



January 17, 2022

Todd Conley
Environmental Restoration, LLC
1666 Fabick Drive
Fenton, MO 63026
Submitted via t.conley@erllc.com

Subject: Summary of Field Operations

Perma-Fix Environmental Services Inc. (Perma-Fix) is pleased to provide this letter as summary of radiological activities performed on January 12th and 13th, 2022.

A Perma-Fix health physicist and a health physics technician were deployed to the former Peck Iron and Metal facility located at 3850 Elm Avenue, Portsmouth, VA. The objective was to retrieve and dispose of a number of discrete objects containing radium-226 (Ra-226).

Perma-Fix used a 2-inch by 2-inch sodium iodide detector and hand tools to locate and retrieve objects. The objects were then sealed in individual plastic bags and a dose rate measurement was collected from each object using a Thermo Scientific RadEye-PRD. In total, twelve (12) objects were retrieved. Full survey results are presented in **Attachment 1**, Perma-Fix Radiological Survey *PF-ER-2022-001*.

Bionomics, Inc. packaged, shipped, and disposed of the objects. All objects were placed into a Type-A package and labeled with a Yellow II radioactive label. A signed copy of the waste manifest and notice of receipt are included as **Attachment 2**. Additional pictures of the labeled waste drum are included as **Attachment 3**.

Thank you again for the opportunity to work with Environmental Restoration. If you have any questions or comments, please do not hesitate to contact me at (724) 728-3960 or cell (412) 932-8090.

Sincerely,

A handwritten signature in black ink, appearing to read "C. Weddermann", written over a light blue horizontal line.

Christopher Weddermann
Health Physicist
Perma-Fix Environmental Services Inc.
cwedderrmann@perma-fix.com

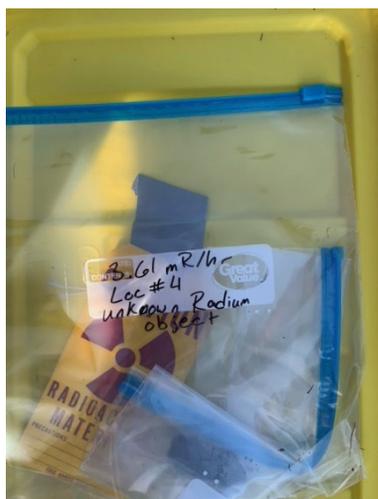
Attachments (1)

- 1) Perma-Fix Radiological Survey *PF-ER-2022-001*
- 2) Waste Manifest and Notice of Receipt, Bionomics Inc.
- 3) Waste Drum Pictures

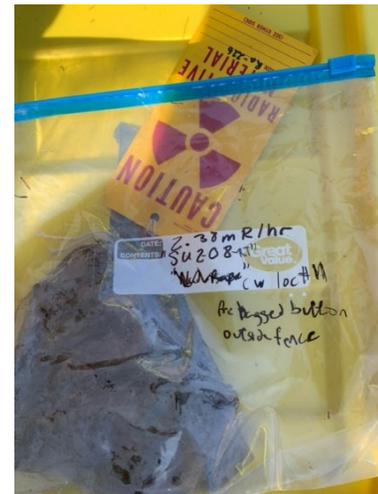
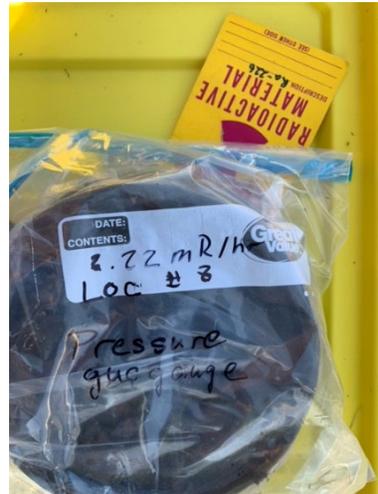
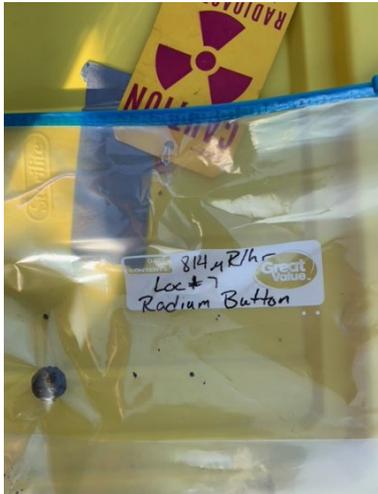
Attachment 1:
Perma-Fix Radiological Survey *PF-ER-2022-001*

Survey No	PF-ER-2022-001	Item Surveyed	Radium-226 commodities collected from 3850 Elm Ave, Portsmouth, VA. Peck Iron and Metal facility, USEPA region 3									
Date	1/12/2022	Comments	12 radioactive commodities containing Ra-226 were collected from the site and packaged for shipping and disposal. Commodities were located using a Ludlum Model 2221/44-10 instrument (SN: 172035/PR242819). Once exhumed and bagged, dose rates from each commodity were collected at 1 cm using the instrument listed below. The ground was also measured post removal. All locations were observed to be at background levels with the exceptions of Locations 3 and 10, as listed below. All workers hands, feet, and equipment were periodically frisked using a Ludlum Model 12/44-9 (SN: 186776/PR193576) to ensure no personnel left the site with contamination.									
Survey Tech	C. Weddermann/M. Pinion	Parameters	Gamma			Total Activity		Removable Activity				
Count Room Tech	N/A		CPM	μR/hr	μRem/hr	Alpha	Beta-Gamma	Alpha	Beta-Gamma	Alpha	Beta-Gamma	
Date Counted	N/A	Instrument Model	RadEye PRD									
Survey Type	Support	Instrument SN	30976									
Level of Posting	N/A	Cal. Due Date	2/2/2022									
Notes PCF = Probe Correction Factor T _b = Background count time T _s = Sample count time R _b = Background count rate Bcpm = Background cpm MDCR = Minimum Detectable Count Rate (net cpm) MDC = Minimum Detectable Concentration (dpm per 100cm ²)	Total Activity dpm = (cpm - Bcpm)/(eff * PCF)	Efficiency										
	Removable Activity dpm = (cpm - Bcpm)/ eff *dpm results are per 100cm ²	Background Counts	6									
		PCF										
		T_b										
		T_s										
		MDCR										
		MDC										
No.	Descriptions	cpm	μR/hr	μRem/hr	gross counts	*dpm	gross counts	*dpm	gross counts	*dpm	gross counts	*dpm
1	Location 1: Radium rope		2008									
2	Location 2: Electrical box		1520									
3	Location 3: Radium object		77700									
4	Location 3: Dose rate on ground, after object removal		106									
5	Location 4: Radium object		3610									
6	Location 5: Radium button		1610									
7	Location 6: Radium button		1990									
8	Location 7: Radium button		814									
9	Location 8: Pressure guage		2220									
10	Location 9: Radium rope in bag		1600									
11	Location 10: Radium object		88000									
12	Location 10: Rock with elevated gamma readings		120									
13	Location 10: Dose rate on ground, after object removal		484									
14	Location 11: Radium button in bag labeled "SU 208-RT"		2380									





Survey No	PF-ER-2022-001
Date	1/12/2022
Survey Tech	C. Weddermann/M. Pinion
Count Room Tech	N/A
Date Counted	N/A
Survey Type	Support
Level of Posting	N/A
Comments	



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Date	1/12/2022
Survey Tech	C. Weddermann/M. Pinion
Count Room Tech	N/A
Date Counted	N/A
Survey Type	Support
Level of Posting	N/A
Comments	

**Attachment 2:
Waste Manifest and Notice of Receipt, Bionomics Inc.**



P.O. Box 817 – Kingston, TN 37763 – (865) 220-8501

JANUARY 17, 2022

CHRIS WEDDERMANN

USEPA REGION 3 – PECK IRON AND METAL SITE
3850 ELM AVE
PORTSMOUTH, VA 23704

Chris,

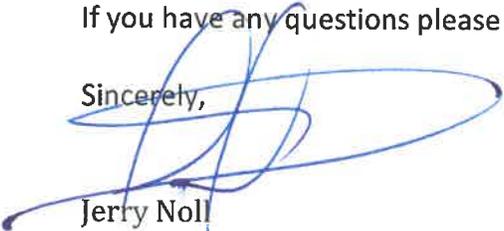
As required by 10 CFR Part 20 (Appendix G), this letter is notification that Bionomics, Inc. has received the shipment recently picked up at your facility on **January 13, 2022**.

Attached you will find a copy of your NRC Form 540, the only change from the original is in Item No.9 "signature" which identifies that Bionomics, Inc. is acknowledging receipt of waste from your facility.

Please keep this with your original, as well as future disposal certifications.

If you have any questions please feel free to contact me at (865) 220-8501.

Sincerely,



Jerry Noll
QA Manager

Cc: File BIO-01-22

NRC FORM 541 BIONOMICS, INC.

UNIFORM LOW-LEVEL RADIOACTIVE MANIFEST WASTE MANIFEST

CONTAINER AND WASTE DESCRIPTION

Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste

1. MANIFEST TOTALS							MANIFEST NUMBER	
NUMBER OF PACKAGES/ DISPOSAL CONTAINERS	NET VOLUME (m3)	NET WEIGHT (kg)	SPECIAL NUCLEAR MATERIAL (grams)				11322-EPA	
			U-233	U-235	Pu	TOTAL	PAGE 1	OF 1
1	0.12	1.0	NP	NP	NP	NP		
ACTIVITY (MBq)						SOURCE (kg)		
ALL NUCLIDES		TRITIUM	C-14	Tc-99	I-129	NP	Bionomics on Behalf of: USEPA Region 3	
3.7000		NP	NP	NP	NP	NP		

DISPOSAL CONTAINER DESCRIPTION										WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER										WASTE CLASSIFICATION AS-Class A Stable AU-Class A Unstable B-Class B C-Class C
5. CONTAINER IDENTIFICATION NUMBER / GENERATOR ID NUMBER	6. CONTAINER DESCRIPTION (See Note 1)	7. VOLUME (m3)	8. WASTE AND CONTAINER WEIGHT (kg)	9. SURFACE RADIATION LEVEL (mSv/hr)	10. SURFACE CONTAMINATION MBq/100 cm ²		11. WASTE DESCRIPTOR (See Note 2)	12. PHYSICAL DESCRIPTION APPROXIMATE WASTE VOLUME(S) IN CONTAINER (m3)		13. SORBENT, SOLIDIFICATION, STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION CHEMICAL FORM / CHELATING AGENT		15. WEIGHT % CHELATING AGENT IF > 0.1%	16. RADIOLOGICAL DESCRIPTION INDIVIDUAL RADIONUCLIDES AND ACTIVITY (MBq) AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT						
					ALPHA	BETA-GAMMA		12a	12b		14a	14b		16a	16b					
EPA3-01	4. Metal Drum	0.12	56.7	0.040	<3.34E-7	<1.67E-6	38. Sealed Sources	0.02	100	Oxides	N/A	N/A	Ra226	3.7000	N/A					

NOTE 1: Container Description Codes: For containers/waste requiring disposal in approved structural overpacks, the numerical code must be followed by "OP."

1. Wooden Box or Crate	9. Demineralizer
2. Metal Box	10. Gas Cylinder
3. Plastic Drum or Pail	11. Bulk, Unpackaged Waste
4. Metal Drum or Pail	12. Unpackaged Components
5. Metal Tank or Liner	13. High Integrity Container
6. Concrete Tank or Liner	14. Other, Describe in Item 6, or additional page.
7. Polyethylene Tank or Liner	
8. Fiberglass Tank or Liner	

NOTE 1A: Process Type Codes Are Specific To Bionomics and Only Apply To How The Waste Will Be Processed / Handled By The Contractor. Use up to two process codes and one disposal site.

1A. Supercompact	11A. Barwell
2A. Incineration	12A. Retriever
3A. Transfer	13A. Enclosure
4A. Solidify	14A. Return
5A. Encapsulate	20A. Other, Specify in the block or on an attached page.
6A. Metal Melt	
7A. Sort	
8A	
10A. Other, Specify in the block or on attached page.	

Note 2: Waste Descriptor Codes: (Choose up to three predominants by volume.)

20. Charcoal	29. Demolition Rubble	38. Evaporator Bottoms / Sludges / Concentrates
21. Incinerator Ash	30. Cation Ion-exchange Media	39. Compactable Trash
22. Soil	31. Anion Ion-exchange Media	40. Noncompactable Trash
23. Gas	32. Mixed Bed Ion-exchange Media	41. Animal Carcasses
24. Oil	33. Contaminated Equipment	42. Biological Material (except animal carcasses)
25. Aqueous Liquid	34. Organic Liquid	43. Activated Material
26. Filter Media	35. Glassware or Labware	44. Other, Describe in Item 11, or additional page.
27. Mechanical Filter	36. Sealed Source / Device	
28. EPA or State Hazardous	37. Paint or Plating	

Note 3: For solidification media that meet disposal site structural stability requirements, the numerical code must be followed by "S". For all solidification media, the vendor (manufacturer) and brand name must also be identified in Item 13. Code 100-NONE REQUIRED.

50. Speedi-Dri	58. Solid A Sorb	77. Aquesol II	91. Concrete (encapsulation)
51. Cellulose	59. Chemfil 30	78. Other	92. Bitumen
52. Floor Dri	60. Chemfil 60	Describe in Item 13, or additional page.	93. Vinyl Chloride
53. Superfil	71. Chemfil 3030		94. Other, Describe in Item 13, or additional page.
54. H4 Dri	72. Dicapri HP200		
55. Safe T Sorb	73. Dicapri HP500		
56. Safe H Dri	74. Petrocast		
57. Floro	75. Petrocast II		
58. Floro X	76. Aquesol		
		SOLIDIFICATION	100. None Required
		90. Cement	

**Attachment 3:
Waste Drum Pictures**

