

**SAF-RC-237**  
**100N Area BioRemediation Soil Samples**  
**FINAL DATA PACKAGE**

**COMPLETE COPY OF DATA PACKAGE TO:**

Kathy Wendt

H4-21

KW 7/22/13  
INITIAL/DATE

**COMMENTS:**

**SDG MILB0135A**

**SAF-RC-237**

Rad only

Chem only

Rad & Chem

Complete

Partial

**Sample Location: UPR-100-N-17**



# REPORT OF ANALYSES

PREPARED BY:

MICROBE INOTECH LABORATORIES, INC.



the MiL, Inc.

*Celebrating 20 Years of Excellence in Microbiology and Service*

**Microbe Inotech Laboratories, Inc.**  
**Summary Report of Analysis**  
**[MILB – 0135A] Final**

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Preliminary: June 11, 2013  
Final: June 24, 2013

**Description and Chain of Custody Record Information:**

- Tuesday, June 04, 2013 – 9:50AM: Received by FedEx ten (10) samples for Total Aerobic Plate count, Total Anaerobic Plate count, and Yeast, Mold, and Fungi Plate counts via spread plate method.
- MiL, Inc. REPORT and Invoice No.: MILB-0135A

**Sample Processing**

Within 20 minutes of reception an aliquot from each sample is checked for weight or volume and serially diluted. The dilutions are aseptically transferred in a laminar flow biological cabinet and plated in the following manner(s):

- [Standard Methods 18<sup>th</sup> Edition #9215C (standard spread plate method) for Yeast, Mold, and Fungi Plate Counts] The sample dilutions are plated onto previously prepared and dried Sabouraud Dextrose Agar (SAB) medium (for Yeast, Mold, and Fungi enumeration) in Petri plates and then incubated at 24.5°C for 3 and 5 days. Results are reported as Total Colony Forming Units (of Yeast, Mold, and Fungi) per 1 milliliter or 1 gram of solution or solid (CFU/mL or CFU/g).
- [Standard Bacterial Plate Count 9215] - The dilutions are plated onto previously prepared and dried TSA medium in Petri plates. Observations for colony forming units per 1 milliliter (CFU/mL) are made after 24 and 48 hours of incubation at 30°C.
- [Standard Bacterial Plate Count 9215] (Anaerobic) - The dilutions are plated onto previously prepared and dried TSA medium in Petri plates. Observations for Colony Forming Units per 1 milliliter or 1 gram of sample (CFU/mL or CFU/g) are made after 48 to 72 hours of incubation at 37°C under anaerobic conditions.

**Results:**

<b>DATA: Results Reported as Colony Forming Units per 1 milliliter or Colony Forming Units per 1gram of sample (CFU/mL or CFU/g)</b>							
<b>Sample Number</b>	<b>Sample Name</b>	<b>Results</b>					
		<b>Total Aerobic Plate Counts (TSA)</b>		<b>Total Anaerobic Plate Counts</b>		<b>Yeast and Mold Counts (SAB)</b>	
		<b>24h</b>	<b>48h</b>	<b>48h</b>	<b>72h</b>	<b>3 Days</b>	<b>5 Days</b>
0135A-1	J1RN81	1.00 x 10 <sup>2</sup>	1.00 x 10 <sup>2</sup>	2.00 x 10 <sup>2</sup>	3.00 x 10 <sup>2</sup>	<1.00 x 10 <sup>2</sup>	<1.00 x 10 <sup>2</sup>
0135A-2	J1RN82	<1.00 x 10 <sup>2</sup>	1.50 x 10 <sup>4</sup>	1.10 x 10 <sup>3</sup>	1.90 x 10 <sup>3</sup>	<1.00 x 10 <sup>2</sup>	5.10 x 10 <sup>3</sup>
0135A-3	J1RN83	<1.00 x 10 <sup>2</sup>	4.00 x 10 <sup>2</sup>	1.91 x 10 <sup>5</sup>	1.91 x 10 <sup>5</sup>	<1.00 x 10 <sup>2</sup>	<1.00 x 10 <sup>2</sup>
0135A-4	J1RN84	<1.00 x 10 <sup>2</sup>	<1.00 x 10 <sup>2</sup>	<1.00 x 10 <sup>2</sup>	1.00 x 10 <sup>2</sup>	1.00 x 10 <sup>2</sup>	1.00 x 10 <sup>2</sup>
0135A-5	J1RN85	<1.00 x 10 <sup>2</sup>	3.04 x 10 <sup>4</sup>	9.10 x 10 <sup>3</sup>	1.20 x 10 <sup>4</sup>	7.60 x 10 <sup>3</sup>	8.00 x 10 <sup>3</sup>
0135A-6	J1RN86	<1.00 x 10 <sup>2</sup>	<1.00 x 10 <sup>2</sup>	1.00 x 10 <sup>2</sup>	5.00 x 10 <sup>2</sup>	<1.00 x 10 <sup>2</sup>	<1.00 x 10 <sup>2</sup>
0135A-7	J1RN87	<1.00 x 10 <sup>2</sup>	2.02 x 10 <sup>4</sup>	2.67 x 10 <sup>5</sup>	2.67 x 10 <sup>5</sup>	7.00 x 10 <sup>3</sup>	7.70 x 10 <sup>3</sup>
0135A-8	J1RN88	1.00 x 10 <sup>2</sup>	9.73 x 10 <sup>4</sup>	2.10 x 10 <sup>5</sup>	3.20 x 10 <sup>5</sup>	4.90 x 10 <sup>3</sup>	7.20 x 10 <sup>3</sup>
0135A-9	J1RN89	4.95 x 10 <sup>6</sup>	5.02 x 10 <sup>6</sup>	1.00 x 10 <sup>6</sup>	9.00 x 10 <sup>6</sup>	1.55 x 10 <sup>5</sup>	1.55 x 10 <sup>5</sup>
0135A-10	J1RN90	5.12 x 10 <sup>4</sup>	3.95 x 10 <sup>4</sup>	1.13 x 10 <sup>6</sup>	1.18 x 10 <sup>6</sup>	2.94 x 10 <sup>4</sup>	4.47 x 10 <sup>4</sup>

<1.00 x 10<sup>1</sup> = None detected, TNTC = Too numerous to count

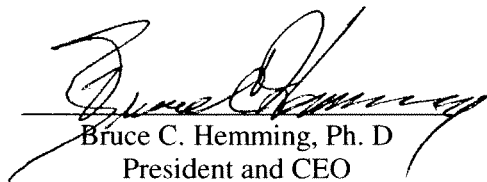
Approximate percentages of strains in each sample:

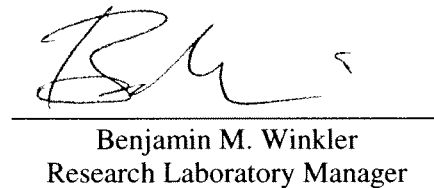
Strain	Sample Number										Type	Media
	1	2	3	4	5	6	7	8	9	10		
<b>Aerobic Strains on TSA</b>												
1	100	--	--	--	--	--	--	--	--	5	Bacteria	TSA
2	--	98	--	--	--	--	--	--	--	--	Bacteria	TSA
3	--	1	--	--	--	--	--	--	--	--	Bacteria	TSA
4	--	1	--	--	--	--	--	--	--	--	Bacteria	TSA
5	--	--	100	--	--	--	--	--	--	--	Bacteria	TSA
8	--	--	--	--	10	--	--	--	--	--	Fungal	TSA
9	--	--	--	--	80	--	--	--	--	--	Bacteria	TSA
10	--	--	--	--	5	--	--	--	--	--	Bacteria	TSA
11	--	--	--	--	5	--	30	75	--	--	Bacteria	TSA
12	--	--	--	--	--	--	30	5	5	--	Bacteria	TSA
13	--	--	--	--	--	--	30	--	--	--	Bacteria	TSA
14	--	--	--	--	--	--	10	5	5	--	Bacteria	TSA
15	--	--	--	--	--	--	--	5	--	--	Bacteria	TSA
16	--	--	--	--	--	--	--	10	--	5	Bacteria	TSA
17	--	--	--	--	--	--	--	--	37	5	Bacteria	TSA
18	--	--	--	--	--	--	--	--	38	--	Bacteria	TSA
19	--	--	--	--	--	--	--	--	5	--	Bacteria	TSA
20	--	--	--	--	--	--	--	--	10	10	Bacteria	TSA
21	--	--	--	--	--	--	--	--	--	26	Bacteria	TSA
23	--	--	--	--	--	--	--	--	--	24	Bacteria	TSA
24	--	--	--	--	--	--	--	--	--	15	Bacteria	TSA
25	--	--	--	--	--	--	--	--	--	5	Bacteria	TSA
48	--	--	--	--	--	--	--	--	--	5	Bacteria	TSA
<b>Anaerobic Strains on TSA</b>												
1	100	--	--	--	--	--	--	--	--	--	Bacteria	TSA
2	--	--	--	--	--	--	5	--	--	--	Bacteria	TSA
8	--	--	--	--	44	--	--	--	--	--	Bacteria	TSA
9	--	--	--	--	48	--	--	--	--	--	Bacteria	TSA
11	--	--	--	--	--	--	15	--	--	--	Bacteria	TSA
12	--	--	--	--	--	--	--	--	--	5	Bacteria	TSA
13	--	--	--	--	--	--	--	--	--	70	Bacteria	TSA
16	--	--	--	--	--	50	--	--	--	--	Bacteria	TSA
18	--	--	--	--	--	--	--	90	--	--	Bacteria	TSA
20	--	23	--	--	--	--	--	--	--	--	Bacteria	TSA
23	--	7	--	--	2	--	--	--	--	--	Bacteria	TSA
24	--	23	--	--	1	--	--	--	--	--	Bacteria	TSA
27	--	1	--	--	--	--	--	--	--	--	Bacteria	TSA
28	--	23	--	--	--	--	--	--	--	--	Bacteria	TSA
29	--	23	--	--	--	--	--	--	--	--	Bacteria	TSA
30	--	--	100	--	--	--	80	--	--	25	Bacteria	TSA
31	--	--	--	100	--	--	--	--	--	--	Bacteria	TSA
32	--	--	--	--	1	--	--	--	--	--	Bacteria	TSA
33	--	--	--	--	1	--	--	--	--	--	Bacteria	TSA
34	--	--	--	--	3	--	--	--	--	--	Bacteria	TSA
35	--	--	--	--	--	50	--	--	--	--	Bacteria	TSA
36	--	--	--	--	--	--	--	--	10	--	Bacteria	TSA
37	--	--	--	--	--	--	--	--	45	--	Bacteria	TSA
38	--	--	--	--	--	--	--	--	45	--	Bacteria	TSA
49	--	--	--	--	--	--	--	10	--	--	Bacteria	TSA

Strains on SAB												
Strain	Sample Number										Type	Media
	1	2	3	4	5	6	7	8	9	10		
1	--	--	--	--	--	--	--	50	--	5	Bacteria	SAB
5	--	--	--	--	--	--	--	--	--	10	Bacteria	SAB
9	--	--	--	--	50	--	50	--	--	--	Bacteria	SAB
11	--	--	--	--	--	--	--	--	2	5	Bacteria	SAB
13	--	--	--	--	--	--	--	--	--	--	Bacteria	SAB
20	--	--	--	--	--	--	--	5	--	10	Bacteria	SAB
21	--	--	--	--	--	--	--	--	--	55	Bacteria	SAB
24	--	50	--	--	--	--	--	10	3	--	Bacteria	SAB
35	--	--	--	--	--	--	--	--	5	--	Bacteria	SAB
39	--	--	100	--	--	--	--	50	--	5	Bacteria	SAB
40	--	50	--	--	--	--	--	--	--	--	Bacteria	SAB
41	--	--	--	100	--	--	--	--	--	--	Fungal	SAB
42	--	--	--	--	50	--	50	5	--	10	Fungal	SAB
43	--	--	--	--	--	--	--	--	--	--	Fungal	SAB
44	--	--	--	--	--	--	--	--	5	--	Bacteria	SAB
45	--	--	--	--	--	--	--	80	--	--	Bacteria	SAB
46	--	--	--	--	--	--	--	--	20	--	Bacteria	SAB
47	--	--	--	--	--	--	--	--	60	--	Bacteria	SAB
50	--	--	--	--	--	--	--	--	5	--	Bacteria	SAB

Total number of morphologically unique strains: 47

Thank you from the staff on project:

  
 Bruce C. Hemming, Ph. D  
 President and CEO

  
 Benjamin M. Winkler  
 Research Laboratory Manager



the **MiL, inc.** ATTENTION: Joan Kessner Fax:

### Sample Receipt Confirmation Form

This notice is to confirm receipt of samples at Microbe Inotech Laboratories, Inc.,  
at 7259 Lansdowne Avenue Suite 200, St. Louis, MO 63119-3421  
Telephone: 1-800-688-9144 Fax: 1-314-645-2544  
Reach Us Online At: [www.microbeinotech.com](http://www.microbeinotech.com)

#### Client Information:

#### the MiL, inc. Information:

Contact: Joan Kessner  
Firm: Washington Closure Hanford  
Phone Number: \_\_\_\_\_  
Project Name: \_\_\_\_\_  
Project Number: \_\_\_\_\_

Receiving Staff Member: BMW  
Assigned MiL Project Number: MILB-0135A  
Client Fax (if Different From Above): \_\_\_\_\_  
Shipment Carrier: FedEx  
Shipment Tracking Number: \_\_\_\_\_

#### Sample Information:

Total Number of Sample Containers: 10 Representing Total Number of Samples: 10

\_\_\_\_\_  
ELECTRONIC DATE & TIME STAMP

OR Arrived Tuesday, June 04, 2013 9:50:06 AM

AM  
PM

Day of Week Month/Day/Year Time of Day

List of Samples Received		Condition Upon Receipt	Analysis Requested	Collection Date
1	J1RN81	Intact	Bioactivity	05/29/13
2	J1RN82	Intact	Bioactivity	05/29/13
3	J1RN83	Intact	Bioactivity	05/29/13
4	J1RN84	Intact	Bioactivity	05/29/13
5	J1RN85	Intact	Bioactivity	05/29/13
6	J1RN86	Intact	Bioactivity	05/29/13
7	J1RN87	Intact	Bioactivity	05/29/13
8	J1RN88	Intact	Bioactivity	05/29/13
9	J1RN89	Intact	Bioactivity	05/29/13
10	J1RN90	Intact	Bioactivity	05/29/13

Continued On Additional Page (If Checked):

Comments or Further Requested Information:

Thank You, [Signature]  
Signature of Sender

INITIAL [Signature]  
[Signature]

the **MiL, inc.** 7259 Lansdowne Avenue Suite 200, St. Louis, MO 63119-3421  
PHONE: (800) 688-9144 FAX: (314) 645-2544





**Washington Closure Hanford**

**CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST**

RC-237-002

Collector: **STOWE, OG** Company Contact: **Joan Kessner** Telephone No.: **375-4688** Project Coordinator: **KESSNER, JH** Price Code: **7L** Data Turnaround: **21 Days**

Project Designation: **100N** Sampling Location: **UPR-100-N-17** Field Logbook No.: **EL-1652-09** COA: **01.01.RUP117N6W0** Method of Shipment: **fed EX**

Ice Chest No.: **RCE-07-011** Shipped To: **Microbe Inotech - St Louis** Offsite Property No.: **A120828** Bill of Lading/Air Bill No.: **See 05PC**

**POSSIBLE SAMPLE HAZARDS/REMARKS**

Potential Rad: **Af 4.8.13**

**Special Handling and/or Storage**

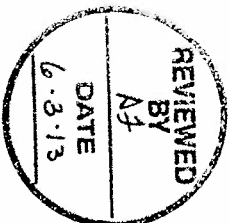
Sample No.	Matrix	Sample Date	Sample Time	Bioactivity Evaluation (No CAS)	Preservation		No. of Container(s)	Volume
					Coat	Temp		
J1RN86	SOIL	5-29-13	1349	X		gp	1	475ml -20ml 4.8.13
J1RN87	SOIL	5-29-13	1350	Y				
J1RN88	SOIL	5-29-13	1351	X				
J1RN89	SOIL	5-29-13	1235	X				
J1RN90	SOIL	5-29-13	1250	X				

**SAMPLE ANALYSIS**

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time		
<i>Quincy Stowe</i>	5/29/13 1615	<i>DeMits Newman</i>	5-29-13 1405		
<i>DeMits Newman</i>	5-29-13 1012	<i>fed EX</i>	5-29-13 1015		

\* J1RN89 & J1RN90 are in 125ml a6 containers

6-3-13  
cmB





American Society for Testing and Materials



National Registry of Environmental Professionals

American Council of Independent Laboratories



The Scientific Association Dedicated to Excellence in Analytical Methods.

MISSOURI BIOTECHNOLOGY ASSOCIATION



Plant and Life Sciences Technology Gateway-Regional Commerce Growth Association of St. Louis, Missouri



Cooperative State Research, Education And Extension Service [SBIR Recipient]

the MiL, Inc. 7259 LANSDOWNE AVENUE SUITE 200 ST. LOUIS MO 63119-3421  
 PHONE: (800) 688-9144 FAX: (314) 645-2544

### **Warranty And Limits Of Liability**

**In accepting analytical work, we warrant the accuracy of test results under the conditions employed in the laboratory. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied. We disclaim any other warranties, expressed or implied, including a Warranty of Fitness for Particular Purpose and Warranty of Merchantability. We accept no legal responsibility for the purposes for which the client uses the test results.**