CITY OF SALEM, OREGON
DEPARTMENT OF PUBLIC WORKS
WILLOW LAKE WATER POLLUTION CONTROL FACILITY

2023

BIOSOLIDS PROGRAM ANNUAL REPORT

Reporting Period: January 1, 2023 - December 31, 2023

PREPARED FOR

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

NPDES Permit Number 101145

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Section 2:
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CITY OF SALEM AND CONTRACTOR INFORMATION

Name and address of person(s) performing biosolids reuse activities for Willow Lake Water Pollution Control Facility:

Willow Lake Water Pollution Control Facility
5915 Windsor Island Road North
Salem, OR 97303

Contacts: Jue Zhao, Wastewater Division Manager — **Phone:** 503-588-3480
Patrick Kavan, Biosolids Supervisor — **Phone:** 503-385-7711

Horner Enterprises Inc

Service: Summer Mid Distance Hauling Cake Application

PO Box 442
Sweet Home OR 97386

Contact: Jay Horner
Phone: 541-600-7344

January 10, 2024

Jay Horner

Horner Enterprises

P.O. Box 442

Sweet Home, Or 97386

SUBJECT: Biosolids Program Certification Statement Signatures

Dear Jay:

The City of Salem is required to submit an annual report to the Environmental Protection Agency and the Department of Environmental Quality describing biosolids activities throughout the year. This annual report requires signed certifications for pathogen reduction and vector attraction reduction from Willow Lake Wastewater Treatment Plant, the preparer of biosolids, and signed certifications for site management practices from Horner Inc, the applier of biosolids.

Please sign the enclosed site management certification form and return the signed form (either by mail or email) on or before January 18, 2024, so that I can have the annual report ready for the City's review by the end of the month.

Your cooperation is appreciated. Please let me know if you have any questions or comment. I can be reached directly at 503-385-7711 or at pkavan@cityofsalem.net.

Sincerely,

Patrick Kavan

Patrick Kavan

Biosolids Supervisor

Enclosure: Certification Statement

cc: File

Certification Statements for Site Management Requirements

Class B biosolids are subject to management practice restrictions specified in 503.14. These requirements are consistent with Salem's DEQ approved site authorization and management plan conditions. Site restrictions [(503.32 (b)(5)] are met by limiting public access and controlling agricultural practices. In addition, records of cumulative metals additions are maintained under 503.13(a)(2)(I) to assure that regulated trace inorganic pollutant additions do not exceed 503.13(b)(2), Table 2 limits.

Monitoring of biosolids produced after January 1, 2023, reveals pollutant concentrations fall well within 503.13(b)(3), Table 3 limits. Records of all biosolids applied to the sites have been maintained by both the City and the biosolids applicator Horner Enterprises Inc. Presently zinc is the limiting metal and the calculated site life at current application rates is approximately 436 years.

The following certification statements are required from the biosolids transporter and applicator, Horner Enterprises Inc :

"I certify, under penalty of law, that the site management practices in 503.14 and the site restrictions in 503.32(b)(5) have been met. This determination has been made under direction and supervision of the City of Salem in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices and site restrictions have been met. I am aware that there are significant penalties for false certification including fine and imprisonment."

Jay Horner 1-10-24

Name (Representing Horner Enterprises Inc.) Date

"I certify, under penalty of law, that the requirements to obtain information in 503.12(e)(2) have been met for each site on which bulk Class B biosolids (sewage sludge) are applied. This determination has been made under direction and supervision of the City of Salem in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the requirements to obtain information have been met. I am aware that there are significant penalties for false certification including fine and imprisonment."

Jay Horner 1-10-24

Name (Representing Horner Enterprises Inc.) Date

Section 3:
Signed Certification Statements

2023
CERTIFICATION STATEMENT: CITY OF SALEM

1. Facility Identification

Facility Name:	**Willow Lake Water Pollution Control Facility**
Ownership:	City of Salem, Oregon (Municipality)
Address:	5915 Windsor Island Road North Salem, OR 97303
Telephone Number:	(503) 588-6380
Facility Contacts:	Jue Zhao Wastewater Services Division Manager Patrick Kavan Biosolids Supervisor
Ownership Director:	Mr. Brian Martin Public Works Director 555 Liberty St. SE, Room 325 Salem, OR 97310-3503 (503) 588-6008

2. Reporting Period: January 1, 2023 - December 31, 2023

3. NPDES Permit Number: 101145 (Renewed on November 18, 2004)

4. Facility Status: Preparer of Biosolids

5. Biosolids Production: **2,791.40 Dry Tons**
2532.32 Metric Tons

6. Final Utilization Method: Land Application by Preparer and Contractor

7. Certification:
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information submitted, it is to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Jue Zhao — 2/2/2024
Jue Zhao — Date Signed
Wastewater Services Division Manager

Patrick Kavan — February 2, 2024
Patrick Kavan — Date Signed
Biosolids Supervisor

Certification Statements for Site Management Requirements

Class B biosolids are subject to management practice restrictions specified in 503.14. These requirements are consistent with Salem's DEQ approved site authorization and management plan conditions. Site restrictions [(503.32(b)(5)] are met by limiting public access and controlling agricultural practices. In addition, records of cumulative metals additions are maintained under 503.13(a)(2)(I) to assure that regulated trace inorganic pollutant additions do not exceed 503.13(b)(2), Table 2 limits. Monitoring of biosolids produced after January 1, 2023, reveals pollutant concentrations fall well within 503.13(b)(3), Table 3 limits. Records of all biosolids applied to the sites have been maintained by both the City and the biosolids applicator. Presently zinc is the limiting metal and the calculated site life at current application rates is approximately 436 years.

The following certification statements are required from the biosolids applicator, City of Salem, Willow Lake Water Pollution Control Facility (WLWPCF).

"I certify, under penalty of law, that the site management practices in 503.14 and the site restrictions in 503.32(b)(5) have been met. This determination has been made under direction and supervision of the City of Salem in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices and site restrictions have been met. I am aware that there are significant penalties for false certification including fine and imprisonment."

Patrick Kavan — January 26, 2024

Patrick Kavan, Biosolids Supervisor — Date

"I certify, under penalty of law, that the requirements to obtain information in 503.12(e)(2) have been met for each site on which bulk Class B biosolids (sewage sludge) are applied. This determination has been made under direction and supervision of the City of Salem in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the requirements to obtain information have been met. I am aware that there are significant penalties for false certification including fine and imprisonment."

Patrick Kavan — January 24, 2024

Patrick Kavan, Biosolids Supervisor — Date

Certification Statement for Pathogen and VAR Requirements

POTW Willow Lake Water Pollution Control Facility

Source Name: Anaerobically Digested Dewatered Biosolids

Source Period: 01-Jan-2023 to 31-Dec-2023

I certify, under penalty of law, that the information used to determine compliance with the Class B Pathogen Reduction requirements in 40 CRF part 503.32(b)(3) Appendix B, PSRP Condition 3-(anaerobic digestion) and the Vector Attraction Reduction requirements in 40 CRF part 503.33(b)(2)-(anaerobic digestion) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gathered and evaluated this information.

Patrick Kavan January 26, 2024

Patrick Kavan, Biosolids Supervisor Date

I certify, under penalty of law, that all Class B biosolids land applied have met the above-mentioned Pathogen and Vector Attraction Reduction requirements. I also certify that all Class B biosolids were land applied at agronomic rates. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

Patrick Kavan January 26, 2024

Patrick Kavan, Biosolids Supervisor Date

Section 4:
2023 Annual Biosolids Report

State of Oregon
Department of Environmental Quality
700 NE Multnomah St. Suite 600, Portland, OR 97232

DEQ use only

Wastewater Solids and Biosolids Annual Report
Part I: Wastewater solids production and disposition

Part I: Must be completed by all domestic wastewater facilities.

A. REPORTING PERIOD

1.	This report is for biosolids produced during the calendar year: 2023

B. PERMIT INFORMATION

1.	Permit Type (select one): ■ NPDES or ☐ WPCF	DEQ File No.: 78140
	DEQ Permit No.: 101145	EPA Permit No.:

C. FACILITY INFORMATION

1.	Legal name of facility: Willow Lake Water Pollution Control Facility		
2.	**Physical address**		
	Street Address: 5915 Windsor Island Rd N		
	City: Salem	State: Oregon	Zip code: 97303
3.	**Mailing address** ■ Same as physical address.		
	Mailing Address:		
	City:	State:	Zip code:

4. **Facility Type (check all that apply)**

- ■ Major or Tier 1 facility (design flow of 1 mgd or greater, or serving a population of 10,000 or greater)
- ☐ Minor or Tier 2 facility (design flow less than 1 mgd or serving a population less than 10,000)
- ☐ Class I wastewater treatment facility (i.e., facility with a pre-treatment program)
- ☐ Biosolids only facility
- ☐ Lagoon treatment system
- ☐ Other, please specify:

D. CONTACT INFORMATION

1.	**Responsible official**		
	Name: Jue Zhao	Title: Wastewater Plant Manager	
	Email Address: jzhao@cityofsalem.net	Telephone: 503-588-6380	
	Mailing Address: 5915 Windsor Island Rd N		
	City: Salem	State: Oregon	Zip code: 97303
2.	**Biosolids contact** ☐ Same as responsible official		
	Name: Patrick Kavan	Title: Biosolids Supervisor	
	Email Address: pkavan@cityofsalem.net	Telephone: 503-385-7711	
	Mailing Address: 5915 Windsor Island Rd N		
	City: Salem	State: Oregon	Zip code: 97303

E. WASTEWATER SOLIDS RECEIVED

Please indicate if you received wastewater solids or hauled from other facilities for processing.

Did you receive wastewater solids or hauled waste from other facilities? ☐ Yes ■ N0

If you received unprocessed wastewater solids, please list sources below. All weight values should be reported in US tons. (US ton= 2,000 lbs) Attach additional pages if necessary.

	Name	Type	Quantity	Units (choose one)	% solids
1.		☐ septage ☐ sludge		☐ gallons ☐ wet tons ☐ dry tons	0.00%
		☐ septage ☐ sludge		☐ gallons ☐ wet tons ☐ dry tons	0.00%
		☐ septage ☐ sludge		☐ gallons ☐ wet tons ☐ dry tons	0.00%
		☐ septage ☐ sludge		☐ gallons ☐ wet tons ☐ dry tons	0.00%
		☐ septage ☐ sludge		☐ gallons ☐ wet tons ☐ dry tons	0.00%

F. WASTEWATER SOLIDS TREATMENT PROCESSES

Please indicate the solids treatment processes used at your facility (mark all that apply)

	Thickening technology	Stabilization Technology	Dewatering technology
1.	■ Gravity ☐ DAF ☐ Centrifugation ■ Other: Rotating Drum Thickner	☐ Aerobic digestion ■ Anaerobic digestion ☐ Lime stabilization ☐ ATAD ☐ Composting ☐ Thermal ☐ Lagoon ☐ Other:	☐ Belt press ☐ Plate and frame press ☐ Screw press ■ Centrifuge ☐ Vacuum filter ☐ Drying beds ☐ Heat drying ☐ Other:

$$Dry\ tons = \text{wet tons x \%solids} \qquad Dry\ tons = \frac{(gal\ x\ \%solids\ x\ 8.34)}{100}\ x0.0005$$

G. WASTEWATER SOLIDS DISPOSITION

Please indicate how wastewater solids were managed at your facility. Please specify reporting units. *All weight values should be reported in US tons. US ton.= 2,000 lbs*

	Disposition of wastewater solids	Quantity (choose one)			% solids
1.	■ Treated and land applied, sold, or given-away as biosolids or biosolids-derived products	Gallons	Wet tons	Dry Tons 2556.77	23.06%
2.	☐ Sent to landfill. Name:	Gallons	Wet tons	Dry Tons	0.00%
3.	☐ Sent to another permitted facility for treatment. Name:	Gallons	Wet tons	Dry Tons	0.00%
4.	■ Long-term storage at treatment facility (e.g., lagoon, drying bed, etc.)*	Gallons	Wet tons	Dry Tons 234.63	22.15%
5.	☐ Other. Please specify:	Gallons	Wet tons	Dry Tons	0.00%

* If you operate a lagoon system and do not have accurate data on the quantity of solids in your lagoon, please check the box for long-term storage, but you may leave the quantity and other information blank.

H. LAGOON SYSTEM OPERATION and MAINTENANCE

The following section is required for facilities that operate wastewater treatment lagoons.

1. A survey of wastewater solids have been completed within the last year: ☐ Y ■ N

2. In what year were solids last removed from the lagoon:

3. When do you estimate the next solids removal? Select only one of the following:
   - ☐ Within the next calendar year
   - ☐ Within the next 5 years
   - ☐ Greater than 5 years from present

I. SIGNATURE OF LEGALLY AUTHORIZED REPRESENTATIVE

I certify that the information in this report is true and correct to the best of my knowledge and belief. Information and records used or referenced with this report will be maintained and made available to the Oregon Department of Environmental Quality on request.

Signature	Title	Date
[signature]	Wastewater Plant Manager	2/2/2024

Print Name: Jue Zhao

State of Oregon
Department of Environmental Quality
700 NE Multnomah St. Suite 600, Portland, OR 97232

DEQ use only

Wastewater Solids and Biosolids Annual Report
Part II: Biosolids production and quality

Part II: Must be completed by facilities that produced Class A or Class B biosolids for land application, or sold or gave away biosolids derived products for distribution and marketing.

J. BIOSOLIDS PRODUCTION and DISPOSITION			
1.	Please specify quantity (in dry US tons) of finished biosolids stored or produced at your facility.		
		Class A	Class B
	Produced during reporting period	0	2791.4
	Total biosolids production	0	2791.4
2.	Please indicate how finished biosolids were managed (i.e., land applied, sold, stored, or other).		
		Class A	Class B
	Land applied in bulk to agricultural land		2556.77
	Land applied in bulk to forest land		
	Land applied in bulk to reclamation site		
	Land applied in bulk to a public contact site (e.g., park, roadside golf course)		
	Sold or given away as feedstock for a biosolids-derived product		
	Sold or given away in bags or other containers		
	Carried-over into next year (i.e., onsite storage)		234.63
	Sent to landfill		
	Other, please specify:		
	Total biosolids disposition (add above lines)	0	2791.4

K. BIOSOLIDS SAMPLING

1. **Select your facility's minimum regulatory monitoring frequency (select only one box):**

Monitoring frequency	☐ Once per year	☐ Once per quarter (four times per year)	■ Once per 60 days (six times per year)	☐ Once per month (12 times per year)
Metric tons	<290	290 > 1,500	1,500 > 15,000	≥ 15,000
US Tons	<319	319 > 1,650	1,650 > 16,500	≥ 16,500

2. **Provide details on compliance sampling.**

Sample type - Annual - Quarterly - 60 days - Monthly	Class	Processes (select all that apply)	Sampling date	
			Pollutants	Nutrients
60 days	☐ A ■ B	☐ Aerobic dig. ■ Anaerobic dig. ☐ Compost ☐ Air-dried ☐ Heat dried ☐ Lagoon ☐ Alkaline stabil. ☐ Soil prod/blend ☐ Other	January 2023	January 2023
Click Arrow	☐ A ☐ B	☐ Aerobic dig. ☐ Anaerobic dig. ☐ Compost ☐ Air-dried ☐ Heat dried ☐ Lagoon ☐ Alkaline stabil. ☐ Soil prod/blend ☐ Other		
60 days	☐ A ■ B	☐ Aerobic dig. ■ Anaerobic dig. ☐ Compost ☐ Air-dried ☐ Heat dried ☐ Lagoon ☐ Alkaline stabil. ☐ Soil prod/blend ☐ Other	March 2023	March 2023
Click Arrow	☐ A ☐ B	☐ Aerobic dig. ☐ Anaerobic dig. ☐ Compost ☐ Air-dried ☐ Heat dried ☐ Lagoon ☐ Alkaline stabil. ☐ Soil prod/blend ☐ Other		
60 days	☐ A ■ B	☐ Aerobic dig. ■ Anaerobic dig. ☐ Compost ☐ Air-dried ☐ Heat dried ☐ Lagoon ☐ Alkaline stabil. ☐ Soil prod/blend ☐ Other	May 2023	May 2023
Click Arrow	☐ A ☐ B	☐ Aerobic dig. ☐ Anaerobic dig. ☐ Compost ☐ Air-dried ☐ Heat dried ☐ Lagoon ☐ Alkaline stabil. ☐ Soil prod/blend ☐ Other		
60 days	☐ A ■ B	☐ Aerobic dig. ■ Anaerobic dig. ☐ Compost ☐ Air-dried ☐ Heat dried ☐ Lagoon ☐ Alkaline stabil. ☐ Soil prod/blend ☐ Other	July 2023	July 2023
Click Arrow	☐ A ☐ B	☐ Aerobic dig. ☐ Anaerobic dig. ☐ Compost ☐ Air-dried ☐ Heat dried ☐ Lagoon ☐ Alkaline stabil. ☐ Soil prod/blend ☐ Other		
60 days	☐ A ■ B	☐ Aerobic dig. ■ Anaerobic dig. ☐ Compost ☐ Air-dried ☐ Heat dried ☐ Lagoon ☐ Alkaline stabil. ☐ Soil prod/blend ☐ Other	Sept. 2023	Sept. 2023
Click Arrow	☐ A ☐ B	☐ Aerobic dig. ☐ Anaerobic dig. ☐ Compost ☐ Air-dried ☐ Heat dried ☐ Lagoon ☐ Alkaline stabil. ☐ Soil prod/blend ☐ Other		
60 days	☐ A ■ B	☐ Aerobic dig. ■ Anaerobic dig. ☐ Compost ☐ Air-dried ☐ Heat dried ☐ Lagoon ☐ Alkaline stabil. ☐ Soil prod/blend ☐ Other	November 2023	November 2023
Click Arrow	☐ A ☐ B	☐ Aerobic dig. ☐ Anaerobic dig. ☐ Compost ☐ Air-dried ☐ Heat dried ☐ Lagoon ☐ Alkaline stabil. ☐ Soil prod/blend ☐ Other		

L. BIOSOLIDS POLLUTANT MONITORING

Report pollutant monitoring data from collected samples. Express results in mg/kg (ppm) based on dry wt. Please attach laboratory reports for results only. No lab QA/QC.

Biosolid Type: Class A ☐ Class B ■

Sample type - Annual - Quarterly - 60 days - Monthly	Average Pollutant Concentrations								
	As (mg/kg)	**Cd (mg/kg)**	**Cu (mg/kg)**	**Pb (mg/kg)**	**Hg (mg/kg)**	**Mo (mg/kg)**	**Ni (mg/kg)**	**Se (mg/kg)**	**Zn (mg/kg)**
60 days	<4.84	0.54	76	4.6	0.06	2.33	4.0	<4.84	248
Click Arrow									
60 days	2.13	0.43	75	4.4	0.08	2.82	4.3	1.92	239
Click Arrow									
60 days	1.60	0.41	67	4.7	0.03	2.23	3.8	1.37	221
Click Arrow									
60 days	1.67	0.40	75	3.3	0.12	1.85	3.6	1.74	283
Click Arrow									
60 days	1.76	0.46	73	4.7	0.09	1.75	4.0	1.44	295
Click Arrow									
60 days	1.75	0.38	66	4.3	0.05	1.88	4.0	2.16	281
Click Arrow									
Annual Mean	1.78	0.44	72.1	4.4	0.07	2.14	3.94	1.73	261
Table 1[1] Ceiling conc.	75	85	4300	840	57	75	420	100	7500
Table 3[2] Pollutant conc.	41	39	1500	300	17	N/A	420	100	2800

[1] 40 CFR § 503.13 Table 1 – Ceiling concentrations. Samples with pollutant concentrations that exceed the Table 1 limits are not eligible for land application and must be disposed by other means.

[2] 40 CFR § 503.13 Table 3 – Pollutant Concentrations. Samples with pollutant concentrations that exceed the Table 3 limits are subject to cumulative pollutant loading rates in 40 CFR § 503.13 Table 2. Annual and cumulative pollutant additions to land application sites must be submitted with the annual report.

M. BIOSOLIDS NUTRIENT MONITORING

Report nutrient monitoring data from collected samples. Express results in mg/kg (ppm) based on dry weight, except where otherwise noted. *Please attach laboratory reports for results only. No lab QA/QC.*

Biosolid Type: Class A ☐ Class B ■

Sample type	Average Nutrient Concentrations							
1. - Annual - Quarterly - 60 days - Monthly	TKN (mg/kg)	NO_3-N (mg/kg)	NH_4-N (mg/kg)	P (mg/kg)	K (mg/kg)	pH (S.U.)	Total solids (%)	F. coli MPN ☐ CFU ☐
60 days	61198	15.7	9354	2890	428	8.53	23.53	
Click Arrow								
60 days	60064	9.2	9990	12470	441	8.05	23.04	
Click Arrow								
60 days	60690	1.0	10204	16196	442	8.20	22.61	
Click Arrow								
60 days	59577	5.0	8989	13232	356	7.96	22.80	
Click Arrow								
60 days	49340	21.5	8412	11937	364	8.15	22.87	
Click Arrow								
60 days	55622	2.10	8220	13657	345	8.68	21.96	
Click Arrow								
Annual Mean	57749	9.06	9194	11730	396	8.26	22.80	

N. BIOSOLIDS PATHOGEN REDUCTION MONITORING and RECORDS

Identify alternative(s) used to meet Class A or Class B pathogen reduction (PR): 40 CFR §503.32
Attach documentation on pathogen reduction.

1.

Class A Alternatives	Class B Alternatives
Biosolids have been tested for (select one or both): ☐ fecal coliform ☐ salmonella	☐ Alternative 1: Monitoring of fecal coliform as the geometric mean of the density of fecal coliform of seven representative samples (select option met): ☐ < 2 million Most Probable Number (MPN) per gram of solids (dry wt. basis) ☐ < 2 million Colony Forming Units (CFU) per gram of total solids (dry wt. basis)
☐ Alternative 1: Thermally treated biosolids ☐ Alternative 2: Biosolids treated in a high pH-high temperature process ☐ Alternative 3: Biosolids treated in other processes that meet enteric virus and helminth ova criteria. ☐ Alternative 4: Biosolids treated in unknown processes that meet enteric virus and helminth ova criteria. ☐ Alternative 5: Use of a Process to Further Reduce Pathogens (PFRP) (select all that apply) ☐ (a) Composting ☐ (b) Heat drying ☐ (c) Heat treatment ☐ (d) Thermophilic aerobic digestion ☐ (e) Beta ray irradiation ☐ (f) Gamma ray irradiation ☐ (g) Pasteurization ☐ Alternative 6: Use of a Process equivalent to a PFRP. Identify:	■ Alternative 2: Biosolids treated in one of the Processes to Significantly Reduce Pathogens (PSRP) described below: ☐ (a) Aerobic digestion ☐ (b) Air drying ■ (c) Anaerobic digestion ☐ (d) Composting ☐ (e) Lime stabilization ☐ Alternative 3: Biosolids treated in a process that is equivalent to a PSRP. Identify:

O. BIOSOLIDS VECTOR ATTRACTION REDUCTION and RECORDS

Identify option(s) used to meet vector attraction reduction (VAR): 40 CFR §503.33
Attach documentation demonstrating compliance.

1.

In-plant options:

- [■] Option 1: 38% reduction in volatile solids content. Select method used for determining volatile solids reduction:
  - [ ] Full mass balance equation
  - [ ] Approximate mass balance equation
  - [■] Van Kleeck equation
  - [ ] Volatile solids loss across all sewage sludge treatment processes
- [ ] Option 2: Bench-scale anaerobic digestion for 40 additional days at 30 °C to 37 °C.
- [ ] Option 3: Bench-scale aerobic digestion for 30 additional days at 20 °C.
- [ ] Option 4: SOUR at 20 °C. (Only for material <2% solids with no dilution.)
- [ ] Option 5: Aerobic treatment for at least 14 days over 40 °C with an average temperature of over 45 °C.
- [ ] Option 6: Alkali addition to raise pH to at least 12 at 25 °C and maintain a pH ≥ 12 for 2 hours and a pH ≥ 11.5 for 22 more hours.
- [ ] Option 7: Drying with no unstabilized (primary) solids to at least 75% solids.
- [ ] Option 8: Drying with unstabilized (primary) solids to at least 90% solids.

Site management options:

- [ ] Option 9: Injection with no biosolids present on land surface 1 hour after injection. (Class A biosolids only: Injection within 8 hours of pathogen reduction.)
- [ ] Option 10: Incorporation within 6 hours of application. (Class A biosolids only: Incorporation within 8 hours of pathogen reduction.)

2. **If VAR was met through Option 1, a 38% reduction in volatile solids, report the average reduction percentage found.**

Biosolid Type	Average Volatile Solid Reduction
Class A	0.00%
Class B	59.00%
	0.00%
	0.00%

P. VIOLATIONS OF 40 CFR §503 or OAR CHAPTER 340 DIVISION 50

Did any violations of 40 CFR §503 or OAR Chapter 340 Division 50 occur during the reporting period?

- [■] No.
- [ ] Yes. Provide a detailed description of the violation(s) and remedial actions taken to prevent reoccurrences in the future. If this was a spill, please include the OARS report #.

Q. SUMMARY OF PART II ATTACHMENTS

1.	**Information DEQ requests with all annual reports:**
	☒ Analytical laboratory reports for pollutant monitoring. **No lab QA/QC**
	☒ Analytical laboratory reports for nutrient monitoring. **No lab QA/QC**
	☒ Documentation to demonstrate compliance with pathogen reduction requirements.
	☒ Documentation to demonstrate compliance with vector attraction reduction requirements.
2.	**Information required if pollutants in Section L exceed Table 3 values:**
	☐ Annual and cumulative pollutant additions to land application sites, if any pollutant concentration exceeds the Table 3 values.
3.	**Optional and supplemental information:**
	☐ Other information on changes to solids handling or land application site management.
	☐ Other information on biosolids violations and remedial actions.
	☐ Other. Please specify:

R. SIGNATURE OF LEGALLY AUTHORIZED REPRESENTATIVE

I certify, under penalty of law, that the information that will be used to determine compliance with the pathogen requirements in 40 CFR §503.32 (identified in Section P of this report) and the vector attraction reduction requirements in 40 CFR §503.33 (identified in Section Q of this report) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

Signature	Title	Date
	Wastewater Plant Manager	7/2/2021

Print Name: Jue Zhao

State of Oregon
Department of Environmental Quality
700 NE Multnomah St. Suite 600, Portland, OR 97232

DEQ use only

Wastewater Solids and Biosolids Annual Report
Part III: Biosolids land application site information

Part III: Must be completed by facilities that land applied Class B biosolids during the reporting period. Add additional pages as needed.

S. LAND APPLICATION SITE INFORMATION

	Site ID	Owner (Last Name)	Location, PLSS (Township, Range, Section, Tax Lot)	Crop(s)	Appl. rate (lbs N/ac)	Total applied (DT/site)*	Total area applied (acres)	Was site applied to the previous year?	Soil test**
1.	T. Klop 1-6	T. Klopenstien	T6S,Range2W,Sec34,TL 1400	Annual Ryegras	120.17	59.63	20	■ Yes ☐ No	x
2.	G, Rouse 1 (1 M)	G, Rouse	T9S,R2W,Sect.7,TL 1300	W.Oregon Hay	102.72	63.71	25	■ Yes ☐ No	x
3.	G. Rouse 2 (2_M	G, Rouse	T9S,R2W,Sect.7,TL 1300	W.Oregon Hay	100.04	17.37	7	■ Yes ☐ No	x
4.	G. Rouse 3(3_M)	G. Rouse	T9S,R2W,Sect.7,TL 1300	W.Oregon Hay	100.12	42.23	17	■ Yes ☐ No	x
5.	G.Rouse 4 (4_J)	G. Rouse	T9S,R2W,Sect.7,TL 1300	W.Oregon Hay	97.91	29.15	12	■ Yes ☐ No	x
6.	G.Rouse 5(5_J)	G.Rouse	T9S,R2W,Sect.7,TL 1300	W.Oregon Hay	99.17	88.57	36	■ Yes ☐ No	x
7.	W. Orton 1 (1_R)	W. Orton	T8S,R5W,Sect.31&32,600,700 & 800	W.Oregon Hay	110.09	163.86	60	■ Yes ☐ No	x
8.	J. Gross 2 (South)	J. Gross	T8S,Range 2W,Sec22,TL	Perr. Rygrass	98.92	76.08	31	☐ Yes ■ No	x
9.	J. Gross 3	J. Gross	T8S,Range 2W,Sec22,TL	Perr. Rygrass	109.79	226.08	83	■ Yes ☐ No	x
10.	J. Gross -Mason F	J. Gross	T10S, Range 3W, Sec10; Tax Lot 1700	Perr. Ryegrass	95.13	160.05	68	■ Yes ☐ No	x
11.	GROSS 11	J.Gross	T8S,Range2W,Sec17,TL 00700	Perr. Ryegrass	120.53	269.12	90	■ Yes ☐ No	x
12.	Elam/Bricker	D. Elam	T8S,R2W,Sect.22,TL 900	W.Oregon Hay	119.11	168.43	57	■ Yes ☐ No	x
13.	Elam1	D.Elam	T8,R2W,Sect21,TL 0501&1401	W.Oregon Hay	121.30	147.46	49	■ Yes ☐ No	x
14.	Elam/Cook	D.Elam	T9S,R2W,Sect.9TL 600 & 800	W.Oregon Hay	100.68	194.82	78	■ Yes ☐ No	x
15.	Manning A	P.Manning	T12S, R 2W, Sec 31 Tax Lot # 200	Annual Rygrass	100.27	318.42	128	■ Yes ☐ No	x
	Attach additional pages as required to report on all sites that received class B biosolids during the reporting period.								

* Please report in units of dry US tons (US ton = 2,000 lbs)

** Please attach laboratory report showing sample results only. No lab QA/QC.

State of Oregon
Department of Environmental Quality
700 NE Multnomah St. Suite 600, Portland, OR 97232

DEQ use only

Wastewater Solids and Biosolids Annual Report
Part III: Biosolids land application site information

Part III: Must be completed by facilities that land applied Class B biosolids during the reporting period. Add additional pages as needed.

S. LAND APPLICATION SITE INFORMATION

	Site ID	Owner (Last Name)	Location, PLSS (Township, Range, Section, Tax Lot)	Crop(s)	Appl. rate (lbs N/ac)	Total applied (DT/site)*	Total area applied (acres)	Was site applied to the previous year?	Soil test**
16	Creek Bend Field	R. McCormick	T13S, R4W, Sec27, TL 300	Annual Ryegrass	100.00	238.16	96	☐ Yes ■ No	☒
17	Keene-Manning	M. McKay	T5S, R2W, Sect.2W	Peppermint	100.09	203.62	82	☐ Yes ■ No	☒
18	Keene-Manning	M. McKay	T5S, R2W, Sect.2W	Peppermint	82.05	89.31	29	☐ Yes ■ No	☒
19								☐ Yes ☐ No	☐
20								☐ Yes ☐ No	☐
21								☐ Yes ☐ No	☐
22								☐ Yes ☐ No	☐
23								☐ Yes ☐ No	☐
24								☐ Yes ☐ No	☐
								☐ Yes ☐ No	☐
								☐ Yes ☐ No	☐
								☐ Yes ☐ No	☐
								☐ Yes ☐ No	☐
								☐ Yes ☐ No	☐
	Attach additional pages as required to report on all sites that received class B biosolids during the reporting period.								

* Please report in units of dry US tons (US ton = 2,000 lbs)
** Please attach laboratory report showing sample results only. No lab QA/QC.

T. SUMMARY OF PART III ATTACHMENTS

1.	**Information required with some annual reports:**
	■ Additional copies of Table S for additional land application.
	■ Analytical results from soil testing
2.	**Example of documentation held by the permittee and available upon request:**
	☐ Additional land application site information.
	☐ Figures showing where biosolids were applied.
	☐ Nitrogen loading calculations

U. SIGNATURE OF LEGALLY AUTHORIZED REPRESENTATIVE

I certify, under penalty of law, that the information that will be used to determine compliance with the site restrictions in Sec. 503.32(b)(5) for each site on which Class B sewage sludge was applied was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

	Wastewater Plant Manager	2/2/2024
Signature	Title	Date

Print Name: Jue Zhao

2023
ANNUAL BIOSOLIDS REPORT

Introduction

The City of Salem owns a municipal sewage collection system and two wastewater treatment facilities, the Willow Lake Water Pollution Control Facility (WLWPCF) and the River Road Wet Weather Treatment Facility (RRWWTF), that are operated under the National Pollutant Discharge Elimination System Permit Number 101145, Department of Environmental Quality (DEQ) File No. 78140.

The WLWPCF provides wastewater treatment for a population of approximately 229,000, including Salem, Keizer, Turner, and unincorporated parts of Marion County. In 2023, total annual rainfall recorded at the WLWPCF was 37.55 inches. The annual wastewater flow totaled 14.43 billion gallons.

Septage is accepted at a receiving facility located at the Septic Receiving Station at the Salem Airport approximately 11 miles from the WLWPCF. The facility received an annual total of 7,466,135 gallons of domestic septage and 25,549,065 gallons of leachate which was conveyed to the WLWPCF for treatment.

Salem also manages an Environmental Protection Agency (EPA) approved pretreatment program which oversees 58 permitted dischargers including several categorical industries (see Table 1: 2023 City of Salem - Permitted Industries).

The WLWPCF conducts land application of biosolids on local, authorized sites from early spring through October each year. During the winter months, biosolids are stored onsite to be land applied on local, authorized sites during the summer season.

Wastewater Processing Systems

The WLWPCF is sited on 40 acres between the City of Keizer's urban growth boundary and the Willamette River in Marion County, Oregon. The facility is designed for an average dry weather flow of 35 million gallons per day (mgd). Plant upgrades completed in 2010 increased the design peak wet weather flow to 155 MGD. Treated effluent is discharged to the Willamette River at River Mile 78.4.

Wastewater treatment processes include mechanical screening, primary and secondary treatment, sludge thickening, anaerobic digestion, solids dewatering, chlorine disinfection, and dechlorination. The facility can operate in a variety of secondary treatment modes, including trickling filter, conventional air activated sludge, and trickling filter/air activated sludge. These secondary treatment processes provide flexibility for wide variations in Biochemical Oxygen Demand (BOD) resulting from increased loading rates during vegetable canning season.

The RRWWTF is sited at River Road Park approximately 4 miles upstream from the WLWPCF on the 72-inch interceptor. The RRWWTF is designed to receive flows which exceed the hydraulic capacity of WLWPCF. Utilizing interceptor diversion gates for flow control, the facility provides secondary treatment and disinfection for excessive flows during storm events. The RRWWTF is designed for a nominal daily flow of 50 MGD and a peak hour flow of 75 mgd. Treated effluent is discharged to the

Willamette River at River Mile 82.6.

The RRWWTF treatment processes include fine screening, high-rate clarification (HRC) utilizing polymer and micro-sand for coagulation, and Ultraviolet (UV) disinfection. Influent flow is passed through screening channels prior to coagulation treatment. Solids in excess of 6 mm in diameter are returned to the 72-inch interceptor sewer for transport to the WLWPCF.

The City's treatment plant staff works collectively to prevent Sanitary Sewer Overflows (SSOs) by utilizing flow routing options for optimum conveyance and effective treatment capacity. The combined design peak wet weather flow for the WLWPCF and the RRWWTF is 205 MGD.

Solids Treatment Processes

Solids from primary treatment processes are thickened in three gravity thickeners. Solids from secondary treatment are thickened by two Rotating Drum Thickeners. Typically, solids are thickened to approximately five percent prior to mesophilic primary/secondary anaerobic digestion.

The south digester facility is composed of two gas-mixed, fixed cover, primary digesters which overflow to two secondary digesters. The north digester facility is composed of two mechanically mixed, fixed cover, primary digesters which overflow to a floating dome, secondary digester. The digester facilities produce gas that provides fuel for the cogeneration system. Each primary digester is externally heated with coiled heat exchangers using a modified hot water loop from the cogeneration system. Boilers are connected to the heat loop as a redundant auxiliary heat source.

Annual Digester Feed Gallons

The WLWPCF produced a total of 35,166,090 gallons of thickened primary and secondary sludge in 2023 which were fed to the primary digesters. The primary and secondary sludge flow streams were divided between the north and south digester facilities using magnetic flow meters and automated feed valves. Approximately 59.9 percent of the treatment plant's solids production was stabilized in the larger south primary digesters while the north primary digesters received 40.1 percent (see Table 6: 2023 Digester Balance - In Versus Out). The plant received 0.8 percent volume of solids from Sequential Biofuels that blended into the rotary drum thickened sludge. The flow was measured with primary sludge and automatically split between the south and north primary digesters.

Pilot Study

A pilot study was performed on centrifuge cake that started at 21% solids. The study determined if a portion of centrifuge cake could dry in the summer months to greater than 50% solids using the City of Salem's new biosolids storage area. If the study worked, then the City of Salem would consider a larger scale biosolids drying operation in future summers.

To start the pilot study, 21% centrifuge cake was placed in the new storage area. A front-end loader took the cake and turned it over frequently then placed the cake in windrows. The cake was allowed to dry in heat and wind for July and August. The cake easily dried to 65% solids then was sampled for analysis and applied to a farmer's field in October 2023. The sludge cake began at 21.5% solids / 269.15 wet tons

and finished drying at 65% solids / 136.7 wet tons. The pilot study achieved the goal of drying centrifuge cake above 50% but the study revealed two concerns. First, there was not enough space for the front-end loader to manipulate the solids in the new biosolids storage area. Second, after a site visit to the City of Eugene wastewater treatment facility, the City of Eugene biosolids operation had proper biosolids equipment for drying biosolids and large storage areas. Their program was efficient and large-scale for a drying biosolids operation.

Therefore, due to concerns mentioned above, while the City of Salem appreciates the Oregon Department of Environmental Quality (ODEQ) giving the City the opportunity to pursue the pilot study endeavor, the City of Salem has determined not to pursue this operation until further thought and design can be put in place. We appreciate your cooperation during the pilot test and look forward to any further communication to sustainable practices we can use in the future.

Waste Products Received

The WLWPCF received waste products from Sequential Biofuels, constituting 0.8 percent or less of the total digester volume, as follows:

- A total of 265,223 gallons of COLA from the months of January 2023 to December 2023

These solids were received, sampled, and sent directly to the digesters via blending with primary sludge from the rotary drum thickener (RDT). Pumping was scheduled to facilitate a standard 60/40 flow split between the two (South and North) digester complexes using the automated feed valves. Volatile solids concentrations were taken by samples of the blended primary sludge.

Design organic loading on the primary digesters is approximately 0.23 pounds volatile solids/day/cubic feet of digester volume. The average organic loading on the primary digesters in 2023 was 0.097 volatile pounds/day/cubic feet of digester volume. This figure reflects the calculated sum of received and produced solids entering the primary digesters (see Table 2: 2023 Digester Volatile Feed Pounds).

Class B Biosolids – Pathogen Reduction

All biosolids produced in 2023 met the Class B Pathogen Reduction requirements as specified in 40 CFR §503.32(b) (3), Appendix B: Processes to Significantly Reduce Pathogens (PSRP), Item 3, which states: Anaerobic digestion - Sewage sludge is treated in the absence of air for a specific Mean Cell Residence Time (MCRT) at a specific temperature. Values for the MCRT and temperature shall be between 15 days at 35 to 55 degrees Celsius and 60 days at 15 degrees Celsius (see signed Certification Statements in Section 2).

The annual average MCRT (four primary digesters) was 46.7 days and ranged between 43.7 and 49.3 days at an average temperature of 98.5 degrees Fahrenheit or 36.9 degrees Celsius (see Table 3: 2023 Digester Performances: Monthly and Annual Averages).

Class B Biosolids – Vector Attraction Reduction (VAR)

All biosolids produced in 2023 met the Class B Vector Attraction Reduction (VAR) requirements as

specified in 40 CFR §503.33(b) (1) which states: The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38 percent (see signed Certification Statements in Section 2).

The average volatile solids reduction rate in the digesters ranged between 47.9 and 65.1 percent at an average volatile reduction of 59% (see Table no. 2: 2023 Digester Volatile Feed Pounds).

Biosolids Analyses

Samples of liquid centrifuge dewatered biosolids were composited separately and analyzed for pollutants listed in 40 CFR §503.13, Table 1, and for Total Solids, Total Volatile Solids, pH, and nutrients, including Total Kjeldahl Nitrogen (TKN), Nitrate-nitrogen (NO_3-N), Ammonia-nitrogen (NH_3-N), Phosphorus (P), and Potassium (K). During the months that each biosolids product was generated, the biosolids sampling and analyses were conducted monthly or more often than the frequency of once per 60 days that is required in 40 CFR §503.16, Table 1, and is based on the annual amount of biosolids applied to the land. All biosolids analyses were performed by the Neilson Research Corporation from Medford, Oregon (see Table no. 5: 2023 Monthly Biosolids Analyses).

Raw digester feed and received solids were analyzed for total solids and total volatile solids daily. Primary digester feed rates and temperatures were also recorded daily. Primary digester alkalinity and pH were measured three times per week. Monthly averages were used to calculate total volatile solids reduction.

When producing dewatered products, biosolids samples (centrate, feed solids, and dewatered product) were collected every four hours.

Biosolids Production Quantity

A total of 37,091,520 gallons of digested biosolids were utilized to produce centrifuge dewatered, and liquid biosolids products in 2023. The volume and proportions of each product were:

- Digested sludge sent to centrifuge: 37,091,520 gallons (100%) (See Table 6: 2023 Digester Balance: In Versus Out)
- Liquid biosolids: 0 gallons (0 %)

Based on the monthly composite sample analyses which were used to calculate monthly dry ton values for these biosolids products, a total of 2791.40 dry tons was produced in 2023.

Dewatered Biosolids Production and Polymer Costs

Details of Salem's dewatered biosolids production in 2023, including polymer dosages, capture rates and costs, are provided (see Table no. 8: 2023 Centrifuge Production). Average daily total solids concentrations for the various flow streams (centrate, production, feed solids, and dewatered product) were used to estimate polymer costs in Table no. 8 rather than the monthly composite sample results. The combined polymer cost for dewatered biosolids (Centrifuge) production in 2023 was $383,222 (see Table no. 8: 2023 Centrifuge Production).

Biosolids Application, Storage and Disposal Quantities

The City of Salem land applied a total of 2,556.77 dry tons of biosolids on a total of 968 acres in 2023 (see Table no. 4: Totals – Acreage, Tonnage, and Nutrient Values of Dewatered Biosolids Applied). These totals were comprised of 18 applications of Class B biosolids (dewatered) on all or part of 18 DEQ-authorized sites in hay, grass seed, pasture and mint. Amounts that were land applied in 2023 included:

- 2,556.77 dry tons of centrifuge dewatered biosolids applied on 968 acres locally in 2023

There were 234.63 dry tons of Biosolids stored on site from 2023 at WLWPCF to be carried over for local land application into the 2024 application season (see Table no. 7: Biosolids Production Hauled).

Biosolids Application Rates and Nutrient Loads

The WLWPCF certifies that all biosolids products were applied to the DEQ-authorized sites in 2023 at rates consistent with the allowable rates of plant available nitrogen (PAN) specified in the DEQ site authorization letters (see signed Certification Statements in Section 2). Site restrictions identified in the DEQ site authorization letters specifically and those outlined in 40 CFR §503.32 (b) (5) were also followed.

Dewatered biosolids were transported to sites using tarp-covered semi-end dump trailers. Dewatered product was applied using a tractor and manure spreader. The average annual application rate of 2.65 dry tons per acre provided approximately 104.37 pounds of PAN per acre (See Table no. 4: 2023 Totals - Acreage, Tonnage, and Nutrient Values of Dewatered Biosolids Applied).

The total pounds of nutrients applied to the fields in 2023 were:

- 101839 pounds of PAN
- 38482 pounds of P
- 2072 pounds of K

Application Site Management

Setback distances, restrictions and site management conditions are specified in the DEQ authorization letters for each site that received biosolids through land application. The WLWPCF Biosolids Program staff use a Global Positioning System (GPS) to accurately measure acreage and to mark setbacks or buffer zones around wells, structures, surface water features, roads, and property lines. A minimum setback of 50 feet to surface waters is required, as is a setback of 200 feet to wells. Application site worksheets and maps were completed daily for each site during land application. Biosolids Program staff and augment contract service staff carry route maps and a copy of the DEQ site authorization letters when in transport to application sites and during field applications.

Soil samples collected from the sites each year are analyzed for percent organic matter, pH, cation (Ca, Mg, Na and K) concentrations, cation exchange capacity (CEC), NO_3-N, and available P (using the Bray 1 or "weak" Bray method). Domestic wells on the sites and on adjoining properties are analyzed for

NO3-N as requested by property owner(s). To date, the City's monitoring of site soils and wells on properties adjacent to Salem's authorized sites have not revealed any problems related to the beneficial reuse of biosolids via land application at agronomic rates.

Biosolids Spill Incidents

The City of Salem's Biogro Program had no biosolids spill incidents in 2023.

Anticipated Biosolids Production and Acreage Requirements For 2024

Salem anticipates little change concerning biosolids production and acreage requirements in 2024. Annual biosolids production is anticipated to fall within the range of 2,600 and 3,000 dry tons.

Section 5: Tables

Table no. 1

Business Name	Address	Standard	Category	Permit No	NAICS Description
Northwest Septic Service	94 N River Bend Rd, Otis, OR, 9738	40 CFR Part 403	Septic	SH8570	Septic and related services
Ace Septic & Excavating Inc DBA Ace Chemical Toilets	10980 Portland Rd NE	40 CFR Part 403	Septic	SH2239	Septic and related services
Amity Pumping & Portable Toilets LLC	20470 Southeast Cherry Blossom Lane, Amity, OR	40 CFR Part 403	Septic	SH9441	Septic and related services
Angels Toilets Co LLC	368 W Locust St	40 CFR Part 403	Septic	SH9116	Septic and related services
Bennett Septic Service LLC	38544 S Hardy Rd, Molalla	40 CFR Part 403	Septic	SH9192	Septic and related services
Best Pots Inc	10 41st Ave SE, Albany	40 CFR Part 403	Septic	SH2235	Septic and related services
Best Septic, Inc.	110 N Clevland St, Eugene	40 CFR Part 403	Septic	SH9138	Septic and related services
Better Portable Toilets Inc	1048 Old Salem Rd NE, Albany	40 CFR Part 403	Septic	SH8978	Septic and related services
Buck's Sanitary Service Inc	3980 W 12th Ave, Eugene	40 CFR Part 403	Septic	SH7640	Septic and related services
Carl's Septic LLC	810 Mule Deer St NW	40 CFR Part 403	Septic	SH9136	Septic and related services
Carl's Septic Tank Cleaning	6329 Stageline Ln SE	40 CFR Part 403	Septic	SH1080	Septic and related services
Clinkscales Portable Toilets LLC	421 W Main St, Molalla	40 CFR Part 403	Septic	SH7342	Septic and related services
Eco, Inc	12050 N 4th St, Aumsville	40 CFR Part 403	Septic	SH9255	Septic and related services
Ezequiel Labor Contractor LLC	320 N Pacific Hwy, Woodburn, OR 97071	40 CFR Part 403	Septic	SH9390	Septic and related services
Farmers Septic Company	15127 Evans Valley Rd,	40 CFR Part 403	Septic	SH9016	Septic and related services
Goodman Sanitation, Inc.	1009 NE Harlow Rd, Troutdale	40 CFR Part 403	Septic	SH9321	Septic and related services
Honest Drain Solutions LLC	23325 S ard CT, Oregon City	40 CFR Part 403	Septic	SH9190	Septic and related services
Honey Bucket	1685 McGilchrist St SE	40 CFR Part 403	Septic	SH3070	Septic and related services
Hopson Services LLC	40195 N Dogwood Rd, Millcity	40 CFR Part 403	Septic	SH9188	Septic and related services
J&R Toilets LLC	7295 Lardon Rd NE, Salem, OR	40 CFR Part 403	Septic	SH9348	Septic and related services
Jeremiah, Inc. dba American On Site	31881 S Hwy 213, Mollala	40 CFR Part 403	Septic	SH9089	Septic and related services
N Wilson Construction LLC	Lyons, OR 97358	40 CFR Part 403	Septic	SH9417	Septic and related services
Oregon Portable Toilets LLC	10255 Portland Rd NE	40 CFR Part 403	Septic	SH9159	Septic and related services
Oregon Sewer & Drain LLC	839 Industrial Way NE, Silverton	40 CFR Part 403	Septic	SH8999	Septic and related services
Owens Septic Service	349 59th SE	40 CFR Part 403	Septic	SH9199	Septic and related services
River City Environmental	5410 NE 109th Ave, Portland	40 CFR Part 403	Septic	SH8797	Septic and related services
Roto-Rooter Plumbing & Service Company	2715 19th St SE	40 CFR Part 403	Septic	SH2240	Septic and related services
Santiam Septic & Drain LLC	2829 Ridgeway Dr SE, Turner	40 CFR Part 403	Septic	SH9357	Septic and related services
Speedy Septic	23020 SE Eagle Creek Rd, Eagle Creek, OR	40 CFR Part 403	Septic	SH9229	Septic and related services
Western Portables LLC	924 Meadow Drive, Molalla	40 CFR Part 403	Septic	SH9177	Septic and related services
Baxters North America EAST	1105 Front St NE	40 CFR Part 403	SIU	WD9176	Dog and Cat Food

Baxters North America WEST	556 Murlark Ave, NW	40 CFR Part 403	SIU	WD4726	Perishable Prepared Food Manufacturing
Capitol Recycling and Disposal Inc - A Republic Services	1890 16th St SE	40 CFR Part 413	SIU	WD557	Solid Waste Collection
Ennis-Flint	1675 Commercial St NE	40 CFR Part 433	SIU	WD5976	Paint and Coating
Kerr by Ingredion			SIU	WD4758	Flavoring Syrup and Concentrate Manufacturing
LRI Landfill	31317 Meridian E, Graham, WA	40 CFR Part 403	SIU	WD9123	Solid Waste Landfill
Morokot Foods NW LLC			SIU	WD9382	Fruit and Vegetable Canning
Oregon Fruit Products LLC	150 Patterson St NW	40 CFR Part 403	SIU	WD9072	Fruit and Vegetable Canning
Oregon State Penitentiary	2605 State St	40 CFR Part 403	SIU	WD337	Correctional Institutions
Pacific Coast Producers	1520 Woodrow Street NE,	40 CFR Part 403	SIU	WD9028	Fruit and Vegetable Canning
Packaging Corporation of America	2121 Madrona Ave SE	40 CFR Part 403	SIU	WD5649	Corrugated and Solid Fiber Box Manufacturing
Recology Organics - Aumsville	8712 Aumsville Hwy SE	40 CFR Part 403	SIU	WD7082	Fertilizer (Mixing Only) Manufacturing
Recology Organics-North Plains	9570 NW 307th Ave, North Plains	40 CFR Part 433	SIU	WD9310	Fertilizer (Mixing Only) Manufacturing
REsys Inc	4560 Ridge Dr NE	40 CFR Part 403	SIU	WD6593	Measuring, Dispensing, and Other Pumping Equipment
Riverbend Landfill	13469 SW Hwy 18, McMinnville	40 CFR Part 403	SIU	WD7635	Solid Waste Landfill
SAIF Corporation	400 High St, SE	40 CFR Part 403	SIU	WD2421	Direct Life Insurance Carriers
Salem Health Patient Care Building A	890 Oak St SE	40 CFR Part 403	SIU	WD2258	General Medical and Surgical Hospitals
Salem Health Regional Laboratory	3300 State St	40 CFR Part 403	SIU	WD5498	Medical Laboratories
Scenic Fruit Company - Salem Facility	1460 Sunnyview Rd NE	40 CFR Part 403	SIU	WD379	Frozen Fruit, Juice, and Vegetable Manufacturing
Shinsegae Foods INC.	1965 Claxter Rd	40 CFR Part 403	SIU	WD4057	Perishable Prepared Food Manufacturing
Snyder's-Lance, Inc.	1400 14th St SE, Salem, OR 97302	40 CFR Part 403	SIU	WD3104	Other Snack Food Manufacturing
Transpacific Food Inc.	1440 Salem Industrial Dr NE	40 CFR Part 403	SIU	WD9354	Frozen Fruit, Juice, and Vegetable Manufacturing
Valley Landfills, Inc. - a Republic Services Company	28972 Coffin Butte Rd	40 CFR Part 403	SIU	WD7577	Solid Waste Landfill
Ventura Foods LLC	3371 Portland Rd NE	40 CFR Part 403	SIU	WD386	Fats and Oils Refining and Blending
Yamasa Corporation	3500 Fairview Industrial Dr SE	40 CFR Part 403	SIU	WD1731	Mayonnaise, Dressing, and Other Prepared Sauce Manufacturing
Yaquina Bay Fruit Processors LLC	2828 Cherry Ave NE	40 CFR Part 433	SIU	WD8854	Fruit and Vegetable Canning
Capital Chrome & Precision Grinding Inc	1520 Hickory St NE	40 CFR Part 413	ZDCM	ZD522	Electroplating, Plating, Polishing, Anodizing, and Coloring

Garmin AT Inc.	2345 Turner Rd SE	40 CFR Part 433	ZDCM	ZD5251	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing
					58

Table 2: Digester Volatile Feed Pounds	2023

Date	North Digester Feed Vol Lbs	South Digester Feed Vol LBS	Total Volatile Feed Pounds	Digested Solids Volatile Reduction %	Bi-Monthly Average Volitile Reduction %
January, 2023	493,821	725,679	1,235,169	56.1	60.6
February, 2023	450,936	676,502	1,154,587	65.1	
March, 2023	371,377	566,313	965,808	61.7	61.7
April, 2023	454,720	694,277	1,174,979	61.7	
May, 2023	505,233	767,196	1,294,999	64.6	64.6
June, 2023	444,390	679,796	1,137,113	64.6	
July, 2023	435,185	663,320	1,115,438	56.4	55.4
August, 2023	428,370	652,262	1,090,796	54.4	
September, 2023	380,479	576,191	974,485	47.9	53.5
October, 2023	376,965	576,050	966,479	59.0	
November, 2023	433,292	570,471	1,012,283	58.4	57.9
December, 2023	358,312	522,571	884,297	57.4	
Total	5,133,079	7,670,627	13,006,432.41		
Maximum	505,233	767,196	1,294,999		
Minimum	358,312	522,571	884,297		
Average	427,757	639,219	1,083,869	58.9	59.0

Avg Vol Lbs/Day/Cuft Ratio	0.104	0.071	0.097

Source: Hach WIMS

NPD 1 & 2 = 256,000 cubic feet
SPD 1&2 = 336,000 cubic feet
365 Days/Year

NOTE: In 2023, WLWPCF received biofuel from Sequential Biofuel in the amount of 265,223 gallons. Received gallons were blended into primary sludge and fed to the Primary Digesters via automatic valves to achieve split feed flows of 40% and 60%.

2023	Table 3: Digester Performance: Monthly and Annual Averages	2023

Date	NPD1 Detention Time (Days)	NPD2 Detention Time (Days)	SPD1 Detention Time (Days)	SPD2 Detention Time (Days)	NPD1 Temp (*F)	NPD2 Temp (*F)	SPD1 Temp (*F)	SPD2 Temp (*F)
January, 2023	46.9	46.6	45.1	41.5	98.4	98.5	98.4	98.4
February, 2023	46.4	46.1	43.5	41.1	98.6	98.7	98.7	98.4
March, 2023	46.0	45.8	40.7	40.8	98.5	98.7	98.6	98.5
April, 2023	46.7	46.3	41.1	41.3	98.3	98.6	98.5	98.3
May, 2023	42.3	42.0	37.3	37.5	98.4	98.5	98.4	98.4
June, 2023	46.7	46.5	41.2	41.3	98.5	98.7	98.4	98.2
July, 2023	50.3	50.0	44.3	44.5	98.8	98.6	98.7	98.5
August, 2023	53.4	53.1	47.3	47.3	98.8	98.5	98.8	98.8
September, 2023	54.5	54.2	48.1	48.4	98.0	98.1	98.5	98.5
October, 2023	55.7	55.3	49.2	49.4	98.3	98.4	98.3	98.1
November, 2023	50.2	49.9	46.3	44.5	98.4	98.6	98.8	98.3
December, 2023	51.4	51.1	53.3	45.3	98.3	98.5	98.1	98.5
Maximum	55.7	55.3	53.3	49.4	98.8	98.7	98.8	98.8
Minimum	42.3	42.0	37.3	37.5	98.0	98.1	98.1	98.1
Average	49.2	49.0	44.8	43.7	98.4	98.5	98.5	98.4

Source: Hach WIMS

NPD 1 & 2 = 0.9336 MG each
SPD 1 & 2 = 1.2617 MG each
365 Days/Year

Note: Dates November 23, 2023 - December 2, 2023 South Primary Digester (SPD) no. 1 data was not used because it was off-line and all valves closed.
A plug was removed from an overflow line and SPD no. 1 was back in-service December 1, 2023.

Table 4: 2023 Totals - Acreage, Tonnage, and Nutrient Values of Dewatered Biosolids Applied													
No.	Dewatered Cake Sites	Transport Dates	Use	Acres	Dry Tons	Dry Tons per Acre	PAN Lbs Per Site	PAN Lbs Per Acre	Phosphorus Lbs Per Site	P Lbs Per Acre	K Lbs Per Site	K Lbs Per Acre	Tota Cost Savings
1	D. Elam Bricker	5/30/23 to 6/7/23	Western OR hay/pasture	57	168.43	2.95	6789.28	119.11	2618.12	45.93	132.39	2.32	$8,464
2	D. Elam 1	6/6/23 to 6/9/23	Western OR hay/pasture	49	148.15	3.02	5971.68	121.87	2302.83	47.00	116.45	2.38	$7,405
3	D. Elam Cooke	6/22/23 to 6/28/23	Western OR hay/pasture	78	194.82	2.50	7852.93	100.68	3028.28	38.82	153.13	1.96	$9,393
4	W. Orton 1	6/29/23 to 7/6/23	Western OR hay/pasture	60	163.86	2.73	6605.14	110.09	2547.11	42.45	128.8	2.15	$8,261
5	G. Rouse 1	6/20/23 to 6/22/23	Western OR hay/pasture	25	63.71	2.55	2567.88	102.72	990.24	39.61	50.07	2.00	$2,891
6	G. Rouse 2	6/14/23 to 6/15/23	Western OR hay/pasture	7	17.37	2.48	700.3	100.04	270.05	38.58	13.66	1.95	$789
7	G. Rouse 3	6/15/23 to 6/16/23	Western OR hay/pasture	17	42.23	2.48	1702.04	100.12	656.35	38.61	33.19	1.95	$1,902
8	G. Rouse 4	6/13/23 to 6/14/23	Western OR hay/pasture	12	29.15	2.43	1174.9	97.91	453.07	37.76	22.91	1.91	$510
9	G. Rouse 5	6/12/23 to 6/13/23	Western OR hay/pasture	36	88.57	2.46	3570.27	99.17	1376.79	38.24	69.62	1.93	$3,194
10	T. Klopfenstein 1-5-6	7/7/23 to 7/10/23	Perrenial Ryegrass	20	59.63	2.98	2403.45	120.17	926.83	46.34	46.87	2.34	$2,995
11	J. Gross Field 2 South Field	7/11/23 to 7/12/23	Annual Ryegrass	31	76.08	2.45	3066.66	98.92	1182.58	38.15	59.8	1.93	$3,854
12	J. Gross Field 3 South Field	7/11/23 to 7/18/23	Annual Ryegrass	83	226.08	2.72	9112.98	109.79	3514.19	42.34	177.7	2.14	$11,399
13	J. Gross Mason Field	7/18/23 to 7/27/23	Annual Ryegrass	68	160.05	2.35	6451.4	95.13	2487.82	36.59	125.8	1.85	$8,123
14	J. Gross Field 11	7/24/23 to 7/31/23	Annual Ryegrass	90	269.12	2.99	10847.9	120.53	4183.23	46.48	211.53	2.35	$13,518
15	P. Manning Rock Hill Field A	8/1/23 to 8/10/23	Annual Ryegrass	128	318.42	2.49	12835.13	100.27	4949.55	38.67	250.8	1.96	$16,120
16	McCormick Creek Bend Field	8/30/23 to 9/20/23	Annual Ryegrass	96	238.16	2.48	9600	100	3701.94	38.56	187.19	1.95	$12,059
17	M. McKay Keene-Manning Field B (BNSF railroad field)	09/20/23 to 10/5/23	peppermint	82	203.62	2.48	8207.63	100.09	3165.07	38.60	160.05	1.95	$10,309
18*	Manning Field B (BNSF railroad field)	9/22/2023	peppermint	29	89.31	3.08	2379.59	82.05	128.21	4.42	132.87	4.58	$2,186
*2023 pilot study dewatered product				Total	Total	Average	Total	Average	Total	Average	Total	Average	Total
				968	2556.8	2.65	101839.16	104.37	38482.26	38.73	2072.83	2.20	$123,372

Table 5: Monthly Biosolids Analysis (dewatered biosolids)															
Tests	Units	Method	Month												
			January	February	March	April	May	June	July	August	September	October	November	December	Average
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Total Solids	mg/kg	2540B	235344	230261	230395	232239	226109	220477	227971	221625	228745	227878	219599	217100	**226479**
Volatile Solids	mg/kg	2540E	154657	153403	151434	150571	149901	149940	157150	155273	153568	151602	149882	145477	**151905**
Volatile Reduction	%		71.3	76.1	74.3	73.5	75.6	75.7	70.8	66.8	61.1	72.5	70.7	71.2	**71.6**
pH	std units	4500H+B	8.53		8.05		8.20		7.96		8.15		8.68		**8.26**
TKN	mg/kg	4500-N-B	61198		60064		60690		59577		49340		55622		**57749**
Ammonia Nitrogen	mg/kg	4500-NH3 B	9354	9744	9990	9568	10204	9622	8989	9185	8412	8190	8220	8220	**9142**
Nitrate Nitrogen	mg/kg	352.1	15.68		9.18		0.995		4.97		21.46		2.10		**9.06**
Phosphorus	mg/kg	365.3	2890		12470		16196		13232		11937		13657		**11730**
Potassium	mg/kg	200.7	428		441		442		356		364		345		**396**
Arsenic	mg/kg	200.7	<4.84		2.13		1.60		1.67		1.76		1.75		**1.78**
Cadmium	mg/kg	200.7	0.54		0.43		0.41		0.40		0.46		0.38		**0.44**
Chromium	mg/kg	200.7	13.9		9.82		8.35		8.3		8.3		7.8		**9.4**
Copper	mg/kg	200.7	76.0		75.4		66.5		75.2		72.9		66.4		**72.1**
Lead	mg/kg	200.7	4.60		4.43		4.73		3.3		4.7		4.3		**4.36**
Mercury	mg/kg	245.1	0.06		0.08		0.03		0.12		0.09		0.05		**0.07**
Molybdenum	mg/kg	200.7	2.33		2.82		2.23		1.85		1.75		1.88		**2.14**
Nickel	mg/kg	200.7	3.99		4.26		3.82		3.6		4.0		4.0		**3.94**
Selenium	mg/kg	200.7	<4.84		1.92		1.37		1.74		1.44		2.16		**1.73**
Silver	mg/kg	200.7	0.90		0.40		0.59		0.62		0.81		0.64		**0.66**
Zinc	mg/kg	200.7	248		239		221		283		295		281		**261**

Analyzed by Neilson Research Corp.

2023	Table 6: Digester Balance: In Versus Out					2023
MONTH	MONTHLY TOTAL NPD GALLONS	MONTHLY TOTAL SPD GALLONS	TOTAL RECEIVED SEQUENTIAL BIOFUEL	COMBINED TOTAL DIG. GALS	TOTAL CENT GAL OUT	TOTAL GALLONS OUT
January, 2023	1,276,180	1,880,808	20,043	3,156,988	3,051,306	3,051,306
February, 2023	1,151,169	1,729,838	20,007	2,881,007	3,065,871	3,065,871
March, 2023	1,009,170	1,536,439	30,044	2,545,609	2,813,454	2,813,454
April, 2023	1,246,070	1,900,897	20,024	3,146,967	3,271,137	3,271,137
May, 2023	1,408,155	2,149,491	15,010	3,557,646	3,369,005	3,369,005
June, 2023	1,228,026	1,875,415	25,053	3,103,441	3,280,424	3,280,424
July, 2023	1,170,834	1,786,974	35,032	2,957,808	3,368,541	3,368,541
August, 2023	1,116,066	1,697,561	25,005	2,813,627	2,719,598	2,719,598
September, 2023	1,060,596	1,613,075	25,010	2,673,671	3,266,282	3,266,282
October, 2023	1,073,150	1,634,027	29,989	2,707,177	2,842,876	2,842,876
November, 2023	1,151,633	1,517,565	10,000	2,669,198	2,993,023	2,993,023
December, 2023	1,226,438	1,726,513	10,006	2,952,951	3,050,003	3,050,003
MIN	1,009,170	1,517,565	10,000	2,545,609	2,719,598	2,719,598
MAX	1,408,155	2,149,491	35,032	3,557,646	3,369,005	3,369,005
AVG	1,176,457	1,754,050	22,102	2,930,508	3,090,960	3,090,960
TOTAL	14,117,487.00	21,048,603	265,223	35,166,090	37,091,520	37,091,520
% OF TOTAL GALLONS IN	40.1	59.9	0.8	% OF TOTAL GALLONS OUT	100.0	

Source: Hach WIMS

NOTE: WLWPCF received biofuel from Sequential Biofuel in the amount of 265,223 gallons. The gallons were blended into primary sludge and fed into the Primary Digesters automatic valves and flow meters to achieve split feed flows of 40% and 60%.

Table 7: 2023 Biosolids Products Hauled				
MONTH	CENT. WET TONS	CENT. DRY TONS	LIQUID GALLONS	LIQUID DRY TONS
JAN				
FEB				
MAR				
APR				
MAY	194.23	44.79		
JUN	3214.06	741.16		
JUL	3995.22	921.30		
AUG	1545.88	356.48		
SEP	1510.22	406.04		
OCT	377.28	87.00		
NOV				
DEC				
TOTAL	**10836.89**	**2556.77**	**0.00**	**0.00**

TOT. DRY TONS	CENT. DRY TONS	LIQUID DRY TONS
2556.77	**2,556.77**	**0.00**

Table 8: 2023 Centrifuge Production

Month	Feed Gallons: Million Gallons	Poly Gallons Used	Polymer Cost ($15/gall)	Dig Feed: Avg TS %	Avg Poly lbs Per Dry Ton Feed	Avg Poly Cost Per Dry Ton Feed	Cake: Avg TS %	Average Centrifuge Capture Rate
January	3.0537	2397.9	$35,969	1.97	82.88	$143.39	23.08	93.03%
February	3.0687	2314.6	$34,719	2.02	77.63	$134.31	23.21	91.72%
March	3.4913	2778.0	$41,670	2.07	79.87	$138.18	22.91	91.70%
April	3.3224	2532.9	$37,993	2.04	77.54	$134.15	23.30	92.90%
May	3.3199	2565.7	$38,486	2.00	80.37	$139.04	22.22	90.62%
June	2.3296	1638.8	$24,582	1.99	73.57	$127.28	22.33	91.53%
July	3.3729	2759.1	$41,387	1.80	94.47	$163.44	21.84	91.73%
August	2.7207	1798.7	$26,980	1.86	73.83	$127.73	21.36	89.34%
September	3.2110	1942.1	$29,132	1.99	63.33	$109.57	23.78	94.07%
October	2.8451	1604.7	$24,071	2.02	58.13	$100.56	22.96	93.01%
November	2.9599	1592.8	$23,891	2.09	53.55	$92.65	21.07	93.60%
December	2.9440	1622.8	$24,342	2.15	53.27	$92.16	21.56	89.70%
Min	2.3296	1,592.76	23,891	1.80	53.27	92.16	21.07	89.34%
Max	3.4913	2,778.02	41,670	2.15	94.47	163.44	23.78	94.07%
Average	3.0533	2,129.01	31,935	2.00	72.37	125.20	22.47	91.91%
Total	36.6394	25,548.11	383,222					

Section 6:
Application Site Reports

ELAM-BRICKER

FIELD IDENTIFICATION: D. ELAM Bricker A	
OWNER: DAVID ELAM	
LOCATION; TOWNSHIP: T9S RANGE: R2W SECTION: 9	
START DATE: 5/30/2023	
STOP DATE: 6/7/2023	
CROP: Western Oregon Hay	
TOTAL ACREAGE:	57

DEWATERED BIOSOLIDS APPLICATION RATE INFORMATION	
PERMITTED APPLICATION RATE (PAN POUNDS PER ACRE)	120
DRY TONS BIOSOLIDS PER ACRE	2.98
WET TONS BIOSOLIDS PER ACRE	12.91

TARGET APPLICATION RATE (PAN POUNDS PER ACRE)	120
DRY TONS BIOSOLIDS PER ACRE	2.98
WET TONS BIOSOLIDS PER ACRE	12.91
TOTAL WET TONS TO COMPLETE FIELD	735.87
DATE: Field Finished: 6/7/2023	
TOTAL WET TONS REMAINING	735.87

FINAL APPLICATION RATE INFORMATION	
FINAL APPLICATION RATE (PAN POUNDS PER ACRE)	119.11
PAN (TOTAL POUNDS APPLIED)	6,789.28
PHOSPHORUS (TOTAL POUNDS APPLIED)	2,618.12
POTASSIUM (TOTAL POUNDS APPLIED)	132.39
TOTAL WET TONS APPLIED	**730.41**
TOTAL DRY TONS APPLIED	168.43
DRY TONS BIOSOLIDS PER ACRE	2.95
WET TONS BIOSOLIDS PER ACRE	12.81

BIOSOLIDS ANALYSIS INFORMATION	
Average of 1/23 through 5/23 centrifuge data	
TOTAL SOLIDS (MG/KG)*	23.06
ORGANIC NITROGEN (MG/KG)	50836
INORGANIC NITROGEN (NH4+NO3) (MG/KG)	9807
TKN (MG/KG)	60631
PHOSPHORUS (MG/KG)	7772
POTASSIUM (MG/KG)	393
pH	8.33
ARSENIC (MG/KG)	1.4
CADMIUM (MG/KG)	0.48
CHROMIUM (MG/KG)	16
COPPER (MG/KG)	76

LEAD (MG/KG)	4.5
MERCURY (MG/KG)	0.06
MOLYBDENUM (MG/KG)	2.33
NICKEL (MG/KG)	4.2
SELENIUM (MG/KG)	1.85
SILVER (MG/KG)	0.6
ZINC (MG/KG)	258
1ST YEAR MINERALIZATION RATE	0.30
LIQUID INORGANIC NITROGEN AVAILABILITY FACTOR	0.50
POUNDS OF ORG N AVAILABLE/DRY TON APPLIED	30.50
POUNDS OF INORG N AVAILABLE/DRY TON APPLIED	9.81
POUNDS OF (P.A.N.)/.DRY TON	40.31

PAN lbs applied	$PAN	P lbs applied	$P	K lbs applied	$K	Field Total $
#REF!	#REF!	#REF!	#REF!	#REF!	#REF!	#REF!
6,789.28	$0.00	2,618.12	$0.00	132.39	$0.00	#REF!
-	$0.00	2,618.12	$0.00	132.39	$0.00	#REF!
						#REF!

farm labor rate	18	diesel July data	3.23	$/gall
		usage rate	4.00	gallons/hr

APPLICATION SITE WORKSHEET: 2023

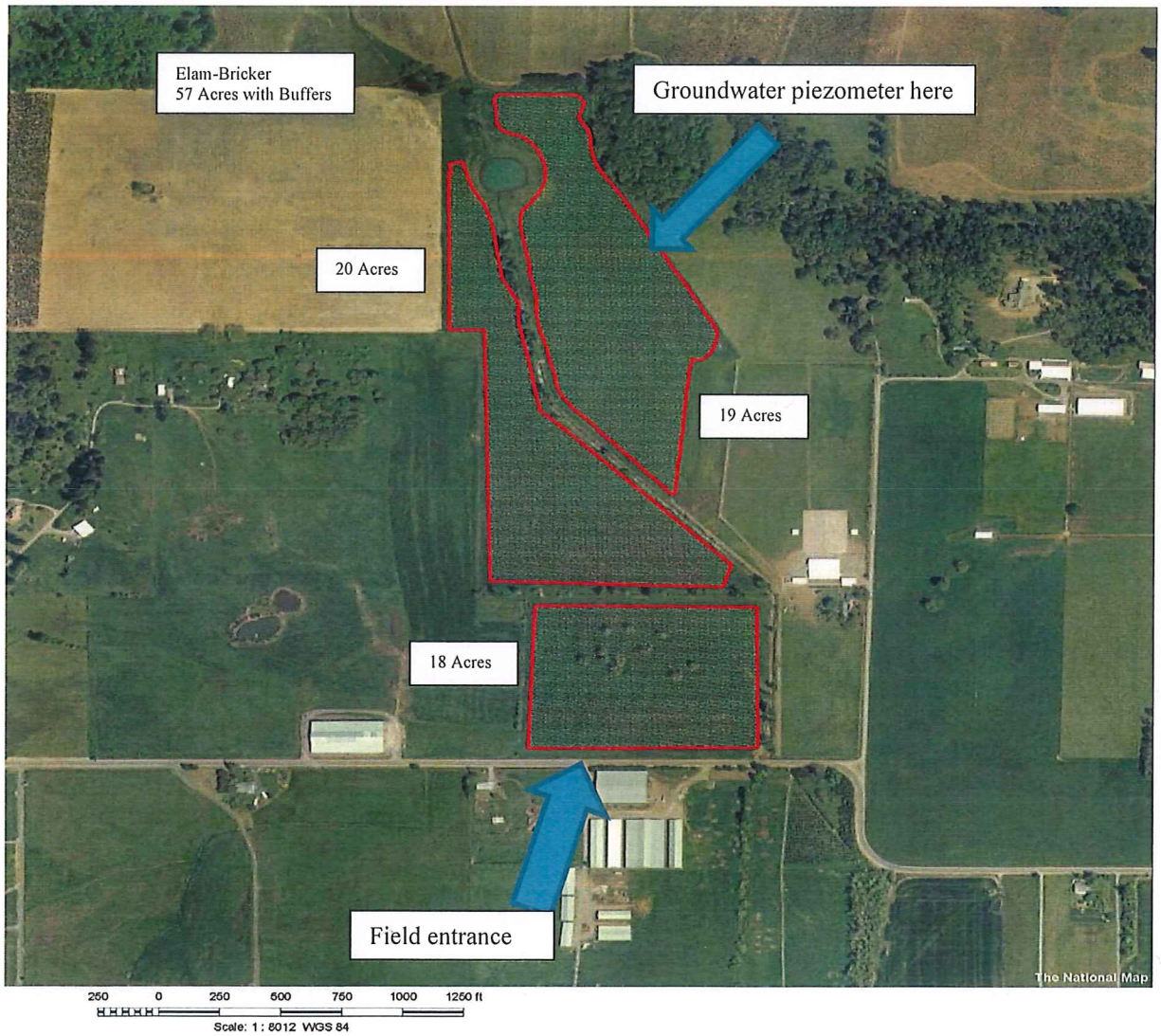
Application Dates: 5/30/23 to 6/7/23

Soil Sample Collected: 6/7/23 Domestic Well Sample Collected: No

Site and Application Identification: **Elam-Bricker (1_G)**
Biosolids Product: Centrifuge Cake
DEQ Nitrogen Application Authorization: 120 lbs PAN per Acre
Application Rate: 12.91 WT/acre
735 Wet Tons Needed, 730.41 wet tons applied
Acreage: Total of 57 acres

Distance: 20 miles
Route To Field:
East on Lockhaven, South on I-5. Take Kubler Exit turn east. Turn right on Turner Road. Just past Turner turn left on Witzel Road. Turn left on 70th Ave. There are several ways into field.

Field Input and Recommendations:
200 foot buffer at domestic wells and residences. 50 foot buffer from ditches, roads, and waterways.



D. ELAM 1

FIELD IDENTIFICATION: D. ELAM 1 Field	
OWNER: DAVID ELAM	
LOCATION; TOWNSHIP: T9S RANGE: R2W SECTION: 9	
START DATE: 6/6/23	
STOP DATE: 6/9/23	
CROP: Western Oregon Hay	
TOTAL ACREAGE:	49

DEWATERED BIOSOLIDS APPLICATION RATE INFORMATION	
PERMITTED APPLICATION RATE (PAN POUNDS PER ACRE)	120
DRY TONS BIOSOLIDS PER ACRE	2.98
WET TONS BIOSOLIDS PER ACRE	12.91

TARGET APPLICATION RATE (PAN POUNDS PER ACRE)	120
DRY TONS BIOSOLIDS PER ACRE	2.98
WET TONS BIOSOLIDS PER ACRE	12.91
TOTAL WET TONS TO COMPLETE FIELD	632.59
DATE: Field Finished: 6/9/2023	
TOTAL WET TONS REMAINING	632.59

FINAL APPLICATION RATE INFORMATION	
FINAL APPLICATION RATE (PAN POUNDS PER ACRE)	121.87
PAN (TOTAL POUNDS APPLIED)	5,971.68
PHOSPHORUS (TOTAL POUNDS APPLIED)	2,302.83
POTASSIUM (TOTAL POUNDS APPLIED)	116.45
TOTAL WET TONS APPLIED	**642.45**
TOTAL DRY TONS APPLIED	148.15
DRY TONS BIOSOLIDS PER ACRE	3.02
WET TONS BIOSOLIDS PER ACRE	13.11

BIOSOLIDS ANALYSIS INFORMATION Average of 1/23 through 5/23 centrifuge data	
TOTAL SOLIDS (MG/KG)*	23.06
ORGANIC NITROGEN (MG/KG)	50836
INORGANIC NITROGEN (NH4+NO3) (MG/KG)	9807
TKN (MG/KG)	60631
PHOSPHORUS (MG/KG)	7772
POTASSIUM (MG/KG)	393
pH	8.33
ARSENIC (MG/KG)	1.4
CADMIUM (MG/KG)	0.48
CHROMIUM (MG/KG)	16
COPPER (MG/KG)	76
LEAD (MG/KG)	4.5

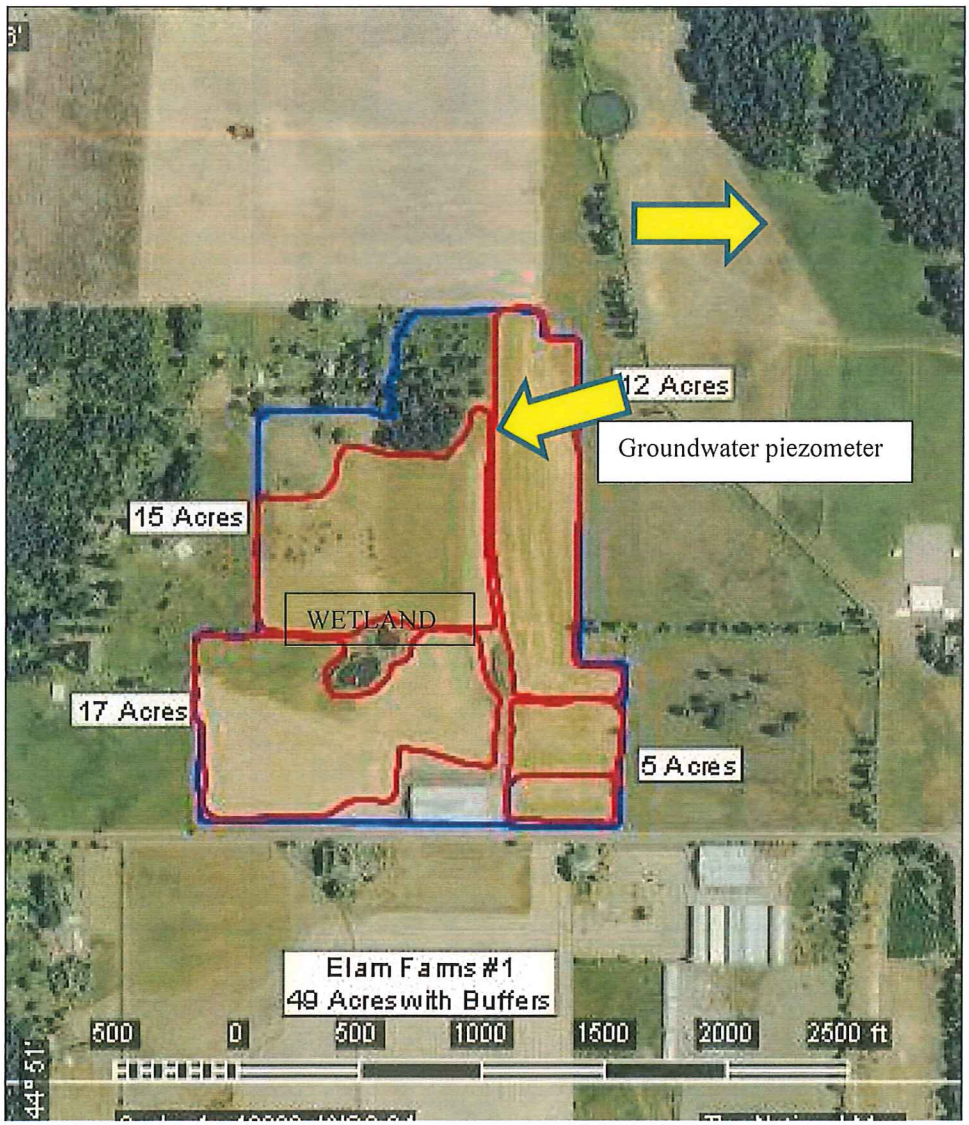
MERCURY (MG/KG)	0.06
MOLYBDENUM (MG/KG)	2.33
NICKEL (MG/KG)	4.2
SELENIUM (MG/KG)	1.85
SILVER (MG/KG)	0.6
ZINC (MG/KG)	258
1ST YEAR MINERALIZATION RATE	0.30
LIQUID INORGANIC NITROGEN AVAILABILITY FACTOR	0.50
POUNDS OF ORG N AVAILABLE/DRY TON APPLIED	30.50
POUNDS OF INORG N AVAILABLE/DRY TON APPLIED	9.81
POUNDS OF (P.A.N.)/.DRY TON	40.31

APPLICATION SITE WORKSHEET: 2022

Application Dates: 6/6/23 to 6/9/23

Soil Sample Collected:	6/7/23	Domestic Well Sample Collected:	No

Site and Application Identification: D. Elam 1 Biosolids Product: Centrifuge Cake DEQ Nitrogen Application Authorization: 120 lbs PAN per Acre (Western Oregon Hay/Pasture) Acreage: 49 Acres, Application Rate: 12.91 WT/acre Total Wet Tons Required = 632.59 wet tons Total Applied: 642.45 wet tons
Distance: 20 miles Route To Field: East on Lockhaven, Turn right onto I-5 southbound. Turn east onto Highway 22. Take Joseph Road exit. Turn left onto Aumsville Highway, turn right on Witzel Road, and turn left on Ogle Road. Field is on the left.
Field Input and Recommendations: 200 foot buffer at domestic wells. 50 ft buffer from ditch along Ogle Road and at pond. Yellow arrows show location of piezometers to measure/document 48" clearance to groundwater table.



D. Elam - Cook

FIELD IDENTIFICATION: D. ELAM Cook Field(1_A)

OWNER: DAVID ELAM
LOCATION; TOWNSHIP: T9S RANGE: R2W SECTION: 9
START DATE: 6/22/23
STOP DATE: 6/28/23
CROP: Tall fescue grass

TOTAL ACREAGE:	78

DEWATERED BIOSOLIDS APPLICATION RATE INFORMATION

PERMITTED APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76

TARGET APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76
TOTAL WET TONS TO COMPLETE FIELD	839.15
DATE: Field Finished: 6/28/23	
TOTAL WET TONS REMAINING	839.15

FINAL APPLICATION RATE INFORMATION

FINAL APPLICATION RATE (PAN POUNDS PER ACRE)	100.68
PAN (TOTAL POUNDS APPLIED)	7,852.93
PHOSPHORUS (TOTAL POUNDS APPLIED)	3,028.28
POTASSIUM (TOTAL POUNDS APPLIED)	153.13
TOTAL WET TONS APPLIED	**844.84**
TOTAL DRY TONS APPLIED	194.82
DRY TONS BIOSOLIDS PER ACRE	2.50
WET TONS BIOSOLIDS PER ACRE	10.83

BIOSOLIDS ANALYSIS INFORMATION

Average of 1/23 through 5/23 centrifuge data

TOTAL SOLIDS (MG/KG)*	23.06
ORGANIC NITROGEN (MG/KG)	50836
INORGANIC NITROGEN (NH4+NO3) (MG/KG)	9807
TKN (MG/KG)	60631
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NICKEL (MG/KG)	4.2
SELENIUM (MG/KG)	1.85
SILVER (MG/KG)	0.6
ZINC (MG/KG)	258
1ST YEAR MINERALIZATION RATE	0.30
LIQUID INORGANIC NITROGEN AVAILABILITY FACTOR	0.50
POUNDS OF ORG N AVAILABLE/DRY TON APPLIED	30.50
POUNDS OF INORG N AVAILABLE/DRY TON APPLIED	9.81
POUNDS OF (P.A.N.)/.DRY TON	40.31

or @ $9/acre, labor + diesel would be:

#REF!
#REF!
#REF!

Field	Field Total $
D. Elam 1	7405
Elam-Bricker	8464
Elam-Cook	9395
Total	25264

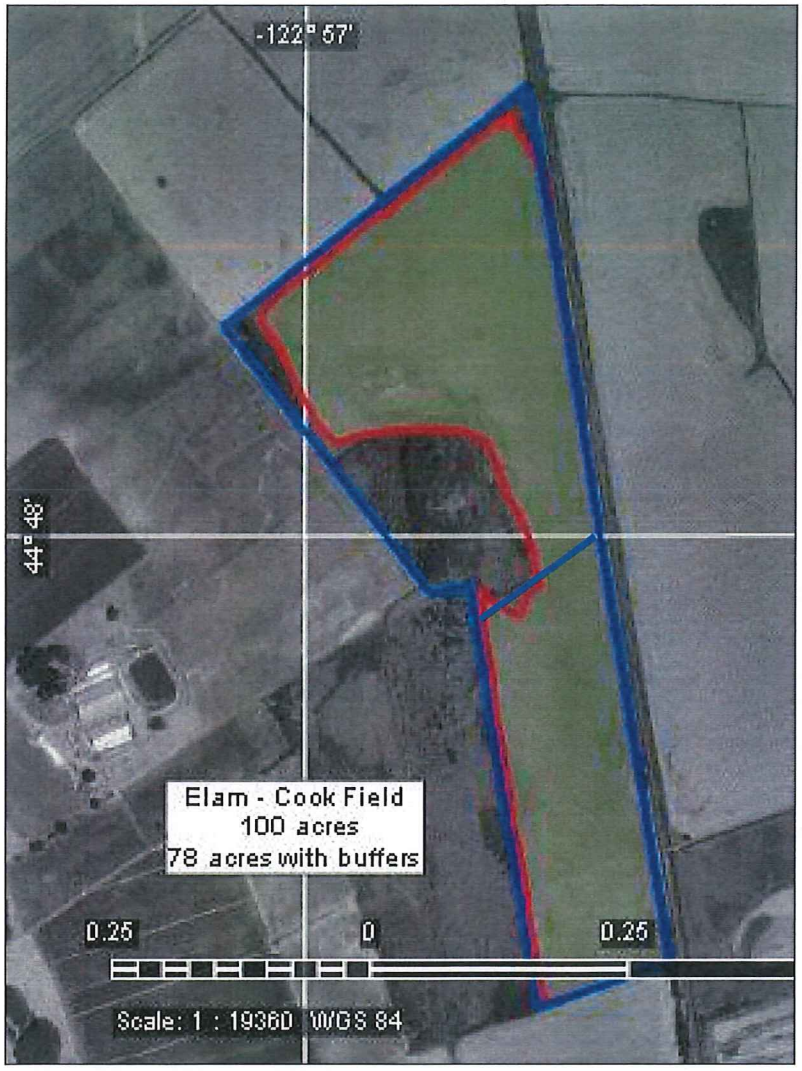
$0.76 per lb
1.11 per lb
0.50 per lb

APPLICATION SITE WORKSHEET: 2023

Application Dates: 6/22/23 to 6/28/23

Soil Sample Collected: 6/16/23 Domestic Well Sample Collected: No

Site and Application Identification: Elam-Cook Field (1_A) Biosolids Product: Centrifuge Cake DEQ Nitrogen Application Authorization: 100 lbs PAN per Acre (Western Oregon Hay/Pasture) Acreage: Total of 78 Acres, Application Rate is 10.76 WT/Acre Total Wet Tons Required = 839 wet tons, applied 844.84 wet tons
Route To Field: East on Lockhaven, right onto I-5 southbound. Take Sunnyside/Turner exit off I-5 and head east on Delaney Rd. Take right on Turner Rd. (3rd St.), then left on Denver St. and right on Marian Rd. Just after road veers to southeast, take right on Cook Rd. which becomes Duck Flat Rd. Field is at the end of the road, just over the railroad tracks.
Field Input and Recommendations: 50 foot buffer at roads and ditches. 200 foot buffer at domestic wells and residences.



W. Orton 1

FIELD IDENTIFICATION: W. Orton 1 (1_R)	
OWNER: W. Orton	
LOCATION; TOWNSHIP: T8S RANGE: R5W SECTION: 31 & 32	
START DATE: 6/29/23	
STOP DATE: 7/6/23	
CROP: Western OR Hay	
TOTAL ACREAGE:	60

DEWATERED BIOSOLIDS APPLICATION RATE INFORMATION	
PERMITTED APPLICATION RATE (PAN POUNDS PER ACRE)	120
DRY TONS BIOSOLIDS PER ACRE	2.98
WET TONS BIOSOLIDS PER ACRE	12.91

TARGET APPLICATION RATE (PAN POUNDS PER ACRE)	110
DRY TONS BIOSOLIDS PER ACRE	2.73
WET TONS BIOSOLIDS PER ACRE	11.83
TOTAL WET TONS TO COMPLETE FIELD	710.05
DATE: Field Finished: 7/6/23	
TOTAL WET TONS REMAINING	710.05

FINAL APPLICATION RATE INFORMATION	
FINAL APPLICATION RATE (PAN POUNDS PER ACRE)	110.09
PAN (TOTAL POUNDS APPLIED)	6,605.14
PHOSPHORUS (TOTAL POUNDS APPLIED)	2,547.11
POTASSIUM (TOTAL POUNDS APPLIED)	128.80
TOTAL WET TONS APPLIED	**710.60**
TOTAL DRY TONS APPLIED	163.86
DRY TONS BIOSOLIDS PER ACRE	2.73
WET TONS BIOSOLIDS PER ACRE	11.84

BIOSOLIDS ANALYSIS INFORMATION	
Average of 1/23 through 5/23 centrifuge data	
TOTAL SOLIDS (MG/KG)*	23.06
ORGANIC NITROGEN (MG/KG)	50836
INORGANIC NITROGEN (NH4+NO3) (MG/KG)	9807
TKN (MG/KG)	60631
PHOSPHORUS (MG/KG)	7772
POTASSIUM (MG/KG)	393
pH	8.33
ARSENIC (MG/KG)	1.4
CADMIUM (MG/KG)	0.48
CHROMIUM (MG/KG)	16
COPPER (MG/KG)	76
LEAD (MG/KG)	4.5

MERCURY (MG/KG)	0.06
MOLYBDENUM (MG/KG)	2.33
NICKEL (MG/KG)	4.2
SELENIUM (MG/KG)	1.85
SILVER (MG/KG)	0.6
ZINC (MG/KG)	258
1ST YEAR MINERALIZATION RATE	0.30
LIQUID INORGANIC NITROGEN AVAILABILITY FACTOR	0.50
POUNDS OF ORG N AVAILABLE/DRY TON APPLIED	30.50
POUNDS OF INORG N AVAILABLE/DRY TON APPLIED	9.81
POUNDS OF (P.A.N.)/.DRY TON	40.31

APPLICATION SITE WORKSHEET: 2023

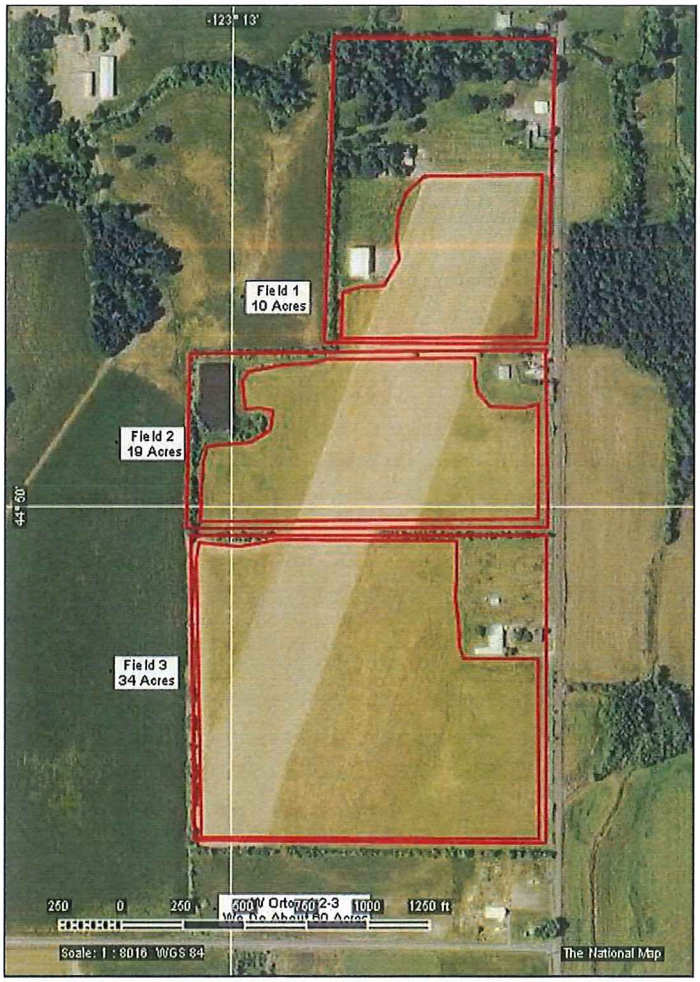
Application Dates: 6/29/23 to 7/6/23

Soil Sample Collected:	6/29/23	Domestic Well Sample Collected:	No

Site and Application Identification: W. Orton 1(1_Q) & (1_R)
Biosolids Product: Centrifuge Cake @ Tract (1_R) 60 Acres
DEQ Nitrogen Application Authorization: 100 lbs PAN per Acre. 10.76 Wet Tons/ Acre
Tonnage needed – 645.50 Wet Tons
Acreage: 60 Acres

Distance: 20 miles. "Orton Farms"6765 Talmage Rd"
Route To Field: East on Lockhaven, Turn Right(South) on River Road then River Road turns into Commercial, Turn right(wes)t on Hwy 22, over bridge. Continue Hwy 22 until Hwy 99 exit. Turn rightt (south) on Hwy 99W (Rickreall/Monmouth Exit). Go 4.8 miles then Turn left (east) (At Light) onto Hoffman Rd. Turn right on 16th Street which turns into Talmage Road. The field is on the right. There are several entries into the field. The first is a driveway with a sign that says "Orton Farms"6765 Talmage Rd, Independence, Or,97351

Field Input and Recommendations:
50 foot buffers at ditches and roads. 200 foot buffer at domestic wells and residences.



G. ROUSE 1

FIELD IDENTIFICATION: G. ROUSE 1(1_I)	
OWNER: G. ROUSE	
LOCATION: TOWNSHIP: T9S RANGE: R2W SECTION: 7	
START DATE: 6/20/23	
STOP DATE: 6/22/23	
CROP: Western Oregon Hay/Pasture	
TOTAL ACREAGE:	25

DEWATERED BIOSOLIDS APPLICATION RATE INFORMATION	
PERMITTED APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76

TARGET APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76
TOTAL WET TONS TO COMPLETE FIELD	268.96
DATE: Field Finished: 6/22/23	
TOTAL WET TONS REMAINING	268.96

FINAL APPLICATION RATE INFORMATION	
FINAL APPLICATION RATE (PAN POUNDS PER ACRE)	102.72
PAN (TOTAL POUNDS APPLIED)	2,567.88
PHOSPHORUS (TOTAL POUNDS APPLIED)	990.24
POTASSIUM (TOTAL POUNDS APPLIED)	50.07
TOTAL WET TONS APPLIED	**276.26**
TOTAL DRY TONS APPLIED	63.71
DRY TONS BIOSOLIDS PER ACRE	2.55
WET TONS BIOSOLIDS PER ACRE	11.05

BIOSOLIDS ANALYSIS INFORMATION	
Average of 1/23 through 5/23 centrifuge data	
TOTAL SOLIDS (MG/KG)*	23.06
ORGANIC NITROGEN (MG/KG)	50836
INORGANIC NITROGEN (NH4+NO3) (MG/KG)	9807
TKN (MG/KG)	60631
PHOSPHORUS (MG/KG)	7772
POTASSIUM (MG/KG)	393
pH	8.33
ARSENIC (MG/KG)	1.4
CADMIUM (MG/KG)	0.48
CHROMIUM (MG/KG)	16
COPPER (MG/KG)	76

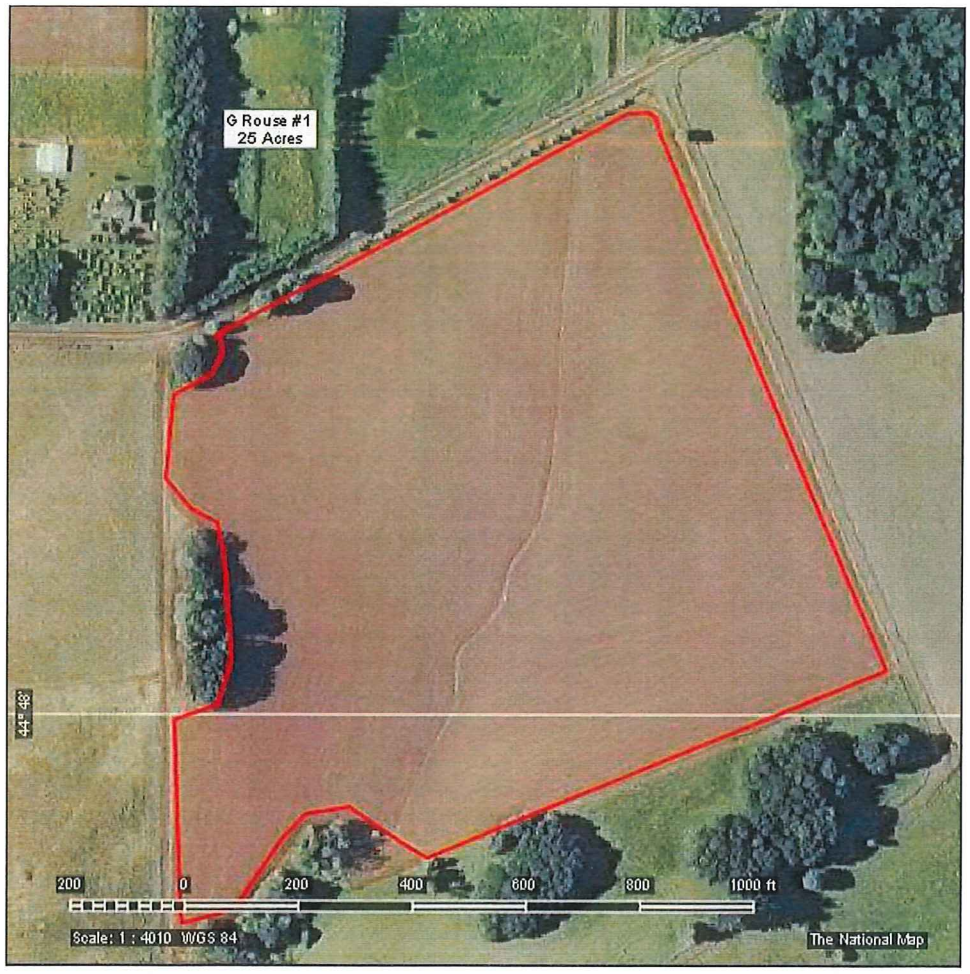
LEAD (MG/KG)	4.5
MERCURY (MG/KG)	0.06
MOLYBDENUM (MG/KG)	2.33
NICKEL (MG/KG)	4.2
SELENIUM (MG/KG)	1.85
SILVER (MG/KG)	0.6
ZINC (MG/KG)	258
1ST YEAR MINERALIZATION RATE	0.30
LIQUID INORGANIC NITROGEN AVAILABILITY FACTOR	0.50
POUNDS OF ORG N AVAILABLE/DRY TON APPLIED	30.50
POUNDS OF INORG N AVAILABLE/DRY TON APPLIED	9.81
POUNDS OF (P.A.N.)/.DRY TON	40.31

APPLICATION SITE WORKSHEET: 2023

Application Dates: 6/20/23 to 6/22/23

Soil Sample Collected: 6/16/23 Domestic Well Sample Collected: No

Site and Application Identification: G. Rouse 1 (1_P) Biosolids Product: Centrifuge Cake DEQ Nitrogen Application Authorization: 100 lbs PAN per Acre. 269 Wet Tons needed, 276.26 wet tons applied Application Rate at 10.76 Wet Tons/ Acre Acreage: 25 Acres
Distance: 20 miles Route To Field: East on Lockhaven, South on I-5 to Sunnyside Turner Exit. East to Enchanted Way. South to Cloverdale Road. South on Parish Gap, West on Summit Loop. Field is on the left.
Field Input and Recommendations: 50 ft buffer from ditch along Summit Loop. 200 foot buffer at domestic wells.



G. ROUSE 2

FIELD IDENTIFICATION: G. ROUSE 2 (2_M)	
OWNER: G. ROUSE	
LOCATION: TOWNSHIP: T9S RANGE: R2W SECTION: 7	
START DATE: 6/14/23	
Stop Date: 6/15/ -	
CROP: Western Oregon Hay/Pasture	
TOTAL ACREAGE:	7

DEWATERED BIOSOLIDS APPLICATION RATE INFORMATION	
PERMITTED APPLICATION RATE (PAN POUNDS PER ACRE)	120
DRY TONS BIOSOLIDS PER ACRE	2.98
WET TONS BIOSOLIDS PER ACRE	12.91

TARGET APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76
TOTAL WET TONS TO COMPLETE FIELD	75.31
DATE: Field Finished 6/15/23	
TOTAL WET TONS REMAINING	75.31

FINAL APPLICATION RATE INFORMATION	
FINAL APPLICATION RATE (PAN POUNDS PER ACRE)	100.04
PAN (TOTAL POUNDS APPLIED)	700.30
PHOSPHORUS (TOTAL POUNDS APPLIED)	270.05
POTASSIUM (TOTAL POUNDS APPLIED)	13.66
TOTAL WET TONS APPLIED	**75.34**
TOTAL DRY TONS APPLIED	17.37
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76

BIOSOLIDS ANALYSIS INFORMATION Average of 1/23 through 5/23 centrifuge data	
TOTAL SOLIDS (MG/KG)*	23.06
ORGANIC NITROGEN (MG/KG)	50836
INORGANIC NITROGEN (NH4+NO3) (MG/KG)	9807
TKN (MG/KG)	60631
PHOSPHORUS (MG/KG)	7772
POTASSIUM (MG/KG)	393
pH	8.33
ARSENIC (MG/KG)	1.4
CADMIUM (MG/KG)	0.48
CHROMIUM (MG/KG)	16
COPPER (MG/KG)	76

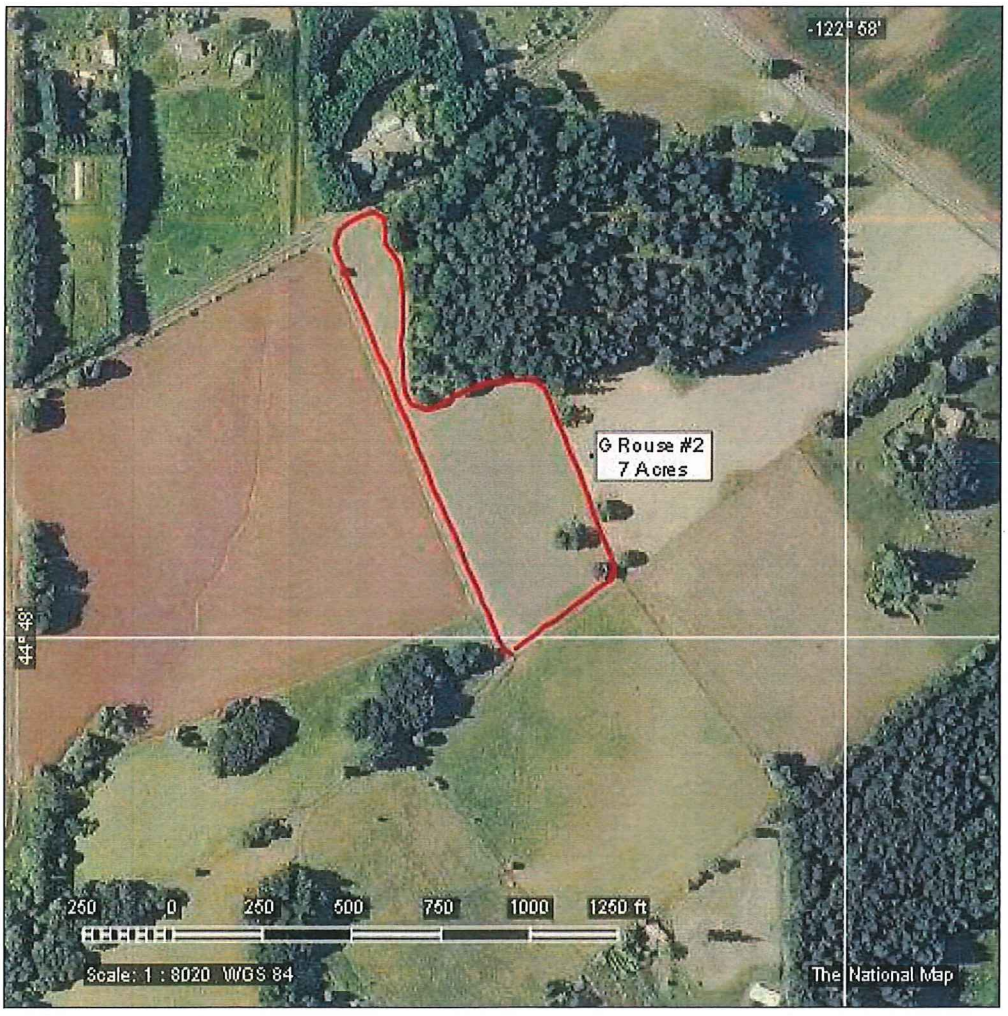
LEAD (MG/KG)	4.5
MERCURY (MG/KG)	0.06
MOLYBDENUM (MG/KG)	2.33
NICKEL (MG/KG)	4.2
SELENIUM (MG/KG)	1.85
SILVER (MG/KG)	0.6
ZINC (MG/KG)	258
1ST YEAR MINERALIZATION RATE	0.30
LIQUID INORGANIC NITROGEN AVAILABILITY FACTOR	0.50
POUNDS OF ORG N AVAILABLE/DRY TON APPLIED	30.50
POUNDS OF INORG N AVAILABLE/DRY TON APPLIED	9.81
POUNDS OF (P.A.N.)/.DRY TON	40.31

APPLICATION SITE WORKSHEET: 2023

Application Dates 6/14/23 to 6/15/23

Soil Sample Collected: 6/16/23 Domestic Well Sample Collected: No

Site and Application Identification: G. Rouse 2 (2_M) Biosolids Product: Liquid DEQ Nitrogen Application Authorization: 100 lbs PAN per Acre (Western Oregon Hay/Pasture)10.76 Wet Tons/Acre Total WTs: 75.31 WTs needed, 75.34 wet tons applied Acreage: 7 Acres
Distance: 20 miles Route To Field: East on Lockhaven, South on I-5 to Sunnyside Turner Exit. East to Enchanted Way. South to Cloverdale Road. South on Parish Gap, West on Summit Loop. Field is on the left.
Field Input and Recommendations: Notify Talmadge of application. 50 ft buffer from ditch along Summit Loop. 200 foot buffer at domestic wells.



G. ROUSE 3

FIELD IDENTIFICATION: G. ROUSE 3 (3_I)	
OWNER: G. ROUSE	
LOCATION: TOWNSHIP: T9S RANGE: R2W SECTION: 7	
START DATE: 6/15/23	
STOP DATE: 6/16/23	
CROP: Western Oregon Hay/Pasture	
TOTAL ACREAGE:	17

DEWATERED BIOSOLIDS APPLICATION RATE INFORMATION	
PERMITTED APPLICATION RATE (PAN POUNDS PER ACRE)	120
DRY TONS BIOSOLIDS PER ACRE	2.98
WET TONS BIOSOLIDS PER ACRE	12.91

TARGET APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76
TOTAL WET TONS TO COMPLETE FIELD	182.89
DATE: Field Finished 6/16/23	
TOTAL WET TONS REMAINING	182.89

FINAL APPLICATION RATE INFORMATION	
FINAL APPLICATION RATE (PAN POUNDS PER ACRE)	100.12
PAN (TOTAL POUNDS APPLIED)	1,702.04
PHOSPHORUS (TOTAL POUNDS APPLIED)	656.35
POTASSIUM (TOTAL POUNDS APPLIED)	33.19
TOTAL WET TONS APPLIED	**183.11**
TOTAL DRY TONS APPLIED	42.23
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.77

BIOSOLIDS ANALYSIS INFORMATION Average of 1/23 through 5/23 centrifuge data	
TOTAL SOLIDS (MG/KG)*	23.06
ORGANIC NITROGEN (MG/KG)	50836
INORGANIC NITROGEN (NH4+NO3) (MG/KG)	9807
TKN (MG/KG)	60631
PHOSPHORUS (MG/KG)	7772
POTASSIUM (MG/KG)	393
pH	8.33
ARSENIC (MG/KG)	1.4
CADMIUM (MG/KG)	0.48
CHROMIUM (MG/KG)	16
COPPER (MG/KG)	76

LEAD (MG/KG)	4.5
MERCURY (MG/KG)	0.06
MOLYBDENUM (MG/KG)	2.33
NICKEL (MG/KG)	4.2
SELENIUM (MG/KG)	1.85
SILVER (MG/KG)	0.6
ZINC (MG/KG)	258
1ST YEAR MINERALIZATION RATE	0.30
LIQUID INORGANIC NITROGEN AVAILABILITY FACTOR	0.50
POUNDS OF ORG N AVAILABLE/DRY TON APPLIED	30.50
POUNDS OF INORG N AVAILABLE/DRY TON APPLIED	9.81
POUNDS OF (P.A.N.)/.DRY TON	40.31

APPLICATION SITE WORKSHEET: 2023

Application Dates: 6/15/23 to 6/16/23

Soil Sample Collected: 6/16/23 Domestic Well Sample Collected: No

Site and Application Identification: G. Rouse 3 (3_K) Biosolids Product: Centrifuge Cake DEQ Nitrogen Application Authorization: 100 lbs PAN per Acre (Western Oregon Hay/Pasture) Application Rate at 10.76 WT/Acre Total wet tons to complete field: 182.89 WTs Total applied: 183.1 wet tons Acreage: 17 Acres
Distance: 20 miles Route To Field: East on Lockhaven, South on I-5 to Sunnyside Turner Exit. East to Enchanted Way. South to Cloverdale Road. South on Parish Gap, West on Summit Loop. Field is on the left. Up Garth Rouse Sr.'s driveway behind his home.
Field Input and Recommendations: 200 foot buffer at domestic wells and residences.

G. ROUSE 4

FIELD IDENTIFICATION: G. ROUSE 4 (4_J)	
OWNER: G. ROUSE	
LOCATION: TOWNSHIP: T9S RANGE: R2W SECTION: 7	
START DATE: 6/13/23	
STOP DATE: 6/14/23	
CROP: Western Oregon Hay/Pasture	
TOTAL ACREAGE:	12

DEWATERED BIOSOLIDS APPLICATION RATE INFORMATION	
PERMITTED APPLICATION RATE (PAN POUNDS PER ACRE)	120
DRY TONS BIOSOLIDS PER ACRE	2.98
WET TONS BIOSOLIDS PER ACRE	12.91

TARGET APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76
TOTAL WET TONS TO COMPLETE FIELD	129.10
DATE: Field Finished: 6/14/23	
TOTAL WET TONS REMAINING	129.10

FINAL APPLICATION RATE INFORMATION	
FINAL APPLICATION RATE (PAN POUNDS PER ACRE)	97.91
PAN (TOTAL POUNDS APPLIED)	1,174.9
PHOSPHORUS (TOTAL POUNDS APPLIED)	453.07
POTASSIUM (TOTAL POUNDS APPLIED)	22.91
TOTAL WET TONS APPLIED	**126.40**
TOTAL DRY TONS APPLIED	29.15
DRY TONS BIOSOLIDS PER ACRE	2.43
WET TONS BIOSOLIDS PER ACRE	10.53

BIOSOLIDS ANALYSIS INFORMATION Average of 1/23 through 5/23 centrifuge data	
TOTAL SOLIDS (MG/KG)*	23.06
ORGANIC NITROGEN (MG/KG)	50836
INORGANIC NITROGEN (NH4+NO3) (MG/KG)	9807
TKN (MG/KG)	60631
PHOSPHORUS (MG/KG)	7772
POTASSIUM (MG/KG)	393
pH	8.33
ARSENIC (MG/KG)	1.4
CADMIUM (MG/KG)	0.48
CHROMIUM (MG/KG)	16
COPPER (MG/KG)	76

LEAD (MG/KG)	4.5
MERCURY (MG/KG)	0.06
MOLYBDENUM (MG/KG)	2.33
NICKEL (MG/KG)	4.2
SELENIUM (MG/KG)	1.85
SILVER (MG/KG)	0.6
ZINC (MG/KG)	258
1ST YEAR MINERALIZATION RATE	0.30
LIQUID INORGANIC NITROGEN AVAILABILITY FACTOR	0.50
POUNDS OF ORG N AVAILABLE/DRY TON APPLIED	30.50
POUNDS OF INORG N AVAILABLE/DRY TON APPLIED	9.81
POUNDS OF (P.A.N.)/.DRY TON	40.31

APPLICATION SITE WORKSHEET: 2023

Application Dates: 6/13/23 to 6/14/23

Soil Sample Collected: 6/16/23 Domestic Well Sample Collected: No

Site and Application Identification: G. Rouse 4 (4_J) Biosolids Product: Centrifuge Cake DEQ Nitrogen Application Authorization: 100 lbs PAN per Acre (Western Oregon Hay/Pasture) Application Rate: 10.76 Wet Tons/Acre Total Wet Tons to Complete Field: 129.10 WT, 126.4 wet tons applied Acreage: 12 Acres
Distance: 20 miles Route To Field: East on Lockhaven, South on I-5 to Sunnyside Turner Exit. East to Enchanted Way. South to Cloverdale Road. South on Parish Gap, West on Summit Loop. Field is on the left. South on Garth Rouse Sr.'s driveway at the corner, go straight into field.
Field Input and Recommendations: 200 foot buffer at domestic wells.

G. ROUSE 5

FIELD IDENTIFICATION: G. ROUSE 5 (5_I)	
OWNER: G. ROUSE	
LOCATION: TOWNSHIP: T9S RANGE: R2W SECTION: 7	
START DATE: 6/12/23	
STOP DATE: 6/13/23	
CROP: Western Oregon Hay/Pasture	
TOTAL ACREAGE:	36

DEWATERED BIOSOLIDS APPLICATION RATE INFORMATION	
PERMITTED APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76

TARGET APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76
TOTAL WET TONS TO COMPLETE FIELD	387.30
DATE: Field Finished: 6/13/23	
TOTAL WET TONS REMAINING	387.30

FINAL APPLICATION RATE INFORMATION	
FINAL APPLICATION RATE (PAN POUNDS PER ACRE)	99.17
PAN (TOTAL POUNDS APPLIED)	3,570.27
PHOSPHORUS (TOTAL POUNDS APPLIED)	1,376.79
POTASSIUM (TOTAL POUNDS APPLIED)	69.62
TOTAL WET TONS APPLIED	**384.10**
TOTAL DRY TONS APPLIED	88.57
DRY TONS BIOSOLIDS PER ACRE	2.46
WET TONS BIOSOLIDS PER ACRE	10.67

BIOSOLIDS ANALYSIS INFORMATION	
Average of 1/23 through 5/23 centrifuge data	
TOTAL SOLIDS (MG/KG)*	23.06
ORGANIC NITROGEN (MG/KG)	50836
INORGANIC NITROGEN (NH4+NO3) (MG/KG)	9807
TKN (MG/KG)	60631
PHOSPHORUS (MG/KG)	7772
POTASSIUM (MG/KG)	393
pH	8.33
ARSENIC (MG/KG)	1.4
CADMIUM (MG/KG)	0.48
CHROMIUM (MG/KG)	16
COPPER (MG/KG)	76

LEAD (MG/KG)	4.5
MERCURY (MG/KG)	0.06
MOLYBDENUM (MG/KG)	2.33
NICKEL (MG/KG)	4.2
SELENIUM (MG/KG)	1.85
SILVER (MG/KG)	0.6
ZINC (MG/KG)	258
1ST YEAR MINERALIZATION RATE	0.30
LIQUID INORGANIC NITROGEN AVAILABILITY FACTOR	0.50
POUNDS OF ORG N AVAILABLE/DRY TON APPLIED	30.50
POUNDS OF INORG N AVAILABLE/DRY TON APPLIED	9.81
POUNDS OF (P.A.N.)/.DRY TON	40.31

APPLICATION SITE WORKSHEET: 2023

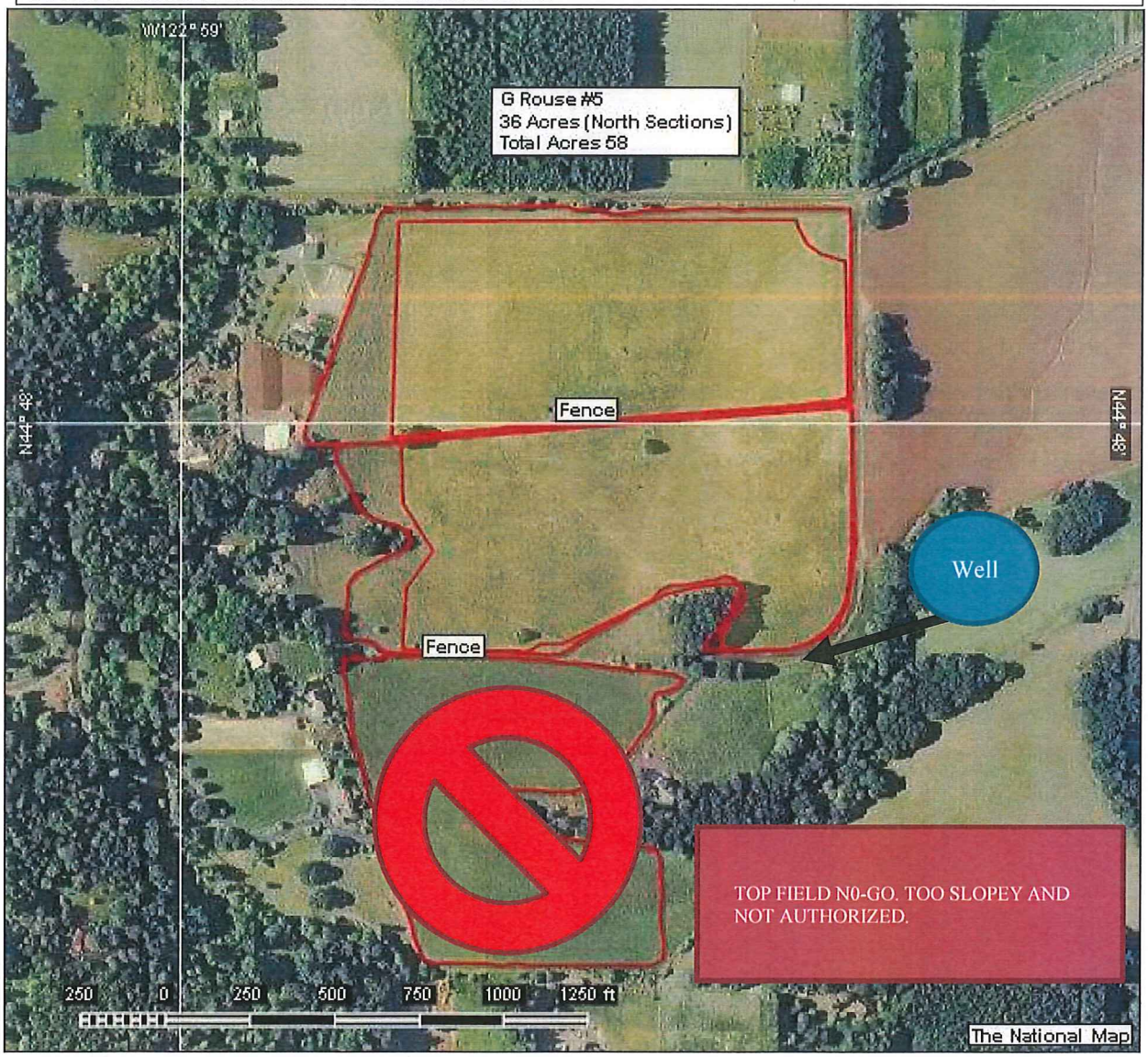
Application Dates: 6/12/23 to 6/13/23

Soil Sample Collected: 6/16/23 Domestic Well Sample Collected: No

Site and Application Identification: G. Rouse 5 (5_I)
Biosolids Product: Centrifuge Cake
DEQ Nitrogen Application Authorization: 100lbs PAN per Acre (Western Oregon Hay/Pasture)
Application Rate is 10.76 WT/Acre
Total wet tons to complete field: 387.30 WT, 384.1 wet tons applied
Acreage: 36 Acres

Distance: 20 miles
Route To Field:
East on Lockhaven, South on I-5 to Sunnyside Turner Exit. East to Enchanted Way. South to Cloverdale Road. South on Parish Gap, West on Summit Loop. Field is on the left. Turn south into Garth Rouse Jr. driveway for access.

Field Input and Recommendations:
200 foot buffer at domestic wells and residences.



T.Klopensien

FIELD IDENTIFICATION: T. Klopensien 1-5-6	
OWNER:Ted Klopenstein	
LOCATION; TOWNSHIP: T8S RANGE: R2W SECTION: 21	
START DATE: 07/07/23	
STOP DATE: 7/10/23	
CROP: annual rye grass	
TOTAL ACREAGE:	20

DEWATERED BIOSOLIDS APPLICATION RATE INFORMATION	
PERMITTED APPLICATION RATE (PAN POUNDS PER ACRE)	120
DRY TONS BIOSOLIDS PER ACRE	2.98
WET TONS BIOSOLIDS PER ACRE	12.91

TARGET APPLICATION RATE (PAN POUNDS PER ACRE)	120
DRY TONS BIOSOLIDS PER ACRE	2.98
WET TONS BIOSOLIDS PER ACRE	12.91
TOTAL WET TONS TO COMPLETE FIELD	258.20
DATE: Field Finished:	
TOTAL WET TONS REMAINING	258.20

FINAL APPLICATION RATE INFORMATION	
FINAL APPLICATION RATE (PAN POUNDS PER ACRE)	120.17
PAN (TOTAL POUNDS APPLIED)	2,403.45
PHOSPHORUS (TOTAL POUNDS APPLIED)	926.83
POTASSIUM (TOTAL POUNDS APPLIED)	46.87
TOTAL WET TONS APPLIED	**258.57**
TOTAL DRY TONS APPLIED	59.63
DRY TONS BIOSOLIDS PER ACRE	2.98
WET TONS BIOSOLIDS PER ACRE	12.93

BIOSOLIDS ANALYSIS INFORMATION	
Average of 1/23 through 5/23 centrifuge data	
TOTAL SOLIDS (MG/KG)*	23.06
ORGANIC NITROGEN (MG/KG)	50836
INORGANIC NITROGEN (NH4+NO3) (MG/KG)	9807
TKN (MG/KG)	60631
PHOSPHORUS (MG/KG)	7772
POTASSIUM (MG/KG)	393
pH	8.33
ARSENIC (MG/KG)	1.4
CADMIUM (MG/KG)	0.48
CHROMIUM (MG/KG)	16
COPPER (MG/KG)	76
LEAD (MG/KG)	4.5

MERCURY (MG/KG)	0.06
MOLYBDENUM (MG/KG)	2.33
NICKEL (MG/KG)	4.2
SELENIUM (MG/KG)	1.85
SILVER (MG/KG)	0.6
ZINC (MG/KG)	258
1ST YEAR MINERALIZATION RATE	0.30
LIQUID INORGANIC NITROGEN AVAILABILITY FACTOR	0.50
POUNDS OF ORG N AVAILABLE/DRY TON APPLIED	30.50
POUNDS OF INORG N AVAILABLE/DRY TON APPLIED	9.81
POUNDS OF (P.A.N.)/.DRY TON	40.31

APPLICATION SITE WORKSHEET: 2013

Application Dates: 7/7/23 to 7/10/23

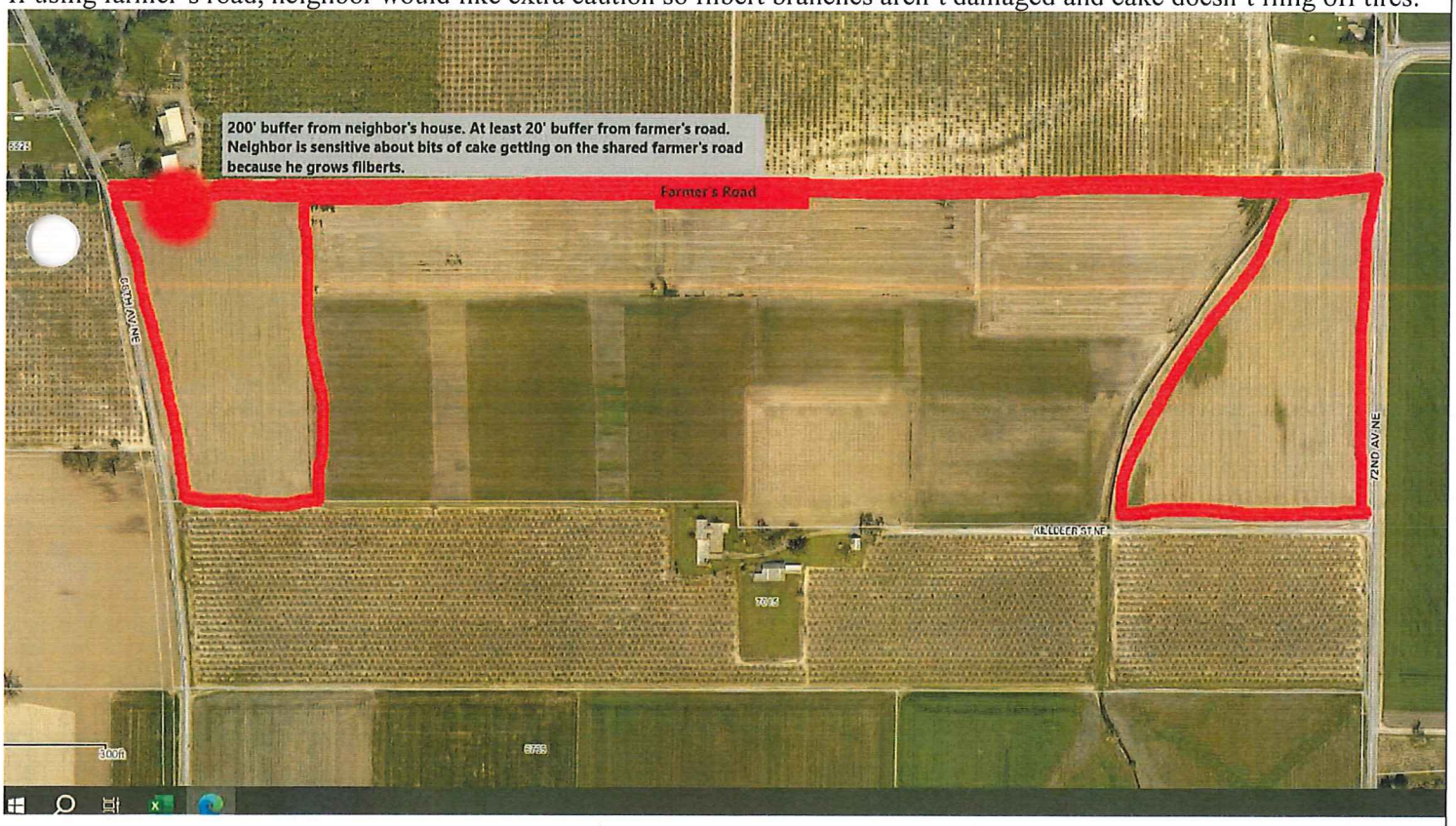
Soil Sample Collected:	7/7/23	Domestic Well Sample Collected:	No

Site and Application Identification: T. Klopfenstein 1-5-6 (1_M)
Biosolids Product: Liquid
DEQ Nitrogen Application Authorization: 120 lbs PAN per Acre (annual rye grass)
Acreage: 20 acres biosolids only, @ 12.91 wt/acre
TOTAL WET TONS TO COMPLETE FIELD: 258.12

Distance:
8 miles
Route To Field:
East on Lockhaven-Hazelgreen. South on 75th. West on Linnette, South on 72nd. Entry points are on NE corner of the field and along Killdeer.
Other field is: East on Lockhaven-Hazelgreen. South on 66th Ave. Field entrance on left. Or, Same instructions for the 12 acre field, but keep going on S 72nd, Right on Juniper St, Right on 66th Ave, field entrance on the right.

Field Input and Recommendations:

50 ft buffer from ditch. 200 foot buffer at dwellings and domestic wells. **No hauling on Sundays.**
If using farmer's road, neighbor would like extra caution so filbert branches aren't damaged and cake doesn't fling off tires.



Jimmy Gross - J. Gross Field 2 South Field (CENT)

FIELD IDENTIFICATION: J. GROSS 2_C)	
OWNER: Jimmy Gross	
LOCATION; TOWNSHIP: T8S RANGE: R2W SECTION: 22	
START DATE: 7/11/23	
STOP DATE: 7/12/23	
CROP: Perennial Ryegrass	
TOTAL ACREAGE:	31

DEWATERED BIOSOLIDS APPLICATION RATE INFORMATION	
PERMITTED APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76

TARGET APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76
TOTAL WET TONS TO COMPLETE FIELD	333.51
DATE: Field Finished: 7/12/23	**329.92**
TOTAL WET TONS REMAINING	3.59

FINAL APPLICATION RATE INFORMATION	
FINAL APPLICATION RATE (PAN POUNDS PER ACRE)	98.92
PAN (TOTAL POUNDS APPLIED)	3,066.66
PHOSPHORUS (TOTAL POUNDS APPLIED)	1,182.58
POTASSIUM (TOTAL POUNDS APPLIED)	59.80
TOTAL WET TONS APPLIED	**329.92**
TOTAL DRY TONS APPLIED	76.08
DRY TONS BIOSOLIDS PER ACRE	2.45
WET TONS BIOSOLIDS PER ACRE	10.64

BIOSOLIDS ANALYSIS INFORMATION	
Average of 1/23 through 5/23 centrifuge data	
TOTAL SOLIDS (MG/KG)*	23.06
ORGANIC NITROGEN (MG/KG)	50836
INORGANIC NITROGEN (NH4+NO3) (MG/KG)	9807
TKN (MG/KG)	60631
PHOSPHORUS (MG/KG)	7772
POTASSIUM (MG/KG)	393
pH	8.33
ARSENIC (MG/KG)	1.4
CADMIUM (MG/KG)	0.48
CHROMIUM (MG/KG)	16
COPPER (MG/KG)	76

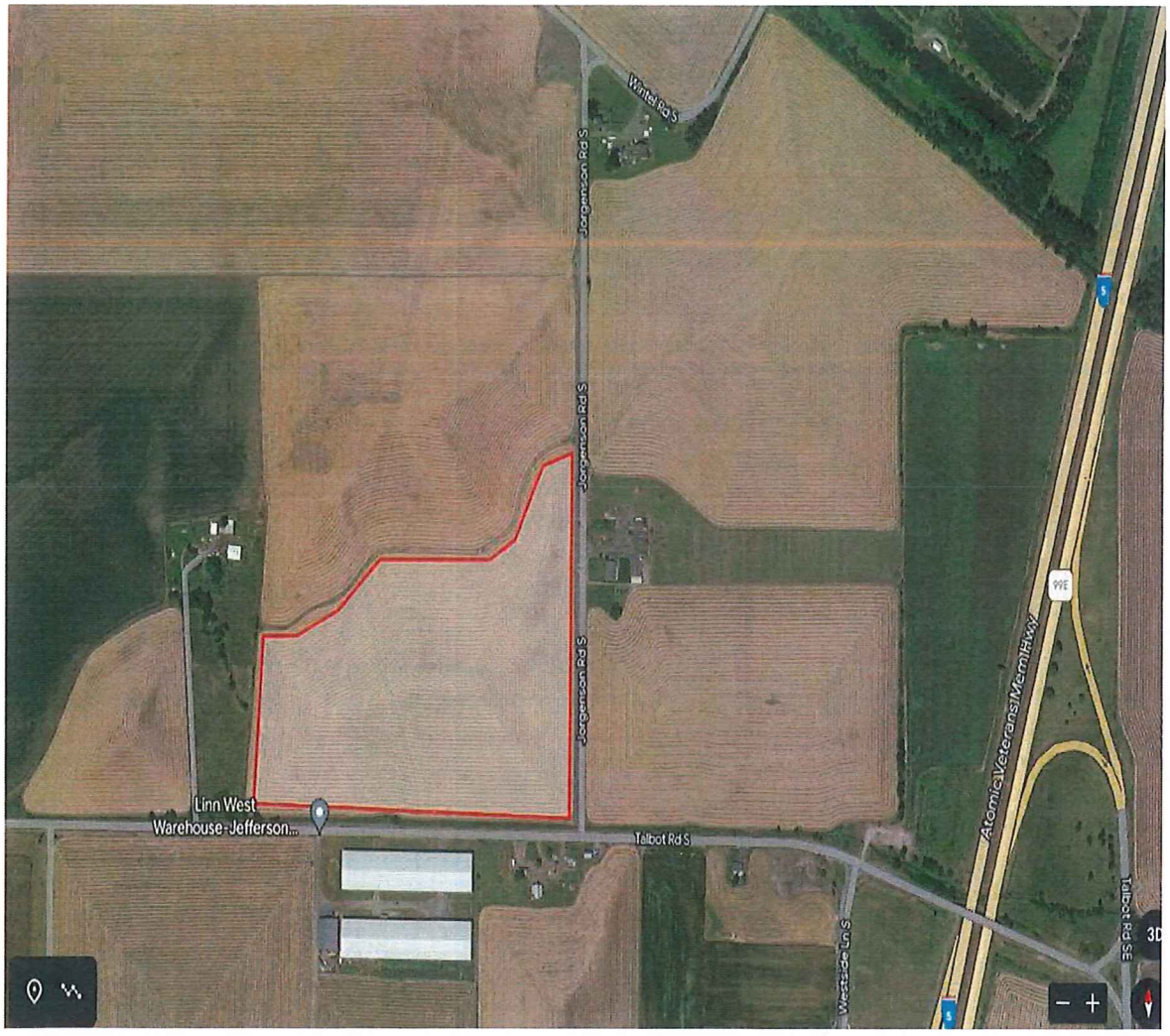
LEAD (MG/KG)	4.5
MERCURY (MG/KG)	0.06
MOLYBDENUM (MG/KG)	2.33
NICKEL (MG/KG)	4.2
SELENIUM (MG/KG)	1.85
SILVER (MG/KG)	0.6
ZINC (MG/KG)	258
1ST YEAR MINERALIZATION RATE	0.30
LIQUID INORGANIC NITROGEN AVAILABILITY FACTOR	0.50
POUNDS OF ORG N AVAILABLE/DRY TON APPLIED	30.50
POUNDS OF INORG N AVAILABLE/DRY TON APPLIED	9.81
POUNDS OF (P.A.N.)/.DRY TON	40.31

APPLICATION SITE WORKSHEET: 2023

Application Dates: 7/11/23 to 7/12/23

Soil Sample Collected: 7/11/23 Domestic Well Sample Collected: N/A

Farm & Field Number: J. Gross 2 (2_E) Biosolids Product: centrifuge cake DEQ Maximum Nitrogen Application Rate: 100 Pounds per Acre Perennial Rye Grass Acreage: 31 Total wet tons to complete field: 333 wet tons
Distance to Field: 23 miles Route To Field: East on Lockhaven, South on I-5 to Exit 242 (Talbot Rd.). Follow loop around to the stop sign. Turn left on Talbot Road. Turn right on Jorgenson Road. Go past the Gross Farm Shops, turn left into field, just opposite a cottonwood tree on right side of the road.
Field Input and Recommendations: 50 ft buffer at roadside ditches.



Jimmy Gross - J. Gross Field 3 South Field (CENT)

FIELD IDENTIFICATION: J. GROSS 3_C)	
OWNER: Jimmy Gross	
LOCATION; TOWNSHIP: T8S RANGE: R2W SECTION: 22	
START DATE: 7/11/23	
STOP DATE: 7/18/23	
CROP: Perennial Ryegrass	
TOTAL ACREAGE:	83

DEWATERED BIOSOLIDS APPLICATION RATE INFORMATION	
PERMITTED APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76

TARGET APPLICATION RATE (PAN POUNDS PER ACRE)	110
DRY TONS BIOSOLIDS PER ACRE	2.73
WET TONS BIOSOLIDS PER ACRE	11.83
TOTAL WET TONS TO COMPLETE FIELD	982.23
DATE: Field Finished: 7/18/23	**980.40**
TOTAL WET TONS REMAINING	1.83

FINAL APPLICATION RATE INFORMATION	
FINAL APPLICATION RATE (PAN POUNDS PER ACRE)	109.79
PAN (TOTAL POUNDS APPLIED)	9,112.98
PHOSPHORUS (TOTAL POUNDS APPLIED)	3,514.19
POTASSIUM (TOTAL POUNDS APPLIED)	177.70
TOTAL WET TONS APPLIED	**980.40**
TOTAL DRY TONS APPLIED	226.08
DRY TONS BIOSOLIDS PER ACRE	2.72
WET TONS BIOSOLIDS PER ACRE	11.81

BIOSOLIDS ANALYSIS INFORMATION	
Average of 1/23 through 5/23 centrifuge data	
TOTAL SOLIDS (MG/KG)*	23.06
ORGANIC NITROGEN (MG/KG)	50836
INORGANIC NITROGEN (NH4+NO3) (MG/KG)	9807
TKN (MG/KG)	60631
PHOSPHORUS (MG/KG)	7772
POTASSIUM (MG/KG)	393
pH	8.33
ARSENIC (MG/KG)	1.4
CADMIUM (MG/KG)	0.48
CHROMIUM (MG/KG)	16
COPPER (MG/KG)	76

LEAD (MG/KG)	4.5
MERCURY (MG/KG)	0.06
MOLYBDENUM (MG/KG)	2.33
NICKEL (MG/KG)	4.2
SELENIUM (MG/KG)	1.85
SILVER (MG/KG)	0.6
ZINC (MG/KG)	258
1ST YEAR MINERALIZATION RATE	0.30
LIQUID INORGANIC NITROGEN AVAILABILITY FACTOR	0.50
POUNDS OF ORG N AVAILABLE/DRY TON APPLIED	30.50
POUNDS OF INORG N AVAILABLE/DRY TON APPLIED	9.81
POUNDS OF (P.A.N.)/.DRY TON	40.31

APPLICATION SITE WORKSHEET: 2023

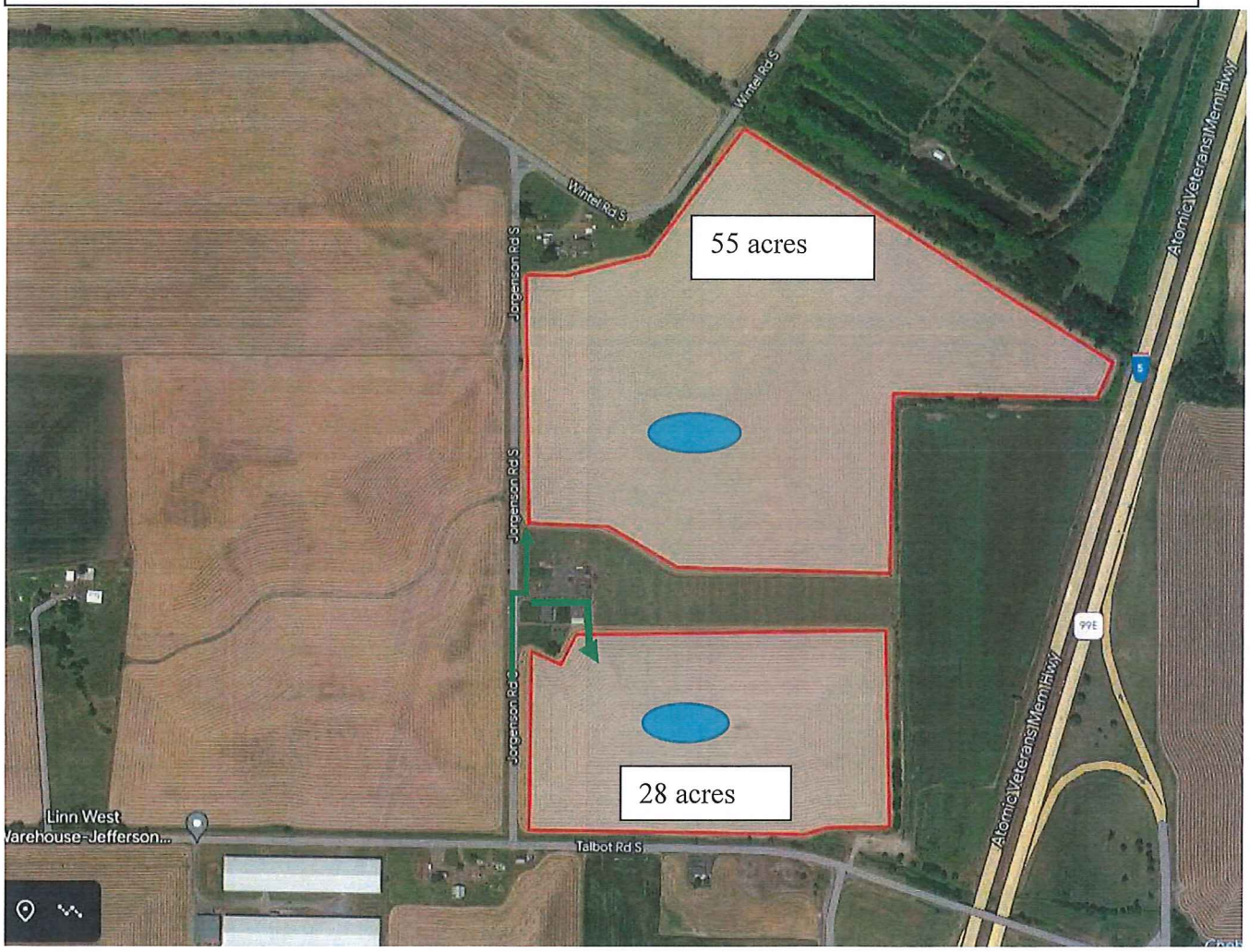
Application Dates 7/11/23 to 7/18/23

Soil Sample Collected: 7/11/23 Domestic Well Sample Collected: NA

Farm & Field Number: J. Gross 3
Biosolids Product: centrifuge cake
DEQ Maximum Nitrogen Application Rate: 100 Pounds per Acre/ 10.76 Wet Tons per acre Wet tons to complete field 651 wet tons (55 acre) & 331 wet tons (28 acre)
Distance to Field: 23 miles

Best Route To Field: East on Lockhaven, South on I-5 to Exit 242 (Talbot Rd.). Follow loop around to the stop sign. Turn left on Talbot Road. Turn right on Jorgenson Road. Turn into the Gross Farm Shops, North Field, turn left into field just when entering the Farm Yard. South field, go to the end of Farm Yard and turn right into field.

Field Input and Recommendations:. Buffers: 200 ft at North West corner (for house). 50 foot buffer at roadside ditches.



Jimmy Gross - J. Gross Mason Field (Cent)

FIELD IDENTIFICATION: J. GROSS Mason Field	
OWNER: Jimmy GROSS	
LOCATION: TOWNSHIP: T9S RANGE: R2W SECTION: 32	
START DATE: 7/18/23	
STOP DATE: 7/27/23	
CROP: Perennial Ryegrass	
TOTAL ACREAGE:	68

DEWATERED BIOSOLIDS APPLICATION RATE INFORMATION	
PERMITTED APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76

TARGET APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76
TOTAL WET TONS TO COMPLETE FIELD	729.63
DATE: Field Finished: 7/27/23	
TOTAL WET TONS REMAINING	729.63

FINAL APPLICATION RATE INFORMATION	
FINAL APPLICATION RATE (PAN POUNDS PER ACRE)	95.13
PAN (TOTAL POUNDS APPLIED)	6,451.40
PHOSPHORUS (TOTAL POUNDS APPLIED)	2,487.82
POTASSIUM (TOTAL POUNDS APPLIED)	125.80
TOTAL WET TONS APPLIED	**694.06**
TOTAL DRY TONS APPLIED	160.05
DRY TONS BIOSOLIDS PER ACRE	2.36
WET TONS BIOSOLIDS PER ACRE	10.23

BIOSOLIDS ANALYSIS INFORMATION	
Average of 1/23 through 5/23 centrifuge data	
TOTAL SOLIDS (MG/KG)*	23.06
ORGANIC NITROGEN (MG/KG)	50836
INORGANIC NITROGEN (NH4+NO3) (MG/KG)	9807
TKN (MG/KG)	60631
PHOSPHORUS (MG/KG)	7772
POTASSIUM (MG/KG)	393
pH	8.33
ARSENIC (MG/KG)	1.4
CADMIUM (MG/KG)	0.48
CHROMIUM (MG/KG)	16
COPPER (MG/KG)	76

LEAD (MG/KG)	4.5
MERCURY (MG/KG)	0.06
MOLYBDENUM (MG/KG)	2.33
NICKEL (MG/KG)	4.2
SELENIUM (MG/KG)	1.85
SILVER (MG/KG)	0.6
ZINC (MG/KG)	258
1ST YEAR MINERALIZATION RATE	0.30
LIQUID INORGANIC NITROGEN AVAILABILITY FACTOR	0.50
POUNDS OF ORG N AVAILABLE/DRY TON APPLIED	30.50
POUNDS OF INORG N AVAILABLE/DRY TON APPLIED	9.81
POUNDS OF (P.A.N.)/.DRY TON	40.31

	Field	Acres	Labor $	Diesel $	Dry tons	PAN lbs applied
CENT	Gross 2	#REF!	#REF!	#REF!	#REF!	#REF!
	Gross Mason	68	#DIV/0!	$0.00	160.05	6,451.40
	Gross 3	0	#DIV/0!	$0.00	0.00	-
	Gross 11	0	#DIV/0!	$0.00	0.00	-
	Total	**#REF!**			**#REF!**	

land application labor	5.30	acres/hr	farm labor rate
or price per acre	**9.00**	**$/acre**	

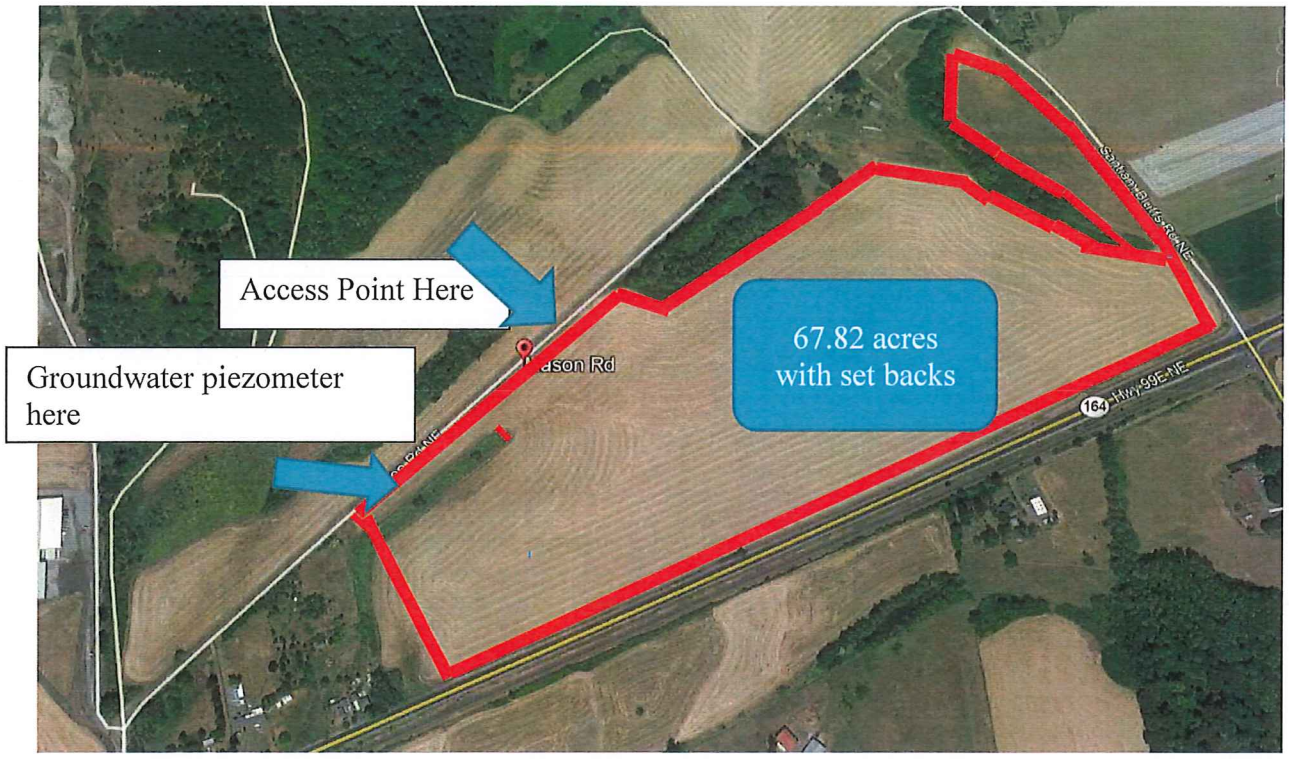
APPLICATION SITE WORKSHEET: 2023

Application Dates: 7/18/23 to 7/27/23
Soil Sample Collected: 7/14/23 Domestic Well Sample Collected: N/A

Farm & Field Number: J. Gross Mason Field
Biosolids Product: Centrifuge Cake
DEQ Maximum Nitrogen Application Rate: 100 Pounds per Acre.
Application Rate = 10.76 WT/acre
Total tonnage on field = 729.7 wet tons
Acreage: 67.82 Acres with setbacks
Distance to Field: 26 miles

East on Lockhaven, South on I-5 (20.0 miles) to Exit 239 (Toward Dever-Conner.). Turn left on Dever-Conner Rd NE. Continue onto Santiam Bluffs Rd. NE Turn Right onto Mason Rd. In 0.4-mile, field entrance will be on the left.

Field Input and Recommendations:
50-foot buffer at roadside ditches.
200 feet from wells and residences



Jimmy Gross - J. Gross Field 11 (Cent)

FIELD IDENTIFICATION: J. GROSS 11_C)	
OWNER: Jimmy Gross	
LOCATION: TOWNSHIP: T9S RANGE: R2W SECTION: 32	
START DATE: 7/24/23	
STOP DATE: 7/31/23	
CROP: Perennial Ryegrass	
TOTAL ACREAGE:	90

DEWATERED BIOSOLIDS APPLICATION RATE INFORMATION	
PERMITTED APPLICATION RATE (PAN POUNDS PER ACRE)	120
DRY TONS BIOSOLIDS PER ACRE	2.98
WET TONS BIOSOLIDS PER ACRE	12.91

TARGET APPLICATION RATE (PAN POUNDS PER ACRE)	120
DRY TONS BIOSOLIDS PER ACRE	2.98
WET TONS BIOSOLIDS PER ACRE	12.91
TOTAL WET TONS TO COMPLETE FIELD	1,161.89
DATE: Field Finished: 7/31/23	
TOTAL WET TONS REMAINING	1,161.89

FINAL APPLICATION RATE INFORMATION	
FINAL APPLICATION RATE (PAN POUNDS PER ACRE)	120.53
PAN (TOTAL POUNDS APPLIED)	10,847.9
PHOSPHORUS (TOTAL POUNDS APPLIED)	4,183.23
POTASSIUM (TOTAL POUNDS APPLIED)	211.53
TOTAL WET TONS APPLIED	**1,167.05**
TOTAL DRY TONS APPLIED	269.12
DRY TONS BIOSOLIDS PER ACRE	2.99
WET TONS BIOSOLIDS PER ACRE	12.97

BIOSOLIDS ANALYSIS INFORMATION	
Average of 1/23 through 5/23 centrifuge data	
TOTAL SOLIDS (MG/KG)*	23.06
ORGANIC NITROGEN (MG/KG)	50836
INORGANIC NITROGEN (NH4+NO3) (MG/KG)	9807
TKN (MG/KG)	60631
PHOSPHORUS (MG/KG)	7772
POTASSIUM (MG/KG)	393
pH	8.33
ARSENIC (MG/KG)	1.4
CADMIUM (MG/KG)	0.48
CHROMIUM (MG/KG)	16
COPPER (MG/KG)	76

LEAD (MG/KG)	4.5
MERCURY (MG/KG)	0.06
MOLYBDENUM (MG/KG)	2.33
NICKEL (MG/KG)	4.2
SELENIUM (MG/KG)	1.85
SILVER (MG/KG)	0.6
ZINC (MG/KG)	258
1ST YEAR MINERALIZATION RATE	0.30
LIQUID INORGANIC NITROGEN AVAILABILITY FACTOR	0.50
POUNDS OF ORG N AVAILABLE/DRY TON APPLIED	30.50
POUNDS OF INORG N AVAILABLE/DRY TON APPLIED	9.81
POUNDS OF (P.A.N.)/.DRY TON	40.31

Field	Field Total $
Gross 2	3854
Gross Mason	8123
Gross 3	11399
Gross 11	13518
Total	36895

APPLICATION SITE WORKSHEET: 2023

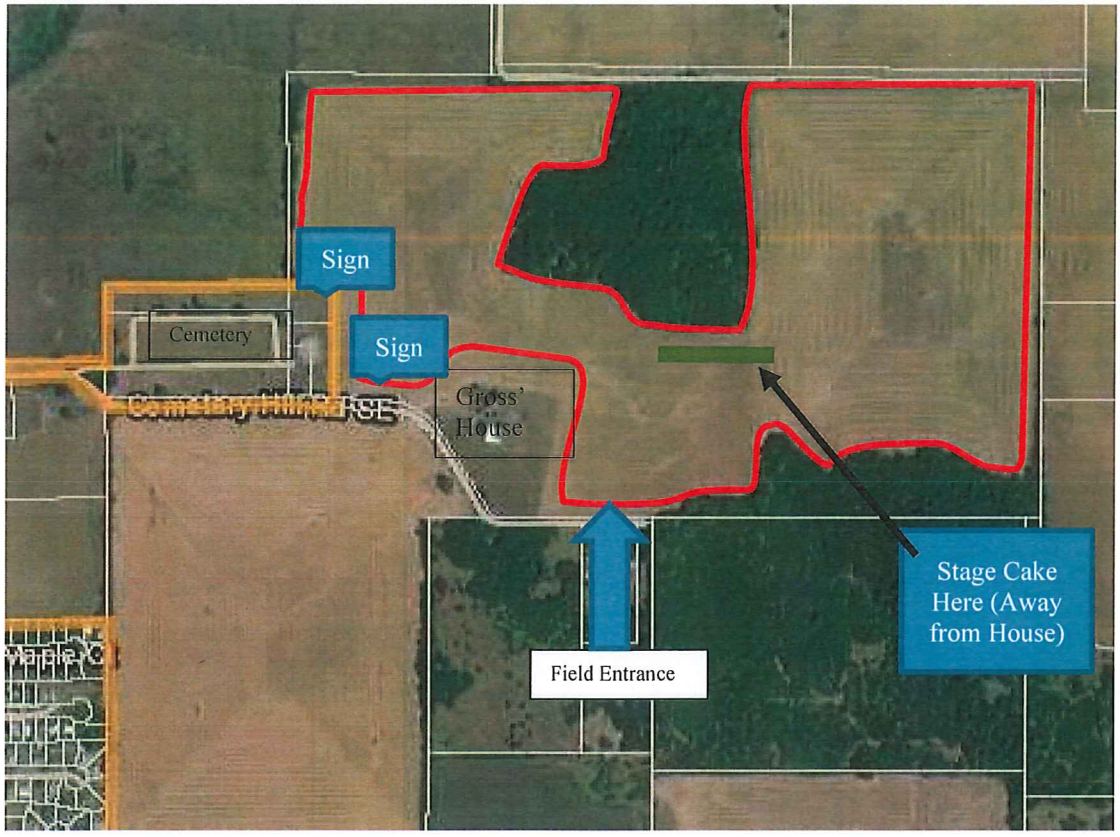
Application Dates: 7/24/23 to 7/31/23

Soil Sample Collected:	7/12/23	Domestic Well Sample Collected:	NA

Farm & Field Number: J. Gross Field 11 (11_A)
Biosolids Product:, CENT Biosolids
DEQ Maximum Nitrogen Application Rate: Perennial Ryegrass 120 lbs per acre
Crop: Perennial Ryegrass 95 acres
Acreage: Total 90 acres
Amount to haul @ 12.91 wet tons/acre: 1161.89 wet tons

Distance to Field: 24.3 miles
Route To Field:
Turn right on Windsor Island Road when leaving the Willow Lake Facility. Left on Lockhaven Road. Continue onto I-5 North bound for 14.8 miles. Take exit 244 towards Jefferson, turn left onto OR-164 and continue for 5.3 miles. Turn left onto E North Ave and continue for 0.2 miles then take a right onto Cemetery Hill Rd SE after 0.8 miles you will arrive at the entrance of the field.

Field Input and Recommendations:
50 ft buffer roads, roadside ditches. 200 feet from domestic wells and residences.
Post signs on agricultural site, adjacent to cemetery property.



P. Manning Rock Hill Field A (Cent)

FIELD IDENTIFICATION: P.Manning Rock Hill A Field	
OWNER:Pat Manning	
LOCATION; TOWNSHIP: T4S RANGE: R13E SECTION:2	
START DATE: 8/1/2023	
STOP DATE: 8/10/2023	
CROP: Perennial Ryegrass	
TOTAL ACREAGE:	128

DEWATERED BIOSOLIDS APPLICATION RATE INFORMATION	
PERMITTED APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76

TARGET APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76
TOTAL WET TONS TO COMPLETE FIELD	1,377.06
DATE: Field Finished:	
TOTAL WET TONS REMAINING	1,377.06

FINAL APPLICATION RATE INFORMATION	
FINAL APPLICATION RATE (PAN POUNDS PER ACRE)	100.27
PAN (TOTAL POUNDS APPLIED)	12,835.13
PHOSPHORUS (TOTAL POUNDS APPLIED)	4,949.55
POTASSIUM (TOTAL POUNDS APPLIED)	250.28
TOTAL WET TONS APPLIED	**1,380.84**
TOTAL DRY TONS APPLIED	318.42
DRY TONS BIOSOLIDS PER ACRE	2.49
WET TONS BIOSOLIDS PER ACRE	10.79

BIOSOLIDS ANALYSIS INFORMATION	
Average of 1/23 through 5/23 centrifuge data	
TOTAL SOLIDS (MG/KG)*	23.06
ORGANIC NITROGEN (MG/KG)	50836
INORGANIC NITROGEN (NH4+NO3) (MG/KG)	9807
TKN (MG/KG)	60631
PHOSPHORUS (MG/KG)	7772
POTASSIUM (MG/KG)	393
pH	8.33
ARSENIC (MG/KG)	1.4
CADMIUM (MG/KG)	0.48
CHROMIUM (MG/KG)	16
COPPER (MG/KG)	76

LEAD (MG/KG)	4.5
MERCURY (MG/KG)	0.06
MOLYBDENUM (MG/KG)	2.33
NICKEL (MG/KG)	4.2
SELENIUM (MG/KG)	1.85
SILVER (MG/KG)	0.6
ZINC (MG/KG)	258
1ST YEAR MINERALIZATION RATE	0.30
LIQUID INORGANIC NITROGEN AVAILABILITY FACTOR	0.50
POUNDS OF ORG N AVAILABLE/DRY TON APPLIED	30.50
POUNDS OF INORG N AVAILABLE/DRY TON APPLIED	9.81
POUNDS OF (P.A.N.)/.DRY TON	40.31

APPLICATION SITE WORKSHEET: 2023

Application Dates: 8/1/23 to 8/10/23

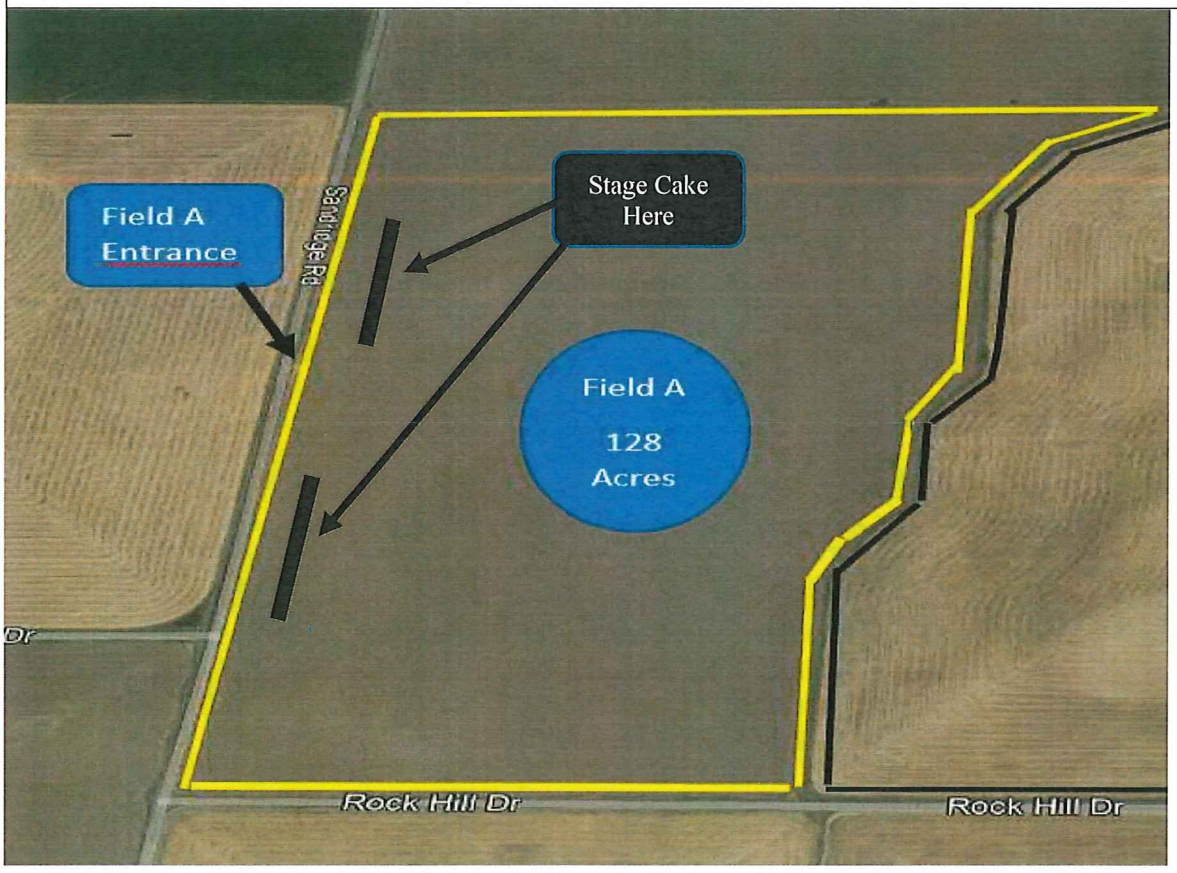
Soil Sample Collected: 7/28/23 Domestic Well Sample Colle No

Site and Application Identification: Manning Rock Hill Field A
Biosolids Product: Centrifuge Cake.
DEQ Nitrogen Application Authorization: 100 lbs PAN per Acre. Rate – 10.76 Wet Tons/ Acre
128 Acres with setbacks
Wet Tons needed – 1,377 Wet Tons
Distance: 44 miles

Directions To Field:

Turn onto Lockhaven Dr. N.
East on Lockhaven,
South on I-5 for 29 miles to Exit 228 Hwy 34(Lebanon/Corvallis exit.
Turn left onto hwy 34(heading east)
Turn Right at 7-mile rd and continue south for 5 miles.
7-mile rd makes a left-hand turn and then continue straight for 0.5 miles. and then continue straight onto Plain view Rd. For 2.5 miles.
Turn left onto Sandridge Rd.
The field entrance will be on the right side for the A field.

Field Input and Recommendations:
50-foot buffers at ditches and roads. 200-foot buffer at domestic wells and residences.



McCormick

FIELD IDENTIFICATION: Creek Bend Field	
OWNER: Richard McCormick	
LOCATION; TOWNSHIP: 13S RANGE: 4W SECTION: 27 TL 300	
START DATE: 8/30/23	
STOP DATE: 9/20/23	
CROP: fescue	
TOTAL ACREAGE:	96

DEWATERED BIOSOLIDS APPLICATION RATE INFORMATION	
PERMITTED APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76

TARGET APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76
TOTAL WET TONS TO COMPLETE FIELD	1,032.80
TOTAL WET TONS REMAINING	(1,022.04)

FINAL APPLICATION RATE INFORMATION	
FINAL APPLICATION RATE (PAN POUNDS PER ACRE)	100.00
PAN (TOTAL POUNDS APPLIED)	9,600.00
PHOSPHORUS (TOTAL POUNDS APPLIED)	3,701.94
POTASSIUM (TOTAL POUNDS APPLIED)	187.19
TOTAL WET TONS APPLIED	**1032.78**
TOTAL DRY TONS APPLIED	238.16
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76

BIOSOLIDS ANALYSIS INFORMATION	
Average of 1/23 through 5/23 centrifuge data	
TOTAL SOLIDS (MG/KG)*	23.06
ORGANIC NITROGEN (MG/KG)	50836
INORGANIC NITROGEN (NH4+NO3) (MG/KG)	9807
TKN (MG/KG)	60631
PHOSPHORUS (MG/KG)	7772
POTASSIUM (MG/KG)	393
pH	8.33
ARSENIC (MG/KG)	1.4
CADMIUM (MG/KG)	0.48
CHROMIUM (MG/KG)	16
COPPER (MG/KG)	76
LEAD (MG/KG)	4.5

MERCURY (MG/KG)	0.06
MOLYBDENUM (MG/KG)	2.33
NICKEL (MG/KG)	4.2
SELENIUM (MG/KG)	1.85
SILVER (MG/KG)	0.6
ZINC (MG/KG)	258
1ST YEAR MINERALIZATION RATE	0.30
LIQUID INORGANIC NITROGEN AVAILABILITY FACTOR	0.50
POUNDS OF ORG N AVAILABLE/DRY TON APPLIED	30.50
POUNDS OF INORG N AVAILABLE/DRY TON APPLIED	9.81
POUNDS OF (P.A.N.)/.DRY TON	40.31
POUNDS OF (P.A.N.)/.DRY TON	50.12

APPLICATION SITE WORKSHEET: 2023

Application Dates: August 30 to 09/20/23

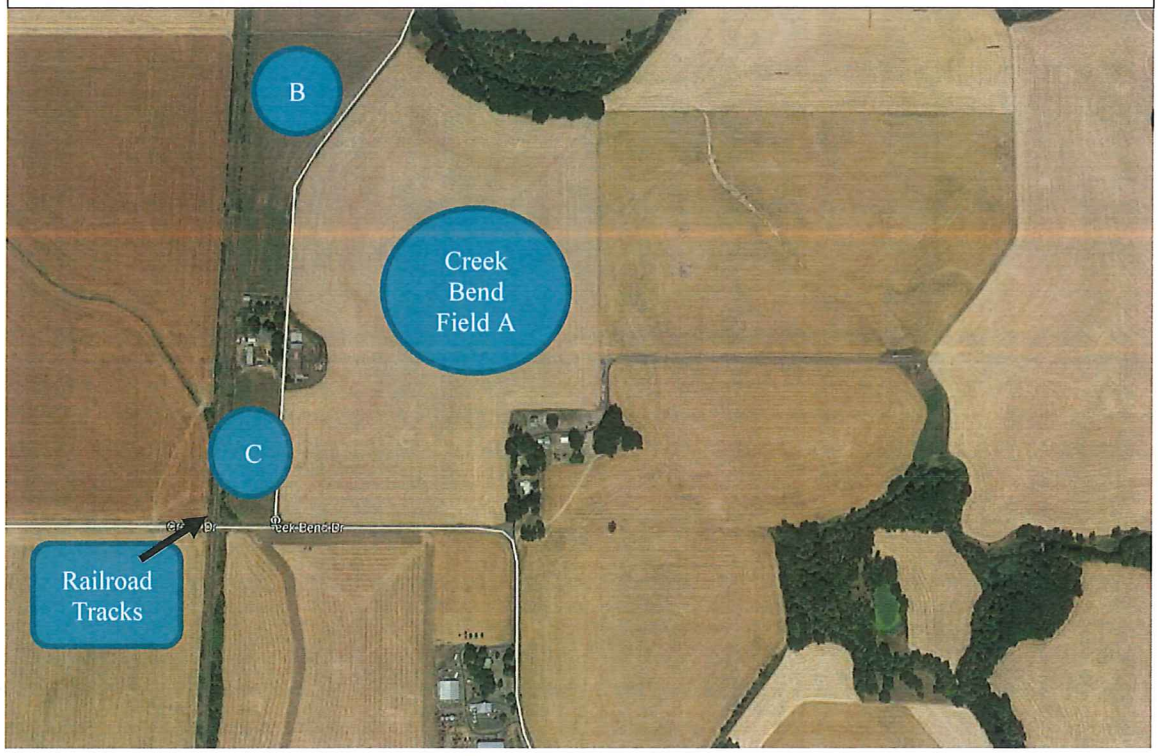
Soil Sample Collected: 9/5/23 Domestic Well Sample Collected: No

Site and Application Identification: McCormick Creek Bend Field
Biosolids Product: Centrifuge Cake .
DEQ Nitrogen Application Authorization: 100 lbs PAN per Acre. 10.76 Wet Tons/ Acre
1033 Wet Tons needed Wet Tons
Field A = 78 acres,839 Wet Tons
Field B =14 acres, 150.6 Wet Tons
Field C= 4 acres, 43.04 Wet Tons
Total of all three fields = 96 Acreage with buffers
Distance: 56 miles

Directions To Field:

East on Lockhaven, South on I-5 for (43 miles) to Or-228 in Linn County. Take Exit 216 from I-5 S. Turn right onto OR-228 and continue straight on American Dr. Just before the entrance to the Paper Mill, turn right on Creek Bend Dr. Before the railroad tracks, stay right to stay on Creek Bend Dr The field is on both sides of the road. The entrance to A field and B field are on the North ends of the field. Entrance to C field is close to McCormick's farmyard on the West side of the Road.

Field Input and Recommendations:
50-foot buffers at ditches and roads. 200-foot buffer at domestic wells and residences.



FIELD IDENTIFICATION: Keene-Manning Field B (BNSF railroad field)	
OWNER: Mark McKay	
LOCATION; TOWNSHIP: 5S RANGE: 2W SECTION: 2W	
START DATE: 9/20/23	
STOP DATE:	
CROP: Annual Ryegrass	
TOTAL ACREAGE:	86

DEWATERED BIOSOLIDS APPLICATION RATE INFORMATION	
PERMITTED APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76

TARGET APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76
TOTAL WET TONS TO COMPLETE FIELD	925.21
DATE Field Finished:	
TOTAL WET TONS REMAINING	925.21

FINAL APPLICATION RATE INFORMATION	
FINAL APPLICATION RATE (PAN POUNDS PER ACRE)	99.98
PAN (TOTAL POUNDS APPLIED)	8,598.03
PHOSPHORUS (TOTAL POUNDS APPLIED)	3,315.61
POTASSIUM (TOTAL POUNDS APPLIED)	167.66
TOTAL WET TONS APPLIED	**925.00**
TOTAL DRY TONS APPLIED	213.31
DRY TONS BIOSOLIDS PER ACRE	2.48
WET TONS BIOSOLIDS PER ACRE	10.76

Continued on next page

BIOSOLIDS ANALYSIS INFORMATION	
Average of 1/23 through 5/23 centrifuge data	
TOTAL SOLIDS (MG/KG)*	23.06
ORGANIC NITROGEN (MG/KG)	50836
INORGANIC NITROGEN (NH4+NO3) (MG/KG)	9807
TKN (MG/KG)	60631
PHOSPHORUS (MG/KG)	7772
POTASSIUM (MG/KG)	393
pH	8.33
ARSENIC (MG/KG)	1.4
CADMIUM (MG/KG)	0.48
CHROMIUM (MG/KG)	16
COPPER (MG/KG)	76
LEAD (MG/KG)	4.5
MERCURY (MG/KG)	0.06
MOLYBDENUM (MG/KG)	2.33
NICKEL (MG/KG)	4.2
SELENIUM (MG/KG)	1.85
SILVER (MG/KG)	0.6
ZINC (MG/KG)	258
1ST YEAR MINERALIZATION RATE	0.30
LIQUID INORGANIC NITROGEN AVAILABILITY FACTOR	0.50
POUNDS OF ORG N AVAILABLE/DRY TON APPLIED	30.50
POUNDS OF INORG N AVAILABLE/DRY TON APPLIED	9.81
POUNDS OF (P.A.N.)/.DRY TON	40.31

FIELD IDENTIFICATION: Keene-Manning Field B (BNSF railroad field)	
OWNER: Mark McKay	
CROP: Annual Ryegrass	
TOTAL ACREAGE:	25

DEWATERED BIOSOLIDS APPLICATION RATE INFORMATION	
PERMITTED APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	3.61
WET TONS BIOSOLIDS PER ACRE	5.52

TARGET APPLICATION RATE (PAN POUNDS PER ACRE)	100
DRY TONS BIOSOLIDS PER ACRE	3.61
WET TONS BIOSOLIDS PER ACRE	5.52
TOTAL WET TONS TO COMPLETE FIELD	138.02
DATE Field Finished:	
TOTAL WET TONS REMAINING	138.02

FINAL APPLICATION RATE INFORMATION	
FINAL APPLICATION RATE (PAN POUNDS PER ACRE)	99.04
PAN (TOTAL POUNDS APPLIED)	2,476.04
PHOSPHORUS (TOTAL POUNDS APPLIED)	128.21
POTASSIUM (TOTAL POUNDS APPLIED)	132.87
TOTAL WET TONS APPLIED	**136.70**
TOTAL DRY TONS APPLIED	89.31
DRY TONS BIOSOLIDS PER ACRE	3.57
WET TONS BIOSOLIDS PER ACRE	5.47

BIOSOLIDS ANALYSIS INFORMATION	
After Windrow Pilot Study	
TOTAL SOLIDS (MG/KG)*	65.33
ORGANIC NITROGEN (MG/KG)	37148
INORGANIC NITROGEN (NH4+NO3) (MG/KG)	5437
TKN (MG/KG)	45000
PHOSPHORUS (MG/KG)	718
POTASSIUM (MG/KG)	744
pH	7.10
1ST YEAR MINERALIZATION RATE	0.30
LIQUID INORGANIC NITROGEN AVAILABILITY FACTOR	0.50
POUNDS OF ORG N AVAILABLE/DRY TON APPLIED	22.29
POUNDS OF INORG N AVAILABLE/DRY TON APPLIED	5.44
POUNDS OF (P.A.N.)/.DRY TON	27.73

APPLICATION SITE WORKSHEET: 2023

09/20 to 10/5/23

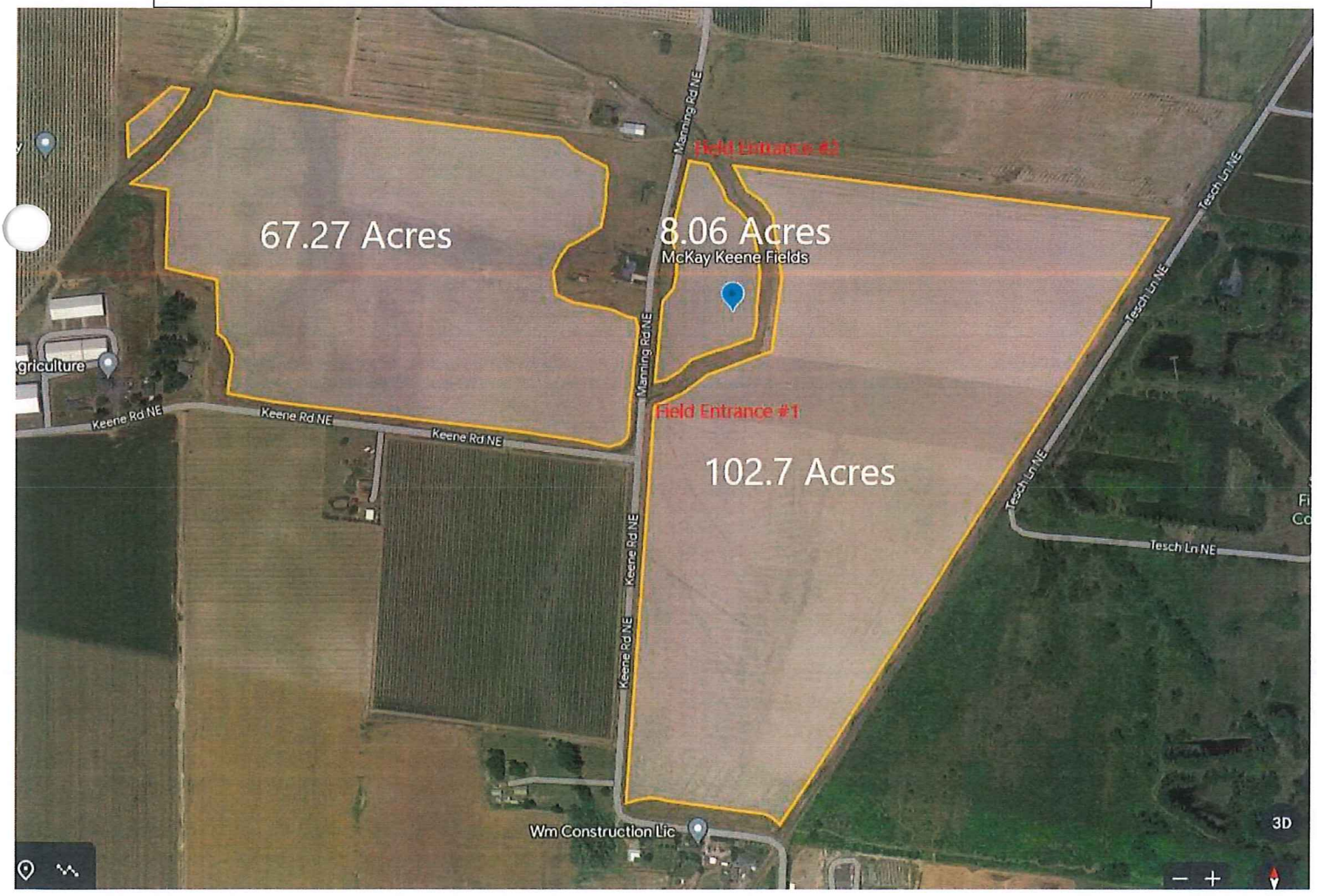
Soil Sample Collected:	9/15/23	Domestic Well Sample Collected:	No

Site and Application Identification: McKay Keene-Manning Field AKA BNSF field
Biosolids Products: Centrifuge Cake and dried Centrifuge Cake (pilot study)
DEQ Nitrogen Application Authorization: 100 lbs PAN per Acre.
Acreage: 8.06 acres + 102.7 acres (note: BNSF field is the ~110 acres on the right of the map)
Centrifuge cake: 10.76 Wet Tons/ Acre (882 wet tons over 82 acres)
Dried centrifuge cake: 4.69 wet tons/acre (136.7 wet tons total over 29 acres)
Distance: 10 miles

Directions To Field:

Turn Right onto Windsor Island Rd. N
Turn Left onto Lockhaven Dr N
Turn Left onto River RD NE
Turn Right onto Keene Rd NE
Turn left onto Manning Rd NE, field entrances on Right.

Field Input and Recommendations:
50-foot buffers at ditches and roads. 200-foot buffer at domestic wells and residences.



Section 7: Updated Biosolids Spill Plan

City of Salem
Willow Lake Water Pollution Control Facility
5915 Windsor Island Road North
Salem OR 97302

CITY OF SALEM BIOSOLIDS TRANSPORT SPILL RESPONSE PLAN

BIOGRO™ PROGRAM
Biosolids to Land Application

Revised January 2024

CONTENTS

BIOSOLIDS TRANSPORT SPILL RESPONSE PLAN
INFORMATION SHEET

(It is only necessary to dial the last four digits of a number within the city phone system.)

1. Facility Name: Willow Lake Water Pollution Control Facility
   Facility Ownership: City of Salem, Oregon (Municipality)
   Address: 5915 Windsor Island Road North
   Salem, OR 97303

2. Facility Contacts: Jue Zhao 503-588-6380
   Wastewater Division Manager

   Patrick Kavan 503-588-6380
   Biosolids Supervisor

3. Public Works Dispatch: 503-588-6333
   503-588-6063

4. Environmental Services: Nitin Joshi 503-588-6647
   Environmental Compliance Manager

5. City Shops: 503-588-6327

6. Risk Management: Michelle Teed 503-589-2086
   Risk Manager

7. Oregon Department of Environmental Quality (ODEQ): 1-800-542-4011
   Local Address: 4026 Fairview Industrial Dr. SE
   Salem, OR 97302

8. ODEQ Contact: Steve McMillan 1-541-686-7799
   Land Application Specialist & Water Quality Compliance

GENERAL INFORMATION

Definition of Material

Biosolids are processed organic residual solids from domestic wastewater treatment, containing nitrogen, phosphorus, potassium, trace metals, and some pathogenic (disease-causing) organisms. Willow Lake Water Pollution Control Facility (WLWPCF) biosolids have undergone several processes to significantly reduce pathogens and reduce volatile solids to the extent that they do not attract vectors.

Biosolids being transported are typically 2 to 3 percent total solids for liquids and 16 to 26 percent total solids for cake. The solids in both liquid and cake material contains 10 percent volatile solids and have a pH between 7 and 8.3.

BIOGRO™ Staffing and Equipment

The City of Salem utilizes plant staff and equipment for local hauling of cake and solids during the months of May through October. During these months, BIOGRO™ staffing consists of two full time positions and a Biosolids Supervisor. Plant operators with proper training and license requirements occasionally assist with local transport during the summer months. Work hours are from 0600 to 1430 hours, Monday through Friday, with occasional overtime during the height of canning season in August and September.

Typically, from mid-October through early June when local application is not possible due to wet field conditions, cake product is stored on site in approved storage areas at Willow Lake Water Pollution Control Facility.

BIOGRO™ Loading and Re-fueling Locations

All BIOGRO™ tankers and trailers are loaded exclusively on site at WLWPCF. The North and South Digester Complexes have liquid loading facilities. The centrifuge has a discharge screw auger which loads directly into the transport trucks. Willow Lake also has a fuel station and all BIOGRO™ equipment is fueled on site.

BIOGRO™ Transport Equipment

The City of Salem owns and operates the following equipment as part of the BIOGRO™ Program. Each BIOGRO™ vehicle carries a portfolio containing vehicle registration, proof of insurance, accident and spill report forms, a Drivers Spill Notification System Flow Chart and a Biosolids Fact Sheet. Each driver carries a cell phone, and additionally, each vehicle is capable of radio communication with Willow Lake Water Pollution Control Facility and City Dispatch and carries emergency equipment for containment and clean-up of small spills.

LIQUID TRANSPORT EQUIPMENT

Tractors	ID Number	Tankers	ID Number
Freightliner	11430	Beall /Stephens 6,000 gallons each	11517
	11104		11518
	9973		0370
	11584		

CAKE TRANSPORT EQUIPMENT

Tractors	ID Number	Trailer	ID Number
Freightliner	11104 11430 11584 11502	Ravens Semi-End Dump Trailer Approximately 22 wet tons semi-solid product capacity	9703
Freightliner		Trinity Semi-Belt Trailer Approximately 26 wet tons semi-solid product capacity	11693 11588

CAKE TRANSPORT EQUIPMENT

Dump Trucks	ID Number	Capacity
Freightliner	9983	Approximately 9 wet tons
International	2986	Approximately 9 wet tons
International	4902	Approximately 9 wet tons

BIOGRO™ ROUTE DESCRIPTION

General

Due to the number of application sites, individual route descriptions are impractical to record in the context of the Biosolids Spill Plan. However, route descriptions for all application sites are on file in the Biosolids Supervisor's office at WLWPCF. When applying to local sites, the worksheet for the current site is posted on the board in the BIOGRO™ office. Additionally, BIOGRO™ drivers carry a route description when transporting biosolids to application sites.

Standard Route

Upon leaving WLWPCF, the route is standard for the first several miles. Most application sites lie to the north, south, or east of Willow Lake. The following directions describe the initial route of transport vehicles.

- Turn south from WLWPCF driveway onto Windsor Island Road N.
- Turn east (about two blocks) onto Lockhaven Drive.
  Most sites can be reached from the following routes.

  A. NORTHBOUND SITES can be accessed by turning north onto River Road, Interstate 5, or Highway 99.

  B. SOUTHBOUND SITES can be accessed by turning south onto Interstate 5, or Cordon Road.

  C. EASTBOUND SITES can be accessed by continuing east on Lockhaven Road, which turns into Hazelgreen Road at Highway 99.

IDENTIFICATION OF SENSITIVE AREAS

General

BIOGRO™ liquid and cake products are transported from WLWPCF to various application sites within close proximity to the plant. There are no sensitive areas on the roads described in the Standard Route Description.

IDENTIFICATION OF NATURAL HAZARD AREAS

General

There are no natural hazard areas resulting from inclement weather, along the roads described in the Standard Route Description. The BIOGRO™ hauling program typically runs from May 1 through October 31, Monday through Friday from 0600 - 1430 hours.

Individual application site route descriptions include identification of sensitive areas and natural hazard areas. **Drivers discuss these areas of concern and carry route descriptions when transporting to any application site.**

BIOSOLIDS SPILL NOTIFICATION SYSTEM

General

The Biosolids Spill Notification System is initiated by the driver using either the cell phone or radio communication. If the spill can be cleaned up by the driver, he must contact the Biosolids Supervisor, if available, or as soon as possible afterwards, and inform him of the spill. He must clean up the spill properly and take all materials back to the WLWPCF with the vehicle.

If the spill cannot be cleaned up by the driver, he will contact Dispatch requesting additional equipment and assistance. Dispatch will notify various city departments for the necessary response personnel and equipment. Additionally, Dispatch will relay information concerning the spill to the Biosolids Supervisor, or if unavailable, the Wastewater Treatment Services Manager, or an Operations Shift Supervisor at WLWPCF. *Use the Spill Notification System Flow Chart: Driver Response*.

Every spill, regardless of size or location, shall be considered large enough to initiate the Spill Response Program. A Spill Notification Report Form must be filled out.

If Spill Can Be Contained and Cleaned up by the Driver

- Immediately notify the Biosolids Supervisor. *Use the Spill Notification System Flow Chart: Driver Response*.

- Clean up the spill. Biosolids should be thoroughly removed so that no significant residues remain to be washed into any storm drain or waterway by surface water. Each BIOGRO™ truck is equipped with a shovel and lime for disinfection. Biosolids should be scraped from the surface with a flat edged shovel. Lime should be applied to the spill site for disinfection.

- If the spill is contained on a paved surface, park the truck on the side of the road. Place reflectors and divert traffic around the spill. Any material remaining on the pavement should be absorbed into a compatible material such as sand, diatomaceous earth, or soil.

- If the spill is on the earth's surface, all contaminated dirt should be collected as well. All spilled biosolids must be returned to the BIOGRO™ transport vehicle from which they spilled, or be loaded into another appropriate transport vehicle and returned to WLWPCF.

- Continue the trip if possible, without additional spillage.

- Complete Spill Notification Report Form after returning to WLWPCF.

If Spill *Can Not* Be Contained & Cleaned up by The Driver

- Immediately notify Dispatch via cell phone or truck radio.
- *Use the Spill Notification System Flow Chart: Driver Response*.

- Warn pedestrians and motorists to stay away from the spill area. Direct traffic, if necessary, until police or fire personnel arrive.

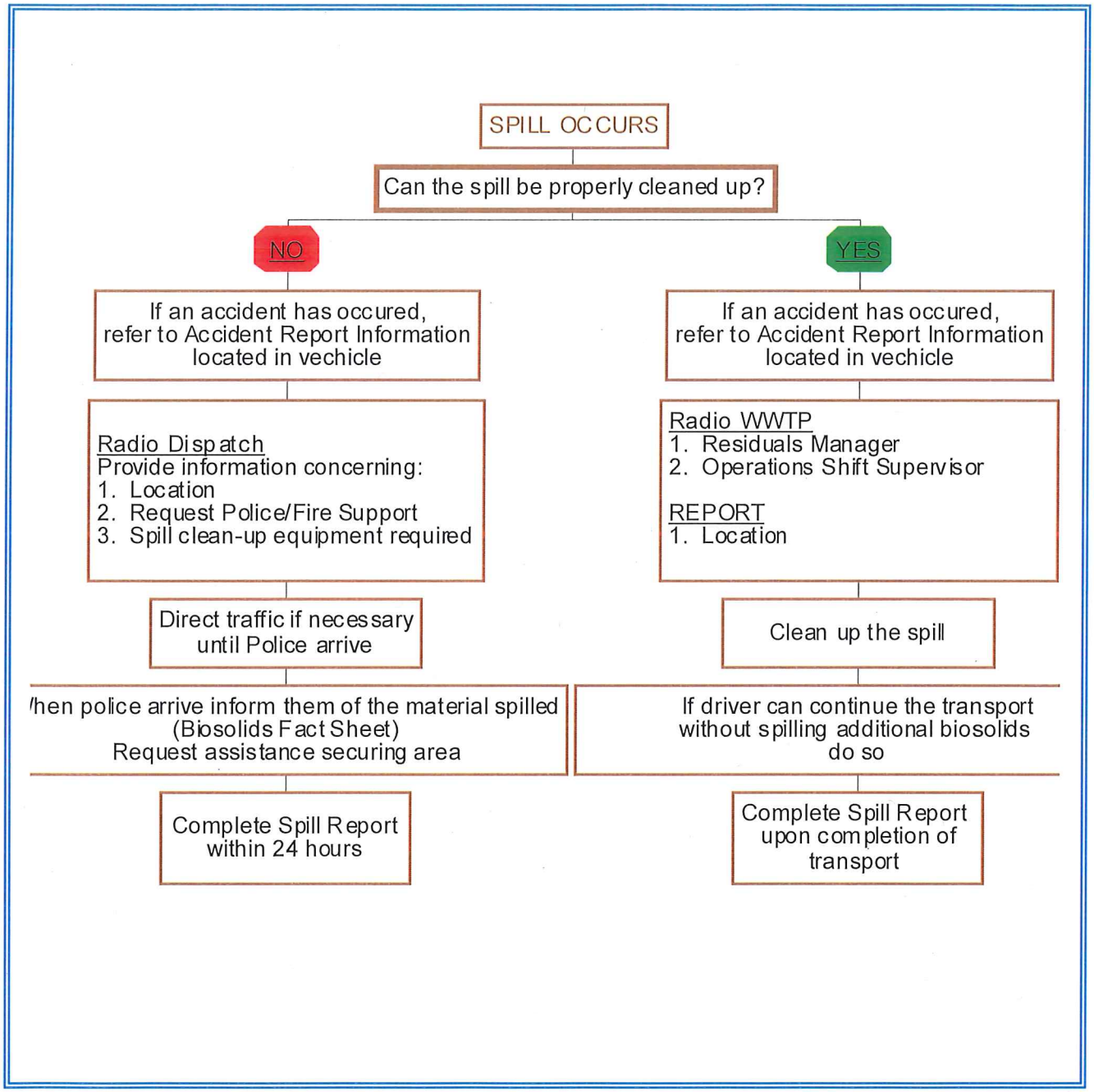
- Inform police or fire personnel of the type of material (Biosolids Fact Sheet) that has been spilled. Request the area to be secured and protected to prevent property damage and personal injury.

- When fire or police personnel can protect area, report back with Biosolids Supervisor.

- Complete Spill Notification Report Form after returning to WLWPCF.

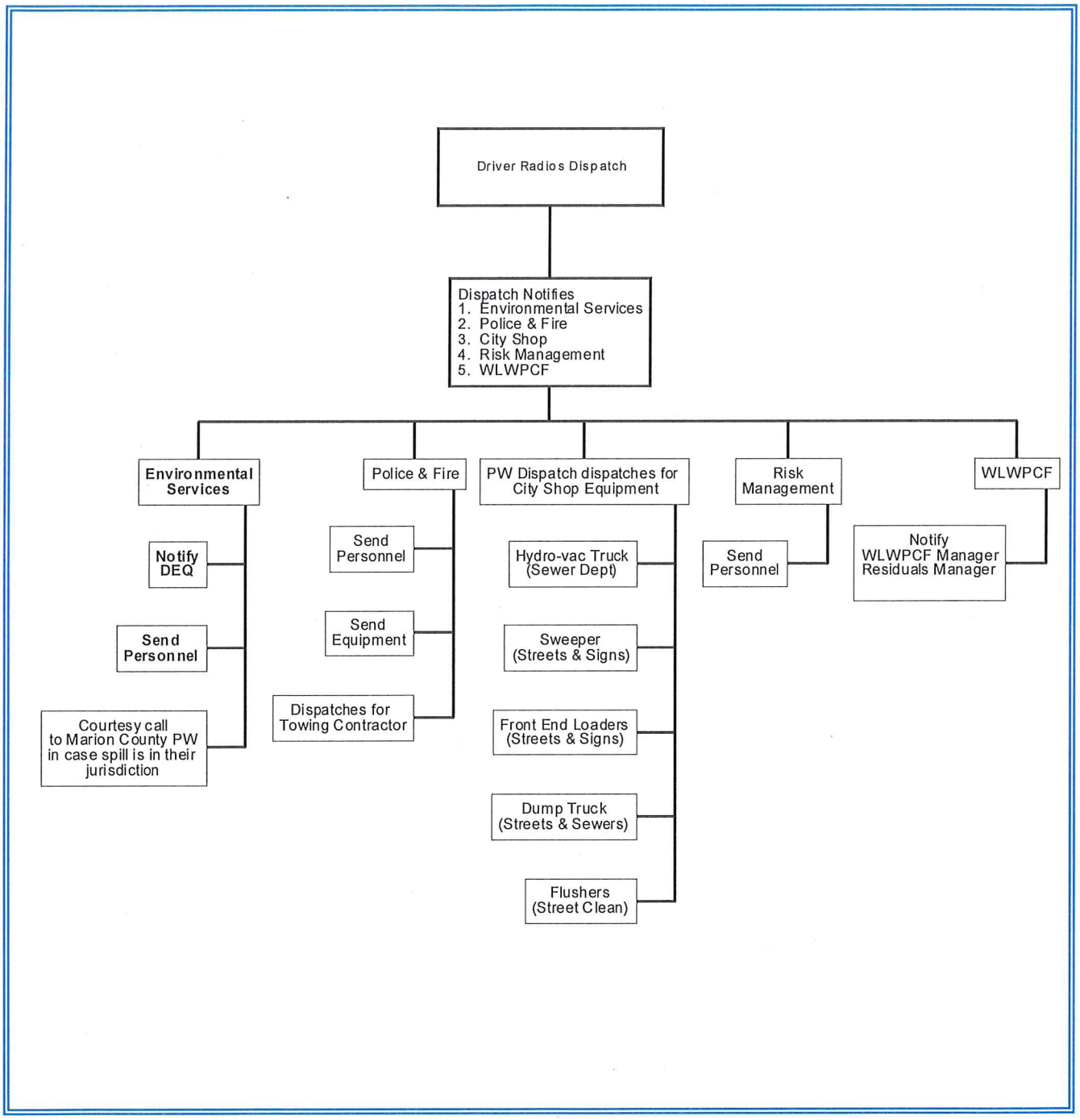
BIOSOLIDS SPILL NOTIFICATION SYSTEM

DRIVER RESPONSE



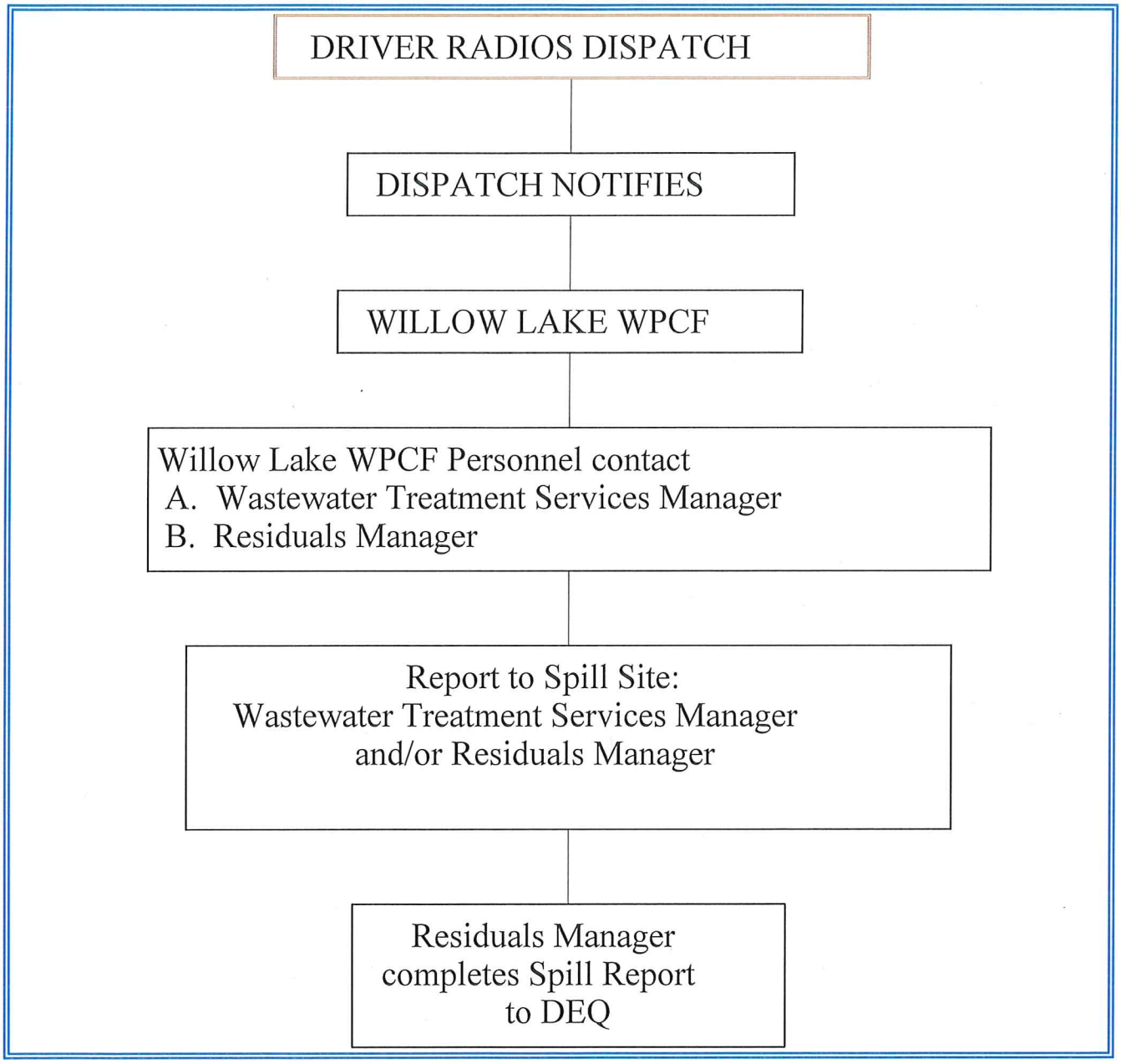
BIOSOLIDS SPILL NOTIFICATION SYSTEM

DISPATCH RESPONSE



BIOSOLIDS SPILL NOTIFICATION SYSTEM

WLWPCF RESPONSE



BIOSOLIDS FACT SHEET

DESCRIPTION:

Biosolids are biologically stabilized residuals derived from secondary treatment of domestic wastewater by the City of Salem's WLWPCF .
These residuals have undergone anaerobic digestion, a controlled process recognized by the Environmental Protection Agency (EPA) and Department of Environmental Quality (DEQ) to make them suitable for transportation and land application. Digestion processes and Biosolids quality is regularly monitored to assure Federal and State pathogen reduction {(40) CFR, part 503.13 (b)(3) & OAR 340-50-26 (2)(b)}, vector attraction {40 CFR part 503.13 (b)(1) & OAR 340-50-26 (2)(c)}, and trace metal pollutants {40 CFR 503.13 (b)(1) & 340-50-026 (2)(a)}levels are within regulatory standards.

The DEQ and EPA actively promote Biosolids recycling via land application. The City of Salem's Biosolids are a recyclable material which improves soil tilth, fertility, and stability.

Information on the City of Salem's Biosolids is available upon request from WLWPCF at 503-588-6380.

HANDLING AND PPE REQUIREMENTS:

WLWPCF Biosolids present little threat to hauler or public health and safety. The potential exists for disease-causing microorganisms to remain in the solids transported from the WLWPCF to the land application site. The following Safety Practices shall be observed to minimize exposure:

1. Wash hands before eating, drinking, or smoking.
2. Use waterless disinfectant soap for washing hands when water is not available.
3. Avoid rubbing eyes, nose and mouth after handling or unloading Biosolids.
4. Do not eat, drink, or smoke while loading or unloading Biosolids.
5. Wear gloves during loading and unloading of Biosolids.
6. Wear protective clothing when there is to be more than causal contact with the Biosolids.
7. When clothing or body parts are exposed to Biosolids, wash skin with soap and water, change clothing before leaving the area.
8. Clean and disinfect all cuts or scrapes. Keep wounds protected from contamination.

HAZARDS:

WLWPCF Biosolids are not considered RCRA subtitle C hazardous waste nor are they toxic, biological or radioactive waste. In the event of a spill, call the City of Salem Dispatch at 503-589-2190, or WLWPCF at 503-588-6380.

BIOSOLIDS SPILL NOTIFICATION REPORT FORM

Date _____ Time _____ Name _____

Spill Discovered By: Name _____

Date _____ Time _____

Spill Reported To: (Please put the date/time/initials by those titles that apply)

_____ Dispatch

_____ Residuals Manager _____Wastewater Treatment Services Manager

_____Operations Shift Supervisor _____ Risk Management _____DEQ

Spill Information:

Spill Date _____ Spill Time _____

Spill Clean-up Date _____ Spill Clean-up Time _____

Spill Type: Cake _____ Liquid_____

Amount _____

Location _____

Cause _____

_____

Action(s) Taken_____

_____

_____

LOCATION, TYPE, AND AVAILABILITY OF RESOURCES

General

In the event of a biosolids spill that cannot be cleaned up by the driver, the initial request for equipment, personnel and materials will be made by the driver through Dispatch, who will then contact the WLWPCF Manager and Biosolids Supervisor and forward all necessary information. Various other city departments will be notified as needed or requested for response equipment and personnel.

Response Equipment

The City of Salem's equipment is centrally located at the City Shops and includes:

- Hydro-vac Trucks
- Sweepers
- Flushers
- Dump Trucks
- Loaders

Materials

WLWPCF maintains an inventory of bagged lime on site for emergencies.

Personnel

City personnel assisting in clean up and traffic control would include:

- Environmental Services Personnel
- Risk Management Personnel
- Police and Fire
- Equipment Operators
- WLWPCF Manager
- Residuals Manager

CONTRACTED TRANSPORT COMPANY'S SPILL RESPONSE PLAN(S)

The following contractors have provided Spill Response Plans as part of their contract requirements. These Plans have been reviewed and are currently filed at WLWPCF.

- Horner Enterprises Sweet Home, Oregon