

Surface Lead Assessment Follow Up
For Selected Areas At

The Federal Center
4300 Goodfellow
St. Louis, Mo
March 11 and 12, 2009

Performed by:



John McCall MS IH
Heartland Safety & Environmental Team
1500 East Bannister Road (6PFB)
Kansas City, Mo 64131

Executive Summary

Laboratory analyses of wipe samples indicate the presence of surface lead contamination in excess of current GSA guidelines on several surfaces within three of the five areas re-sampled. Plans to minimize employee exposure to and decontamination of these areas should be implemented.

Background

There are no clearly established standards for acceptable surface lead concentrations in workplaces. However, the Naval Environmental Health Center (NEHC) has published a standard for firing ranges. In their document (Technical Manual NEHC–TM6290.99-10 Rev.1, dtd. May 2002), NEHC states that work areas and lunchrooms outside a firing range must be tested to ensure surface lead contaminations are maintained below 200 micrograms of lead per square foot of surface area ($\mu\text{g}/\text{ft}^2$). Furthermore, OSHA published compliance letter CPL 02-02-058 dated 13 Dec 1993 stating that they consider 200 $\mu\text{g}/\text{ft}^2$ to be acceptable for work areas. As a result of these documents, we are using 200 $\mu\text{g}/\text{ft}^2$ as the criteria for determining safe surface lead contamination levels in workplaces. Please note, this does **NOT** apply to child care centers where the much-stricter HUD guidelines would take precedence.

Two previous surface lead surveys indicated five areas within the Goodfellow complex where samples containing high surface lead content were found. A follow-up set of tests was conducted in those areas on March 11-12, 2009, to assess whether these samples indicated area-wide lead contamination of those spaces within each building.

Methodology

Sample sites within the designated areas were selected with the objective of determining if lead contamination was an issue with the structure rather than its contents. Samples were collected on building surfaces and integral equipment which were likely to be disturbed or contacted by individuals in the course of their duties. Less attention was given to the non-structural room contents, with the exception of a former fuel tank room in the building 105 which currently houses a variety of small building materials that may be reused at some point.

Samples were collected using a Ghost Wipe on areas inside a 10 X 10 centimeters squared (cm^2) template placed on selected surfaces. The wipe was folded into quarters and wiped over the entire surface in an S-pattern in a vertical direction using moderate pressure. The wipe was then folded in half with the exposed side inward and the clean side was wiped over the surface in the S-pattern in a horizontal direction. After folding the wipe with the exposed side inward a second time, a third pass was made over the surface in a vertical direction using the S-pattern. Latex gloves were donned before handling each

wipe and gloves were changed with each sample taken. Completed samples were placed in a clean plastic vile and sealed with a lid.

Samples were sent to an AIHA-accredited laboratory (in this case, EMSL Analytical, St. Louis, Missouri) where they were analyzed by using Method SW846-7420/HUD Appendix. 14.2 Digest. The analyzing instrument utilized Flame Atomic Absorption. Results were converted from micrograms per 100 cm² to micrograms per foot squared (ft²) by the analyzing laboratory.

Findings

Building 102, Column G-2 – Samples fro this area indicated that area-wide lead contamination is not occurring. All but one of the samples taken in the Floor 1, G2 column office room of Building 102 returned results well below (<93 micrograms per square foot) that of GSA’s guideline for surface lead of 200 µg/ft². The exception was a sample taken from the cove molding of the office in building 102, which registered 200 µg/ft². Based upon these results it is not believed that these areas have contamination serious enough to impact human health and should require no remediation.

Building 103D, Floor 2 – Samples fro this area also indicated no area-wide lead contamination present. Based upon these results it is not believed that these areas have contamination serious enough to impact human health and should require no remediation.

Building 103D, Floor 1, Mechanical Room – Concentrations above 200 µg/ft² were found in 4 of 12 samples taken in this area. Locations and concentrations are as follows:

SAMPLE LOCATION	RESULTS (µg/ft ²)
Sample 15 – Southeast door of 3/4 air handler	240
Sample 17 – Northeast corner of floor	690
Sample 22 – Light fixture west of #6 air handler	240
Sample 23 – Duct south of sampled light fixture	570

Building 105F, Basement Compressor Area – Concentrations above 200 micrograms/sq. ft. were found in 6 of 12 samples taken in this area. Locations and concentrations as follows:

SAMPLE LOCATION	RESULTS (µg/ft ²)
Sample 5 – Top of elect. box–southwest corner	910
Sample 6 – Northwest corner of floor	1,300
Sample 9 – Capped water pipe	1,200
Sample 10 – Overhead pipe, mid-room	1,300
Sample 11 – Top of south wall, east end	12,000
Sample 12 – Top of north wall, east end	16,000

Building 110, Basement, Storage Room – Concentrations above 200 µg/ft² were found in 6 of 13 samples taken in this area. Locations and concentrations are as follows:

SAMPLE LOCATION	RESULTS (µg/ft ²)
Sample 38 – Floor between tank supports	1,800
Sample 39 – Southeast tank support	2,400
Sample 41 – Conduit fitting	340
Sample 46 – Northwest tank support	21,000
Sample 47 – Floor plate south of concrete retainer	270
Sample 48 – Top of concrete retainer bin	590

Conclusions and Recommendations

It is believed the single 200 µg/ft² result from the cove molding in the Floor 2, Building 103D office area is due to the composition of the molding and does not represent a significant health hazard. As a precautionary measure, however, anyone removing cove molding in the area should wear gloves and wash their hands before eating or drinking, and after the work is completed. On the basis of the sample results, the Floor 2 office area of Building 103D and the Column G-2 area in Building 102 do not require any further attention.

The three areas exhibiting surface lead concentrations above 200 µg/ft² are:

- Building 103D, Floor 1, Mechanical Room
- Building 105F, Basement compressor area
- Building 110, Basement, Storage Room

These areas will require remediation at some point, the scope of which is yet to be determined. These areas are all storage or mechanical areas not accessed by the general workforce. It would be expected that only maintenance personnel would enter these spaces and do so infrequently enough that the exposure risk would be minimal. However, since it is the goal of GSA's Safety and Environmental Management Office to prevent exposures to the greatest extent possible, the following recommendations are made:

1. Access to the three affected areas be restricted to authorized personnel whose job function requires them enter these spaces to perform their duties.
2. Any individual entering these spaces should be informed of the presence of lead therein and should be further informed of the following hygiene practices to be observed during and after work is performed in these areas:

- a) Minimal disturbance of surfaces, especially those with visible dust on them (floors, horizontal surfaces).
 - b) Minimization of contact of skin and clothing with surfaces through the use of gloves (when possible) and protective coveralls (removed and appropriately cleaned after use).
 - c) No food in these areas and the strict observance of hand washing after work is completed in these spaces.
3. The contents of these spaces should not be removed until properly decontaminated using approved methods of cleaning.
 4. No additional materials should be placed into these areas until the areas have been decontaminated. Should additional materials be placed in these areas, they must be considered to be contaminated.
 5. Decontamination of these three areas, and their contents, utilizing proper procedures should be developed and implemented.

Please refer to the attached addendum for complete guidelines regarding entry and work performed in these rooms.

Guidelines for Entry into Lead Contaminated Areas of 4300 Goodfellow

1. Access to the contaminated areas should be restricted to **authorized, necessary** personnel. Entry should be kept to an absolute minimum to limit exposure and the spread of the contamination into unaffected areas.
2. Respirators are not required, however, gloves and coveralls should be worn when entering and performing work in these areas. Gloves can be of heavy cotton and coveralls may be ordinary work coveralls. Use of disposable coveralls (e.g., Tyveks) will be advantageous; if laundering soiled coveralls, consideration of lead exposure to launderers must be included.
3. Tyvek booties should be worn to prevent dust from adhering to shoes when entering. These are available from Professional Safety Equipment (1-800-334-9192; website: <http://www.professionalequipment.com/>; cost: \$72.90 per 50) or other safety equipment suppliers.
4. Unless it is unavoidable, the crawl spaces directly north and south of the Basement Compressor Area in Building 105F should not be entered by climbing over the concrete walls.
5. Activities which would result in making surface-dust particulates airborne (sweeping, dusting, etc.) should be avoided to the greatest extent as is possible.
6. No food, drink, or smoking is allowed in these areas. Any hand-to-mouth actions could result in ingestion of lead-contaminated soil.
7. No objects should be removed from these areas nor should any additional materials be placed in these areas other than those needed for the performance of work-related activities. If this becomes necessary, the objects will require decontamination when being removed.
8. When exiting the areas, personnel should remove booties as they step into the non-contaminated area and place them in a plastic bag to be disposed of in a municipal solid waste landfill. Gloves and coveralls should be removed immediately and, if re-used, washed by a facility competent to clean lead-contaminated clothing. Tools employed in performing tasks should be thoroughly wiped down with a clean cloth before being re-used and the cloth disposed of with the booties.

9. Personnel should immediately wash hands with soap and water before handling other objects and should also wash their face before eating, drinking, or applying cosmetics.



EMSL Analytical, Inc.

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Phone: (314) 577-0150 Fax: (314) 776-3313 Email: saintlouislab@emsl.com

Attn: **John McCall**
General Services Administration
1500 East Bannister Road
Room 2101, 6PFB
Kansas City, MO 64131

Customer ID: GSA78
Customer PO:
Received: 03/16/09 8:15 AM
EMSL Order: 390901173

Fax: (816) 926-1779 Phone: (816) 926-7595
Project: **4300 Goodfellow**

EMSL Proj:
Report Date: 3/31/2009

Lead in Dust by Flame AAS (SW 846 3050B*/7420)

Lab ID:	Analyzed	Area Sampled	RDL	Lead Concentration	Notes
0001	3/30/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	
Client Sample 1					Collected:
0002	3/30/2009	15.5 in ²	93 µg/ft ²	190 µg/ft ²	
Client Sample 2					Collected:
0003	3/30/2009	15.5 in ²	93 µg/ft ²	150 µg/ft ²	
Client Sample 3					Collected:
0004	3/30/2009	15.5 in ²	93 µg/ft ²	94 µg/ft ²	
Client Sample 4					Collected:
0005	3/30/2009	15.5 in ²	93 µg/ft ²	910 µg/ft ²	
Client Sample 5					Collected:
0006	3/30/2009	15.5 in ²	93 µg/ft ²	1300 µg/ft ²	
Client Sample 6					Collected:
0007	3/30/2009	15.5 in ²	93 µg/ft ²	130 µg/ft ²	
Client Sample 7					Collected:
0008	3/30/2009	15.5 in ²	93 µg/ft ²	140 µg/ft ²	
Client Sample 8					Collected:
0009	3/30/2009	15.5 in ²	93 µg/ft ²	1200 µg/ft ²	
Client Sample 9					Collected:
0010	3/30/2009	15.5 in ²	93 µg/ft ²	1300 µg/ft ²	
Client Sample 10					Collected:
0011	3/30/2009	15.5 in ²	460 µg/ft ²	12000 µg/ft ²	
Client Sample 11					Collected:

(b) (6)

Jeff Siria, Laboratory Manager
or other approved signatory

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Lead in Dust by Flame AAS (SW 846 3050B*/7420)

Lab ID:	Analyzed	Area Sampled	RDL	Lead Concentration	Notes
0012	3/30/2009	15.5 in ²	930 µg/ft ²	16000 µg/ft ²	
<i>Client Sample 12</i>					<i>Collected:</i>
0013	3/30/2009	15.5 in ²	93 µg/ft ²	100 µg/ft ²	
<i>Client Sample 13</i>					<i>Collected:</i>
0014	3/30/2009	15.5 in ²	93 µg/ft ²	140 µg/ft ²	
<i>Client Sample 14</i>					<i>Collected:</i>
0015	3/30/2009	15.5 in ²	93 µg/ft ²	240 µg/ft ²	
<i>Client Sample 15</i>					<i>Collected:</i>
0016	3/30/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	
<i>Client Sample 16</i>					<i>Collected:</i>
0017	3/30/2009	15.5 in ²	93 µg/ft ²	690 µg/ft ²	
<i>Client Sample 17</i>					<i>Collected:</i>
0018	3/30/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	
<i>Client Sample 18</i>					<i>Collected:</i>
0019	3/30/2009	15.5 in ²	93 µg/ft ²	160 µg/ft ²	
<i>Client Sample 19</i>					<i>Collected:</i>
0020	3/30/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	
<i>Client Sample 20</i>					<i>Collected:</i>
0021	3/31/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	
<i>Client Sample 21</i>					<i>Collected:</i>
0022	3/31/2009	15.5 in ²	93 µg/ft ²	240 µg/ft ²	
<i>Client Sample 22</i>					<i>Collected:</i>

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Jeff Siria, Laboratory Manager
or other approved signatory

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Lead in Dust by Flame AAS (SW 846 3050B*/7420)

Lab ID:	Analyzed	Area Sampled	RDL	Lead Concentration	Notes
0023	3/31/2009	15.5 in ²	93 µg/ft ²	570 µg/ft ²	
<i>Client Sample 23</i>					<i>Collected:</i>
0024	3/31/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	
<i>Client Sample 24</i>					<i>Collected:</i>
0026	3/31/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	
<i>Client Sample 26</i>					<i>Collected:</i>
0027	3/31/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	
<i>Client Sample 27</i>					<i>Collected:</i>
0028	3/31/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	
<i>Client Sample 28</i>					<i>Collected:</i>
0029	3/31/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	
<i>Client Sample 29</i>					<i>Collected:</i>
0030	3/31/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	
<i>Client Sample 30</i>					<i>Collected:</i>
0031	3/31/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	
<i>Client Sample 31</i>					<i>Collected:</i>
0032	3/31/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	
<i>Client Sample 32</i>					<i>Collected:</i>
0033	3/31/2009	15.5 in ²	93 µg/ft ²	200 µg/ft ²	
<i>Client Sample 33</i>					<i>Collected:</i>
0035	3/31/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	
<i>Client Sample 35</i>					<i>Collected:</i>

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Jeff Siria, Laboratory Manager
or other approved signatory

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Lead in Dust by Flame AAS (SW 846 3050B*/7420)

Lab ID:	Analyzed	Area Sampled	RDL	Lead Concentration	Notes
0036	3/31/2009	15.5 in ²	93 µg/ft ²	130 µg/ft ²	
<i>Client Sample 36</i>					<i>Collected:</i>
0037	3/31/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	
<i>Client Sample 37</i>					<i>Collected:</i>
0038	3/31/2009	15.5 in ²	93 µg/ft ²	1800 µg/ft ²	
<i>Client Sample 38</i>					<i>Collected:</i>
0039	3/31/2009	15.5 in ²	93 µg/ft ²	2400 µg/ft ²	
<i>Client Sample 39</i>					<i>Collected:</i>
0040	3/31/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	
<i>Client Sample 40</i>					<i>Collected:</i>
0041	3/31/2009	15.5 in ²	93 µg/ft ²	340 µg/ft ²	
<i>Client Sample 41</i>					<i>Collected:</i>
0042	3/31/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	
<i>Client Sample 42</i>					<i>Collected:</i>
0043	3/31/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	
<i>Client Sample 43</i>					<i>Collected:</i>
0044	3/31/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	
<i>Client Sample 44</i>					<i>Collected:</i>
0045	3/31/2009	15.5 in ²	93 µg/ft ²	140 µg/ft ²	
<i>Client Sample 45</i>					<i>Collected:</i>
0046	3/31/2009	15.5 in ²	930 µg/ft ²	21000 µg/ft ²	
<i>Client Sample 46</i>					<i>Collected:</i>

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Jeff Siria, Laboratory Manager
or other approved signatory

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Lead in Dust by Flame AAS (SW 846 3050B*/7420)

Lab ID:	Analyzed	Area Sampled	RDL	Lead Concentration	Notes
34 0049	3/31/2009	15.5 in ²	93 µg/ft ²	<93 µg/ft ²	<i>Collected:</i>
<i>Client Sample X</i>					
48 0050	3/31/2009	15.5 in ²	93 µg/ft ²	590 µg/ft ²	<i>Collected:</i>
<i>Client Sample Y</i>					
47 0051	3/31/2009	15.5 in ²	93 µg/ft ²	270 µg/ft ²	<i>Collected:</i>
<i>Client Sample Z</i>					

(b) (6)

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390901173



Chain of Custody

EMSL Analytical, Inc.
3025-3029 S. Jefferson
St. Louis, MO 63118

Lead Lab Services

Phone: (314)-577-0150
Fax: (314)-776-3313
<http://www.emsl.com>

Please print all information legibly.

Company:	General Services Administration	Bill To:	General Services Administration
Address 1:	1500 East Bannister Road	Address 1:	1500 East Bannister Road
Address 2:	Room 2101, 6PFB	Address 2:	Room 2101, 6PFB
City, State:	Kansas City, MO	City, State:	Kansas City, MO
Zip/Post Code:	64131-3088	Zip/Post Code:	64131-3088
Country:	USA	Country:	USA
Contact Name:	John McCall	Attn:	John McCall
Phone:	816-823-2964	Phone:	816-823-2964
Fax:	816-926-1779	Fax:	816-926-1779
Email:	john.mccall@gsa.gov	Email:	john.mccall@gsa.gov
EMSL Rep:	Paul Viemann	P.O. Number:	
Project Name/Number:	4300 Goodfellow		

MATRIX	METHOD	INSTRUMENT	RL (Reporting Limit)	TAT
Lead Chips*	SW846-7420, 3050B Mod./AOAC(974.02)	Flame Atomic Absorption	0.01% ++	
Lead Waste Water	SW846-7420	Flame Atomic Absorption	0.4 mg/l water 40 mg/kg (ppm) soil	
Lead Soil +	or SW846-6010B	ICP	0.1 mg/l water 10 mg/kg (ppm) soil	
Lead in Air ***	NIOSH 7082 Mod.	Flame Atomic Absorption	4 ug/filter	
	or NIOSH 7300 Mod.	ICP	3.0 ug/filter	
Lead in Wipe^ <input checked="" type="checkbox"/> -ASTM List Wipe Type Ghost Wipe <input type="checkbox"/> -non ASTM	SW846-7420 / HUD Appendix 14.2 Digest	Flame Atomic Absorption	10 ug/wipe	6-10
	or SW846-6010B	ICP	3.0 ug/wipe	
TCLP Lead **	SW846-1311/ 7420	Flame Atomic Absorption	0.4 mg/l (ppm)	
	or SW846-6010B	ICP	0.1 mg/l (ppm)	
STLC Lead (California) #	CA Title 22 66261.126/ SW846-7420	Flame Atomic Absorption	0.4 mg/l (ppm)	
	or SW846-6010B	ICP	0.1 mg/l (ppm)	
Lead in Air ****	NIOSH 7105 Mod.	Graphite Furnace Atomic Absorption	0.03 ug/filter	
Lead Waste Water	SW846-7421	Graphite Furnace Atomic Absorption	0.003 mg/l (ppm) water	
Lead Soil +			0.03 mg/kg (ppm) soil	
Lead in Drinking Water (check state Certification requirements)	EPA 239.2 / 200.9	Graphite Furnace Atomic Absorption	0.003 mg/l (ppm)	
Total Dust	NIOSH 0500-0600	Gravimetric Reduction	0.0001g	

TAT (Turnaround) - Same day, 24 hr - 1 Day, 2 Days, 3 Days, 4 Days, 5 Days, 6-10 Days

*, **, ***, ****, +, ++, # Please Refer to Price Quote

^ If no box is checked, non-ASTM is assumed

Lead - 4300
Good fellow



Chain of Custody

EMSL Analytical, Inc.
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Lead Lab Services

Phone: (314)-577-0150
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Please print all information legibly.

SAMPLE #	LOCATION	Air Volume, L Area, in ² cm ²	LAB #
1	105F	105F comp elect. box top	100
2	105F	South Wall hv filter system	
3	105F	Top of 2 small filters	
4	105F	Exit Sign - Door - Interior Above Handle	
5	105F	Top electrical Box - Wall	
6	105F	Floor NW	
7	105F	Pillar	
8	105F	Sump Pipe	
9	105F	Water Pipe - Capped	
10	105F	Supply Pipe - Top	
11	105F	Top of South Wall	
12	105F	Top of North Wall	
13	103D	Top of Air Handler 6	
14	Mech 103D	Side of 3/4 Supply Duct	
15	Mech 103D	SE Air Handler 3/4 Door	
16	Mech 103D	East Wall - North End	
17	Mech 103D	Floor NE corner	
18	Mech 103D	Air Handler 4 - Door	
19	Mech 103D	Small Floor Blower	
20	Mech 103D	Galvanized Equip. Panel	
21	Mech 103D	West Wall Between Panels	
22	Mech 103D	Top of Light Fixture	
23	Mech 103D	Top of Duct Near Light	
24	Mech 103D	Z-2 Duct	
25	103D	North Wall	
26	103D	Middle Window Ledge	
27	103A	Door	
28	103D	East Wall Cove Molding	

@Relinquished By: (Person)

(b) (6)

Date: 3/12/09

Received at EMSL by:

Date:

Received at EMSL by:

Date:

Note: Please duplicate this form and use additional sheets if necessary.



Chain of Custody

EMSL Analytical, Inc.
3025-3029 S. Jefferson
St. Louis, MO 63118

Lead Lab Services

Phone: (314)-577-0150

Fax: (314)-776-3313

http://www.emsl.com

Please print all information legibly.

xyz

SAMPLE #	LOCATION	Air Volume, L Area, in ² CM ²	LAB #
29	103 D South Window - Blinds	100	
30	102 North - Block Wall		
31	102 East Room Divider		
32	102 Ceiling Tile - Front		
33	102 East Divider Cove Mold.		
x 34	102 Ceiling Tile - Back		
35	102 South Wall Divider		
36	110 Floor Plates - Top ^{OT} Stack		
37	110 Floor Plates - Middle of Stack		
38	110 Floor - Mid Room		
39	110 Tank Support		
40	110 Recessed Light		
41	110 Conduit Fitting		
42	110 South Wall J		
43	110 Electric Drop Box		
44	110 North Wall		
45	110 Pipe Cart		
46	110 Tank Support - Middle		
2 x 47	110 Floor Plate		
7 x 48	110 Top of Retaining Wall		

(b) (6)

@Relinquished By: (Person)

Date: 3/12/09

Received at EMSL by: _____

Date: _____

Received at EMSL by: _____

Date: _____


Note: Please duplicate this form and use additional sheets if necessary.

@ The individual signing and relinquishing these samples to the laboratory attests to the accuracy of the information reported on this chain of custody.

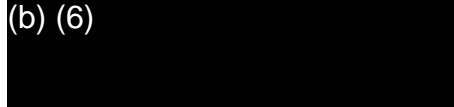
Field Note Diagrams - Lead testing 4300 Goodfellow

March 10-11, 2009

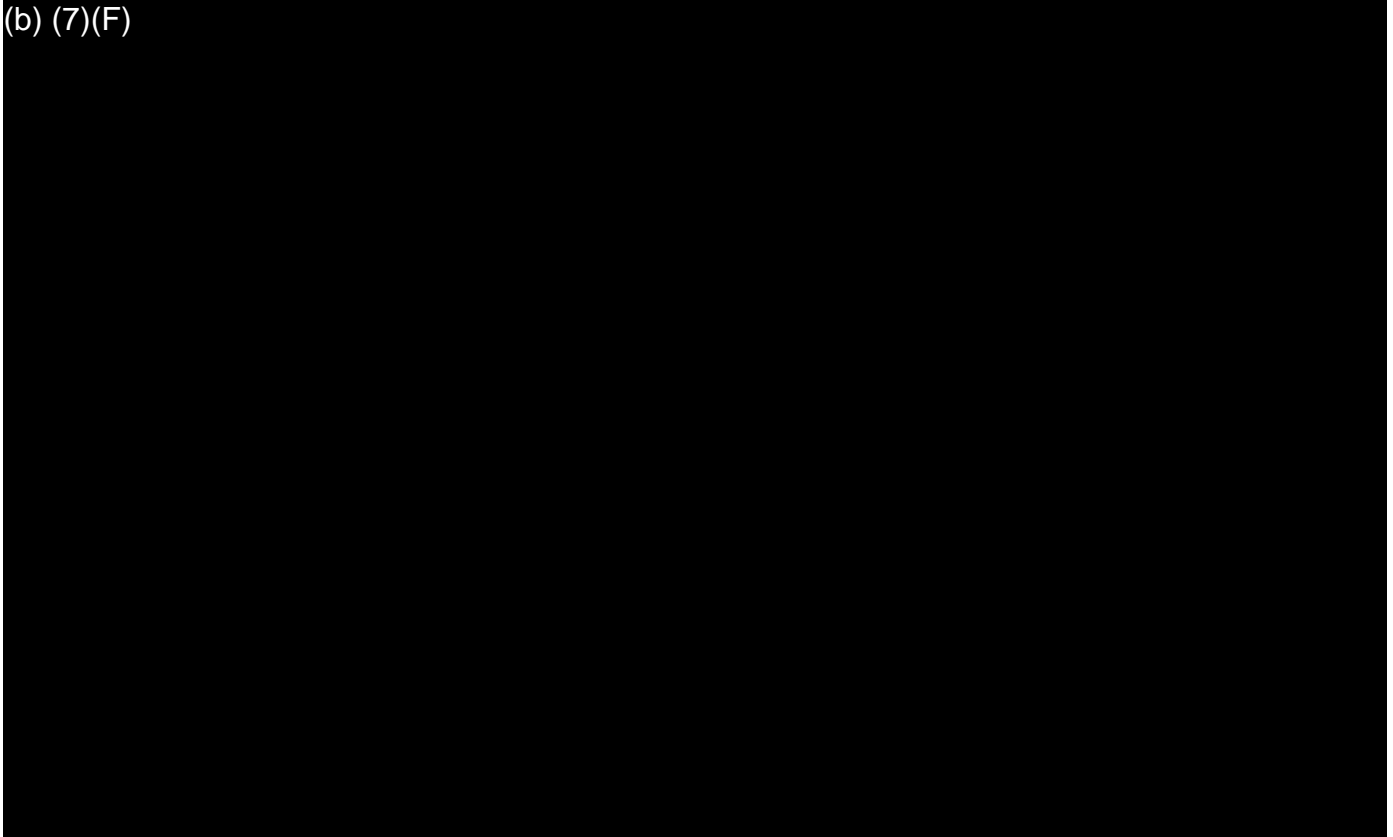
(b) (7)(F)



(b) (6)



(b) (7)(F)



Field Notes Diagram Lead Testing at 4300 Goodfellow

(b) (7)(F)

March 10-11, 2009

(b) (6)

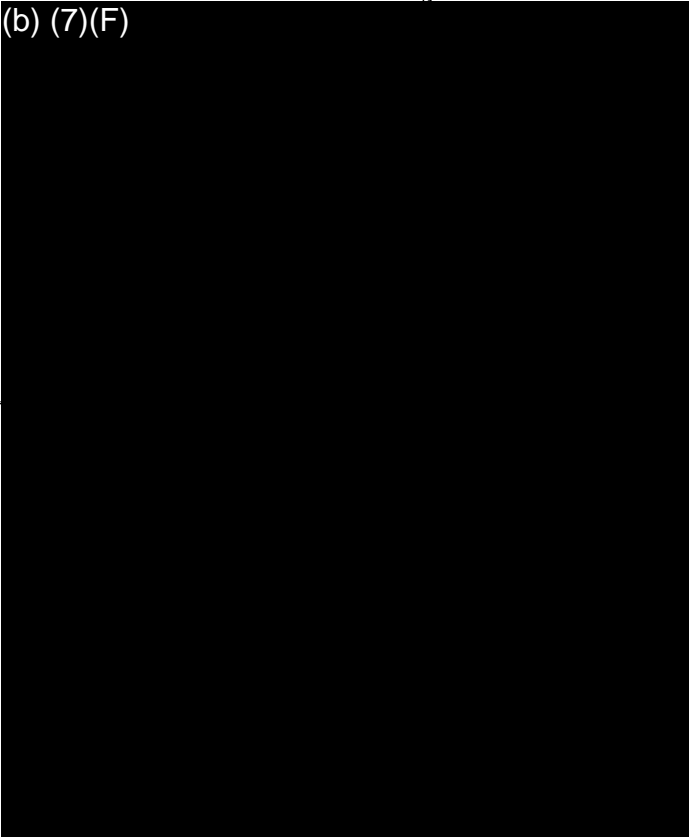
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Field Note Diagrams - Lead testing 4300 Goodfellow

March 10-11, 2009

(b) (7)(F)



(b) (6)



(b) (7)(F)



Field Notes Diagram Lead Testing at 4300 Goodfellow

March 10-11, 2009

(b) (7)(F)



b) (6)

(b) (7)(F)



(b) (7)(F)

