

September 28, 2021

Gregory Gould, P.E. Environmental Engineer Washington State Department of Ecology Solid Waste Management, Industrial Section P.O. Box 47600 Olympia, Washington 98504

Transmitted via email to: greg.gould@ecy.wa.gov

Dear Mr. Gould:

Emerald Kalama Chemical and Fire Mountain Farms have completed the removal of mixed materials and cleaning of the Newaukum Prairie location in accordance with the Closure Plan approved by Washington Department of Ecology. Please confirm that the attached revised technical memorandum satisfies our obligations under the Closure Plan for the Newaukum Prairie location. Upon Ecology's confirmation, and in accordance with the 2016 Agreement among Emerald, Fire Mountain Farms and Ecology, FMF shall be solely responsible for any subsequent use of the Newaukum Prairie Storage Unit and Emerald shall have no responsibility for such subsequent use.

Sincerely,

Brian A. Denison Vice President, Manufacturing Technology Specialist

Emerald Performance Materials, LLC

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Technical Memorandum

TO:	Brian A. Denison, Emerald Kalama Chemical LLC Sloane Wildman, Perkins Coie LLP
FROM:	Evelyn Ives, PE; Ken Reid, LEG
DATE:	September 27, 2021
RE:	Newaukum Prairie Closure Summary Emerald Kalama Chemical/Fire Mountain Farms Fire Mountain Farms Storage Units Lewis County, Washington LAI Project No. 0066045.110.114

Introduction

Landau Associates, Inc. (LAI) was retained by Perkins Coie LLP (Perkins) on behalf of Emerald Kalama Chemical, LLC (Emerald) to provide technical support and environmental services related to Administrative Order No. 10938 issued by the Washington State Department of Ecology (Ecology) to Emerald and Fire Mountain Farms, Inc. (FMF) (Ecology 2014) and the Agreement for Conditional Compliance with Ecology Administrative Order No. 10938 During Judicial Review (Agreement) between Ecology, Emerald, and FMF, dated June 3, 2016 (Ecology 2016).

This technical memorandum provides a summary of closure activities for Newaukum Prairie storage facility (Newaukum Prairie) operated by FMF. From October 17, 2020 through September 10, 2021, FMF completed the facility's closure in accordance with the Final Closure Plan (LAI 2020), which was prepared for all three facilities as stipulated in the Agreement. Closure activities for Newaukum Prairie are described in the following sections and consisted of water removal; mixed-material dewatering, removal and disposal; decontamination; and collection of confirmation samples.

Background

The Newaukum Prairie facility is in Lewis County located at 349 State Route 508, in Chehalis, Washington (Figure 1) and is a below-grade unit that stored mixed material, which was composed of municipal wastewater treatment plant derived biosolids and industrial wastewater biological solids (IWBS). The mixed material contains biosolids from municipal wastewater treatment plants and IWBS generated at Emerald's wastewater treatment plant in Kalama, Washington. Ecology designated the IWBS and mixed material at FMF as dangerous waste in 2014 based on the Resource Conservation and Recovery Act's (RCRA's) derived-from rule. Mixed material at the FMF facilities was designated as U019- and U220-listed dangerous waste.

Emerald and FMF submitted delisting petitions to the US Environmental Protection Agency (EPA) and Ecology in 2018, which were subsequently approved by both agencies on April 8, 2020. The delisting approvals allow for disposal of the mixed material at FMF in a Washington State Subtitle D landfill. The EPA approved a total volume of 10,400 cubic yards (cy) of mixed material at Newaukum Prairie.



As stated in the Closure Plan, the storage unit is approximately square with a constructed berm on each side. According to the 2013 drawing, each side of the storage unit is approximately 220 feet (ft) in length with a total depth of 14 ft (LAI 2020). The berms are reportedly sloped 3H:1V (horizontal:vertical) on the interior and 2H:1V on the exterior of the storage unit and are lined using a dual system consisting of a 60 milliliter (mL) high-density polyethylene (HDPE) primary liner, a geonet leak detection layer, and a 30 mL HDPE secondary liner. The bottom of the storage unit reportedly has dimensions of roughly 148 ft by 148 ft according to the 2013 drawing. Based on these dimensions, the total storage unit contained mixed material and accumulated precipitation until closure activities commenced. LAI took measurements of the depth to the mixed-material surface below the water level in August 2017. Measurements were collected in a grid at 17 locations across the storage unit. Based on these measurements, the estimated average mixed-material thickness was 6 ft. Given this thickness, the approximate volume of wet mixed material was approximately 7,000 cy.

Mixed-Material and Water Removal

Prior to mixed-material removal, the storage unit was drained of most accumulated precipitation. In accordance with the Closure Plan, accumulated precipitation was trucked from the storage unit to the Emerald Kalama plant for treatment. A total of 794,221 gallons of non-hazardous water was trucked from Newaukum Prairie to Emerald Kalama between June 8, 2020 and August 18, 2020. Once the storage unit was drained to the desired level, mixed-material removal commenced.

Mixed-material removal occurred in two phases. The first phase was completed with a large-scale centrifuge between October 17, 2020 and November 23, 2020. Mixed material was removed from Newaukum Prairie using an FMF-operated dredge, pumped to a polymer mix tank where coagulants and flocculants were added, and then processed through two centrifuges running in parallel at rates up to 200 gallons per minute each. Filtrate water from the centrifuge was recirculated back to the unit. The centrifuge work was stopped once the influent mixed-material solids content was less than 3 percent, which is out of operable range for that equipment. A total of 2,362 tons of dewatered mixed material was removed during the first phase.

After the first phase was complete, there was still a significant amount of mixed material in the storage unit, because it was either missed by the dredge pump or had been light enough that it would not settle to the bottom while the dredge was operating. Between December 3, 2020 and February 22, 2021, water and suspended mixed-material solids were trucked from Newaukum Prairie to Emerald Kalama for treatment. Liquid loads were temporarily halted after February 22, 2021 to 1) accommodate wastewater treatment system maintenance requirements at the Emerald Kalama plant, and 2) manage hydraulic capacity of the Emerald Kalama wastewater treatment system. Trucking of water from the Newaukum Prairie facility resumed on May 17, 2021 and continued until June 24, 2021.

After an evaluation of alternative dewatering technologies, use of a belt filter press (BFP) and a submerged intake pump (rather than a dredge) was selected for the final stage of dewatering. Ecology was consulted and approved of the use of a BFP for the final dewatering stage. The BFP was operated between about July 28 and August 19, 2021. Once the mixed-material dewatering was completed, residual mixed-material solids at the bottom of the storage unit were removed by hand, with hand-removal completed on September 2, 2021. A total of 288 tons of dewatered mixed material was removed during the second phase (BFP dewatering and hand-removal). Hazardous wastewater loads (consisting of filtrate and rinse water generated during both dewatering phases and accumulated precipitation in the storage unit) totaled 2,702,079 gallons and were trucked from Newaukum Prairie to Emerald Kalama between December 2020 and September 2021.

During both phases of mixed-material removal, mixed material was loaded into plastic-lined shipping containers on truck trailers that were provided and transported by LeMay Enterprises, Inc. (LeMay), which is Lewis County's designated solid waste hauler. FMF cleaned any spilled mixed material from the sides and top of each container and each container was then covered before leaving the site. LeMay hauled 99 containers to the Centralia Rail Yard where containers were transferred onto rail cars and transported to the Roosevelt Landfill in Roosevelt, Washington for final disposal. Each container had a capacity of 53 cy and, therefore, the total volume removed from Newaukum Prairie was no more than 5,247 cy. Based on the bills of lading, the total weight of all disposed material was 2,650 tons.

Decontamination and Confirmation Sampling

Newaukum Prairie was decontaminated by FMF between September 2 and September 10, 2021. The HDPE-lined side slopes and bottom were cleaned and decontaminated using brooms and pressure washers. The approximately 3,860 gallons of decontamination water generated by pressure-washing was collected at the bottom of the storage unit. In accordance with the Closure Plan, rinse water samples were collected to confirm that the storage unit had been decontaminated.

LAI collected two composite water samples, NP-RINSE1-091021 and NP-RINSE2-091021, from standing rinse water in the bottom of the storage unit (Figure 2). The two samples and trip blanks were placed in a cooler on ice and delivered to the analytical laboratory. Samples were analyzed for benzene and toluene by EPA Method 8260D with a 3-day turnaround time. The laboratory analytical reports are provided as Attachment 1. After sampling was complete, rinse water was transferred into a tanker and transported to the Emerald Kalama plant on September 10, 2021. Photographs of the decontaminated pond are provided in Attachment 2.

The results of the first sampling event (results detailed in the next section) were non-detect, but the reporting limits were elevated due to laboratory dilution requirements. Therefore, an additional sample was collected on September 21, 2021 after another rinse of the storage unit to confirm the non-detect (or compliant) status of benzene and toluene concentrations.

Confirmation Sampling Results

Laboratory results for rinse water samples are provided in Attachment 1, and in Table 1 below are compared to the Model Toxics Control Act (MTCA) Method A cleanup levels, which are the closure standards set forth in the Closure Plan. The results from the first set of samples indicate concentrations of benzene and toluene were not detected above the laboratory reporting limit of 20 micrograms per liter (μ g/L), which is a higher reporting limit than the compliance level for benzene. As stated above, a third rinse sample was collected after another rinse of the storage unit. No laboratory dilution was required to analyze the third sample and results indicate that both benzene and toluene were not detected at concentrations above the laboratory reporting limits of $1.0 \,\mu$ g/L, thereby meeting closure criteria with reporting limits below MTCA Method A cleanup levels. These results demonstrate compliance with conditions for closure of Newaukum Prairie as a hazardous waste storage unit.

		Sampling	SW-846	8260)D (μg/L)	
Sample ID	Lab Sample ID	Date	Benzene		Toluene	
NP-RINSE1-091021	580-105772-1	9/10/2021	20	U	20	U
NP-RINSE2-091021	580-105772-2	9/10/2021	20	U	20	U
NP-RINSE3-092121	580-106029-1	9/21/2021	1.0	U	1.0	U
MTCA Method	A Cleanup Level:		5		1,000	

Table 1: Newaukum	Prairie Rinse	Water Ana	alvtical Results
Tuble 1. Hewaakann	i runic milise	water And	y cicul itcourto

Note:

U = The analyte was not detected above the level of the reported sample quantitation limit.

Abbreviations/Acronyms:

MTCA = Model Toxics Control Act

 $\mu g/L = micrograms per liter$

* * * * *

If you have any questions regarding the information provided in this technical memorandum, please contact the undersigned.

LANDAU ASSOCIATES, INC.

J. Keic

Ken Reid, LEG Associate

Evelyn Ives, PE Associate

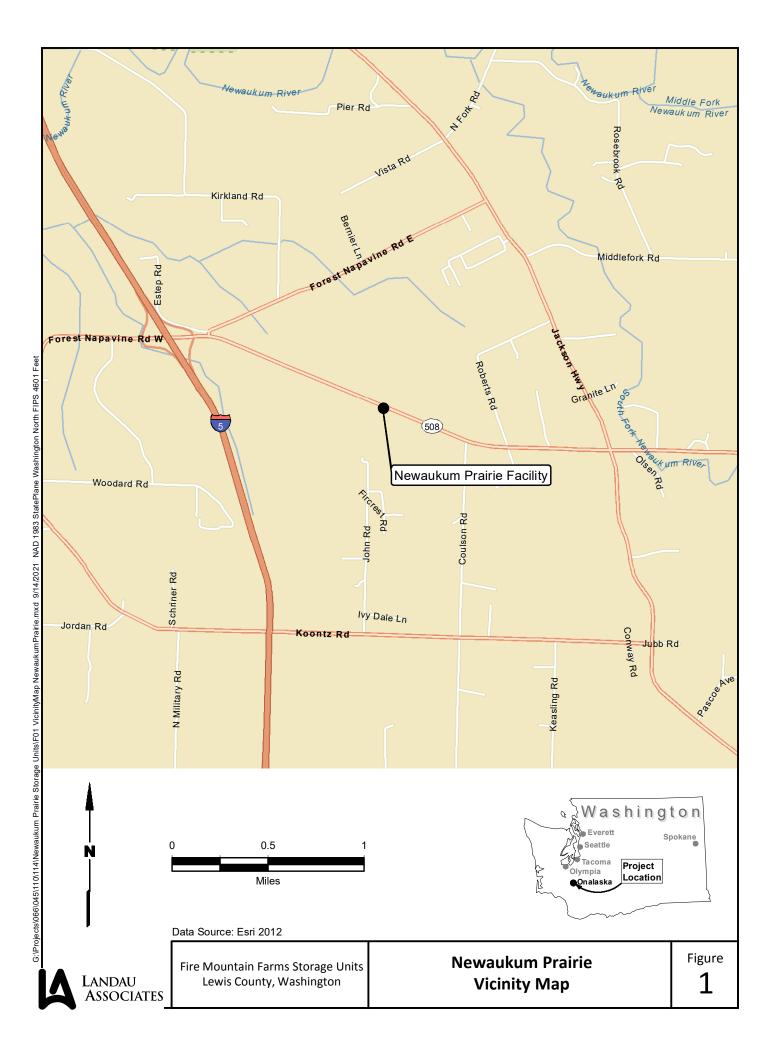
EHI/CPH/ccv \\edmdata01\projects\066\045\R\Closure Rpt - Newaukum Prairie\LAI Emerald FMF Newaukum Prairie Closure_tm - 09-27-21.docx

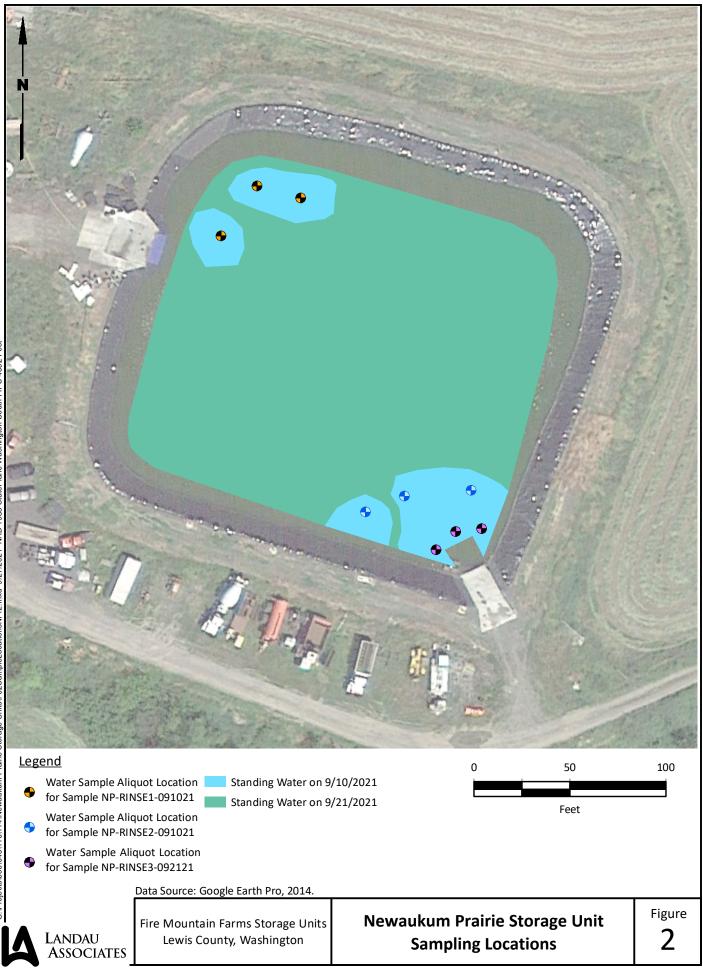
References

- Ecology. 2014. Administrative Order No. 10938 In the Matter of an Administrative Order Against Emerald Kalama Chemical, LLC and Fire Mountain Farms, Inc. Washington State Department of Ecology. September 11. Bates: EKC006135-EKC006143.
- Ecology. 2016. Agreement for Conditional Compliance with Ecology Administrative Order No. 10938 During Judicial Review. Washington State Department of Ecology. June 3. Bates: EKC022878-EKC022888.
- LAI. 2020. Final Closure Plan, Fire Mountain Farms, Inc. Storage Units, Kalama, Washington. Landau Associates, Inc. August 12.

Attachments

- Figure 1: Newaukum Prairie Vicinity Map
- Figure 2: Newaukum Prairie Storage Unit Sampling Locations
- Attachment 1: Laboratory Analytical Reports
- Attachment 2: Newaukum Prairie Closure Completion Photographs





ATTACHMENT 1

Laboratory Analytical Reports

Environment Testing America

ANALYTICAL REPORT

Eurofins FGS, Seattle 5755 8th Street East Tacoma, WA 98424 Tel: (253)922-2310

Laboratory Job ID: 580-105772-1

Client Project/Site: Fire Mtn Farms_Newaukum Prairie Rinse

For:

.....Links

Review your project results through

Total Access

Have a Question?

Ask-

The

www.eurofinsus.com/Env

Visit us at:

Expert

Landau & Associates, Inc. 130 Second Ave South Edmonds, Washington 98020

Attn: Evelyn Ives

Shuid crug-

Authorized for release by: 9/15/2021 12:15:04 PM

Sheri Cruz, Project Manager I (253)922-2310 Sheri.Cruz@Eurofinset.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Job ID: 580-105772-1

Laboratory: Eurofins FGS, Seattle

Narrative

Job Narrative 580-105772-1

Comments

No additional comments.

Receipt

The samples were received on 9/10/2021 12:45 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 16.7° C.

GC/MS VOA

Method 8260D: The following volatiles samples were diluted due to foaming at the time of purging during the original sample analysis: NP-RINSE1-091021 (580-105772-1) and NP-RINSE2-091021 (580-105772-2). Elevated reporting limits (RLs) are provided.

Method 8260D: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for analytical batch 580-367715 recovered outside control limits for the following analytes: Benzene and Toluene.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Definitions/Glossary

Job ID: 580-105772-1

~ 11.01

	u & Associates, Inc. Job ID: 580-105772 Fire Mtn Farms_Newaukum Prairie Rinse	-1
Qualifiers		
GC/MS VOA		-
Qualifier	Qualifier Description	4
*1	LCS/LCSD RPD exceeds control limits.	
Glossary		- 1
Abbreviation	These commonly used abbreviations may or may not be present in this report.	_
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis	
%R	Percent Recovery	
CFL	Contains Free Liquid	
CFU	Colony Forming Unit	
CNF	Contains No Free Liquid	
DER	Duplicate Error Ratio (normalized absolute difference)	
Dil Fac	Dilution Factor	
DL	Detection Limit (DoD/DOE)	
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample	
DLC	Decision Level Concentration (Radiochemistry)	
EDL	Estimated Detection Limit (Dioxin)	
LOD	Limit of Detection (DoD/DOE)	
LOQ	Limit of Quantitation (DoD/DOE)	
MCL	EPA recommended "Maximum Contaminant Level"	
MDA	Minimum Detectable Activity (Radiochemistry)	
MDC	Minimum Detectable Concentration (Radiochemistry)	
MDL	Method Detection Limit	
ML	Minimum Level (Dioxin)	
MPN	Most Probable Number	
MQL	Method Quantitation Limit	
NC	Not Calculated	
ND	Not Detected at the reporting limit (or MDL or EDL if shown)	
NEG	Negative / Absent	
POS	Positive / Present	
PQL	Practical Quantitation Limit	
PRES	Presumptive	
QC	Quality Control	
RER	Relative Error Ratio (Radiochemistry)	
RL	Reporting Limit or Requested Limit (Radiochemistry)	
RPD	Relative Percent Difference, a measure of the relative difference between two points	
TEF	Toxicity Equivalent Factor (Dioxin)	
TEQ	Toxicity Equivalent Quotient (Dioxin)	
TNTC	Too Numerous To Count	

Sample Summary

Client: Landau & Associates, Inc. Project/Site: Fire Mtn Farms_Newaukum Prairie Rinse

Job ID: 580-105772-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-105772-1	NP-RINSE1-091021	Water	09/10/21 08:30	09/10/21 12:45
580-105772-2	NP-RINSE2-091021	Water	09/10/21 08:39	09/10/21 12:45
580-105772-3	TRIP BLANK NP-RINSE1-091021	Water	09/10/21 08:30	09/10/21 12:45
580-105772-4	TRIP BLANK NP-RINSE2-091021	Water	09/10/21 08:39	09/10/21 12:45

LANDAU Associates	Chain Recor		stody		le/Edmonds na (253) 926	-2493		Por		503) 54		Da Paj			0/2021 of 1	Turnaround Time: Standard Accelerated <u>3-D4y</u>
Project Name FIRE Project Location/Event Sampler's Name L1 Project Contact EV	NEWAU ANCE L 'ELYN	KUM P LEVINE IVES	RAIRIE			D.113	3	A LAND	AT.		Tes	ting P	arame	eters		1 C 5 7 7 2 Special Handling Requirements: Shipment Method: Stored on ice: Yes / No
Send Results To EV Sample I.D. NP-RINSE 1 - 09		Date	Time	Matrix WATER	No. of Container	N N	50									ervations/Comments r samples to settle, collect
NP-RINSEZ - O TRIPBLANK - NP-RINSE			8:39 6:30	WATER TB	3	X X							*****		NWTPH-Dx	n clear portion 🗌 - Acid wash cleanup 🔲 - Silica gel cleanup 🗍 netal samples were field filtered
TRIP BLANK-NPRINSE	EZ-0910ZI	9/10/21	8:39	ТВ	1	×			· · · · · · · · · · · · · · · · · · ·							
					·										clidas Sm	Red /ge) / bub - 78 16.7/17.0
Relinquished by Signature Printed Name LANC Company LANDAU Date 9/10/2021	ASSOCIA	E TES	Received by Signature Printed Name Company Date 9 TE	Tom B EF				Relinqui Signature Printed N Company Date	ame						A2 Received by Signature	<u>- 78 ° 16,7/ 17.0</u>

WHITE COPY - Laboratory

YELLOW COPP agged bit 14 PINK COPY - Client Representative

580-105772 Chain of Custody

9/15/2021

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Indexides Telephone T

Client: Landau & Associates, Inc.

Login Number: 105772 List Number: 1 Creator: Blankinship, Tom X

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>True</td> <td></td>	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	Received same day of collection; chilling process has begun.
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	False	Narrative to indicate if headspace container used for analysis.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

List Source: Eurofins FGS, Seattle

Client Sample ID: NP-RINSE1-091021 Date Collected: 09/10/21 08:30 Date Received: 09/10/21 12:45

Lab Sample ID: 580-105772-1 Matrix: Water

watrix: water

5 6

8 9 10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	*1	20		ug/L			09/14/21 04:48	20
Toluene	ND	*1	20		ug/L			09/14/21 04:48	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	104		80 - 120					09/14/21 04:48	20
4-Bromofluorobenzene (Surr)	90		80 - 120					09/14/21 04:48	20
Dibromofluoromethane (Surr)	103		80 - 120					09/14/21 04:48	20
	105		80 - 120					09/14/21 04:48	20

Client Sample ID: NP-RINSE2-091021 Date Collected: 09/10/21 08:39 Date Received: 09/10/21 12:45

Lab Sample ID: 580-105772-2 Matrix: Water

iatrix: water

5 6

8 9 10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	*1	20		ug/L			09/14/21 05:13	20
Toluene	ND	*1	20		ug/L			09/14/21 05:13	20
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		80 - 120					09/14/21 05:13	20
4-Bromofluorobenzene (Surr)	93		80 - 120					09/14/21 05:13	20
Dibromofluoromethane (Surr)	100		80 - 120					09/14/21 05:13	20
1.2-Dichloroethane-d4 (Surr)	106		80 - 120					09/14/21 05:13	20

_

Client Sample ID: TRIP BLANK NP-RINSE1-091021 Date Collected: 09/10/21 08:30 Date Received: 09/10/21 12:45

Lab	Sample	ID:	580-105772-3
			Matrix: Water

Matrix: Water

Job ID: 580-105772-1

Method: 8260D - Volatile Or	rganic Compo	unds by G	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	*1	1.0		ug/L			09/14/21 02:45	1
Toluene	ND	*1	1.0		ug/L			09/14/21 02:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	103		80 - 120			-		09/14/21 02:45	1
4-Bromofluorobenzene (Surr)	93		80 - 120					09/14/21 02:45	1
Dibromofluoromethane (Surr)	100		80 - 120					09/14/21 02:45	1
1,2-Dichloroethane-d4 (Surr)	107		80 - 120					09/14/21 02:45	1

8 9 10

4-Bromofluorobenzene (Surr)

Dibromofluoromethane (Surr)

1,2-Dichloroethane-d4 (Surr)

Client Sample ID: TRIP BLANK NP-RINSE2-091021 Date Collected: 09/10/21 08:39 Date Received: 09/10/21 12:45

88

98

105

Date Received. 03/10/21	12.45								
Method: 8260D - Volati	ile Organic Compo	unds by G	C/MS						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND	*1	1.0		ug/L			09/14/21 03:10	1
Toluene	ND	*1	1.0		ug/L			09/14/21 03:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	104		80 - 120			-		09/14/21 03:10	1

80 - 120

80 - 120

80 - 120

Job ID: 580-105772-1

Matrix: Water

Lab Sample ID: 580-105772-4

09/14/21 03:10

09/14/21 03:10

09/14/21 03:10

2 3 4 5 6 7-

8 9 10

1

1

1

Eurofins FGS, Seattle

9/15/2021

QC Sample Results

RL

1.0

1.0

Limits

80 - 120

80 - 120

80 - 120

80 - 120

MDL Unit

ug/L

ug/L

D

Prepared

Method: 8260D - Volatile Organic Compounds by GC/MS

MB MB

MB MB

Qualifier

ND

ND

98

90

97

104

%Recovery

95

97

Result Qualifier

Prep Type: Total/NA

Dil Fac

1

09/14/21 01:06 1 Prepared Analyzed Dil Fac 09/14/21 01:06 1 09/14/21 01:06 1 09/14/21 01:06 1 09/14/21 01:06 1 09/14/21 01:06 1 09/14/21 01:06 1

Client Sample ID: Method Blank

Analyzed

09/14/21 01:06

Lab Sample ID: LCS 580-367715/4 Matrix: Water Analysis Batch: 367715

Lab Sample ID: MB 580-367715/7

Analysis Batch: 367715

Matrix: Water

Analyte

Benzene

Toluene

Surrogate

Toluene-d8 (Surr)

4-Bromofluorobenzene (Surr)

Dibromofluoromethane (Surr)

1,2-Dichloroethane-d4 (Surr)

Dibromofluoromethane (Surr)

1,2-Dichloroethane-d4 (Surr)

····· , ·······························			Spike	LCS	LCS				%Rec.	
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene			10.0	10.9		ug/L		109	80 - 122	
Toluene			10.0	10.9		ug/L		109	80 - 120	
	LCS	LCS								
Surrogate	%Recovery	Qualifier	Limits							
Toluene-d8 (Surr)	101		80 - 120							
4-Bromofluorobenzene (Surr)	97		80 - 120							

80 - 120

80 - 120

Lab Sample ID: LCSD 580-367715/5
Matrix: Water
Analysis Batch: 367715

Client Sample ID: Lab Control Sample Prep Type: Total/NA

Client Sample ID: Lab Control Sample Dup Prep Type: Total/NA

			Spike	LCSD	LCSD				%Rec.		RPD
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene			10.0	8.74	*1	ug/L		87	80 - 122	22	14
Toluene			10.0	8.47	*1	ug/L		85	80 - 120	25	13
	LCSD	LCSD									
Surrogata	% Bosoveru	Qualifiar	Limito								

Surrogate	%Recovery	Qualifier	Limits	
Toluene-d8 (Surr)	100		80 - 120	
4-Bromofluorobenzene (Surr)	96		80 - 120	
Dibromofluoromethane (Surr)	97		80 - 120	
1,2-Dichloroethane-d4 (Surr)	98		80 - 120	

Client: Landau & Associates, Inc. Project/Site: Fire Mtn Farms_Newaukum Prairie Rinse

Job ID: 580-105772-1

Client Sam	ple ID: NP-	RINSE1-091	021				Lab Sa	ample ID:	580-105772-1
	d: 09/10/21 0								Matrix: Wate
Date Receive	d: 09/10/21 1	2:45							
-	Batch	Batch		Dilution	Batch	Prepared			
Prep Туре	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	8260D		20	367715	09/14/21 04:48	B1M	FGS SEA	-
Client Sam	ple ID: NP-	RINSE2-091	021				Lab Sa	ample ID:	580-105772-2
	d: 09/10/21 0								Matrix: Wate
Date Receive	d: 09/10/21 1	2:45							
-	Batch	Batch		Dilution	Batch	Prepared			
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	8260D		20	367715	09/14/21 05:13	B1M	FGS SEA	-
Date Collecte	ple ID: TRI d: 09/10/21 0 d: 09/10/21 1		P-RINSE1	-091021			Lab Sa	ample ID:	580-105772- Matrix: Wate
-	Batch	Batch		Dilution	Batch	Prepared			
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab	
Total/NA	Analysis	8260D		1	367715	09/14/21 02:45	B1M	FGS SEA	-
Client Sam	ple ID: TRI	P BLANK N	P-RINSE2	-091021			Lab Sa	ample ID:	580-105772-4
Date Collecte	d: 09/10/21 0	8:39							Matrix: Wate
Date Receive	d: 09/10/21 1	2:45							
_	Detah	Batch		Dilution	Batch	Prepared			
	Batch					•			
Prep Type	Ватсп Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab	

Lab Chronicle

Laboratory References:

FGS SEA = Eurofins FGS, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

9/15/2021

Page 14 of 14

Client: Landau & Associates, Inc. Project/Site: Fire Mtn Farms_Newaukum Prairie Rinse

Laboratory:	Eurofins	FGS,	Seattle
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The accreditations/certifications listed below are applicable to this report.

	Authority	Program	Identification Number	Expiration Date
L	Washington	State	C788	07-13-22

Accreditation/Certification Summary

Job ID: 580-105772-1

🔅 eurofins

Environment Testing America

ANALYTICAL REPORT

Eurofins FGS, Seattle 5755 8th Street East Tacoma, WA 98424 Tel: (253)922-2310

Laboratory Job ID: 580-106029-1 Client Project/Site: Fire MTN Farms

For:

Landau & Associates, Inc. 130 Second Ave South Edmonds, Washington 98020

Attn: Evelyn Ives

Shuid cum-

Authorized for release by: 9/24/2021 3:46:44 PM

Sheri Cruz, Project Manager I (253)922-2310 Sheri.Cruz@Eurofinset.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

.....Links **Review your project** results through **Total** Access **Have a Question?** Ask-The Expert Visit us at:

www.eurofinsus.com/Env

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Job ID: 580-106029-1

Laboratory: Eurofins FGS, Seattle

Narrative

Job Narrative 580-106029-1

Case Narrative

Comments

No additional comments.

Receipt

The samples were received on 9/21/2021 12:30 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 5.4° C.

GC/MS VOA

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Job ID: 580-106029-1

Definitions/Glossary

Client: Landau & Associates, Inc. Project/Site: Fire MTN Farms

TEQ TNTC

Too Numerous To Count

Job ID: 580-106029-1

Glossary		
Abbreviation	These commonly used abbreviations may or may not be present in this report.	
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis	 4
%R	Percent Recovery	
CFL	Contains Free Liquid	5
CFU	Colony Forming Unit	J
CNF	Contains No Free Liquid	
DER	Duplicate Error Ratio (normalized absolute difference)	
Dil Fac	Dilution Factor	
DL	Detection Limit (DoD/DOE)	
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample	
DLC	Decision Level Concentration (Radiochemistry)	8
EDL	Estimated Detection Limit (Dioxin)	
LOD	Limit of Detection (DoD/DOE)	9
LOQ	Limit of Quantitation (DoD/DOE)	
MCL	EPA recommended "Maximum Contaminant Level"	
MDA	Minimum Detectable Activity (Radiochemistry)	
MDC	Minimum Detectable Concentration (Radiochemistry)	
MDL	Method Detection Limit	
ML	Minimum Level (Dioxin)	
MPN	Most Probable Number	
MQL	Method Quantitation Limit	
NC	Not Calculated	
ND	Not Detected at the reporting limit (or MDL or EDL if shown)	
NEG	Negative / Absent	
POS	Positive / Present	
PQL	Practical Quantitation Limit	
PRES	Presumptive	
QC	Quality Control	
RER	Relative Error Ratio (Radiochemistry)	
RL	Reporting Limit or Requested Limit (Radiochemistry)	
RPD	Relative Percent Difference, a measure of the relative difference between two points	
TEF	Toxicity Equivalent Factor (Dioxin)	
TEQ	Toxicity Equivalent Quotient (Dioxin)	
THE		

Sample Summary

Collected

09/21/21 11:10 09/21/21 12:30

09/21/21 00:00 09/21/21 12:30

Received

Matrix

Water

Water

Client: Landau & Associates, Inc. Project/Site: Fire MTN Farms

Lab Sample ID

580-106029-1

580-106029-2

Client Sample ID

Trip Blank

NP-RINSE3-092121

5

580-106029 Chain of Custody	f-Custody	North Seattl		Spokane (509) 32			(z) of	Turnaround Time: Standard Accelerated 3 Day
Project Name Fire MTN Form	S Project No. C	66045,110	113	/5	Testing	Parameters	,	
Project Location/Event <u>Newauku</u> Sampler's Name <u>Devan Brandf</u>	n Prairie Riv	rse / 9/21/	(2-1)	all of the second secon				7 Special Handling Requirements:
Project Contact Evelyn Ives			/N					Shipment Method:
			/ Š	7				Stored on ice: Yes No
Sample I.D.	Date Time	No Matrix Cont	p. of ainers				Obs	ervations/Comments
NP-RINSE3-092121 9/			3 X 2 X				aliquot fro NWTPH-D Dissolved r	er samples to settle, collect m clear portion <- Acid wash cleanup - Silica gel cleanup metal samples were field filtered
Relinquished by Signature Devan Brandt Printed Name Devan Brandt Company LAI Date 9/21/21 Time 1230		tim fiel FGS 121 Time		Relinquished by Signature Printed Name Company			Printed Name	el/bub 1R9 5.4/5.4

WHITE COPY - Laboratory

Tor Light

therefore the databased

10

Client: Landau & Associates, Inc.

Login Number: 106029 List Number: 1 Creator: Greene, Ashton R

Question	Answer	Comment
Radioactivity wasn't checked or is = background as measured by a survey meter.</td <td>N/A</td> <td></td>	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

List Source: Eurofins FGS, Seattle

Client Sample ID: NP-RINSE3-092121 Date Collected: 09/21/21 11:10 Date Received: 09/21/21 12:30

Lab Sample	ID:	580-1	06029-1
		Mot	riv: Wotor

Matrix: Water

Job ID: 580-106029-1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			09/24/21 13:14	1
Toluene	ND		1.0		ug/L			09/24/21 13:14	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	97		80 - 120			-		09/24/21 13:14	1
4-Bromofluorobenzene (Surr)	93		80 - 120					09/24/21 13:14	1
Dibromofluoromethane (Surr)	102		80 - 120					09/24/21 13:14	1
1.2-Dichloroethane-d4 (Surr)	104		80 - 120					09/24/21 13:14	

8 9 10

Client Sample ID: Trip Blank Date Collected: 09/21/21 00:00 Date Received: 09/21/21 12:30

Lab Sample ID: 580-106029-2 Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			09/24/21 11:35	· · ·
Toluene	ND		1.0		ug/L			09/24/21 11:35	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	101		80 - 120			-		09/24/21 11:35	1
4-Bromofluorobenzene (Surr)	93		80 - 120					09/24/21 11:35	1
Dibromofluoromethane (Surr)	100		80 - 120					09/24/21 11:35	1
1,2-Dichloroethane-d4 (Surr)	103		80 - 120					09/24/21 11:35	

Prep Type: Total/NA

Client Sample ID: Method Blank

Method: 8260D - Volatile Organic Compounds by GC/MS

101

92

Lab Sample ID: MB 580-368745/13 Matrix: Water

Analysis Batch: 368745

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	ND		1.0		ug/L			09/24/21 11:10	1
Toluene	ND		1.0		ug/L			09/24/21 11:10	1
	МВ	MB							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Surrogate Toluene-d8 (Surr)	%Recovery 107	Qualifier	Limits 80 - 120				Prepared	Analyzed	Dil Fac
		Qualifier					Prepared		Dil Fac
Toluene-d8 (Surr)	107	Qualifier	80 - 120				Prepared	09/24/21 11:10	Dil Fac 1 1 1

Lab Sample ID: LCS 580-368745/10 Matrix: Water Analysis Batch: 368745

			Spike	LCS	LCS				%Rec.	
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene			10.0	9.86		ug/L		99	80 - 122	
Toluene			10.0	9.87		ug/L		99	80 - 120	
	LCS	LCS								
Surrogate	%Recovery	Qualifier	Limits							
Toluene-d8 (Surr)	102		80 - 120							
4-Bromofluorobenzene (Surr)	100		80 - 120							

80 - 120

80 - 120

Lab Sample ID: LCSD 580-368745/11
Matrix: Water
Analysis Batch: 368745

Dibromofluoromethane (Surr)

1,2-Dichloroethane-d4 (Surr)

Client Sample ID: Lab Control Sample Prep Type: Total/NA

Client Sample ID: Lab Control Sample Dup Prep Type: Total/NA

			Spike	LCSD	LCSD				%Rec.		RPD
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene			10.0	10.8		ug/L		108	80 - 122	9	14
Toluene			10.0	10.6		ug/L		106	80 - 120	8	13
	LCSD	LCSD									
Surrogate	%Recovery	Qualifier	Limits								

Toluene-d8 (Surr)	101	80 - 120
4-Bromofluorobenzene (Surr)	101	80 - 120
Dibromofluoromethane (Surr)	96	80 - 120
1,2-Dichloroethane-d4 (Surr)	96	80 - 120
_		

9

10

FGS SEA

Client Sample ID: NP-RINSE3-092121 Lab Sample ID: 580-106029-1 Date Collected: 09/21/21 11:10 **Matrix: Water** Date Received: 09/21/21 12:30 Batch Batch Dilution Batch Prepared Method Run Factor Number or Analyzed Prep Type Туре Analyst Lab Total/NA Analysis 8260D 368745 09/24/21 13:14 B1M FGS SEA 1 **Client Sample ID: Trip Blank** Lab Sample ID: 580-106029-2 Date Collected: 09/21/21 00:00 **Matrix: Water** Date Received: 09/21/21 12:30 Batch Batch Dilution Batch Prepared Prep Type Туре Method Run Factor Number or Analyzed Analyst Lab

1

368745 09/24/21 11:35 B1M

Laboratory References:

Analysis

Total/NA

FGS SEA = Eurofins FGS, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

8260D

Accreditation/Certification Summary

Job ID: 580-106029-1

11

Laboratory: Eurofins FGS, Seattle

The accreditations/certifications listed below are applicable to this report.

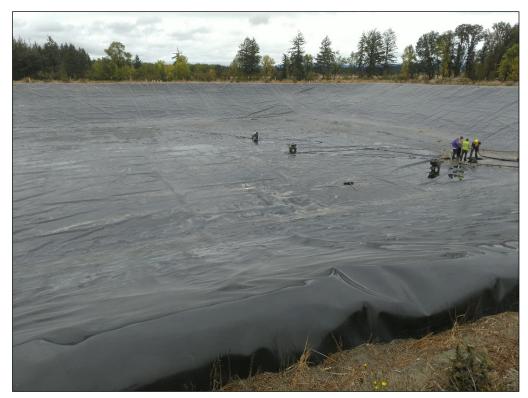
Authority	Program	Identification Number	Expiration Date		
Washington	State	C788	07-13-22		

ATTACHMENT 2

Newaukum Prairie Closure Completion Photographs



1. Newaukum Prairie during rinse water draining activities; west end; September 10, 2021.



2. Newaukum Prairie during rinse water draining activities; September 10, 2021.



Fire Mountain Farms Storage Units Lewis County, Washington

Newaukum Prairie Closure Completion Photographs



3. Newaukum Prairie during rinse water draining activities; east end; September 10, 2021.

