “regulated area” nor is it possible for anyone to enter the “regulated area”. The operator never “manipulates the planer head”. The operator is physically located inside the MRL tractor cab, he can monitor the planer head because he has a video display that shows the exact location and function of the planer head. The location of the regulated area and the operators work is physically separated by more than ten feet. Further the truck cab is an enclosed unit.

All levels measured were conducted by a Certified Industrial Hygienist (CIH), or a CHST working under the direct supervision of a CIH. The data clearly demonstrates that the system can not and does not create an exposure above the 30 µg/m<sup>3</sup> action level, even during conditions that should trigger a stop work condition. The proper use of this equipment does not create measurable levels using NIOSH Method 7082 Issue 2. The detection level is (2 µg Pb). Improper use does create a low level of exposure, but it is readily discernable since it is accompanied by a dense dust cloud. That level is however substantially less than the action level.

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<sup>1</sup> Acknowledging the following Certified Industrial Hygienists, Dan Napier, CIH CP2267, Mark Gigas, CIH, CP5722, Michael R. Tiffany, CIH CP5056, Nate Williams, CHST

<sup>2</sup> <http://www.merriam-webster.com/dictionary>

The recorded detection levels that are indicated above  $2 \mu\text{g}/\text{m}^3$  are the result of calculations when the work period is significantly less than eight hours. In many cases the available work time is less than eight hours or the task is simply completed in less than eight hours. In all cases where the test indicated below detection levels the reader must understand the laboratory detection level of less than  $2 \mu\text{g}$  was always met. The method requires that the smaller volume of collected air must be considered when developing the detection level.

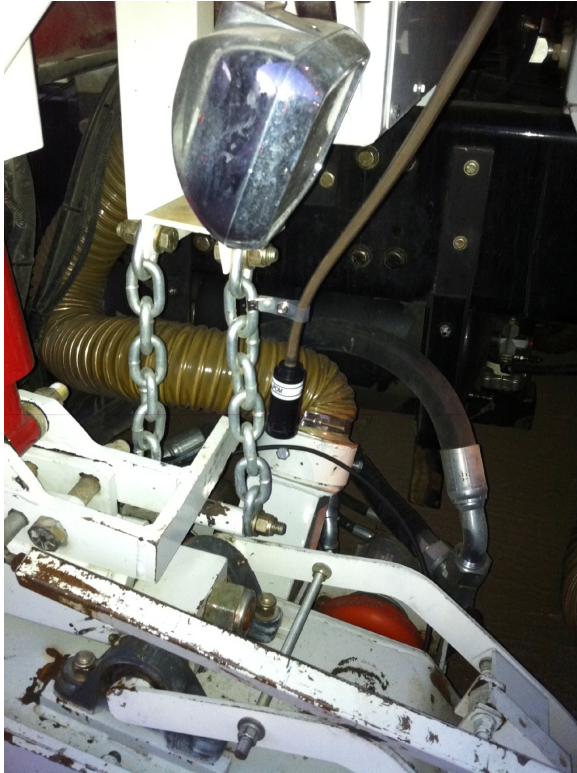
Further notes and comments. There is a misunderstanding of the code by many regulators. The code requires annual testing ONLY when lead is detected above the  $30 \mu\text{g}/\text{m}^3$  level. The next paragraph indicates that if the levels are below the action level further testing need not be accomplished, unless a substantial change in the work happens. Travel on a northbound road versus a westbound road is not a substantial change, nor is a road in Northern California substantially different from a road in Southern California. The Bobcat Equipment is not substantially different than the MRL Equipment. The tests have been conducted in all the various parts of California, in all conditions and locations. The action level has never been approached, the detection level has seldom been met.

The first edition of this study was presented at the American Industrial Hygiene Conference and Exposition in Austin Texas in 2013. This study meets OSHA requirements for an industry wide study. The study is a meta study, the full reports are available for reading at the author's office. We require an appointment for anyone who desires to review the studies that the META study is based upon. Due to the privacy of the companies and individuals who have made this study possible, copies of the original studies are not available. The author has not been compensated in any way for the work accomplished in this study.

Respectfully Submitted;

Dan Napier, MS  
Certified Industrial Hygienist  
ATT Photograph

## Photographs of equipment



Area above the rotomill head. Note the dust free condition. This photograph was taken in the field during the work cycle.



MRL Equipment



