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Two Union Square
601 Union Street, Suite 600
Seattle, WA 98101
tel: 206.292.2078 fax: 206.682.7867

Memorandum

To: Andrew Smith, Washington State Department of Ecology

Copies: Dan Silver, B&L Woodwaste Custodial Trust

From: Nathan Schachtman, Pamela Osterhout, and Brett Beaulieu, Floyd|Snider

Date: June 22, 2023

Project No: B&L O&M

Re: **B&L Woodwaste Dye Tracer Study Results**

This memorandum presents results of a dye tracer study that was implemented at the B&L Woodwaste Landfill Site (Site) in Milton, Washington, to evaluate the source of elevated arsenic groundwater concentrations in the agricultural field, west and outside of the barrier wall. Currently, the B&L Woodwaste Custodial Trust is implementing the long-term operations and monitoring phase of the 2008 Cleanup Action Plan at the Site after remediation under the terms of Consent Decree No. 082106107 (Ecology 2008). Past remediation at the Site has included consolidating and capping arsenic-impacted soil in the landfill and constructing a subsurface barrier wall around the landfill to prevent the outward migration of leachate-impacted groundwater.

The dye tracer study was implemented in accordance with the Washington State Department of Ecology-approved Dye Tracer Study Work Plan (Work Plan), which included provisions for dye introduction and subsequent sampling (Floyd|Snider 2021). The purpose of the dye tracer study was to determine whether leachate-impacted water may be migrating from beneath the barrier wall and acting as an ongoing source of arsenic to groundwater beneath the agricultural field and ditch surface water. If dye breakthrough was observed, a secondary objective was to determine the approximate area where breakthrough is occurring. Dye tracer study activities included introducing two fluorescent dyes at different locations east of the barrier wall and within the containment area, and sampling at a variety of frequencies to determine the presence/absence of the dye at locations west and north (i.e., outside) of the barrier wall.

BACKGROUND

The area where arsenic concentrations in groundwater exceed the cleanup level of 5 micrograms per liter (µg/L), west of the B&L Woodwaste Landfill, is referred to as the Agricultural Field Plume and has been subject to remediation by barrier wall and hydraulic source containment, groundwater recovery, and in situ treatment between 2009 and 2017. The plume

has been reduced in concentration and its extent controlled through these efforts and natural attenuation processes. Arsenic concentrations have continued to exceed the cleanup level in this area, however, raising the question of whether the exceedances are related to an ongoing source of arsenic from inside the landfill perimeter barrier wall. It has been approximately 5 years since in situ treatment of the plume with EHC-M™, which is a mixture that consists of a hydrophilic organic carbon source, micro-scale zero-valent iron, magnesium sulfate, and potassium sulfate. It has also been approximately 5 years since the cessation of hydraulic containment, which had been implemented from 2012 to 2017 through the maintenance of inward hydraulic gradients across the landfill perimeter barrier wall. Hydraulic containment was designed and implemented to prevent the potential leakage of arsenic-containing leachate, particularly beneath the gap in the aquitard in the southwest corner of the landfill. Determining whether the Agricultural Field Plume has remained cut off from the landfill under current conditions, which include the barrier wall as the only containment measure at the landfill perimeter, is an important factor in how to manage residual groundwater contamination in this area.

The extent of the Agricultural Field Plume is well defined and stable with comparatively low arsenic concentrations in monitoring wells at the fringe of the plume (PD-214, MW-34, and W-1). Refer to Figure 1. After the substantial concentration decreases that followed groundwater recovery between 2012 and 2017 and in situ treatment in 2017, arsenic concentrations have remained relatively stable and, in some cases, have increased, particularly since mid-2020. Refer to Attachment 2 in the April 2023 Compliance Monitoring Report for arsenic time concentration plots (Floyd|Snider 2023).

Samples from monitoring wells upgradient of the Agricultural Field Plume near the landfill edge do not provide a clear indication of whether the plume is being replenished from landfill leachate or whether the arsenic may originate in soil in the agricultural field. Elevated arsenic concentrations in groundwater wells located between the landfill and the agricultural field on the outside of the landfill barrier wall have also shown increasing trends during this time (i.e., D-8A and D-7A), but these changes are also consistent with variability observed prior to and during the period in which hydraulic control was maintained. Arsenic concentrations in the lower sand aquifer (MW-40B and D-8B) are generally stable at concentrations less than 10 µg/L and show no indication of leachate migrating beneath the barrier wall in the southwest corner into the lower sand aquifer.

In 2020, a soil investigation was completed to investigate whether residual soil with elevated arsenic concentrations, particularly on the B&L Woodwaste Custodial Trust property, may be contributing to Agricultural Field Plume groundwater exceedances (Floyd|Snider 2019). This soil investigation, which involved collecting soil samples from various depths at locations along the western edge of the property and in the vicinity of MW-33, found little evidence of elevated soil arsenic concentrations (Floyd|Snider 2020). The results of the investigation indicated that residual arsenic-impacted shallow soil on the B&L Woodwaste Custodial Trust property was likely not causing the groundwater arsenic exceedances in the Agricultural Field Plume.

DYE TRACER STUDY FIELD ACTIVITIES

In accordance with the Work Plan, the dye tracer study was implemented between October 2021 and April 2023 and included background sampling, introduction of fluorescein and rhodamine WT (RWT) tracer dyes, and periodic dye monitoring activities. The study was designed to target two general breakthrough areas inside the barrier wall: the aquitard gap area in the southwest corner of the landfill (PZ-4B and R-8) and the area to the north of the aquitard gap (PZ-3B and R-9). Figure 1 shows dye introduction and monitoring locations.

Background Dye Sampling

Background sampling was conducted at the Site between October 22 and 28, 2021, to identify potential natural background fluorescence in Site groundwater, which could interfere with the fluorometric analysis used to detect the fluorescein and RWT dyes. Carbon samplers, consisting of small fiberglass screen packets filled with approximately 4.25 grams of activated coconut charcoal, were deployed in 15 monitoring wells and 2 surface water locations, including 4 dye introduction locations within the containment area and 13 monitoring locations outside of the barrier wall in the agricultural field (Figure 1). At each monitoring well, the carbon sampler was tied to the top of a disposable bailer and lowered into the monitoring well using undyed nylon cord to approximately the middle of the screened interval. At surface water sampling locations, carbon samplers were weighted using a rock, secured with undyed nylon cord to a wooden stake located on the bank, and suspended at approximately the midpoint of the water column.

At each monitoring location, carbon samplers were collected after an approximately 1-week deployment. Groundwater or surface water samples paired with the carbon samplers (paired water samples) were collected at each monitoring location using either low-flow sampling methods or a dedicated-disposable bailer.

Dye Introduction

After receipt of the background sampling results, the two dyes were introduced to existing monitoring wells within the containment area on November 4, 2021. Prior to introducing the dye, approximately one casing volume of potable water was introduced per the Work Plan and standard guidelines for conducting dye tracer studies (OUL 2019). Next, the dye was introduced to each well followed by a minimum of three casing volumes of potable water to help flush the dyes into the groundwater. The following quantities of dye and potable water were introduced to each of the following wells:

- PZ-3B and R-9: 10 pounds of liquid RWT solution, followed by 15 and 90 gallons of potable water at PZ-3B and R-9, respectively
- PZ-4B and R-8: 2 pounds of powdered fluorescein dye dissolved in 5 gallons of potable water, followed by 15 and 65 gallons for PZ-4B and R-8, respectively

Due to the extremely low laboratory detection limits for the dye analysis, care was taken to avoid incidental releases of dye and/or cross-contamination between the two dyes. Field staff used disposable Tyvek® suits and nitrile gloves when mixing and introducing the two dyes to avoid any cross-contamination. Minor dye spills in the mixing and study areas were immediately neutralized using a solution of bleach and water.

Dye Monitoring

Dye monitoring events involved collecting carbon samplers and paired water samples from each monitoring location to determine presence/absence of fluorescein and RWT at monitoring locations. After dye introduction, carbon samplers were deployed at 11 monitoring wells and 2 surface water locations, located outside of the barrier wall to the west and north (Figure 1). Dye monitoring events were conducted at a variety of frequencies to identify any preferential flow pathways for dye and to confirm whether an approximately 3-month (i.e., quarterly) carbon sampler deployment was appropriate for Site groundwater conditions. A total of nine dye monitoring events were conducted between November 2021 and April 2023 as summarized in Table 1.

During each monitoring event, the carbon sampler deployed at each location was removed and placed into a laboratory-provided Whirl-Pak®. Groundwater samples paired with the carbon samplers were collected at each monitoring location into laboratory-provided 50-milliliter polypropylene vials using either low-flow sampling methods or a dedicated disposable bailer. At the two surface water sampling stations, grab surface water samples were collected in addition to the carbon samplers. Water sample vials were immediately wrapped in aluminum foil to prevent any degradation of the dyes that can occur with exposure to sunlight.

Laboratory Analysis

After sample collection, samples were shipped overnight on frozen reusable ice packs under standard chain of custody protocols to Ozark Underground Laboratory (OUL) in Protem, Missouri, for fluorometric analysis using a Shimadzu RF-5301 spectrofluorophotometer. Paired water samples were placed on hold and analyzed only if dye was detected at concentrations greater than laboratory reporting limits in the corresponding carbon sampler. Additional information regarding analytical procedures and fluorometric analysis at OUL, including quality control procedures and criteria for determining positive dye recoveries, can be found in OUL's 2015 Procedures and Criteria Analysis of Fluorescent Dyes in Water and Charcoal Samplers (OUL 2015).

RESULTS

The following subsections summarize dye monitoring results throughout the approximately year and a half duration of the dye tracer study. Table 2 and Figure 2 summarize dye detections, and the associated laboratory analytical reports from OUL are provided as Attachment 1.

Background and Preferential Pathway Sampling (October–November 2021)

Fluorescein and RWT were not detected in the carbon samplers during the October 22 to 28, 2021, background sampling event. This result indicated that background fluorescence was not present in Site groundwater, and therefore, it does not need to be considered when analyzing samples from subsequent dye monitoring events.

On November 4, 2021, approximately 1 week after the two dyes were introduced, dye monitoring samples were collected to assess preferential dye flow pathways and potential breakthrough. No dye was detected in the carbon packets from this event.

Verification Sampling (January–April 2022)

Four dye monitoring events were conducted between January and April 2022, consisting of two 10-week deployment periods followed by a 2-week verification sampling period (Table 1). The short 2-week deployments after the longer 10-week deployments were designed to provide verification that carbon samplers did not miss any dye and that a 12-week (i.e., quarterly) deployment is appropriate for the Site. Because contaminants and/or organic matter in water compete with the dye for sorption sites on the carbon samplers, it is important to confirm that sorption sites continue to be available for dye during longer sampler deployments.

No dye was detected in the carbon samplers during the first two verification sampling events, which occurred on January 24 and February 7, 2022. However, during both the April 11 and 18, 2022, verification sampling events, fluorescein was detected in both the carbon samplers and paired surface water samples at SW-11 and SW-12 (Table 2). The consistency between the results from the 10-week and their subsequent 2-week deployments demonstrates that a quarterly deployment duration of carbon samplers was appropriate for Site groundwater and surface water conditions (i.e., carbon sampler sorption sites continued to be available for dye throughout the quarterly deployment duration).

Quarterly Sampling (July 2022–April 2023)

After the four verification sampling events, dye monitoring frequency was adjusted to quarterly to correspond with routine compliance monitoring. Four quarterly dye sampling events were conducted July 12, 2022; October 21 to 24, 2022; January 25, 2023; and April 5, 2023. Dye detections in these sampling events are summarized as follows:

- Fluorescein was detected at PD-214, SW-11, and SW-12 in all four monitoring events between July 2022 and April 2023. RWT was also detected at SW-12 during each of these monitoring events.
- Fluorescein was detected at PZ-4A in the carbon sampler during the October 2022 monitoring event, but not in the paired water sample.

- Fluorescein was detected in the carbon sampler and paired water sample from D-8A in January and April 2023.
- Fluorescein was detected in the carbon sampler and paired water sample from D-8B in April 2023.

DISCUSSION

Fluorescein and RWT dye were detected at monitoring locations outside of the barrier wall, indicating that dye breakthrough has occurred. The locations, timing, and type of dye detections (i.e., primarily fluorescein) suggest that the leachate-impacted groundwater is slowly migrating from beneath the barrier wall in the southwest aquitard gap area and downgradient beneath the stormwater ponds into surface water in the West Ditch (a section of Stream 12) and groundwater beneath the agricultural field (Figure 2). The results address the primary objective of the study, providing an explanation for the elevated arsenic concentrations in groundwater at locations including D-8A and in the Agricultural Field Plume, and for the arsenic-loading contributing to elevated arsenic concentrations observed in West Ditch surface water.

Dye was detected primarily in ditch surface water and upper sand aquifer groundwater, with one fluorescein detection at lower sand aquifer monitoring location D-8B. Upward to neutral vertical hydraulic gradients are typically observed at this well pair, where no aquitard is present between the Upper and Lower Sand Aquifers (Floyd|Snider 2022a). These vertical gradients explain why elevated arsenic is not generally measured at this location. Arsenic concentrations at D-8B have ranged from 5.97 to 16.6 µg/L since April 2013 (Floyd|Snider 2023). The dye detection likely resulted from dispersion and diffusion of dye, not gradient-driven advective transport.

The results also provide information related to the secondary objective of the study, to determine the approximate area where breakthrough is occurring. Fluorescein dye emanating from the vicinity of PZ-4B and R-8, in the middle of the aquitard gap, accounts for the majority of the dye detections in groundwater and surface water. However, RWT dye was consistently detected at SW-12 after April 2022, indicating that there is likely a second zone, north of SW-11 and D-8A, where dye is migrating into West Ditch surface water and potentially agricultural field groundwater through the southwest aquitard gap. No RWT dye was detected at PZ-3A, suggesting the barrier wall is containing groundwater passively in this area, and that RWT dye instead migrated beyond the barrier wall in the northern portion of the aquitard gap near R-9.

Dye tracer study results can also be used to infer dye velocities in groundwater at the Site. Dye velocities can be estimated by dividing the distance between injection or monitoring points by the time elapsed between the first positive dye concentration at a given point. For example, fluorescein dye was first detected at PD-214 in the carbon sampler deployed between April 18 and July 12, 2022. Fluorescein dye was subsequently detected at D-8A, located approximately 47 feet north and downgradient of PD-214, in the carbon sampler deployed between October 24, 2022, and January 25, 2023. Therefore, it took between 189 and 282 days for the fluorescein dye to migrate from PD-214 to D-8A, corresponding with a dye velocity of between 0.17 and

0.25 feet per day (ft/day). Using the same method, the dye velocity between PZ-4B and PD-214 was estimated at between 0.56 and 0.86 ft/day. A seepage velocity of 0.76 ft/day was estimated for the Agricultural Field Plume area using hydraulic gradients and estimated hydraulic conductivity values (Floyd|Snider 2019), and the estimated dye velocities provide useful empirical checks on this prior estimate. Because of its reactivity (for example, adsorption on aquifer solids), arsenic is generally transported in groundwater more slowly than conservative tracers such as the dyes used in the study.

CONCLUSIONS

The dye tracer study accomplished its key objective, determining that leachate-impacted groundwater within the containment area contributes to groundwater and surface water exceedances. The results also provide useful information about the approximate areas where the breakthrough is occurring and empirical data about the rate of groundwater flow.

Based on initial findings of this study, a Remedial Evaluation Memorandum was prepared to evaluate and recommend a supplemental remedial approach to address contamination in the Agricultural Field Plume groundwater and West Ditch surface water (Floyd|Snider 2022b). The memorandum recommended a combination of ditch filling and an in situ treatment permeable reactive barrier to intercept and treat impacted groundwater prior to discharge in the agricultural field. Subsequent findings of the dye tracer study, which indicate continued migration of leachate-impacted groundwater in the agricultural field, provide further support for the selected remedial action.

REFERENCES

Floyd|Snider. 2019. *B&L Woodwaste Agricultural Field Plume and Related Site Conditions*. Memorandum from Brett Beaulieu, Floyd|Snider, to Mohsen Kourehdar, Washington State Department of Ecology. 11 December.

_____. 2020. *B&L Woodwaste Site West Boundary Soil Investigation Report.* November.

_____. 2021. *B&L Woodwaste Landfill Dye Tracer Study Work Plan.* Memorandum from Nathan Schachtman, Pamela Osterhout, and Brett Beaulieu, Floyd|Snider, to Andrew Smith, Washington State Department of Ecology. 24 September.

_____. 2022a. *B&L Woodwaste Site October 2022 Compliance Monitoring Report.* 16 December.

_____. 2022b. *Agricultural Field Plume Remedial Evaluation.* Memorandum from Brett Beaulieu, Floyd|Snider, to Andy Smith, Washington State Department of Ecology. 12 December.

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Ozark Underground Laboratory (OUL). 2015. *Procedures and Criteria Analysis of Fluorescent Dyes in Water and Charcoal Samplers: Fluorescein, Eosine, Rhodamine WT, and Sulforhodamine B Dyes.* 3 March.

_____. 2019. *The Ozark Underground Laboratory's Groundwater Tracing Handbook.*

Washington State Department of Ecology (Ecology). 2008. *Consent Decree with Louisiana-Pacific Corporation and Wasser and Winters Company*. No. 082106107. 24 July.

LIST OF ATTACHMENTS

Table 1	Dye Tracer Study Schedule
Table 2	Summary of Dye Analytical Results
Figure 1	Dye Tracer Study Monitoring Locations
Figure 2	Summary of Dye Detections
Attachment 1	Laboratory Analytical Reports

Tables

Table 1
Dye Tracer Study Schedule

Date	Activity	Rationale/Notes
10/22/2021	Background sampler deployment	Identify and characterize any potential background fluorescence in Site groundwater.
10/28/2021	Background sampling	Identify and characterize any potential background fluorescence in Site groundwater.
11/4/2021	Tracer dye introduction	Introduce two conservative tracer dyes into Site groundwater within the Barrier Wall.
11/16/2021	Preferential Pathway Sampling	Assess for preferential breakthrough of the tracer dye.
1/24/2022	1Q2022 Sampling	Routine quarterly fluorescence sampling.
2/7/2022	Verification Sampling	Provide verification that quarterly carbon samplers did not miss any dye.
4/12/2022	2Q2022 Sampling	Routine quarterly fluorescence sampling.
4/18/2022	Verification Sampling	Provide verification that quarterly carbon samplers did not miss any dye.
7/12/2022	3Q2022 Sampling	Routine quarterly fluorescence sampling.
10/21/2022	4Q2022 Sampling	Routine quarterly fluorescence sampling.
1/25/2023 (1)	1Q2023 Sampling	Routine quarterly fluorescence sampling.
4/5/2023 (1)	2Q2023 Sampling	Routine quarterly fluorescence sampling.

Note:

1 Sampling event initially not proposed in the Work Plan, but added during the study to collect additional data to inform the conceptual model for dye breakthrough and migration into the agricultural field.

Table 2
Summary of Dye Analytical Results

Location and Date of Sample	Fluorescein		Rhodamine WT	
	Carbon Sample	Water Sample	Carbon Sample	Water Sample
	ppb	ppb	ppb	ppb
D-7A				
All Dates	All results ND			
SW-11				
4/11/2022	**17.8**	**770**	0.17 U	0.015 U
4/18/2022	**105**	**614**	0.17 U	0.015 U
7/12/2022	**536**	**3.55**	0.17 U	0.015 U
10/21/2022	**105**	**5.34**	0.17 U	0.015 U
1/25/2023	**483**	**0.739**	0.17 U	0.015 U
4/5/2023	**30.7**	**1.13**	0.17 U	0.015 U
SW-12				
4/11/2022	**2.43**	**3.38**	0.17 U	0.015 U
4/18/2022	**294**	**7.22**	0.17 U	0.015 U
7/12/2022	**102**	**3.85**	**9.03**	**3.47**
10/21/2022	**64.5**	**3.42**	**11.4**	0.015 U
1/25/2023	**28.8**	**1.9**	**3.02**	**5.17**
4/5/2023	**13.2**	**1.16**	**16.9**	**3.83**
PD-214				
7/12/2022	**873**	**0.598**	0.17 U	0.015 U
10/21/2022	**1,400**	**0.781**	0.17 U	0.015 U
1/25/2023	**1,200**	**25.5**	0.17 U	0.015 U
4/5/2023	**1,520**	**14.3**	0.17 U	0.015 U
PZ-4A				
10/21/2022	**0.577**	0.002 U	0.17 U	0.015 U
D-8A				
1/25/2023	**531**	**19.4**	0.17 U	0.015 U
4/5/2023	**765**	**59.7**	0.17 U	0.015 U
D-8B				
4/5/2023	**109**	**38.4**	0.17 U	0.015 U
MW-33				
All Dates	All results ND			
MW-34				
All Dates	All results ND			
MW-40B				
All Dates	All results ND			
MW-41				
All Dates	All results ND			
MW-42				
All Dates	All results ND			

Table 2
Summary of Dye Analytical Results

Location and Date of Sample	Fluorescein		Rhodamine WT	
	Carbon Sample	Water Sample	Carbon Sample	Water Sample
	ppb	ppb	ppb	ppb
PZ-3A				
All Dates	All results ND			
PZ-3B				
All Dates	All results ND			
PZ-4B				
All Dates	All results ND			
R-8				
All Dates	All results ND			
R-9				
All Dates	All results ND			

Notes:

All results rounded to three significant figures, except nondetect results, which are rounded to two significant figures.

BOLD Detected result.

Abbreivations:

ND Nondetect

ppb Parts per billion

Qualifier:

U Analyte was not detected at the given reporting limit.

Figures

Legend

- D-8A — Upper Sand Aquifer Monitoring Location
- D-BB — Lower Sand Aquifer Monitoring Location
- SW-5 — Surface Water Monitoring Location
- PD-214 — Monitoring Well or Piezometer
- R-10 — Recovery Well Location
- Rhodamine WT Dye Introduction Location
- Fluorescein Dye Introduction Location
- Approximate Extent of Agricultural Field Plume (October 2022)
- Barrier Wall
- Property Boundary from Tax Parcel Data
- Stormwater Pond
- Surface Drainage Feature and Flow Direction
- Aquitard Gaps Inside Barrier Wall

Notes:

- October 2022 Agricultural Plume extent is from Floyd|Snider 2022a.
- Orthoimage provided by USGS and dated June–July 2005.
- Hylebos Creek and other surface drainage feature locations shown were digitized from the 2005 orthoimage cited above.

N

0 175 350

Scale in Feet

1 inch = 175 feet

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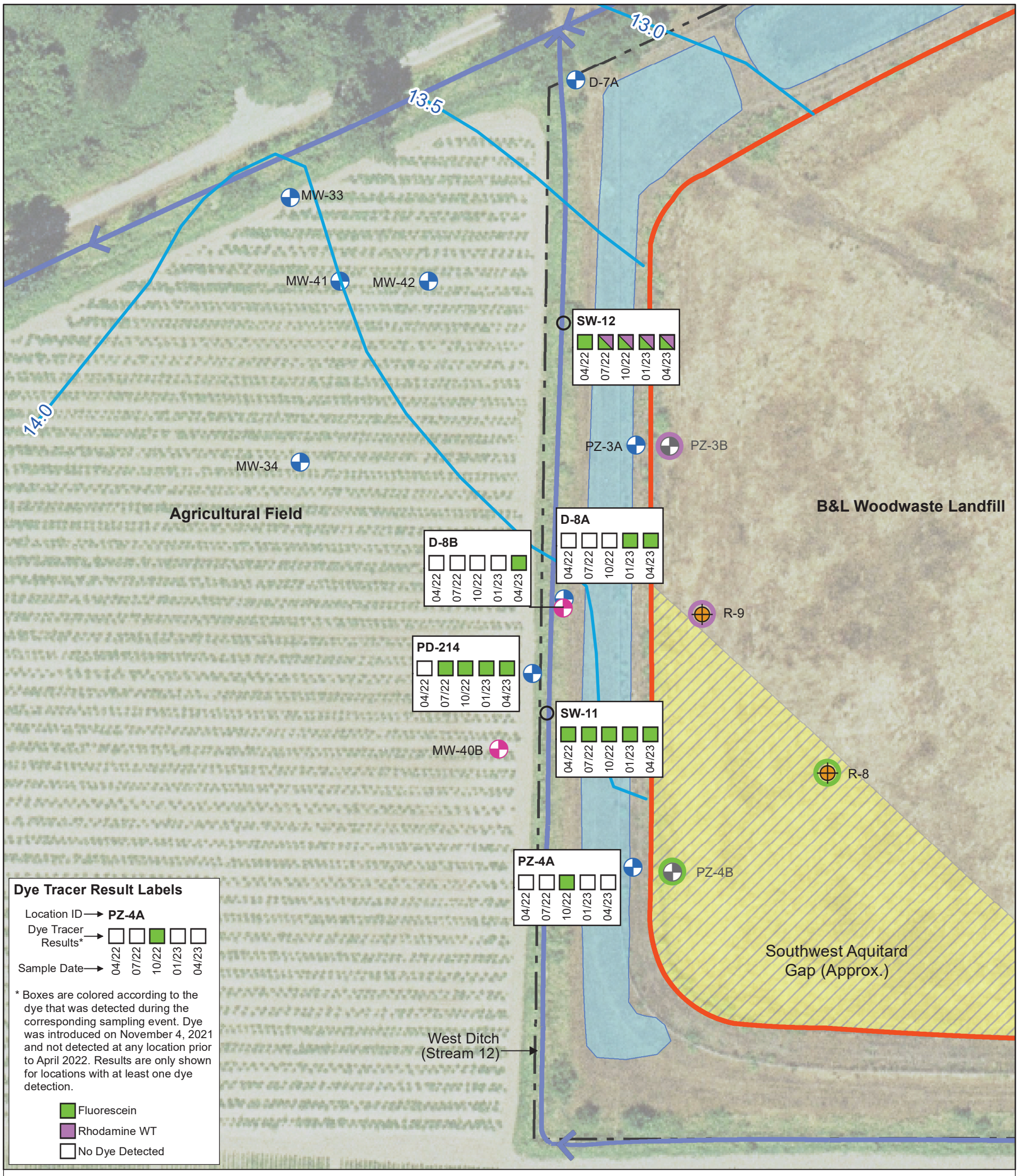
Dye Tracer Study Results
B&L Woodwaste Landfill Site
Pierce County, Washington

Figure 1
Dye Tracer Study
Monitoring Locations

Path: I:\GIS\Projects\B&L-O&M\MXD\Task 1540-Adaptive Management Activities\Dye Tracer Study\02-Report\Figure 1 Dye Tracer Study Monitoring Locations.mxd
Date: 6/8/2023



Legend

- D-8A — Upper Sand Aquifer Monitoring Location
- D-BB — Lower Sand Aquifer Monitoring Location
- SW-5 — Surface Water Monitoring Location
- PD-214 — Monitoring Well or Piezometer
- R-10 — Recovery Well Location
- Rhodamine WT Dye Introduction Location
- Fluorescein Dye Introduction Location
- October 2022 Upper Sand Aquifer Contour
- Barrier Wall
- Property Boundary from Tax Parcel Data
- Stormwater Pond
- Surface Drainage Feature and Flow Direction
- Aquitard Gaps Inside Barrier Wall

Notes:
- October 2022 Upper Sand Aquifer Contours are from Floyd|Snider 2022a and are provided in feet North American Vertical Datum 1988 (NAVD 88).
- Orthoimage provided by USGS and dated June–July 2005.
- Hylebos Creek and other surface drainage feature locations shown were digitized from the 2005 orthoimage cited above.

N

0 60 120

Scale in Feet

1 inch = 60 feet

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Dye Tracer Study Results
B&L Woodwaste Landfill Site
Pierce County, Washington

Figure 2
Summary of Dye Detections

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Date: 6/8/2023

Attachment 1
Laboratory Analytical Reports

Ozark UNDERGROUND LABORATORY 1572 Aley Lane • Protem, MO 65733 • (417) 785-4289 • fax (417) 785-4290 • contact@ozarkundergroundlab.com

Certificate of Analysis

Date of certificate: November 2, 2021
Client: Floyd/Snider
601 Union Street, Suite 600
Seattle, WA 98101
Project name: B&L Woodwaste Landfill
Project number: B&L-O&M
Contact people: Nathan.Schachtman@floydsnider.com
Brett.Beaulieu@floydsnider.com
Pamela.Osterhout@floydsnider.com

Samples collected by: P. Osterhout, M . Tahiamuny, N. Schactman
Date samples shipped: October 28, 2021
Date samples rec'd at OUL: November 1, 2021
Date analyzed by OUL: November 2, 2021
Included with certificate of analysis:
Table of results, copy of sample collection data sheets

Results for charcoal samplers analyzed for the presence of fluorescein and rhodamine WT (RWT) dyes.
Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).

OUL Number	Station Name	Date/Time Placed	Date/Time Recovered	Fluorescein		RWT	
				Peak (nm)	Conc. (ppb)	Peak (nm)	Conc. (ppb)
F4625	D-7A	10/22/21 1113	10/27/21 1555	ND		ND	
F4626	R-8	10/22/21 1015	10/28/21 0900	ND		ND	
F4627	R-9	10/22/21 0930	10/28/21 0915	ND		ND	
F4628	MW-40B	10/22/21 1219	10/28/21 0915	ND		ND	
F4629	D-8B	10/22/21 1203	10/28/21 0921	ND		ND	
F4630	PZ-3B	10/22/21 0956	10/28/21 0930	ND		ND	
F4631	D-8A	10/22/21 1208	10/28/21 0956	ND		ND	
F4632	PZ-4B	10/22/21 1053	10/28/21 1000	ND		ND	
F4633	PD-214	10/22/21 1335	10/28/21 1010	ND		ND	
F4634	SW-11	10/22/21 1350	10/28/21 1020	ND		ND	
F4635	SW-12	10/22/21 1410	10/28/21 1035	ND		ND	
F4636	PZ-4A	10/22/21 1048	10/28/21 1100	ND		ND	
F4637	PZ-3A	10/22/21 0951	10/28/21 1115	ND		ND	
F4638	MW-42	10/22/21 1257	10/28/21 1206	ND		ND	
F4639	MW-34	10/22/21 1232	10/28/21 1310	ND		ND	
F4640	Laboratory control charcoal blank						
F4641	MW-41	10/22/21 1247	10/28/21 1310	ND		ND	
F4642	MW-33	10/22/21 1240	10/28/21 1320	ND		ND	

Note: Dye concentrations are based upon standards used at the OUL. The standard concentrations are based upon the as sold weight of the dye that the OUL uses. If the client is not using OUL dyes, the client should provide the OUL with a sample of the dye to compare to the OUL dyes.

Footnotes: ND = No dye detected

Thomas J. Aley, PHG and RG

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: contact@ozarkundergroundlab.com

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project B+L Otm Week No: 1 (background) Samples Collected By: D. Osterhout, M. Takaia-Murray, N. Schachtman

Samples Shipped By: N. Schachtman Samples Received By: Amber Comstock / OUL

Date Samples Shipped: 10/28/2021 Date Samples Received: 11/1/21 Time Samples Received: 1230 Return Cooler? Yes ☐ No ☒

Bill to: Floyd/Snider : emir.akbas@floydsnider.com Send Results to: BretH.Beaulieu@Floydsnider.com, Nathan.Schachtman@Floydsnider.com

Analyze for: ☒ Fluorescein ☐ Eosine ☒ Rhodamine WT ☐ Other _____ Ship cooler to: N/A pamela.osterhout@floydsnider.com

OUL use only		Please indicate stations where dye was visible in the field for field technician use - use black ink only						OUL use only
# CHAR REC'D	LAB NUMBER (Charcoal)	STATION NUMBER	STATION NAME	PLACED DATE	PLACED TIME	COLLECTED DATE	COLLECTED TIME	# WATER REC'D
1	F4625		D-7A	10/22/21	1113	10/27/21	1555	1
1	F4626		R-8		1015	10/28/21	0900	1
1	F4627		R-9		0930		0915	1
1	F4628		MW-40B		1219		0915	1
1	F4629		D-8B		1203		0921	1
1	F4630		PZ-3B		0956		0950	1
1	F4631		D-8A		1208		0956	1
1	F4632		PZ-4B		1053		1000	1
1	F4633		PD-21A		1325		1010	1
1	F4634		SW-11		1350		1020	1
1	F4635		SW-12		1410		1055	1
1	F4636		PZ-4A		1048		1100	1
1	F4637		PZ-3A		0951		1115	1
1	F4638		MW-42		1257		1206	1

COMMENTS Background Sampling event.

This sheet filled out by OUL staff? Yes (No) Charts for samples on this page proofed by OUL: CC

OUL Project No. 1915 Date Analyzed: 11/2/21 Analyzed By: AC/OUL

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: contact@ozarkundergroundlab.com

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project B+L O+M Week No: 1 (Background) Samples Collected By: P. Osterhent, M. Tabara-Murray, N. Schachtman

Samples Shipped By: N. Schachtman Samples Received By: Amber Comstock/OUL

Date Samples Shipped: 10/28/21 Date Samples Received: 11/1/21 Time Samples Received: 1230 Return Cooler? Yes ☐ No ☒

Bill to: Floyd/Snider: Emir.Alekas@Floydsnider.com Send Results to: brett.Beaulieu@Floydsnider.com, Nathan.Schachtman@Floydsnider.com

Analyze for: ☒ Fluorescein ☐ Eosine ☒ Rhodamine WT ☐ Other _____ Ship cooler to: N/A pamela.osterhent@floydsnider.com

OUL use only		Please indicate stations where dye was visible in the field for field technician use - use black ink only						OUL use only
# CHAR REC'D	LAB NUMBER Charcoal	STATION NUMBER	STATION NAME	PLACED DATE	PLACED TIME	COLLECTED DATE	COLLECTED TIME	# WATER REC'D
1	F4639		MW-34	10/22/21	1232	10/28/21	1310	1
1	F4641		MW-41		1247		1310	1
1	F4642		~~MW-41~~ NS -33		1240		1320	1

NS 10/28/21

NS 10/28/21

NS 10/28/21

COMMENTS Background Sampling event

F4640 OUL Charcoal Blank

This sheet filled out by OUL staff? Yes (No) Charts for samples on this page proofed by OUL: CL

OUL Project No. 1915 Date Analyzed: 11/2/21 Analyzed By: AC/OUL

AC/OUL

Ozark UNDERGROUND LABORATORY 1572 Aley Lane • Protem, MO 65733 • (417) 785-4289 • fax (417) 785-4290 • contact@ozarkundergroundlab.com

Certificate of Analysis

Date of certificate: November 22, 2021
Client: Floyd/Snider
601 Union Street, Suite 600
Seattle, WA 98101
Project name: B&L Woodwaste Landfill
Project number: B&L-O&M
Contact people: Nathan.Schachtman@floydsnider.com
Brett.Beaulieu@floydsnider.com
Pamela.Osterhout@floydsnider.com

Samples collected by: N. Schachtman and C. Wilson
Date samples shipped: November 16, 2021
Date samples rec'd at OUL: November 17, 2021
Date analyzed by OUL: November 18, 2021
Included with certificate of analysis:
Table of results, copy of sample collection data sheet

Results for charcoal samplers analyzed for the presence of fluorescein and rhodamine WT (RWT) dyes.
Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).

OUL Number	Station Name	Date/Time Placed	Date/Time Recovered	Fluorescein		RWT	
				Peak (nm)	Conc. (ppb)	Peak (nm)	Conc. (ppb)
F4979	D-7A	11/4/21 1002	11/16/21 0943	ND		ND	
F4980	Laboratory control charcoal blank						
F4981	MW-40B	11/4/21 0940	11/16/21 1055	ND		ND	
F4982	D-8A	11/4/21 1013	11/16/21 0955	ND		ND	
F4983	D-8B	11/4/21 1008	11/16/21 1005	ND		ND	
F4984	PZ-3A	11/4/21 1015	11/16/21 1030	ND		ND	
F4985	PZ-4A	11/4/21 1025	11/16/21 1015	ND		ND	
F4986	PD-214	11/4/21 0950	11/16/21 1120	ND		ND	
F4987	MW-42	11/4/21 0945	11/16/21 1150	ND		ND	
F4988	SW-11	11/4/21 0940	11/16/21 1110	ND		ND	
F4989	SW-12	11/4/21 1005	11/16/21 1135	ND		ND	
F4990	MW-34	11/4/21 0926	11/16/21 1240	ND		ND	
F4991	MW-41	11/4/21 0939	11/16/21 1205	ND		ND	
F4992	MW-33	11/4/21 0933	11/16/21 1220	ND		ND	

Note: Dye concentrations are based upon standards used at the OUL. The standard concentrations are based upon the as sold weight of the dye that the OUL uses. If the client is not using OUL dyes, the client should provide the OUL with a sample of the dye to compare to the OUL dyes.
Footnotes: ND = No dye detected
Thomas J. Aley, PHG and RG

Thomas Aley

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: contact@ozarkundergroundlab.com

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project B&L O&M **Week No:** 3 **Samples Collected By:** N. Schachtman and C. Wilson

Samples Shipped By: N. Schachtman and C. Wilson **Samples Received By:** C. Aley OUL

Date Samples Shipped: 11/16/2021 **Date Samples Received:** 11-17-21 **Time Samples Received:** 1500 **Return Cooler?** Yes ☐ No ☑

Bill to: Floyd|Snider; emir.abkas@floydsnider.com **Send Results to:** brett.beaulieu@floydsnider.com; nathan.schachtman@floydsnider.com; pamela osterhout@floydsnider.com

Analyze for: ☑ Fluorescein ☐ Eosine ☑ Rhodamine WT ☐ Other _____ **Ship cooler to:** N/A

OUL use only			*Please indicate stations where dye was visible in the field* *for field technician use - use black ink only*					*OUL use only*
# CHAR REC'D	LAB NUMBER Charcoal	STATION NUMBER	STATION NAME	PLACED DATE	PLACED TIME	COLLECTED DATE	COLLECTED TIME	# WATER REC'D
1	F4979		D-7A	11/4/2021	1002	11/16/2021	0943	1
1	F4981		MW-40B	11/4/2021	0940	11/16/2021	1055	1
1	F4982		D-8A	11/4/2021	1013	11/16/2021	0955	1
1	F4983		D-8B	11/4/2021	1008	11/16/2021	1005	1
1	F4984		PZ-3A	11/4/2021	1015	11/16/2021	1030	1
1	F4985		PZ-4A	11/4/2021	1025	11/16/2021	1015	1
1	F4986		PD-214	11/4/2021	0950	11/16/2021	1120	1
1	F4987		MW-42	11/4/2021	0945	11/16/2021	1150	1
2	F4988		SW-11	11/4/2021	0940	11/16/2021	1110	1
2	F4989		SW-12	11/4/2021	1005	11/16/2021	1135	1
1	F4990		MW-34	11/4/2021	0926	11/16/2021	1240	1
1	F4991		MW-41	11/4/2021	0939	11/16/2021	1205	1
1	F4992		MW-33	11/4/2021	0933	11/16/2021	1220	1

COMMENTS Preferential pathway sampling event following dye injection on 11/4/2021 (samplers were placed prior to dye introduction).

F4980 OUL Charcoal Blank Chain of custody seals intact upon arrival @ OUL

This sheet filled out by OUL staff? Yes (No) **Charts for samples on this page proofed by OUL:** CG

OUL Project No. 1915 **Date Analyzed:** 11/18/21 **Analyzed By:** AC/OUL

Ozark UNDERGROUND LABORATORY 1572 Aley Lane • Protem, MO 65733 • (417) 785-4289 • fax (417) 785-4290 • contact@ozarkundergroundlab.com

Certificate of Analysis

Date of certificate: February 1, 2022
Client: Floyd/Snider
601 Union Street, Suite 600
Seattle, WA 98101
Project name: B&L Woodwaste Landfill
Project number: B&L-O&M
Contact people: Nathan.Schachtman@floydsnider.com
Brett.Beaulieu@floydsnider.com
Pamela.Osterhout@floydsnider.com

Samples collected by: N. Schachtman and P. Osterhout
Date samples shipped: January 25, 2022
Date samples rec'd at OUL: January 28, 2022
Date analyzed by OUL: February 1, 2022
Included with certificate of analysis:
Table of results, copy of sample collection data sheet

Results for charcoal samplers analyzed for the presence of fluorescein and rhodamine WT (RWT) dyes.
Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).

OUL Number	Station Name	Date/Time Placed	Date/Time Recovered	Fluorescein		RWT	
				Peak (nm)	Conc. (ppb)	Peak (nm)	Conc. (ppb)
F5664	D-7A	11/16/21 0943	1/24/22 1445	ND		ND	
F5665	D-8A	11/16/21 0955	1/24/22 1425	ND		ND	
F5666	D-8B	11/16/21 1005	1/24/22 1337	ND		ND	
F5667	PZ-3A	11/16/21 1030	1/24/22 1450	ND		ND	
F5668	PZ-4A	11/16/21 1015	1/24/22 1545	ND		ND	
F5669	MW-40B	11/16/21 1055	1/24/22 1022	ND		ND	
F5670	PD-214	11/16/21 1120	1/24/22 1112	ND		ND	
F5671	MW-33	11/16/21 1220	1/24/22 1030	ND		ND	
F5672	MW-34	11/16/21 1240	1/24/22 1207	ND		ND	
F5673	MW-41	11/16/21 1205	1/24/22 1125	ND		ND	
F5674	MW-42	11/16/21 1150	1/24/22 1305	ND		ND	
F5675	SW-11	11/16/21 1100	1/24/22 1240	ND		ND	
F5676	SW-12	11/16/21 1135	1/24/22 1215	ND		ND	

Note: Dye concentrations are based upon standards used at the OUL. The standard concentrations are based upon the as sold weight of the dye that the OUL uses. If the client is not using OUL dyes, the client should provide the OUL with a sample of the dye to compare to the OUL dyes.

Footnotes: ND = No dye detected

Thomas J. Aley, PHG and RG

* per mailing receipt, shipped 1-25-22 ca/ouc

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: contact@ozarkundergroundlab.com

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project B&L O&M **Week No:** 13 **Samples Collected By:** N. Schachtman and P. Osterhout

~~**Samples Shipped By:** N. Schachtman~~ **Samples Received By:** C. Aley OUL

Date Samples Shipped: 1/24/2022 * **Date Samples Received:** 1-28-22 **Time Samples Received:** 1315 **Return Cooler? Yes** ☐ **No** ☑

Bill to: Floyd|Snider; emir.abkas@floydsnider.com **Send Results to:** brett.beaulieu@floydsnider.com; nathan.schachtman@floydsnider.com; pamela osterhout@floydsnider.com

Analyze for: ☑ **Fluorescein** ☐ **Eosine** ☑ **Rhodamine WT** ☐ **Other** _____ **Ship cooler to:** _____

OUL use only			***Please indicate stations where dye was visible in the field*** *for field technician use - use black ink only*					*OUL use only*
# CHAR REC'D	LAB NUMBER	STATION NUMBER	STATION NAME	PLACED		COLLECTED		# WATER REC'D
				DATE	TIME	DATE	TIME	
1	F51664		D-7A	11/16/21	0943	1/24/22	1445	1
1	F51665		D-8A	11/16/21	0955	1/24/22	1425	1
1	F51666		D-8B	11/16/21	1005	1/24/22	1337	1
1	F51667		PZ-3A	11/16/21	1030	1/24/22	1450	1
1	F51668		PZ-4A	11/16/21	1015	1/24/22	1545	1
1	F51669		MW-40B	11/16/21	1055	1/24/22	1022	1
1	F51670		PD-214	11/16/21	1120	1/24/22	1112	1
1	F51671		MW-33	11/16/21	1220	1/24/22	1030	1
1	F51672		MW-34	11/16/21	1240	1/24/22	1207	1
1	F51673		MW-41	11/16/21	1205	1/24/22	1125	1
1	F51674		MW-42	11/16/21	1150	1/24/22	1305	1
2	F51675		SW-11	11/16/21	1100	1/24/22	1240	1
2	F51676		SW-12	11/16/21	1135	1/24/22	1215	1

COMMENTS Chain of custody seal intact upon arrival @ OUL. ca/ouc

This sheet filled out by OUL staff? Yes (No) **Charts for samples on this page proofed by OUL:** CA

OUL Project No. 1915 **Date Analyzed:** 2/1/2022 **Analyzed By:** A. Goers OUL

Ozark UNDERGROUND LABORATORY 1572 Aley Lane • Protem, MO 65733 • (417) 785-4289 • fax (417) 785-4290 • contact@ozarkundergroundlab.com

Certificate of Analysis

Date of certificate: February 11, 2022
Client: Floyd/Snider
601 Union Street, Suite 600
Seattle, WA 98101
Project name: B&L Woodwaste Landfill
Project number: B&L-O&M
Contact people: Nathan.Schachtman@floydsnider.com
Brett.Beaulieu@floydsnider.com
Pamela.Osterhout@floydsnider.com

Samples collected by: N. Schachtman and P. Osterhout
Date samples shipped: February 7, 2022
Date samples rec'd at OUL: February 8, 2022
Date analyzed by OUL: February 10, 2022
Included with certificate of analysis:
Table of results, copy of sample collection data sheet

Results for charcoal samplers analyzed for the presence of fluorescein and rhodamine WT (RWT) dyes.
Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).

OUL Number	Station Name	Date/Time Placed	Date/Time Recovered	Fluorescein		RWT	
				Peak (nm)	Conc. (ppb)	Peak (nm)	Conc. (ppb)
F5744	D-7A	1/24/22 1445	2/7/22 1055	ND		ND	
F5745	D-8A	1/24/22 1425	2/7/22 1100	ND		ND	
F5746	D-8B	1/24/22 1337	2/7/22 1049	ND		ND	
F5747	PZ-3A	1/24/22 1450	2/7/22 1000	ND		ND	
F5748	PZ-4A	1/24/22 1545	2/7/22 1020	ND		ND	
F5749	MW-40B	1/24/22 1022	2/7/22 1120	ND		ND	
F5750	PD-214	1/24/22 1112	2/7/22 1145	ND		ND	
F5751	MW-33	1/24/22 1030	2/7/22 1128	ND		ND	
F5752	MW-34	1/24/22 1207	2/7/22 1122	ND		ND	
F5753	MW-41	1/24/22 1125	2/7/22 1138	ND		ND	
F5754	MW-42	1/24/22 1305	2/7/22 1144	ND		ND	
F5755	SW-11	1/24/22 1220	2/7/22 1135	ND		ND	
F5756	SW-12	1/24/22 1235	2/7/22 1155	ND		ND	

Note: Dye concentrations are based upon standards used at the OUL. The standard concentrations are based upon the as sold weight of the dye that the OUL uses. If the client is not using OUL dyes, the client should provide the OUL with a sample of the dye to compare to the OUL dyes.

Footnotes: ND = No dye detected

Thomas J. Aley, PHG and RG

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: contact@ozarkundergroundlab.com

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project B&L O&M **Week No:** 15 **Samples Collected By:** N. Schachtman and P. Osterhout

Samples Shipped By: N. Schachtman **Samples Received By:** C Aley / OUL

Date Samples Shipped: 2/7/2022 **Date Samples Received:** 2-8-22 **Time Samples Received:** 1400 **Return Cooler?** Yes ☐ No ☑

Bill to: Floyd|Snider; emir.abkas@floydsnider.com **Send Results to:** brett.beaulieu@floydsnider.com; nathan.schachtman@floydsnider.com; pamela osterhout@floydsnider.com

Analyze for: ☑ Fluorescein ☐ Eosine ☑ Rhodamine WT ☐ Other _____ **Ship cooler to:** N/A

OUL use only			*Please indicate stations where dye was visible in the field* for field technician use - use black ink only					OUL use only
# CHAR REC'D	LAB NUMBER Charcoal	STATION NUMBER	STATION NAME	PLACED DATE	PLACED TIME	COLLECTED DATE	COLLECTED TIME	# WATER REC'D
1	F5744		D-7A	1/24/22	1445	2/7/22	1055	1
1	F5745		D-8A	1/24/22	1425	2/7/22	1100	1
1	F5746		D-8B	1/24/22	1337	2/7/22	1049	1
1	F5747		PZ-3A	1/24/22	1450	2/7/22	1000	1
1	F5748		PZ-4A	1/24/22	1545	2/7/22	1020	1
1	F5749		MW-40B	1/24/22	1022	2/7/22	1120	1
1	F5750		PD-214	1/24/22	1112	2/7/22	1145	1
1	F5751		MW-33	1/24/22	1030	2/7/22	1128	1
1	F5752		MW-34	1/24/22	1207	2/7/22	1122	1
1	F5753		MW-41	1/24/22	1125	2/7/22	1138	1
1	F5754		MW-42	1/24/22	1305	2/7/22	1144	1
2	F5755		SW-11	1/24/22	1220	2/7/22	1135	1
1	F5756		SW-12	1/24/22	1235	2/7/22	1155	1

COMMENTS custody seal intact upon arrival @ OUL. ca/ouc

This sheet filled out by OUL staff? Yes (No) **Charts for samples on this page proofed by OUL:** AC/OUL

OUL Project No. 1915 **Date Analyzed:** 2/10/22 **Analyzed By:** AC/OUL

Ozark UNDERGROUND LABORATORY 1572 Aley Lane • Protem, MO 65733 • (417) 785-4289 • fax (417) 785-4290 • contact@ozarkundergroundlab.com

Certificate of Analysis
Revised

Date of revised certificate: April 25, 2022
Date of original certificate: April 17, 2022
Client: Floyd/Snider
601 Union Street, Suite 600
Seattle, WA 98101
Project number: B&L-O&M
Contact people: Nathan.Schachtman@floydsnider.com
Brett.Beaulieu@floydsnider.com
Pamela.Osterhout@floydsnider.com

Project name: B&L Woodwaste Landfill
Samples collected by: T. Scott: M.T.M and P. Osterhout
Date samples shipped: April 12, 2022
Date samples rec'd at OUL: April 14, 2022
Date analyzed by OUL: April 15 and 22, 2022
Included with certificate of analysis:
Table of results, copies of sample collection data sheet

Results for charcoal and water samples analyzed for the presence of fluorescein and rhodamine WT (RWT) dyes.
Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).
All results are for charcoal unless otherwise indicated.

OUL Number	Station Name	Date/Time Placed	Date/Time Recovered	Fluorescein		RWT	
				Peak (nm)	Conc. (ppb)	Peak (nm)	Conc. (ppb)
F6932	D-7A	2/7/22 1005	4/11/22 1139	ND		ND	
F6933	D-8A	2/7/22 1100	4/11/22 1050	ND		ND	
F6934	D-8B	2/7/22 1049	4/11/22 1015	ND		ND	
F6935	PZ-3A	2/7/22 1000	4/11/22 1242	ND		ND	
F6936	PZ-4A	2/7/22 1020	4/11/22 1340	ND		ND	
F6937	MW-40B	2/7/22 1120	4/11/22 0952	ND		ND	
F6938	PD-214	2/7/22 1145	4/11/22 1035	ND		ND	
F6939	MW-33	2/7/22 1128	4/11/22 1230	ND		ND	
F6940	Laboratory control charcoal blank						
F6941	MW-34	2/7/22 1122	4/11/22 1148	ND		ND	
F6942	MW-41	2/7/22 1138	4/11/22 1220	ND		ND	
F6943	MW-42	2/7/22 1144	4/11/22 1222	ND		ND	
F6944	SW-11	2/7/22 1135	4/11/22 1107	515.5	17.8	ND	
F6945	SW-12	2/7/22 1155	4/11/22 1130	515.2	2.43	ND	
F6947	SW-11	**Water**	4/11/22 1107	507.1	770	ND	
F6948	SW-12	**Water**	4/11/22 1130	508.0	3.38	ND	
F7169	D-7A	**Water**	4/11/22 1139	ND		ND	
F7170	D-8A	**Water**	4/11/22 1050	ND		ND	
F7171	D-8B	**Water**	4/11/22 1015	ND		ND	
F7172	PZ-3A	**Water**	4/11/22 1242	ND		ND	

F7173	PZ-4A	**Water**	4/11/22 1340	ND		ND	
F7174	MW-40B	**Water**	4/11/22 0952	ND		ND	
F7175	PD-214	**Water**	4/11/22 1035	ND		ND	
F7176	MW-33	**Water**	4/11/22 1230	ND		ND	
F7177	MW-34	**Water**	4/11/22 1148	ND		ND	
F7178	MW-41	**Water**	4/11/22 1220	ND		ND	
F7179	MW-42	**Water**	4/11/22 1222	ND		ND	
F7180	Laboratory control water blank						

Note: Dye concentrations are based upon standards used at the OUL. The standard concentrations are based upon the as sold weight of the dye that the OUL uses. If the client is not using OUL dyes, the client should provide the OUL with a sample of the dye to compare to the OUL dyes.

Footnotes: ND = No dye detected

Thomas J. Aley, PHG and RG

* per shipping label 4-12-22 ca/ouL

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: contact@ozarkundergroundlab.com

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project B&L O&M **Week No:** 2 3 **Samples Collected By:** T. Scott; M.T.M. and P. Osterhout

Samples Shipped By: P. Osterhout **Samples Received By:** C. Aley/OUL

Date Samples Shipped: 4/11/2022 * **Date Samples Received:** 4-14-22 **Time Samples Received:** 1130 **Return Cooler?** Yes ☐ No ☑

Bill to: Floyd|Snider; emir.abkas@floydsnider.com **Send Results to:** brett.beaulieu@floydsnider.com; nathan.schachtman@floydsnider.com; pamela osterhout@floydsnider.com

Analyze for: ☑ Fluorescein ☐ Eosine ☑ Rhodamine WT ☐ Other _____ **Ship cooler to:** _____

OUL use only			*Please indicate stations where dye was visible in the field* for field technician use - use black ink only					OUL use only
# CHAR REC'D	LAB NUMBER Charcoal	STATION NUMBER	STATION NAME	PLACED DATE	PLACED TIME	COLLECTED DATE	COLLECTED TIME	# WATER REC'D
1	F6932		D-7A	2/7/22	10:05	4/11/22	1139	1
1	F6933		D-8A	2/7/22	11:00	4/11/22	10:50	1
1	F6934		D-8B	2/7/22	10:49	4/11/22	10:15	1
1	F6935		PZ-3A	2/7/22	10:00	4/11/22	1242	1
1	F6936		PZ-4A	2/7/22	10:20	4/11/22	1340	1
1	F6937		MW-40B	2/7/22	11:20	4/11/22	0952	1
1	F6938		PD-214	2/7/22	11:45	4/11/22	1035	1
1	F6939		MW-33	2/7/22	11:28	4/11/22	1230	1
1	F6941		MW-34	2/7/22	11:22	4/11/22	1148	1
1	F6942		MW-41	2/7/22	11:38	4/11/22	1220	1
1	F6943		MW-42	2/7/22	11:44	4/11/22	1222	1
2	F6944		SW-11 * Fluorescein dye visible in sample	2/7/22	11:35	4/11/22	1107	1
2	F6945		SW-12	2/7/22	11:55	4/11/22	1130	1

COMMENTS F6940 OUL Charcoal Blank

This sheet filled out by OUL staff? Yes (No) 4/15/22 **Charts for samples on this page proofed by OUL:** CC

OUL Project No. 1915 **Date Analyzed:** _____ **Analyzed By:** AC/OUL

* per shipping label 4-12-22 c/lou

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: contact@ozarkundergroundlab.com

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project B&L O&M Week No: 2 3 Samples Collected By: T. Scott; M.T.M. and P. Osterhout

Samples Shipped By: P. Osterhout Samples Received By: C. Aley / OUL

Date Samples Shipped: 4/11/2022 * Date Samples Received: 4-14-22 Time Samples Received: 1130 Return Cooler? Yes ☐ No ☑

Bill to: Floyd|Snider; emir.abkas@floydsnider.com Send Results to: brett.beaulieu@floydsnider.com; nathan.schachtman@floydsnider.com; pamela osterhout@floydsnider.com

Analyze for: ☑ Fluorescein ☐ Eosine ☑ Rhodamine WT ☐ Other _____ Ship cooler to: _____

OUL use only			*Please indicate stations where dye was visible in the field* for field technician use - use black ink only					OUL use only
# CHAR REC'D	LAB NUMBER Water	STATION NUMBER	STATION NAME	PLACED DATE	PLACED TIME	COLLECTED DATE	COLLECTED TIME	# WATER REC'D
1			D-7A	2/7/22	10:05	4/11/22	1139	1
1			D-8A	2/7/22	11:00	4/11/22	10:50	1
1			D-8B	2/7/22	10:49	4/11/22	10:15	1
1			PZ-3A	2/7/22	10:00	4/11/22	1242	1
1			PZ-4A	2/7/22	10:20	4/11/22	1340	1
1			MW-40B	2/7/22	11:20	4/11/22	0952	1
1			PD-214	2/7/22	11:45	4/11/22	1035	1
1			MW-33	2/7/22	11:28	4/11/22	1230	1
1			MW-34	2/7/22	11:22	4/11/22	1148	1
1			MW-41	2/7/22	11:38	4/11/22	1220	1
1			MW-42	2/7/22	11:44	4/11/22	1222	1
2	F6947		SW-11 * Fluorescein dye visible in sample	2/7/22	11:35	4/11/22	1107	1
2	F6948		SW-12	2/7/22	11:55	4/11/22	1130	1

COMMENTS _____

This sheet filled out by OUL staff? Yes (No) Charts for samples on this page proofed by OUL: _____

OUL Project No. 1915 Date Analyzed: 4/15/22 Analyzed By: AC/OUL

* per shipping label 4-12-22 c4/ou

OZARK UNDERGROUND LABORATORY, INC.

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SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project B&L O&M **Week No:** 2 3 **Samples Collected By:** T. Scott; M.T.M. and P. Osterhout

Samples Shipped By: P. Osterhout **Samples Received By:** C. Aley / OUL

Date Samples Shipped: 4/11/2022 * **Date Samples Received:** 4-14-22 **Time Samples Received:** 1130 **Return Cooler? Yes** ☐ **No** ☑

Bill to: Floyd|Snider; emir.abkas@floydsnider.com **Send Results to:** brett.beaulieu@floydsnider.com; nathan.schachtman@floydsnider.com; pamela osterhout@floydsnider.com

Analyze for: ☑ **Fluorescein** ☐ **Eosine** ☑ **Rhodamine WT** ☐ **Other** _____ **Ship cooler to:** _____

OUL use only		Please indicate stations where dye was visible in the field — for field technician use - use black ink only						OUL use only
# CHAR REC'D	LAB NUMBER Water	STATION NUMBER	STATION NAME	PLACED DATE	PLACED TIME	COLLECTED DATE	COLLECTED TIME	# WATER REC'D
1	F7169		D-7A	2/7/22	10:05	4/11/22	1139	1
1	F7170		D-8A	2/7/22	11:00	4/11/22	10:50	1
1	F7171		D-8B	2/7/22	10:49	4/11/22	10:15	1
1	F7172		PZ-3A	2/7/22	10:00	4/11/22	1242	1
1	F7173		PZ-4A	2/7/22	10:20	4/11/22	1340	1
1	F7174		MW-40B	2/7/22	11:20	4/11/22	0952	1
1	F7175		PD-214	2/7/22	11:45	4/11/22	1035	1
1	F7176		MW-33	2/7/22	11:28	4/11/22	1230	1
1	F7177		MW-34	2/7/22	11:22	4/11/22	1148	1
1	F7178		MW-41	2/7/22	11:38	4/11/22	1220	1
1	F7179		MW-42	2/7/22	11:44	4/11/22	1222	1
2			SW-11 * Fluorescein dye visible in sample	2/7/22	11:35	4/11/22	1107	1
2			SW-12	2/7/22	11:55	4/11/22	1130	1

COMMENTS F7180 OUL Water Blank

This sheet filled out by OUL staff? Yes (No) **Charts for samples on this page proofed by OUL:** CQ

OUL Project No. 1915 **Date Analyzed:** 4/22/22 **Analyzed By:** AE/OUL

Ozark UNDERGROUND LABORATORY 1572 Aley Lane • Protem, MO 65733 • (417) 785-4289 • fax (417) 785-4290 • contact@ozarkundergroundlab.com

Certificate of Analysis

Date of certificate: April 21, 2022
Client: Floyd/Snider
601 Union Street, Suite 600
Seattle, WA 98101
Project name: B&L Woodwaste Landfill
Project number: B&L-O&M
Contact people: Nathan.Schachtman@floydsnider.com
Brett.Beaulieu@floydsnider.com
Pamela.Osterhout@floydsnider.com

Samples collected by: N. Schachtman and T. Scott
Date samples shipped: April 18, 2022
Date samples rec'd at OUL: April 19, 2022
Date analyzed by OUL: April 20, 2022
Included with certificate of analysis:
Table of results, copies of sample collection data sheet

Results for charcoal and water samples analyzed for the presence of fluorescein and rhodamine WT (RWT) dyes.
Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).
All results are for charcoal unless otherwise indicated.

OUL Number	Station Name	Date/Time Placed	Date/Time Recovered	Fluorescein		RWT	
				Peak (nm)	Conc. (ppb)	Peak (nm)	Conc. (ppb)
F6954	D-7A	4/11/22 1139	4/18/22 1305	ND		ND	
F6955	D-8A	4/11/22 1050	4/18/22 1320	ND		ND	
F6956	D-8B	4/11/22 1015	4/18/22 1315	ND		ND	
F6957	PZ-3A	4/11/22 1242	4/18/22 1345	ND		ND	
F6958	PZ-4A	4/11/22 1340	4/18/22 1335	ND		ND	
F6959	MW-40B	4/11/22 0952	4/18/22 1230	ND		ND	
F6960	Laboratory control charcoal blank						
F6961	PD-214	4/11/22 1035	4/18/22 1240	ND		ND	
F6962	MW-33	4/11/22 1230	4/18/22 1150	ND		ND	
F6963	MW-34	4/11/22 1148	4/18/22 1220	ND		ND	
F6964	MW-41	4/11/22 1220	4/18/22 1200	ND		ND	
F6965	MW-42	4/11/22 1222	4/18/22 1210	ND		ND	
F6966	SW-11	4/11/22 1107	4/18/22 1410	515.4	105	ND	
F6967	SW-12	4/11/22 1130	4/18/22 1400	515.6	294	ND	
F7011	SW-11	**Water**	4/18/22 1410	507.1	614	ND	
F7012	SW-12	**Water**	4/18/22 1400	507.5	7.22	ND	

Note: Dye concentrations are based upon standards used at the OUL. The standard concentrations are based upon the as sold weight of the dye that the OUL uses. If the client is not using OUL dyes, the client should provide the OUL with a sample of the dye to compare to the OUL dyes.

Footnotes: ND = No dye detected

Thomas J. Aley, PHG and RG

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: contact@ozarkundergroundlab.com

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project B&L O&M **Week No:** 2 4 **Samples Collected By:** N. Schachtman and T. Scott

Samples Shipped By: N. Schachtman **Samples Received By:** C. Aley / OUL

Date Samples Shipped: 4/18/2022 **Date Samples Received:** 4-19-22 **Time Samples Received:** 1500 **Return Cooler?** Yes ☐ No ☑

Bill to: Floyd|Snider; emir.abkas@floydsnider.com **Send Results to:** brett.beaulieu@floydsnider.com; nathan.schachtman@floydsnider.com; pamela osterhout@floydsnider.com

Analyze for: ☑ Fluorescein ☐ Eosine ☑ Rhodamine WT ☐ Other _____ **Ship cooler to:** _____

OUL use only		*Please indicate stations where dye was visible in the field* for field technician use - use black ink only						OUL use only
# CHAR REC'D	LAB NUMBER	STATION NUMBER	STATION NAME	PLACED DATE	PLACED TIME	COLLECTED DATE	COLLECTED TIME	# WATER REC'D
1	Fl6954		D-7A	4/11/22	1139	4/18/22	1305	1
1	Fl6955		D-8A	4/11/22	1050	4/18/22	1320	1
1	Fl6956		D-8B	4/11/22	1015	4/18/22	1315	1
1	Fl6957		PZ-3A	4/11/22	1242	4/18/22	1345	1
1	Fl6958		PZ-4A	4/11/22	1340	4/18/22	1335	1
1	Fl6959		MW-40B	4/11/22	0952	4/18/22	1230	1
1	Fl6961		PD-214	4/11/22	1035	4/18/22	1240	1
1	Fl6962		MW-33	4/11/22	1230	4/18/22	1150	1
1	Fl6963		MW-34	4/11/22	1148	4/18/22	1220	1
1	Fl6964		MW-41	4/11/22	1220	4/18/22	1200	1
1	Fl6965		MW-42	4/11/22	1222	4/18/22	1210	1
2	Fl6966		SW-11	4/11/22	1107	4/18/22	1410	1
2	Fl6967		SW-12	4/11/22	1130	4/18/22	1400	1

COMMENTS * Fluorescein dye observed @ SW-11 chain of custody seals intact upon arrival at OUL
Fl6960 OUL Charcoal Blank

This sheet filled out by OUL staff? Yes No **Charts for samples on this page proofed by OUL:** CA

OUL Project No. 1915 **Date Analyzed:** 4/20/22 **Analyzed By:** AC/OUL

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SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project B&L O&M **Week No:** 2 4 **Samples Collected By:** N. Schachtman and T. Scott

Samples Shipped By: N. Schachtman **Samples Received By:** C. Aley OUL

Date Samples Shipped: 4/18/2022 **Date Samples Received:** 4-19-22 **Time Samples Received:** 1500 **Return Cooler?** Yes ☐ No ☑

Bill to: Floyd|Snider; emir.abkas@floydsnider.com **Send Results to:** brett.beaulieu@floydsnider.com; nathan.schachtman@floydsnider.com; pamela osterhout@floydsnider.com

Analyze for: ☑ Fluorescein ☐ Eosine ☑ Rhodamine WT ☐ Other _____ **Ship cooler to:** _____

OUL use only		*Please indicate stations where dye was visible in the field* for field technician use - use black ink only						OUL use only
# CHAR REC'D	LAB NUMBER (Water)	STATION NUMBER	STATION NAME	PLACED		COLLECTED		# WATER REC'D
				DATE	TIME	DATE	TIME	
1			D-7A	4/11/22	1139	4/18/22	1305	1
1			D-8A	4/11/22	1050	4/18/22	1320	1
1			D-8B	4/11/22	1015	4/18/22	1315	1
1			PZ-3A	4/11/22	1242	4/18/22	1345	1
1			PZ-4A	4/11/22	1340	4/18/22	1335	1
1			MW-40B	4/11/22	0952	4/18/22	1230	1
1			PD-214	4/11/22	1035	4/18/22	1240	1
1			MW-33	4/11/22	1230	4/18/22	1150	1
1			MW-34	4/11/22	1148	4/18/22	1220	1
1			MW-41	4/11/22	1220	4/18/22	1200	1
1			MW-42	4/11/22	1222	4/18/22	1210	1
2	F7011		SW-11	4/11/22	1107	4/18/22	1410	1
2	F7012		SW-12	4/11/22	1130	4/18/22	1400	1

COMMENTS * Fluorescein dye observed @ SW-11 Chain of custody seals intact upon arrival at OUL

This sheet filled out by OUL staff? Yes (No) **Charts for samples on this page proofed by OUL:** CR

OUL Project No. 1915 **Date Analyzed:** 4/20/22 **Analyzed By:** AC/au

Ozark UNDERGROUND LABORATORY 1572 Aley Lane • Protem, MO 65733 • (417) 785-4289 • fax (417) 785-4290 • contact@ozarkundergroundlab.com

Certificate of Analysis

Date of certificate: July 19, 2022
Client: Floyd/Snider
601 Union Street, Suite 600
Seattle, WA 98101
Project name: B&L Woodwaste Landfill
Project number: B&L-O&M
Contact people: Nathan.Schachtman@floydsnider.com
Brett.Beaulieu@floydsnider.com
Pamela.Osterhout@floydsnider.com

Samples collected by: N. Schachtman and P. Osterhout
Date samples shipped: July 13, 2022
Date samples rec'd at OUL: July 14, 2022
Date analyzed by OUL: July 15, 2022
Included with certificate of analysis:
Table of results, copies of sample collection data sheet

Results for charcoal and water samples analyzed for the presence of fluorescein and rhodamine WT (RWT) dyes.
Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).
All results are for charcoal unless otherwise indicated.

OUL Number	Station Name	Date/Time Placed	Date/Time Recovered	Fluorescein		RWT	
				Peak (nm)	Conc. (ppb)	Peak (nm)	Conc. (ppb)
F8250	D-7A	4/18/22 1305	7/12/22 1045	ND		ND	
F8251	D-8A	4/18/22 1320	7/12/22 1010	ND		ND	
F8252	D-8B	4/18/22 1315	7/12/22 0920	ND		ND	
F8253	PZ-3A	4/18/22 1345	7/12/22 1115	ND		ND	
F8254	PZ-4A	4/18/22 1335	7/12/22 0950	ND		ND	
F8255	MW-40B	4/18/22 1230	7/12/22 1300	ND		ND	
F8256	PD-214	4/18/22 1240	7/12/22 1355	515.9	873	ND	
F8257	MW-33	4/18/22 1150	7/12/22 1412	ND		ND	
F8258	MW-34	4/18/22 1220	7/12/22 1500	ND		ND	
F8259	MW-41	4/18/22 1200	7/12/22 1322	ND		ND	
F8260	Laboratory control charcoal blank						
F8261	MW-42	4/18/22 1210	7/12/22 1512	ND		ND	
F8262	SW-11	4/18/22 1410	7/12/22 1345	516.1	536	ND	
F8263	SW-12	4/18/22 1400	7/12/22 1515	515.4	102	565.7	9.03
F8295	PD-214	**Water**	7/12/22 1355	507.1	0.598	ND	
F8296	SW-11	**Water**	7/12/22 1345	507.4	3.55	ND	
F8297	SW-12	**Water**	7/12/22 1515	507.5	3.85	573.2	3.47

Note: Dye concentrations are based upon standards used at the OUL. The standard concentrations are based upon the as sold weight of the dye that the OUL uses. If the client is not using OUL dyes, the client should provide the OUL with a sample of the dye to compare to the OUL dyes.

Footnotes: ND = No dye detected

Thomas J. Aley, PHG and RG

Thomas Aley

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: contact@ozarkundergroundlab.com

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project B&L O&M **Week No:** 26 **Samples Collected By:** N. Schachtman and P. Osterhout

Samples Shipped By: N. Schachtman **Samples Received By:** Amber Comstock/OUL

Date Samples Shipped: 7/13/2022 **Date Samples Received:** 7/14/22 **Time Samples Received:** 1200 **Return Cooler? Yes** ☐ **No** ☑

Bill to: Floyd|Snider; emir.abkas@floydsnider.com **Send Results to:** brett.beaulieu@floydsnider.com; nathan.schachtman@floydsnider.com; pamela osterhout@floydsnider.com

Analyze for: ☑ **Fluorescein** ☐ **Eosine** ☑ **Rhodamine WT** ☐ **Other** _____ **Ship cooler to:** _____

OUL use only		*Please indicate stations where dye was visible in the field* for field technician use - use black ink only						*OUL use only*
# CHAR REC'D	LAB NUMBER Charcoal	STATION NUMBER	STATION NAME	PLACED DATE	PLACED TIME	COLLECTED DATE	COLLECTED TIME	# WATER REC'D
1	F8250		D-7A	4/11822	1305	7/12/22	1045	1
1	F8251		D-8A	4/18/22	1320	7/12/22	1010	1
1	F8252		D-8B	4/18/22	1315	7/12/22	0920	1
1	F8253		PZ-3A	4/18/22	1345	7/12/22	1115	1
1	F8254		PZ-4A	4/18/22	1335	7/12/22	0950	1
1	F8255		MW-40B	4/18/22	1230	7/12/22	1300	1
1	F8256		PD-214	4/18/22	1240	7/12/22	1355	1
1	F8257		MW-33	4/18/22	1150	7/12/22	1412	1
1	F8258		MW-34	4/18/22	1220	7/12/22	1500	1
1	F8259		MW-41	4/18/22	1200	7/12/22	1322	1
1	F8261		MW-42	4/18/22	1210	7/12/22	1512	1
2	F8262		SW-11	4/18/22	1410	7/12/22	1345	1
2	F8263		SW-12	4/18/22	1400	7/12/22	1515	1

COMMENTS Custody Seal intact upon arrival @ OUL AC/OUL
F8260 OUL Charcoal Blank

This sheet filled out by OUL staff? Yes (No)

OUL Project No. 1915 **Date Analyzed:** 7/15/22 **Analyzed By:** AC/OUL **Charts for samples on this page proofed by OUL:** CA

AC/OUL

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: contact@ozarkundergroundlab.com

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project B&L O&M **Week No:** 2 6 **Samples Collected By:** N. Schachtman and P. Osterhout

Samples Shipped By: N. Schachtman **Samples Received By:** Amber Comstock/OUL

Date Samples Shipped: 7/13/2022 **Date Samples Received:** 7/14/22 **Time Samples Received:** 1200 **Return Cooler?** Yes ☐ No ☑

Bill to: Floyd|Snider; emir.abkas@floydsnider.com **Send Results to:** brett.beaulieu@floydsnider.com; nathan.schachtman@floydsnider.com; pamela osterhout@floydsnider.com

Analyze for: ☑ Fluorescein ☐ Eosine ☑ Rhodamine WT ☐ Other _____ **Ship cooler to:** _____

OUL use only		***Please indicate stations where dye was visible in the field*** *for field technician use - use black ink only*						OUL use only
# CHAR REC'D	LAB NUMBER (Water)	STATION NUMBER	STATION NAME	PLACED		COLLECTED		# WATER REC'D
				DATE	TIME	DATE	TIME	
1			D-7A	4/11822	1305	7/12/22	1045	1
1			D-8A	4/18/22	1320	7/12/22	1010	1
1			D-8B	4/18/22	1315	7/12/22	0920	1
1			PZ-3A	4/18/22	1345	7/12/22	1115	1
1			PZ-4A	4/18/22	1335	7/12/22	0950	1
1			MW-40B	4/18/22	1230	7/12/22	1300	1
1	F8295		PD-214	4/18/22	1240	7/12/22	1355	1
1			MW-33	4/18/22	1150	7/12/22	1412	1
1			MW-34	4/18/22	1220	7/12/22	1500	1
1			MW-41	4/18/22	1200	7/12/22	1322	1
1			MW-42	4/18/22	1210	7/12/22	1512	1
2	F8296		SW-11	4/18/22	1410	7/12/22	1345	1
2	F8297		SW-12	4/18/22	1400	7/12/22	1515	1

COMMENTS Custody seal intact upon arrival @ OUL AC/OUL

This sheet filled out by OUL staff? Yes (☑) No

Charts for samples on this page proofed by OUL: AC

OUL Project No. 1915 **Date Analyzed:** 7/15/22 **Analyzed By:** AC/OUL

AC/OUL

Ozark UNDERGROUND LABORATORY 1572 Aley Lane • Protem, MO 65733 • (417) 785-4289 • fax (417) 785-4290 • contact@ozarkundergroundlab.com

Certificate of Analysis

Date of certificate: October 27, 2022
Client: Floyd/Snider
601 Union Street, Suite 600
Seattle, WA 98101
Project name: B&L Woodwaste Landfill
Project number: B&L-O&M
Contact people: Nathan.Schachtman@floydsnider.com
Brett.Beaulieu@floydsnider.com
Pamela.Osterhout@floydsnider.com

Samples collected by: N. Schachtman, P. Osterhout
M. Talaia-Murray, C. Oreiro
Date samples shipped: October 24, 2022
Date samples rec'd at OUL: October 25, 2022
Date analyzed by OUL: October 26, 2022
Included with certificate of analysis:
Table of results, copies of sample collection data sheet

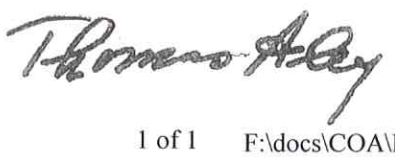
Results for charcoal and water samples analyzed for the presence of fluorescein and rhodamine WT (RWT) dyes.
Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).
All results are for charcoal unless otherwise indicated.

OUL Number	Station Name	Date/Time Placed	Date/Time Recovered	Fluorescein		RWT	
				Peak (nm)	Conc. (ppb)	Peak (nm)	Conc. (ppb)
G0076	D-7A	7/12/22 1045	10/24/22 1335	ND		ND	
G0077	D-8A	7/12/22 1010	10/24/22 1115	ND		ND	
G0078	D-8B	7/12/22 0920	10/24/22 1025	ND		ND	
G0079	PZ-3A	7/12/22 1115	10/21/22 1525	ND		ND	
G0080	Laboratory control charcoal blank						
G0081	PZ-4A	7/12/22 0950	10/21/22 1233	514.4	0.577	ND	
G0082	MW-40B	7/12/22 1300	10/21/22 1355	ND		ND	
G0083	PD-214	7/12/22 1355	10/21/22 1455	515.9	1,400	ND	
G0084	MW-33	7/12/22 1412	10/24/22 1030	ND		ND	
G0085	MW-34	7/12/22 1500	10/24/22 1320	ND		ND	
G0086	MW-41	7/12/22 1322	10/24/22 1130	ND		ND	
G0087	MW-42	7/12/22 1512	10/24/22 1225	ND		ND	
G0088	SW-11	7/12/22 1345	10/21/22 1210	515.3	105	ND	
G0089	SW-12	7/12/22 1515	10/21/22 1300	515.2	64.5	566.7	11.4
G0107	PZ-4A	**Water**	10/21/22 1233	ND		ND	
G0108	PD-214	**Water**	10/21/22 1455	507.3	0.781	ND	
G0109	SW-11	**Water**	10/21/22 1210	507.3	5.34	ND	
G0110	SW-12	**Water**	10/21/22 1300	507.4	3.42	ND	

Note: Dye concentrations are based upon standards used at the OUL. The standard concentrations are based upon the as sold weight of the dye that the OUL uses. If the client is not using OUL dyes, the client should provide the OUL with a sample of the dye to compare to the OUL dyes.

Footnotes: ND = No dye detected

Thomas J. Aley, PHG and RG



OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: contact@ozarkundergroundlab.com

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project B&L O&M **Week No:** 50 **Samples Collected By:** N. Schachtman, P. Osterhout, M. Talaia-Murray, C. Oreiro

Samples Shipped By: N. Schachtman **Samples Received By:** A. Goens/OUL

Date Samples Shipped: 10/24/2022 **Date Samples Received:** 10/25/22 **Time Samples Received:** 1530 **Return Cooler?** Yes ☐ No ☑

Bill to: Floyd|Snider; nathan.schachtman@floydsnider.com **Send Results to:** brett.beaulieu@floydsnider.com; nathan.schachtman@floydsnider.com; pamela osterhout@floydsnider.com

Analyze for: ☑ Fluorescein ☐ Eosine ☑ Rhodamine WT ☐ Other _____ **Ship cooler to:** _____

OUL use only		*Please indicate stations where dye was visible in the field* for field technician use - use black ink only						*OUL use only*
# CHAR REC'D	LAB NUMBER Charcoal	STATION NUMBER	STATION NAME	PLACED		COLLECTED		# WATER REC'D
				DATE	TIME	DATE	TIME	
1	G0076		D-7A	7/12/22	1045	10/24/22	1335	1
1	G0077		D-8A	7/12/22	1010	10/24/22	1115	1
1	G0078		D-8B	7/12/22	0920	10/24/22	1025	1
1	G0079		PZ-3A	7/12/22	1115	10/21/22	1525	1
1	G0081		PZ-4A	7/12/22	0950	10/21/22	1233	1
1	G0082		MW-40B	7/12/22	1300	10/21/22	1355	1
1	G0083		PD-214	7/12/22	1355	10/21/22	1455	1
1	G0084		MW-33	7/12/22	1412	10/24/22	1030	1
1	G0085		MW-34	7/12/22	1500	10/24/22	1320	1
1	G0086		MW-41	7/12/22	1322	10/24/22	1130	1
1	G0087		MW-42	7/12/22	1512	10/24/22	1225	1
1	G0088		SW-11	7/12/22	1345	10/21/22	1210	1
1	G0089		SW-12	7/12/22	1515	10/21/22	1300	1

COMMENTS G0080 Charcoal Blank

This sheet filled out by OUL staff? Yes (No) **Charts for samples on this page proofed by OUL:** AC/OUL

OUL Project No. 1915 **Date Analyzed:** 10/26/22 **Analyzed By:** AC/OUL

OZARK UNDERGROUND LABORATORY, INC.

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SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project B&L O&M **Week No:** 50 **Samples Collected By:** N. Schachtman, P. Osterhout, M. Talaia-Murray, C. Oreiro

Samples Shipped By: N. Schachtman **Samples Received By:** A. Goers/OUL

Date Samples Shipped: 10/24/2022 **Date Samples Received:** 10/25/22 **Time Samples Received:** 1530 **Return Cooler?** Yes ☐ No ☑

Bill to: Floyd|Snider; nathan.schachtman@floydsnider.com **Send Results to:** brett.beaulieu@floydsnider.com; nathan.schachtman@floydsnider.com; pamela osterhout@floydsnider.com

Analyze for: ☑ Fluorescein ☐ Eosine ☑ Rhodamine WT ☐ Other _____ **Ship cooler to:** _____

OUL use only		*Please indicate stations where dye was visible in the field* *for field technician use - use black ink only*						*OUL use only*
# CHAR REC'D	LAB NUMBER (Water)	STATION NUMBER	STATION NAME	PLACED		COLLECTED		# WATER REC'D
				DATE	TIME	DATE	TIME	
1			D-7A	7/12/22	1045	10/24/22	1335	1
1			D-8A	7/12/22	1010	10/24/22	1115	1
1			D-8B	7/12/22	0920	10/24/22	1025	1
1			PZ-3A	7/12/22	1115	10/21/22	1525	1
1	G-0107		PZ-4A	7/12/22	0950	10/21/22	12:33	1
1			MW-40B	7/12/22	1300	10/21/22	1355	1
1	G-0108		PD-214	7/12/22	1355	10/21/22	1455	1
1			MW-33	7/12/22	1412	10/24/22	1030	1
1			MW-34	7/12/22	1500	10/24/22	1320	1
1			MW-41	7/12/22	1322	10/24/22	1130	1
1			MW-42	7/12/22	1512	10/24/22	1225	1
1	G0109		SW-11	7/12/22	1345	10/21/22	1210	1
1	G0110		SW-12	7/12/22	1515	10/21/22	1300	1

COMMENTS _____

This sheet filled out by OUL staff? Yes (No) **Charts for samples on this page proofed by OUL:** AC/OUL

OUL Project No. 1915 **Date Analyzed:** 10/26/22 **Analyzed By:** AC/OUL

Ozark UNDERGROUND LABORATORY 1572 Aley Lane • Protem, MO 65733 • (417) 785-4289 • fax (417) 785-4290 • contact@ozarkundergroundlab.com

Certificate of Analysis

Date of certificate: January 31, 2023

Client: Floyd/Snider
601 Union Street, Suite 600
Seattle, WA 98101

Project name: B&L Woodwaste Landfill

Project number: B&L-O&M

Contact people: Nathan.Schachtman@floydsnider.com
Brett.Beaulieu@floydsnider.com
Pamela.Osterhout@floydsnider.com

Samples collected by: N. Schachtman, P. Osterhout and M. McCann

Date samples shipped: January 25, 2023

Date samples rec'd at OUL: January 27, 2023

Date analyzed by OUL: January 30, 2023

Included with certificate of analysis:
Table of results, copies of sample collection data sheet

Results for charcoal and water samples analyzed for the presence of fluorescein and rhodamine WT (RWT) dyes.
Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).
All results are for charcoal unless otherwise indicated.

OUL Number	Station Name	Date/Time Placed	Date/Time Recovered	Fluorescein		RWT	
				Peak (nm)	Conc. (ppb)	Peak (nm)	Conc. (ppb)
G2582	D-7A	10/24/22 1335	1/25/23 0900	ND		ND	
G2583	D-8A	10/24/22 1115	1/25/23 1035	516.1	531	ND	
G2584	D-8B	10/24/22 1025	1/25/23 1040	ND		ND	
G2585	PZ-3A	10/21/22 1525	1/25/23 1350	ND		ND	
G2586	PZ-4A	10/21/22 1233	1/25/23 1200	ND		ND	
G2587	MW-40B	10/21/22 1355	1/25/23 1410	ND		ND	
G2588	PD-214	10/21/22 1455	1/25/23 1400	516.2	1,200	ND	
G2589	MW-33	10/24/22 1030	1/25/23 1005	ND		ND	
G2590	MW-34	10/24/22 1320	1/25/23 1230	ND		ND	
G2591	MW-41	10/24/22 1130	1/25/23 1045	ND		ND	
G2592	MW-42	10/24/22 1225	1/25/23 1130	ND		ND	
G2593	SW-11	10/21/22 1210	1/25/23 1440	516.0	483	ND	
G2594	SW-12	10/21/22 1300	1/25/23 1500	515.2	28.8	568.0	3.02
G2595	D-8A	**Water**	1/25/23 1035	508.2	19.4	ND	
G2596	PD-214	**Water**	1/25/23 1400	507.2	25.5	ND	
G2597	SW-11	**Water**	1/25/23 1440	507.3	0.739	ND	
G2598	SW-12	**Water**	1/25/23 1500	507.5	1.90	573.8	5.17
G2599	Ag-SW	**Water**	1/25/23 1510	ND		ND	
G2600	Laboratory control water blank						

Note: Dye concentrations are based upon standards used at the OUL. The standard concentrations are based upon the as sold weight of the dye that the OUL uses. If the client is not using OUL dyes, the client should provide the OUL with a sample of the dye to compare to the OUL dyes.

Footnotes: ND = No dye detected

Thomas J. Aley, PHG and RG

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: contact@ozarkundergroundlab.com

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project B&L O&M **Week No:** 63 **Samples Collected By:** N. Schachtman, P. Osterhout, M. McCann

Samples Shipped By: N. Schachtman **Samples Received By:** C. Aley / OUL

Date Samples Shipped: 1/25/23 **Date Samples Received:** 1-27-23 **Time Samples Received:** 1400 **Return Cooler? Yes** ☐ **No** ☑

Bill to: charlotte.skeffington@floydsnider.com; nathan.schachtman@floydsnider.com **Send Results to:** brett.beaulieu@floydsnider.com; nathan.schachtman@floydsnider.com; pamela osterhout@floydsnider.com

Analyze for: ☑ **Fluorescein** ☐ **Eosine** ☑ **Rhodamine WT** ☐ **Other** _____ **Ship cooler to:** _____

OUL use only			***Please indicate stations where dye was visible in the field*** *for field technician use - use black ink only*					*OUL use only*
# CHAR REC'D	LAB NUMBER Charcoal	STATION NUMBER	STATION NAME	PLACED DATE	PLACED TIME	COLLECTED DATE	COLLECTED TIME	# WATER REC'D
1	G2582		D-7A	10/24/22	1335	1/25/23	0900	1
1	G2583		D-8A	10/24/22	1115	1/25/23	1035	1
1	G2584		D-8B	10/24/22	1025	1/25/23	1040	1
1	G2585		PZ-3A	10/21/22	1525	1/25/23	1350	1
1	G2586		PZ-4A	10/21/22	1233	1/25/23	1200	1
1	G2587		MW-40B	10/21/22	1355	1/25/23	1410	1
1	G2588		PD-214	10/21/22	1455	1/25/23	1400	1
1	G2589		MW-33	10/24/22	1030	1/25/23	1005	1
1	G2590		MW-34	10/24/22	1320	1/25/23	1230	1
1	G2591		MW-41	10/24/22	1130	1/25/23	1045	1
1	G2592		MW-42	10/24/22	1225	1/25/23	1130	1
1	G2593		SW-11	10/21/22	1210	1/25/23	1440	1
1	G2594		SW-12	10/21/22	1300	1/25/23	1500	1
0			Ag-SW	—	—	1/25/23	1510	1

COMMENTS Ag-SW is Water Only. Please analyze for both dyes.

This sheet filled out by OUL staff? Yes (No) **Charts for samples on this page proofed by OUL:** CA

OUL Project No. 1915 **Date Analyzed:** 1/30/23 **Analyzed By:** AC/OUL

Chain of custody seal intact upon arrival @ OUL. CA/OUL

OZARK UNDERGROUND LABORATORY, INC.

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SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project B&L O&M **Week No:** 63 **Samples Collected By:** N. Schachtman, P. Osterhout, M. McCann

Samples Shipped By: N. Schachtman **Samples Received By:** C. Aley/OUL

Date Samples Shipped: 1/25/23 **Date Samples Received:** 1-27-23 **Time Samples Received:** 1400 **Return Cooler?** Yes ☐ No ☑

Bill to: charlotte.skeffington@floydsnider.com; nathan.schachtman@floydsnider.com **Send Results to:** brett.beaulieu@floydsnider.com; nathan.schachtman@floydsnider.com; pamela osterhout@floydsnider.com

Analyze for: ☑ Fluorescein ☐ Eosine ☑ Rhodamine WT ☐ Other _____ **Ship cooler to:** _____

OUL use only			*Please indicate stations where dye was visible in the field* for field technician use - use black ink only					OUL use only
# CHAR REC'D	LAB NUMBER	STATION NUMBER	STATION NAME	PLACED		COLLECTED		# WATER REC'D
				DATE	TIME	DATE	TIME	
1	Water		D-7A	10/24/22	1335	1/25/23	0900	1
1	G2595		D-8A	10/24/22	1115	1/25/23	1035	1
1			D-8B	10/24/22	1025	1/25/23	1040	1
1			PZ-3A	10/21/22	1525	1/25/23	1350	1
1			PZ-4A	10/21/22	1233	1/25/23	1200	1
1			MW-40B	10/21/22	1355	1/25/23	1410	1
1	G2596		PD-214	10/21/22	1455	1/25/23	1400	1
1			MW-33	10/24/22	1030	1/25/23	1005	1
1			MW-34	10/24/22	1320	1/25/23	1230	1
1			MW-41	10/24/22	1130	1/25/23	1045	1
1			MW-42	10/24/22	1225	1/25/23	1130	1
1	G2597		SW-11	10/21/22	1210	1/25/23	1440	1
1	G2598		SW-12	10/21/22	1300	1/25/23	1500	1
0	G2599		Ag-SW	—	—	1/25/23	1510	1

COMMENTS G2600 OUL water blank Ag-SW is water only. Please analyze for both dyes.

This sheet filled out by OUL staff? Yes (No) **Charts for samples on this page proofed by OUL:** CA

OUL Project No. 1915 **Date Analyzed:** 1/30/23 **Analyzed By:** AC/OUL

Chain of custody seal intact upon arrival @ OUL. CA/OUL

Ozark UNDERGROUND LABORATORY 1572 Aley Lane • Protem, MO 65733 • (417) 785-4289 • fax (417) 785-4290 • contact@ozarkundergroundlab.com

Certificate of Analysis

Date of certificate: April 12 , 2023
Client: Floyd/Snider
601 Union Street, Suite 600
Seattle, WA 98101
Project name: B&L Woodwaste Landfill
Project number: B&L-O&M
Contact people: Nathan.Schachtman@floydsnider.com
Brett.Beaulieu@floydsnider.com
Pamela.Osterhout@floydsnider.com

Samples collected by: N. Schachtman, P. Osterhout and M. McCann
Date samples shipped: April 6, 2023
Date samples rec'd at OUL: April 7, 2023
Date analyzed by OUL: April 11, 2023
Included with certificate of analysis:
Table of results, copies of sample collection data sheet

Results for charcoal and water samples analyzed for the presence of fluorescein and rhodamine WT (RWT) dyes.
Peak wavelengths are reported in nanometers (nm); dye concentrations are reported in parts per billion (ppb).
All results are for charcoal unless otherwise indicated.

OUL Number	Station Name	Date/Time Placed	Date/Time Recovered	Fluorescein		RWT	
				Peak (nm)	Conc. (ppb)	Peak (nm)	Conc. (ppb)
G4558	D-7A	1/25/23 0900	4/5/23 1052	ND		ND	
G4559	D-8A	1/25/23 1035	4/5/23 1301	516.1	765	ND	
G4560	Laboratory control charcoal blank						
G4561	D-8B	1/25/23 1040	4/5/23 1152	515.5	109	ND	
G4562	PZ-3A	1/25/23 1350	4/5/23 1540	ND		ND	
G4563	PZ-4A	1/25/23 1200	4/5/23 1447	ND		ND	
G4564	MW-40B	1/25/23 1410	4/5/23 1525	ND		ND	
G4565	PD-214	1/25/23 1400	4/5/23 1515	516.2	1,520	ND	
G4566	MW-33	1/25/23 1005	4/5/23 1340	ND		ND	
G4567	MW-34	1/25/23 1230	4/5/23 1345	ND		ND	
G4568	MW-41	1/25/23 1045	4/5/23 1430	ND		ND	
G4569	MW-42	1/25/23 1130	4/5/23 1425	ND		ND	
G4570	SW-11	1/25/23 1440	4/5/23 1545	515.3	30.7	ND	
G4571	SW-12	1/25/23 1500	4/5/23 1400	515.5	13.2	566.9	16.9
G4633	D-8A	**Water**	4/5/23 1301	507.3	59.7	ND	
G4634	D-8B	**Water**	4/5/23 1152	507.4	34.8	ND	
G4635	PD-214	**Water**	4/5/23 1515	507.4	14.3	ND	
G4636	SW-11	**Water**	4/5/23 1545	507.5	1.13	ND	
G4637	SW-12	**Water**	4/5/23 1400	507.6	1.16	574.6	3.83

Note: Dye concentrations are based upon standards used at the OUL. The standard concentrations are based upon the as sold weight of the dye that the OUL uses. If the client is not using OUL dyes, the client should provide the OUL with a sample of the dye to compare to the OUL dyes.

Footnotes: ND = No dye detected

Thomas J. Aley, PHG and RG

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: contact@ozarkundergroundlab.com

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project B&L O&M **Week No:** 73 **Samples Collected By:** N. Schachtman, P. Osterhout, M. McCann

Samples Shipped By: N. Schachtman **Samples Received By:** C. Aley OUL

Date Samples Shipped: 4-6-23 **Date Samples Received:** 4-7-23 **Time Samples Received:** 1800 **Return Cooler?** Yes ☐ No ☑

Bill to: charlotte.skeffington@floydsnider.com; nathan.schachtman@floydsnider.com **Send Results to:** brett.beaulieu@floydsnider.com; nathan.schachtman@floydsnider.com; pamela osterhout@floydsnider.com

Analyze for: ☑ Fluorescein ☐ Eosine ☑ Rhodamine WT ☐ Other _____ **Ship cooler to:** _____

OUL use only			*Please indicate stations where dye was visible in the field* for field technician use - use black ink only					OUL use only
# CHAR REC'D	LAB NUMBER Charcoal	STATION NUMBER	STATION NAME	PLACED DATE	PLACED TIME	COLLECTED DATE	COLLECTED TIME	# WATER REC'D
1	G4558		D-7A	1/25/23	0900	4/5/23	1052	1
1	G4559		D-8A	1/25/23	1035	4/5/23	1301	1
1	G4561		D-8B	1/25/23	1040	4/5/23	1152	1
1	G4562		PZ-3A	1/25/23	1350	4/5/23	1540	1
1	G4563		PZ-4A	1/25/23	1200	4/5/23	1447	1
1	G4564		MW-40B	1/25/23	1410	4/5/23	1525	1
1	G4565		PD-214	1/25/23	1400	4/5/23	1515	1
1	G4566		MW-33	1/25/23	1005	4/5/23	1340	1
1	G4567		MW-34	1/25/23	1230	4/5/23	1345	1
1	G4568		MW-41	1/25/23	1045	4/5/23	1430	1
1	G4569		MW-42	1/25/23	1130	4/5/23	1425	1
1	G4570		SW-11	1/25/23	1440	4/5/23	1545	1
1	G4571		SW-12	1/25/23	1500	4/5/23	1400	1

COMMENTS Shown 3 custody seal intact upon arrival @ OUL. COC OUL
G4566 OUL Charcoal Blank

This sheet filled out by OUL staff? Yes (No) **Charts for samples on this page proofed by OUL:** QA

OUL Project No. 1915 **Date Analyzed:** 4/11/23 **Analyzed By:** AC/OUL

OZARK UNDERGROUND LABORATORY, INC.

1572 Aley Lane Protem, MO 65733 (417) 785-4289 fax (417) 785-4290 email: contact@ozarkundergroundlab.com

SAMPLE COLLECTION DATA SHEET for FLUORESCENCE ANALYSIS

Project B&L O&M **Week No:** 73 **Samples Collected By:** N. Schachtman, P. Osterhout, M. McCann

Samples Shipped By: N. Schachtman **Samples Received By:** C. Aley OUL

Date Samples Shipped: 4-6-23 **Date Samples Received:** 4-7-23 **Time Samples Received:** 1800 **Return Cooler?** Yes ☐ No ☑

Bill to: charlotte.skeffington@floydsnider.com; nathan.schachtman@floydsnider.com **Send Results to:** brett.beaulieu@floydsnider.com; nathan.schachtman@floydsnider.com; pamela osterhout@floydsnider.com

Analyze for: ☑ Fluorescein ☐ Eosine ☑ Rhodamine WT ☐ Other _____ **Ship cooler to:** _____

OUL use only			*Please indicate stations where dye was visible in the field* for field technician use - use black ink only					OUL use only
# CHAR REC'D	LAB NUMBER Water	STATION NUMBER	STATION NAME	PLACED DATE	PLACED TIME	COLLECTED DATE	COLLECTED TIME	# WATER REC'D
1			D-7A	1/25/23	0900	4/5/23	1052	1
1	G4633		D-8A	1/25/23	1035	4/5/23	1301	1
1	G4634		D-8B	1/25/23	1040	4/5/23	1152	1
1			PZ-3A	1/25/23	1350	4/5/23	1540	1
1			PZ-4A	1/25/23	1200	4/5/23	1447	1
1			MW-40B	1/25/23	1410	4/5/23	1525	1
1	G4635		PD-214	1/25/23	1400	4/5/23	1515	1
1			MW-33	1/25/23	1005	4/5/23	1340	1
1			MW-34	1/25/23	1230	4/5/23	1345	1
1			MW-41	1/25/23	1045	4/5/23	1430	1
1			MW-42	1/25/23	1130	4/5/23	1425	1
1	G4636		SW-11	1/25/23	1440	4/5/23	1545	1
1	G4637		SW-12	1/25/23	1500	4/5/23	1400	1

COMMENTS: Chain of custody seal intact upon arrival @ OUL. CO/OUL

This sheet filled out by OUL staff? Yes (No) **Charts for samples on this page proofed by OUL:** CA

OUL Project No. 1915 **Date Analyzed:** 4/11/23 **Analyzed By:** AC/OUL