CITY OF BANDON

ANNUAL BIOSOLIDS REPORT

2019

BIOSOLIDS ANALYSIS 2019

BIOSOLIDS WORKSHEET

NEILSON RESEARCH
ANALYSIS REPORT
JULY 2019 #19071358

Name	Bandon STP			**Biosolid Analysis**		**2019**	
File No.	5664						
Phone No.	541-347-9122						
Permit No.	101546	**Lab analysis #**		19071358	**Date**	7-30-2019	
	mg/kg dry-wt.						
Arsenic	23.8		nutrient and metals analysis is an average fo 2 sample events if land applied on same parcel				
Cadmium	1.17		**Total Mertic tons**	21.186	**Total US tons**	23.53765	
Chromium			**Total US tons**	23.54	**Total Mertic tons**	21.186	
Copper	312		**Acres land applied**	18			
Lead	20.4		City used primary site, total acres				
Mercury	0.373		**Cake Biosolid**		0.85	Replace the 1 with the appropriate decimal	
Molybdenum	7.63		**Liquid Biosolid**	606986	0.5	Dewater (10-50%) and Liquid	
Nickel	17.2		**% Total Solids**	0.9			
Selenium	5.77		**% Volatile Solids**	83.4		Conversion	
Zinc	1040					US-> Metric tons multiply by 1.1	
Total Organic	6.51878	65187.8	**Organic N = (%TKN-%NH4)**			Metric -> US tons multiply by 0.9	
TKN	6.52	65200					
NH4	0.00122	12.2	**Inorganic N = (%NH4 + %NO3)**		color key		
NO3	0.629	6290				requires entered value	
pH	4.4					calculated value	
Fecal Coliform	17600	<2,000,000 /dry gr. Total Solids				replace the 1 with # from selection	
org./100ml	22000						
Anaerobic D.		0.2	Replace the 1 with the appropriate decimal				
Aerobic D.	0.3	0.3	Replace the 1 with the appropriate decimal				
Drying Bed		0.15	Replace the 1 with the appropriate decimal				
Gal/yr.	606986						
lb. TS/yr.	47080	47080	**lb. TS/yr.= %TS x 8.34 x gal/yr**		23.54	lb. dry yr	
Dry TS US ton/yr.			21.19	Dry Metric tons			

		Ceiling Limits	Ceiling Limits			
	Biosolid concentration	**503.13 Table 2 Conc.**	**503.13 Table 2 metal**	**Yearly lb. Metal per**	**Yearly Loading**	**Yearly Loading**
Metal	**mg/kg**	**mg/kg**	**lb./ton biosolid**	**ton biosolids**	**lb./ac-yr.**	**kg/ha**
Arsenic	23.8	75	0.150	1.12050	0.06225	0.070
Cadmium	1.17	85	0.170	0.05508	0.00306	0.003

Chromium	0	1200	2.400	0.00000	0.00000	0.000
Copper	312	4300	8.600	14.68896	0.81605	0.914
Lead	20.4	840	1.680	0.96043	0.05336	0.060
Mercury	0.373	57	0.114	0.01756	0.00098	0.001
Molybdenum	7.63	75	0.150	0.35922	0.01996	0.022
Nickel	17.2	420	0.840	0.80978	0.04499	0.050
Selenium	5.77	100	0.200	0.27165	0.01509	0.017
Zinc	1040	7500	15.000	48.96320	2.72018	3.047

There is no Ceiling limit for Chromium, table value is a past limit that is no lomnger valid, used here for loading calculations.

	mg/kg dry-wt.	**lb. N / yr.**	**lb./ac-yr.**	**kg/ha**
Total Organic	6.51878	0.0000	0.0000	0.0000
TKN	6.52	0.0000	170.5342	190.9983
NH4	0.00122	0.0000	0.0000	0.0000
NO3	0.629	296.1332	16.45184	18.42607

lb. mineralized organic N/dry ton	0.0000		
lb. inorganic N/dry ton	12.5800		
Total lb. available N/dry ton	12.580		
Nitrogen loading rate N lb./acre	100	112	**kg/ha**
Number dry tons land applied per acre	1.308	2.929	**metric ton/ha**
Total lb. Org-N produced per year	0.000		
Total lb. NH4 produced per year	0.000		
Total lb. NO3 produced per year	296.13320		
Total lb. Available N per year	296.133		
Total number of acres required per year	2.96		

Trace Metals
Sample calculation:
[([(5.0 mg As/1000000 mgTS X 140000 lb. Total Solids) = 0.07 lb. As/yr.
(((5.0 mg As/ 1000000 mg TS) x 140000 lb. TS) / 52 ac = 0.013 lb. As/ac-yr.
(EPA cumulative loading 41 total lb. As/ac / 0.013 lb. As/ac/yr.) = 2719.3 yr. site life for As
(0.013 lb. As/ac-yr.) x 1.12 conversion factor = 0.015 kg/ha-yr.
(2.6 tons biosolid is equivalent to a loading rate of 100 lb. total available N/ac) .

Metal	Analysis Biosolid concentratio mg/kg	Cumulative Limits 40 CFR 503.13 Table 3 Conc. mg/ha	40 CFR 503.13 Table 2 metal lb./ac biosolid	Yearly lb. Metal per ton biosolids	Biosolid Loading lb./ac-yr.	Biosolid Loading kg/ha-yr.
Arsenic	23.8	41	45.920	3.332	0.1851	0.207
Cadmium	1.17	39	43.680	0.164	0.0091	0.010
Chromium	0	1200	1344.000	0.000	0.0000	0.000
Copper	312	1500	1680.000	43.680	2.4267	2.718
Lead	20.4	300	336.000	2.856	0.1587	0.178
Mercury	0.373	17	19.040	0.052	0.0029	0.003
Molybdenum	7.63	18	20.160	1.068	0.0593	0.066
Nickel	17.2	420	470.400	2.408	0.1338	0.150
Selenium	5.77	100	112.000	0.808	0.0449	0.050
Zinc	1040	2800	3136.000	145.600	8.0889	9.060

Metal	Biosolid Analysis mg/kg	Table 3 metal mg/ha	lb. Metal per /ac biosolid	Loading lb./ac-yr.	Loading kg/ha-yr.	Site Life in years
Arsenic	23.8	41	45.920	0.062	0.070	588.06445
Cadmium	1.17	39	43.680	0.003	0.003	11378.808
Chromium	0	1200	1344.000	0.000	0.000	ERR
Copper	312	1500	1680.000	0.816	0.914	1641.1742
Lead	20.4	300	336.000	0.053	0.060	5020.0624
Mercury	0.373	17	19.040	0.001	0.001	15558.156
Molybdenum	7.63	18	20.160	0.020	0.022	805.31538
Nickel	17.2	420	470.400	0.045	0.050	8335.6385
Selenium	5.77	100	112.000	0.015	0.017	5916.1914
Zinc	1040	2800	3136.000	2.720	3.047	919.05758

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

August 16, 2019

Bill Nielson
City of Bandon
P.O. Box 67
Bandon, OR 97411
TEL: (541) 347-3007
FAX: (541) 347-1415

RE: Dig #3 Sludge Order No.: 19071358

Dear Bill Nielson:

Neilson Research Corporation received 3 sample(s) on 7/31/2019 for the analyses presented in the following report.

The results relate only to the parameters tested or to the sample as received by the laboratory. This report shall not be reproduced except in full, without the written approval of Neilson Research Corporation. If you have any questions regarding these test results, please feel free to call.

Sincerely,
Neilson Research Corporation

Tamra Schmedemann

Tamra Schmedemann
Senior Project Manager
245 S Grape St
Medford, OR 97501

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

Case Narrative

WO#: **19071358**
Date: **8/16/2019**

CLIENT: City of Bandon
Project: Dig #3 Sludge

The analyses were performed according to the guidelines in the Neilson Research Corporation Quality Assurance Program. This report contains analytical results for the sample(s) as received by the laboratory.

Neilson Research Corporation certifies that this report is in compliance with the requirements of NELAP. No unusual difficulties were experienced during analysis of this batch except as noted below or qualified with data flags on the reports.

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

Analytical Report

WO#: **19071358**
Date Reported: **8/16/2019**

CLIENT: City of Bandon
Lab ID: 19071358-01
Client Sample ID: Dig #3 Sludge
Project: Dig #3 Sludge
Sample Location: Grab

Collection Date: 7/30/2019 10:15:00 AM
Received Date: 7/31/2019 9:55:00 AM
Matrix: SLUDGE

Analyses	Method	NELAP Status	Result	Qual	DF	MDL	RL	Units	MCL	Date Analyzed	Analyst
SLUDGE ANALYSES MERCURY BY EPA 245.1											
Mercury	E245.1	A	0.373		1	0.00180	0.158	mg/Kg-dry		08/05/19 14:05	VJG
SLUDGE ANALYSES TRACE METALS BY EPA 200.7 ICP											
Arsenic	E200.7	A	23.8		1	0.506	9.88	mg/Kg-dry		08/01/19 18:55	SJS
Cadmium	E200.7	A	1.17		1	0.0118	0.198	mg/Kg-dry		08/01/19 18:55	SJS
Copper	E200.7	A	312	MI	1	0.115	1.98	mg/Kg-dry		08/01/19 18:55	SJS
Lead	E200.7	A	20.4		1	0.525	9.88	mg/Kg-dry		08/01/19 18:55	SJS
Molybdenum	E200.7	A	7.63	J	1	0.0781	9.88	mg/Kg-dry		08/01/19 18:55	SJS
Nickel	E200.7	A	17.2		1	0.130	0.988	mg/Kg-dry		08/01/19 18:55	SJS
Potassium	E200.7	A	11300	MI	1	3.35	198	mg/Kg-dry		08/01/19 18:55	SJS
Selenium	E200.7	A	5.77	J	1	1.02	9.88	mg/Kg-dry		08/01/19 18:55	SJS
Zinc	E200.7	A	1040		1	0.143	9.88	mg/Kg-dry		08/01/19 18:55	SJS
FECAL COLIFORM BACTERIA BY MTF											
Fecal Coliform Bacteria	A9221E		22000	FC	1E+03	2000	2000	MPN/100mL		07/31/19 11:25	DJK
FC/g Total Solids	A9221E		17600	FC	1E+03	1600	1600	MPN/g TS		07/31/19 11:25	DJK
FC/g Volatile Solids	A9221E		23000	FC	1E+03	2090	2090	MPN/g VS		07/31/19 11:25	DJK
SLUDGE ANALYSES AMMONIA NITROGEN AS N											
Nitrogen, Ammonia (As N)	E350.1	A	0.847		10	0.0533	0.125	% Wt-dry		08/01/19 15:32	SCM

QUALIFIERS

CI	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
MI	Recovery outside control limits due to Matrix Interference
PL	Permit Limit
E	Value above quantitation range
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit

Original

NELAP

NELAP A Accredited. ORELAP 100016, OR-028

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

Analytical Report

WO#: **19071358**
Date Reported: **8/16/2019**

CLIENT: City of Bandon
Lab ID: 19071358-01
Client Sample ID: Dig #3 Sludge
Project: Dig #3 Sludge
Sample Location: Grab

Collection Date: 7/30/2019 10:15:00 AM
Received Date: 7/31/2019 9:55:00 AM
Matrix: SLUDGE

Analyses	Method	NELAP Status	Result	DF Qual	MDL	RL	Units	MCL	Date Analyzed	Analyst
SLUDGE ANALYSES NITRATE NITROGEN AS N										
Nitrate Nitrogen	E353.2	A	0.629	5	0.00917	0.0208	% Wt-dry		08/02/19 11:03	SCM
SLUDGE ANALYSES TOTAL KJELDAHL NITROGEN										
Nitrogen, Kjeldahl, Total	E351.2	A	6.52	10	0.146	0.521	% Wt-dry		08/02/19 15:39	SCM
SLUDGE ANALYSES PH BY SM 4500 H-B										
pH	A4500-H+B		6.0 HR	1	0.1	0.1	pH Units		08/06/19 16:42	KMC
SLUDGE ANALYSES TOTAL PHOSPHORUS AS P										
Phosphorus, Total (As P)	A4500-P-E	A	2.93	3E+02	0.0553	0.501	% Wt-dry		08/08/19 12:17	KMC
SLUDGE ANALYSES % TOTAL SOLIDS										
Total Solids	A2540G		1.25	1	0.0100	0.0100	%		07/31/19 16:53	KMC
SLUDGE ANALYSES % VOLATILE SOLIDS										
Volatile Solids	E160.4	A	76.6	1	0.0100	0.0100	%		07/31/19 16:53	KMC

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
MI	Recovery outside control limits due to Matrix Interference
PL	Permit Limit
E	Value above quantitation range
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit

Original

NELAP

NELAP A Accredited. ORELAP 100016, OR-028

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

Analytical Report

WO#: **19071358**
Date Reported: **8/16/2019**

CLIENT: City of Bandon
Lab ID: 19071358-02
Client Sample ID: Field #8 Soil
Project: Dig #3 Sludge
Sample Location: Grab

Collection Date: 7/30/2019 8:20:00 AM
Received Date: 7/31/2019 9:55:00 AM
Matrix: SOIL

Analyses	Method	NELAP Status	Result	Qual	DF	MDL	RL	Units	MCL	Date Analyzed	Analyst
SLUDGE ANALYSES MERCURY BY EPA 7471 A											
Mercury	SW7471A	A	0.0245		1	0.00344	0.0106	mg/Kg-dry		08/08/19 15:21	VJG
SLUDGE ANALYSES METALS BY EPA 6010 B ICP											
Arsenic	SW6010B	A	3.61	J	1	0.273	5.33	mg/Kg-dry		08/06/19 20:50	SJS
Cadmium	SW6010B	A	0.479		1	0.00636	0.107	mg/Kg-dry		08/06/19 20:50	SJS
Copper	SW6010B	A	4.99		1	0.217	1.07	mg/Kg-dry		08/06/19 20:50	SJS
Lead	SW6010B	A	4.90	J	1	1.34	5.33	mg/Kg-dry		08/06/19 20:50	SJS
Molybdenum	SW6010B	A	ND		1	1.80	5.33	mg/Kg-dry		08/06/19 20:50	SJS
Nickel	SW6010B	A	6.91		1	0.549	0.533	mg/Kg-dry		08/06/19 20:50	SJS
Potassium	SW6010B	A	226		1	0.0309	107	mg/Kg-dry		08/06/19 20:50	SJS
Selenium	SW6010B	A	ND		1	0.856	5.33	mg/Kg-dry		08/06/19 20:50	SJS
Zinc	SW6010B	A	9.22		1	0.0769	5.33	mg/Kg-dry		08/06/19 20:50	SJS
SLUDGE ANALYSES AMMONIA NITROGEN AS N											
Nitrogen, Ammonia (As N)	E350.1	A	0.00122		1	0.000343	0.000803	% Wt-dry		08/01/19 16:08	SCM
SLUDGE ANALYSES NITRATE NITROGEN AS N											
Nitrogen, Nitrate-Nitrite	E353.2	A	ND		1	0.0000591	0.000134	% Wt-dry		08/02/19 10:41	SCM
SLUDGE ANALYSES TOTAL KJELDAHL NITROGEN											
Nitrogen, Kjeldahl, Total	E351.2	A	0.139		10	0.00367	0.0131	% Wt-dry		08/02/19 16:41	SCM
SLUDGE ANALYSES PH BY EPA 9045 C											
pH	SW9045C	A	4.4		1	0.1	0.1	pH Units		08/06/19 16:46	KMC

QUALIFIERS

CI	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
MI	Recovery outside comtrol limits due to Matrix Interference
PL	Permit Limit
E	Value above quantitation range
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit

Original

NELAP

NELAP A Accredited. ORELAP 100016, OR-028

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

Analytical Report

WO#: **19071358**
Date Reported: **8/16/2019**

CLIENT: City of Bandon
Lab ID: 19071358-02
Client Sample ID: Field #8 Soil
Project: Dig #3 Sludge
Sample Location: Grab

Collection Date: 7/30/2019 8:20:00 AM
Received Date: 7/31/2019 9:55:00 AM
Matrix: SOIL

Analyses	Method	NELAP Status	Result	DF Qual	MDL	RL	Units	MCL	Date Analyzed	Analyst
SLUDGE ANALYSES TOTAL PHOSPHORUS AS P										
Phosphorus, Total (As P)	A4500-P-E	A	0.00741	50	0.000699	0.00631	% Wt-dry		08/08/19 12:17	KMC
SLUDGE ANALYSES % TOTAL SOLIDS										
Total Solids	A2540G	A	91.5	1	0.0100	0.0100	%		07/31/19 16:53	KMC
SLUDGE ANALYSES VOLATILE SOLIDS										
Volatile Solids	E160.4	A	8.03	1	0.0100	0.0100	%		07/31/19 16:53	KMC

QUALIFIERS

C1	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
MI	Recovery outside control limits due to Matrix Interference
PL	Permit Limit
E	Value above quantitation range
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit

Original

NELAP

NELAP A Accredited. ORELAP 100016, OR-028

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

Analytical Report

WO#: **19071358**
Date Reported: **8/16/2019**

CLIENT: City of Bandon
Lab ID: 19071358-03
Client Sample ID: Field #3 Soil
Project: Dig #3 Sludge
Sample Location: Grab

Collection Date: 7/30/2019 8:15:00 AM
Received Date: 7/31/2019 9:55:00 AM
Matrix: SOIL

Analyses	Method	NELAP Status	Result	Qual	DF	MDL	RL	Units	MCL	Date Analyzed	Analyst
SLUDGE ANALYSES MERCURY BY EPA 7471 A											
Mercury	SW7471A	A	0.0470		1	0.00351	0.0108	mg/Kg-dry		08/08/19 15:23	VJG
SLUDGE ANALYSES METALS BY EPA 6010 B ICP											
Arsenic	SW6010B	A	4.46	J	1	0.276	5.39	mg/Kg-dry		08/06/19 20:55	SJS
Cadmium	SW6010B	A	0.550		1	0.00644	0.108	mg/Kg-dry		08/06/19 20:55	SJS
Copper	SW6010B	A	9.54		1	0.220	1.08	mg/Kg-dry		08/06/19 20:55	SJS
Lead	SW6010B	A	6.15		1	1.36	5.39	mg/Kg-dry		08/06/19 20:55	SJS
Molybdenum	SW6010B	A	ND		1	1.82	5.39	mg/Kg-dry		08/06/19 20:55	SJS
Nickel	SW6010B	A	13.9		1	0.555	0.539	mg/Kg-dry		08/06/19 20:55	SJS
Potassium	SW6010B	A	280		1	0.0313	108	mg/Kg-dry		08/06/19 20:55	SJS
Selenium	SW6010B	A	ND		1	0.866	5.39	mg/Kg-dry		08/06/19 20:55	SJS
Zinc	SW6010B	A	28.6		1	0.0778	5.39	mg/Kg-dry		08/06/19 20:55	SJS
SLUDGE ANALYSES AMMONIA NITROGEN AS N											
Nitrogen, Ammonia (As N)	E350.1	A	0.00137		1	0.000334	0.000783	% Wt-dry		08/01/19 16:09	SCM
SLUDGE ANALYSES NITRATE NITROGEN AS N											
Nitrogen, Nitrate-Nitrite	E353.2	A	0.000103	J	1	0.0000601	0.000137	% Wt-dry		08/02/19 10:42	SCM
SLUDGE ANALYSES TOTAL KJELDAHL NITROGEN											
Nitrogen, Kjeldahl, Total	E351.2	A	0.187		10	0.00391	0.0140	% Wt-dry		08/02/19 15:44	SCM
SLUDGE ANALYSES PH BY EPA 9045 C											
pH	SW9045C	A	3.9		1	0.1	0.1	pH Units		08/06/19 16:48	KMC

QUALIFIERS

CI	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
MI	Recovery outside control limits due to Matrix Interference	ND	Not Detected at the Reporting Limit
PL	Permit Limit		

Original

NELAP

NELAP A Accredited. ORELAP 100016, OR-028

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

Analytical Report

WO#: **19071358**
Date Reported: **8/16/2019**

CLIENT: City of Bandon
Lab ID: 19071358-03
Client Sample ID: Field #3 Soil
Project: Dig #3 Sludge
Sample Location: Grab

Collection Date: 7/30/2019 8:15:00 AM
Received Date: 7/31/2019 9:55:00 AM
Matrix: SOIL

Analyses	Method	NELAP Status	Result	DF	Qual	MDL	RL	Units	MCL	Date Analyzed	Analyst
SLUDGE ANALYSES TOTAL PHOSPHORUS AS P											
Phosphorus, Total (As P)	A4500-P-E	A	0.0376	50		0.000761	0.00688	% Wt-dry		08/08/19 12:17	KMC
SLUDGE ANALYSES % TOTAL SOLIDS											
Total Solids	A2540G	A	90.7	1		0.0100	0.0100	%		07/31/19 16:53	KMC
SLUDGE ANALYSES VOLATILE SOLIDS											
Volatile Solids	E160.4	A	9.27	1		0.0100	0.0100	%		07/31/19 16:53	KMC

QUALIFIERS

CI	Sample container temperature is out of limit as specified at testcode
H	Holding times for preparation or analysis exceeded
MI	Recovery outside control limits due to Matrix Interference
PL	Permit Limit
E	Value above quantitation range
J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit

Original

NELAP

NELAP A Accredited. ORELAP 100016, OR-028

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: **19071358**
16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: **AMMONIA_S**

Sample ID:	MB-1328	SampType:	MBLK	TestCode:	AMMONIA_S	Units:	% Wt-dry	Prep Date:	8/2/2019	RunNo:	3007
Client ID:	PBS	Batch ID:	1328	TestNo:	E350.1	E350.1		Analysis Date:	8/1/2019	SeqNo:	59390

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	7.50									

Sample ID:	LCS-1328	SampType:	LCS	TestCode:	AMMONIA_S	Units:	% Wt-dry	Prep Date:	8/2/2019	RunNo:	3007
Client ID:	LCSS	Batch ID:	1328	TestNo:	E350.1	E350.1		Analysis Date:	8/1/2019	SeqNo:	59391

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	1990	145	1775	0	112	65	135				

Sample ID:	19071358-03AMS	SampType:	MS	TestCode:	AMMONIA_S	Units:	% Wt-dry	Prep Date:	8/2/2019	RunNo:	3007
Client ID:	Field #3 Soil	Batch ID:	1328	TestNo:	E350.1	E350.1		Analysis Date:	8/1/2019	SeqNo:	59394

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	0.0753	0.00392	0.08601	0.001373	85.9	70	130				

Sample ID:	19071358-03AMSD	SampType:	MSD	TestCode:	AMMONIA_S	Units:	% Wt-dry	Prep Date:	8/2/2019	RunNo:	3007
Client ID:	Field #3 Soil	Batch ID:	1328	TestNo:	E350.1	E350.1		Analysis Date:	8/1/2019	SeqNo:	59395

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	0.0778	0.00394	0.08649	0.001373	88.4	70	130	0.07527	3.34	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	Cl	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix In
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: **19071358**
16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: **AMMONIA_SL**

Sample ID: MB-1293	SampType: MBLK	TestCode: AMMONIA_S	Units: % Wt-dry	Prep Date: 7/31/2019	RunNo: 3006
Client ID: PBS	Batch ID: 1293	TestNo: E350.1	E350.1	Analysis Date: 8/1/2019	SeqNo: 59188

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	ND	0.000750									

Sample ID: LCS-1293	SampType: LCS	TestCode: AMMONIA_S	Units: % Wt-dry	Prep Date: 7/31/2019	RunNo: 3006
Client ID: LCSS	Batch ID: 1293	TestNo: E350.1	E350.1	Analysis Date: 8/1/2019	SeqNo: 59189

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	0.199	0.0145	0.1775	0	112	65	135				

Sample ID: 19071323-08AMS	SampType: MS	TestCode: AMMONIA_S	Units: mg/Kg-dry	Prep Date: 7/31/2019	RunNo: 3006
Client ID: BatchQC	Batch ID: 1293	TestNo: E350.1	E350.1	Analysis Date: 8/1/2019	SeqNo: 59192

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	20400	1870	5120	16090	84.6	70	130				

Sample ID: 19071323-08AMSD	SampType: MSD	TestCode: AMMONIA_S	Units: mg/Kg-dry	Prep Date: 7/31/2019	RunNo: 3006
Client ID: BatchQC	Batch ID: 1293	TestNo: E350.1	E350.1	Analysis Date: 8/1/2019	SeqNo: 59193

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Ammonia (As N)	20900	1870	5120	16090	94.1	70	130	20420	2.35	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix Is
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: **19071358**
16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: **FECAL-C-25MPN**

Sample ID: MB-R3043	SampType: MBLK	TestCode: FECAL-C-25	Units: MPN/100mL	Prep Date:	RunNo: 3043
Client ID: PBW	Batch ID: R3043	TestNo: A9221E		Analysis Date: 7/31/2019	SeqNo: 59902

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fecal Coliform Bacteria	Negative	2.00									

Sample ID: LCS-R3043	SampType: LCS	TestCode: FECAL-C-25	Units: MPN/100mL	Prep Date:	RunNo: 3043
Client ID: LCSW	Batch ID: R3043	TestNo: A9221E		Analysis Date: 7/31/2019	SeqNo: 59903

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Fecal Coliform Bacteria	Positive	2.00	1.000	0	0	0	0				

Qualifiers:

B	Analyte detected in the associated Method Blank	C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix In
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: **19071358**
16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: **HG_S_7471**

Sample ID:	MB-1352	SampType:	MBLK	TestCode:	HG_S_7471	Units:	mg/Kg	Prep Date:	8/7/2019	RunNo:	3186
Client ID:	PBS	Batch ID:	1352	TestNo:	SW7471A	SW7471A		Analysis Date:	8/8/2019	SeqNo:	62938

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	ND	0.0100									

Sample ID:	LCS-1352	SampType:	LCS	TestCode:	HG_S_7471	Units:	mg/Kg	Prep Date:	8/7/2019	RunNo:	3186
Client ID:	LCSS	Batch ID:	1352	TestNo:	SW7471A	SW7471A		Analysis Date:	8/8/2019	SeqNo:	62939

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	3.46	0.410	3.120	0	111	50	150				

Sample ID:	19071358-03AMS	SampType:	MS	TestCode:	HG_S_7471	Units:	mg/Kg-dry	Prep Date:	8/7/2019	RunNo:	3186
Client ID:	Field #3 Soil	Batch ID:	1352	TestNo:	SW7471A	SW7471A		Analysis Date:	8/8/2019	SeqNo:	62947

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.551	0.0109	0.5445	0.04702	92.5	75	125				

Sample ID:	19071358-03AMSD	SampType:	MSD	TestCode:	HG_S_7471	Units:	mg/Kg-dry	Prep Date:	8/7/2019	RunNo:	3186
Client ID:	Field #3 Soil	Batch ID:	1352	TestNo:	SW7471A	SW7471A		Analysis Date:	8/8/2019	SeqNo:	62948

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.554	0.0109	0.5435	0.04702	93.3	75	125	0.5506	0.630	25	

Qualifiers:

B	Analyte detected in the associated Method Blank	CI	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix In
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: 19071358
16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: HG_SL

Sample ID: MB-1311	SampType: MBLK	TestCode: HG_SL	Units: mg/Kg	Prep Date: 8/1/2019	RunNo: 3086
Client ID: PBS	Batch ID: 1311	TestNo: E245.1	SW7471A	Analysis Date: 8/5/2019	SeqNo: 61026

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.000410	0.00200									J

Sample ID: LCS-1311	SampType: LCS	TestCode: HG_SL	Units: mg/Kg	Prep Date: 8/1/2019	RunNo: 3086
Client ID: LCSS	Batch ID: 1311	TestNo: E245.1	SW7471A	Analysis Date: 8/5/2019	SeqNo: 61027

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	3.00	0.407	3.120	0	96.2	50	150				

Sample ID: 19071358-01AMS	SampType: MS	TestCode: HG_SL	Units: mg/Kg-dry	Prep Date: 8/1/2019	RunNo: 3086
Client ID: Dig #3 Sludge	Batch ID: 1311	TestNo: E245.1	SW7471A	Analysis Date: 8/5/2019	SeqNo: 61030

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	8.37	0.158	7.911	0.3731	101	75	125				

Sample ID: 19071358-01AMSD	SampType: MSD	TestCode: HG_SL	Units: mg/Kg-dry	Prep Date: 8/1/2019	RunNo: 3086
Client ID: Dig #3 Sludge	Batch ID: 1311	TestNo: E245.1	SW7471A	Analysis Date: 8/5/2019	SeqNo: 61031

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	8.45	0.158	7.877	0.3731	103	75	125	8.373	0.945	25	

Qualifiers:

B	Analyte detected in the associated Method Blank	CI	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix In
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: **19071358**
16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: **ICP_200.7_SL**

Sample ID: MB-1310	SampType: MBLK	TestCode: ICP_200.7_SL	Units: mg/Kg	Prep Date: 8/1/2019	RunNo: 3021
Client ID: PBS	Batch ID: 1310	TestNo: E200.7	E200.7	Analysis Date: 8/1/2019	SeqNo: 59414

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.100									
Cadmium	ND	0.00200									
Copper	ND	0.0200									
Lead	ND	0.100									
Molybdenum	ND	0.100									
Nickel	ND	0.0100									
Potassium	0.517	2.00									J
Selenium	ND	0.100									
Zinc	0.00540	0.100									J

Sample ID: LCS-1310	SampType: LCS	TestCode: ICP_200.7_SL	Units: mg/Kg	Prep Date: 8/1/2019	RunNo: 3021
Client ID: LCSS	Batch ID: 1310	TestNo: E200.7	E200.7	Analysis Date: 8/1/2019	SeqNo: 59415

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	120	9.85	138.0	0	87.1	50	150				
Cadmium	32.4	0.197	42.30	0	76.7	50	150				
Copper	76.5	1.97	82.30	0	93.0	50	150				
Lead	107	9.85	115.0	0	93.5	50	150				
Molybdenum	76.0	9.85	89.10	0	85.3	50	150				
Nickel	322	0.985	363.0	0	88.8	50	150				
Potassium	2110	197	2420	0	87.3	50	150				
Selenium	242	9.85	281.0	0	86.1	50	150				
Zinc	352	9.85	377.0	0	93.5	50	150				

Qualifiers:

B	Analyte detected in the associated Method Blank	CI	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix In
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: **19071358**
16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: **ICP_200.7_SL**

Sample ID: **19071358-01AMS**	SampType: **MS**	TestCode: **ICP_200.7_SL**	Units: **mg/Kg-dry**	Prep Date: **8/1/2019**	RunNo: **3021**
Client ID: **Dig #3 Sludge**	Batch ID: **1310**	TestNo: **E200.7**	**E200.7**	Analysis Date: **8/1/2019**	SeqNo: **59420**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	379	9.85	394.0	23.76	90.2	70	130				
Cadmium	387	0.197	394.0	1.166	98.0	70	130				
Copper	554	1.97	394.0	311.9	61.5	70	130				SMI
Lead	402	9.85	394.0	20.36	96.8	70	130				
Molybdenum	404	9.85	394.0	7.630	101	70	130				
Nickel	399	0.985	394.0	17.22	97.0	70	130				
Potassium	16200	197	4334	11290	114	70	130				
Selenium	379	9.85	394.0	5.772	94.6	70	130				
Zinc	1370	9.85	394.0	1037	83.4	70	130				

Sample ID: **19071358-01AMSD**	SampType: **MSD**	TestCode: **ICP_200.7_SL**	Units: **mg/Kg-dry**	Prep Date: **8/1/2019**	RunNo: **3021**
Client ID: **Dig #3 Sludge**	Batch ID: **1310**	TestNo: **E200.7**	**E200.7**	Analysis Date: **8/1/2019**	SeqNo: **59421**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	394	9.85	393.9	23.76	94.1	70	130	379.0	3.96	25	
Cadmium	402	0.197	393.9	1.166	102	70	130	387.3	3.73	25	
Copper	653	1.97	393.9	311.9	86.6	70	130	554.1	16.4	25	
Lead	419	9.85	393.9	20.36	101	70	130	401.6	4.12	25	
Molybdenum	421	9.85	393.9	7.630	105	70	130	403.6	4.14	25	
Nickel	415	0.985	393.9	17.22	101	70	130	399.3	3.95	25	
Potassium	16900	197	4333	11290	130	70	130	16210	4.28	25	MI
Selenium	395	9.85	393.9	5.772	98.8	70	130	378.6	4.26	25	
Zinc	1440	9.85	393.9	1037	102	70	130	1366	5.33	25	

Qualifiers:

B	Analyte detected in the associated Method Blank	CI	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix In
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: **19071358**

16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: **ICP_6010_S**

Sample ID: MB-1346	SampType: MBLK	TestCode: ICP_6010_S	Units: mg/Kg	Prep Date: 8/6/2019	RunNo: 3139
Client ID: PBS	Batch ID: 1346	TestNo: SW6010B	SW3050B	Analysis Date: 8/6/2019	SeqNo: 62069

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	2.30	5.00									J
Cadmium	0.0100	0.100									J
Copper	ND	1.00									
Lead	ND	5.00									
Molybdenum	ND	5.00									
Nickel	ND	0.500									
Potassium	ND	100									
Selenium	ND	5.00									
Zinc	1.49	5.00									J

Sample ID: LCS-1346	SampType: LCS	TestCode: ICP_6010_S	Units: mg/Kg	Prep Date: 8/6/2019	RunNo: 3139
Client ID: LCSS	Batch ID: 1346	TestNo: SW6010B	SW3050B	Analysis Date: 8/6/2019	SeqNo: 62070

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	117	4.94	136.4	0	85.7	50	150				
Cadmium	36.0	0.0988	41.81	0	86.1	50	150				
Copper	76.7	0.988	82.53	0	93.0	50	150				
Lead	99.5	4.94	113.7	0	87.6	50	150				
Molybdenum	75.3	4.94	88.06	0	85.5	50	150				
Nickel	332	0.494	358.8	0	92.4	50	150				
Potassium	2080	98.8	2392	0	87.0	50	150				
Selenium	227	4.94	277.7	0	81.7	50	150				
Zinc	347	4.94	372.6	0	93.1	50	150				

Qualifiers:

B	Analyte detected in the associated Method Blank	CI	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix Is
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: **19071358**

16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: **ICP_6010_S**

Sample ID:	19071358-03AMS	SampType:	MS	TestCode:	ICP_6010_S	Units:	mg/Kg	Prep Date:	8/6/2019	RunNo:	3139
Client ID:	Field #3 Soil	Batch ID:	1346	TestNo:	SW6010B	SW3050B		Analysis Date:	8/6/2019	SeqNo:	62076

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	99.5	4.90	97.98	4.464	97.0	70	130				
Cadmium	104	0.0980	97.98	0.5499	105	70	130				
Copper	116	0.980	97.98	9.542	109	70	130				
Lead	103	4.90	97.98	6.146	98.9	70	130				
Molybdenum	102	4.90	97.98	0	104	70	130				
Nickel	114	0.490	97.98	13.88	102	70	130				
Potassium	1620	98.0	1078	279.8	124	70	130				
Selenium	95.2	4.90	97.98	0	97.2	70	130				
Zinc	132	4.90	97.98	28.64	106	70	130				

Sample ID:	19071358-03AMSD	SampType:	MSD	TestCode:	ICP_6010_S	Units:	mg/Kg	Prep Date:	8/6/2019	RunNo:	3139
Client ID:	Field #3 Soil	Batch ID:	1346	TestNo:	SW6010B	SW3050B		Analysis Date:	8/6/2019	SeqNo:	62077

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	97.4	4.96	99.27	4.464	93.6	70	130	99.55	2.16	25	
Cadmium	102	0.0993	99.27	0.5499	102	70	130	103.8	2.06	25	
Copper	115	0.993	99.27	9.542	106	70	130	116.4	1.25	25	
Lead	107	4.96	99.27	6.146	101	70	130	103.1	3.28	25	
Molybdenum	99.4	4.96	99.27	0	100	70	130	101.6	2.23	25	
Nickel	113	0.496	99.27	13.88	99.8	70	130	114.0	0.871	25	
Potassium	1620	99.3	1092	279.8	123	70	130	1616	0.571	25	
Selenium	93.0	4.96	99.27	0	93.6	70	130	95.25	2.43	25	
Zinc	136	4.96	99.27	28.64	109	70	130	132.2	3.14	25	

Qualifiers:

B	Analyte detected in the associated Method Blank	C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix Ir
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: **19071358**
16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: **NO2NO3_S**

Sample ID: MB-1323	SampType: MBLK	TestCode: NO2NO3_S	Units: mg/Kg	Prep Date: 8/2/2019	RunNo: 3029
Client ID: PBS	Batch ID: 1323	TestNo: E353.2	A4500-NO3-E	Analysis Date: 8/2/2019	SeqNo: 59751

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate-Nitrite	ND	0.500									

Sample ID: LCS-1323	SampType: LCS	TestCode: NO2NO3_S	Units: mg/Kg	Prep Date: 8/2/2019	RunNo: 3029
Client ID: LCSS	Batch ID: 1323	TestNo: E353.2	A4500-NO3-E	Analysis Date: 8/2/2019	SeqNo: 59752

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate-Nitrite	197	9.99	221.8	0	88.7	75	125				

Sample ID: 19071358-03AMS	SampType: MS	TestCode: NO2NO3_S	Units: % Wt-dry	Prep Date: 8/2/2019	RunNo: 3029
Client ID: Field #3 Soil	Batch ID: 1323	TestNo: E353.2	A4500-NO3-E	Analysis Date: 8/2/2019	SeqNo: 59755

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate-Nitrite	0.00565	0.000273	0.005460	0.0001030	102	70	130				

Sample ID: 19071358-03AMSD	SampType: MSD	TestCode: NO2NO3_S	Units: % Wt-dry	Prep Date: 8/2/2019	RunNo: 3029
Client ID: Field #3 Soil	Batch ID: 1323	TestNo: E353.2	A4500-NO3-E	Analysis Date: 8/2/2019	SeqNo: 59756

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Nitrate-Nitrite	0.00549	0.000273	0.005460	0.0001030	98.7	70	130	0.005650	2.87	25	

Qualifiers:

B	Analyte detected in the associated Method Blank	C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix In
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: **19071358**

16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: **NO2NO3_SL**

Sample ID: MB-1324	SampType: MBLK	TestCode: NO2NO3_SL	Units: % Wt	Prep Date: 8/2/2019	RunNo: 3030
Client ID: PBS	Batch ID: 1324	TestNo: E353.2	A4500-NO3-E	Analysis Date: 8/2/2019	SeqNo: 59831

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate Nitrogen	ND	0.0000500									

Sample ID: LCS-1324	SampType: LCS	TestCode: NO2NO3_SL	Units: % Wt	Prep Date: 8/2/2019	RunNo: 3030
Client ID: LCSS	Batch ID: 1324	TestNo: E353.2	A4500-NO3-E	Analysis Date: 8/2/2019	SeqNo: 59832

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate Nitrogen	0.0197	0.000999	0.02218	0	88.7	60	140				

Sample ID: 19071358-01AMS	SampType: MS	TestCode: NO2NO3_SL	Units: % Wt-dry	Prep Date: 8/2/2019	RunNo: 3030
Client ID: Dig #3 Sludge	Batch ID: 1324	TestNo: E353.2	A4500-NO3-E	Analysis Date: 8/2/2019	SeqNo: 59837

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate Nitrogen	0.738	0.0208	0.1042	0.6291	105	70	130				

Sample ID: 19071358-01AMSD	SampType: MSD	TestCode: NO2NO3_SL	Units: % Wt-dry	Prep Date: 8/2/2019	RunNo: 3030
Client ID: Dig #3 Sludge	Batch ID: 1324	TestNo: E353.2	A4500-NO3-E	Analysis Date: 8/2/2019	SeqNo: 59838

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate Nitrogen	0.728	0.0208	0.1042	0.6291	95.1	70	130	0.7383	1.38	25	

Qualifiers:

B	Analyte detected in the associated Method Blank	CI	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix In
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: **19071358**
16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: **PH_S**

Sample ID:	LCS-R3120	SampType:	LCS	TestCode:	PH_S	Units:	pH Units	Prep Date:		RunNo:	3120		
Client ID:	LCSS	Batch ID:	R3120	TestNo:	SW9045C			Analysis Date:	8/6/2019	SeqNo:	61691		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
pH	6.9	0.1	6.9	0	100	97.1	102.9						

Sample ID:	19071358-03ADUP	SampType:	DUP	TestCode:	PH_S	Units:	pH Units	Prep Date:		RunNo:	3120		
Client ID:	Field #3 Soil	Batch ID:	R3120	TestNo:	SW9045C			Analysis Date:	8/6/2019	SeqNo:	61694		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
pH	3.9	0.1						3.9	0.3	10			

Qualifiers:

B	Analyte detected in the associated Method Blank	C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix Is
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: **19071358**
16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: **PH_W**

Sample ID:	LCS-R3121	SampType:	LCS	TestCode:	PH_W	Units:	pH Units	Prep Date:		RunNo:	3121		
Client ID:	LCSW	Batch ID:	R3121	TestNo:	A4500-H+B			Analysis Date:	8/6/2019	SeqNo:	61695		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
pH	6.9	0.1	6.9	0	100	97.1	102.9						

Sample ID:	19071358-01ADUP	SampType:	DUP	TestCode:	PH_W	Units:	pH Units	Prep Date:		RunNo:	3121		
Client ID:	Dig #3 Sludge	Batch ID:	R3121	TestNo:	A4500-H+B			Analysis Date:	8/6/2019	SeqNo:	61697		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
pH	6.0	0.1						6.0	0.3	10	HR		

Qualifiers:

B	Analyte detected in the associated Method Blank	C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix In
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: **19071358**
16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: **PHOS-T_S**

Sample ID: MB-1381	SampType: MBLK	TestCode: PHOS-T_S	Units: % Wt	Prep Date: 8/8/2019	RunNo: 3243
Client ID: PBS	Batch ID: 1381	TestNo: A4500-P-E	A4500-P-E	Analysis Date: 8/8/2019	SeqNo: 64113

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total (As P)	ND	0.00000250									

Sample ID: LCS-1381	SampType: LCS	TestCode: PHOS-T_S	Units: % Wt	Prep Date: 8/8/2019	RunNo: 3243
Client ID: LCSS	Batch ID: 1381	TestNo: A4500-P-E	A4500-P-E	Analysis Date: 8/8/2019	SeqNo: 64114

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total (As P)	0.151	0.0120	0.1501	0	100	50	150				

Sample ID: 19071358-02AMS	SampType: MS	TestCode: PHOS-T_S	Units: % Wt-dry	Prep Date: 8/8/2019	RunNo: 3243
Client ID: Field #8 Soil	Batch ID: 1381	TestNo: A4500-P-E	A4500-P-E	Analysis Date: 8/8/2019	SeqNo: 64116

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total (As P)	0.103	0.00630	0.1008	0.007412	95.3	75	125				

Sample ID: 19071358-02AMSD	SampType: MSD	TestCode: PHOS-T_S	Units: % Wt-dry	Prep Date: 8/8/2019	RunNo: 3243
Client ID: Field #8 Soil	Batch ID: 1381	TestNo: A4500-P-E	A4500-P-E	Analysis Date: 8/8/2019	SeqNo: 64117

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total (As P)	0.103	0.00634	0.1015	0.007412	94.1	75	125	0.1035	0.565	25	

Qualifiers:

B	Analyte detected in the associated Method Blank	C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix Is
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: **19071358**
16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: **PHOS-T_SL**

Sample ID: MB-1382	SampType: MBLK	TestCode: PHOS-T_SL	Units: mg/Kg	Prep Date: 8/8/2019	RunNo: 3245
Client ID: PBS	Batch ID: 1382	TestNo: A4500-P-E	A4500-P-E	Analysis Date: 8/8/2019	SeqNo: 64182

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total (As P)	ND	0.0250									

Sample ID: LCS-1382	SampType: LCS	TestCode: PHOS-T_SL	Units: mg/Kg	Prep Date: 8/8/2019	RunNo: 3245
Client ID: LCSS	Batch ID: 1382	TestNo: A4500-P-E	A4500-P-E	Analysis Date: 8/8/2019	SeqNo: 64183

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total (As P)	1510	120	1501	0	100	50	150				

Sample ID: 19071358-01AMS	SampType: MS	TestCode: PHOS-T_SL	Units: % Wt-dry	Prep Date: 8/8/2019	RunNo: 3245
Client ID: Dig #3 Sludge	Batch ID: 1382	TestNo: A4500-P-E	A4500-P-E	Analysis Date: 8/8/2019	SeqNo: 64185

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total (As P)	11.2	0.501	8.012	2.934	103	75	125				

Sample ID: 19071358-01AMSD	SampType: MSD	TestCode: PHOS-T_SL	Units: % Wt-dry	Prep Date: 8/8/2019	RunNo: 3245
Client ID: Dig #3 Sludge	Batch ID: 1382	TestNo: A4500-P-E	A4500-P-E	Analysis Date: 8/8/2019	SeqNo: 64186

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Phosphorus, Total (As P)	11.0	0.501	8.012	2.934	101	75	125	11.19	1.79	25	

Qualifiers:

B	Analyte detected in the associated Method Blank	Cl	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix In
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: **19071358**
16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: **SOLIDS_TOT_S**

Sample ID: MB-R3000	SampType: MBLK	TestCode: SOLIDS_TOT	Units: %	Prep Date:	RunNo: 3000
Client ID: PBS	Batch ID: R3000	TestNo: A2540G		Analysis Date: 7/31/2019	SeqNo: 59023

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Solids	ND	0.0100									

Sample ID: 19071358-02ADUP	SampType: DUP	TestCode: SOLIDS_TOT	Units: %	Prep Date:	RunNo: 3000
Client ID: Field #8 Soil	Batch ID: R3000	TestNo: A2540G		Analysis Date: 7/31/2019	SeqNo: 59025

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Solids	91.1	0.0100						91.50	0.438	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	C1	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix In
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: **19071358**
16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: **SOLIDS_TOT_SL**

Sample ID: MB-R2999	SampType: MBLK	TestCode: SOLIDS_TOT	Units: %	Prep Date:	RunNo: 2999
Client ID: PBS	Batch ID: R2999	TestNo: A2540G		Analysis Date: 7/31/2019	SeqNo: 59015

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Solids	ND	0.0100									

Sample ID: 19071323-08ADUP	SampType: DUP	TestCode: SOLIDS_TOT	Units: %	Prep Date:	RunNo: 2999
Client ID: BatchQC	Batch ID: R2999	TestNo: A2540G		Analysis Date: 7/31/2019	SeqNo: 59017

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Solids	3.20	0.0100						3.210	0.312	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	CI	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix In
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: **19071358**
16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: **SOLIDS_VOL_S**

Sample ID: MB-R3000	SampType: MBLK	TestCode: SOLIDS_VOL	Units: %	Prep Date:	RunNo: 3000
Client ID: PBS	Batch ID: R3000	TestNo: E160.4		Analysis Date: 7/31/2019	SeqNo: 59027

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Volatile Solids	ND	0.0100									

Sample ID: 19071358-02ADUP	SampType: DUP	TestCode: SOLIDS_VOL	Units: %	Prep Date:	RunNo: 3000
Client ID: Field #8 Soil	Batch ID: R3000	TestNo: E160.4		Analysis Date: 7/31/2019	SeqNo: 59029

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Volatile Solids	8.35	0.0100						8.030	3.91	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	CI	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix In
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: 19071358
16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: SOLIDS_VOL_SL

Sample ID: MB-R2999	SampType: MBLK	TestCode: SOLIDS_VOL	Units: %	Prep Date:	RunNo: 2999
Client ID: PBS	Batch ID: R2999	TestNo: E160.4		Analysis Date: 7/31/2019	SeqNo: 59019

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Volatile Solids	ND	0.0100									

Sample ID: 19071323-08ADUP	SampType: DUP	TestCode: SOLIDS_VOL	Units: %	Prep Date:	RunNo: 2999
Client ID: BatchQC	Batch ID: R2999	TestNo: E160.4		Analysis Date: 7/31/2019	SeqNo: 59021

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Volatile Solids	56.7	0.0100						56.70	0	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	CI	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix Is
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: 19071358

16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: TKN_S

Sample ID: MB-1303	SampType: MBLK	TestCode: TKN_S	Units: mg/Kg	Prep Date: 7/31/2019	RunNo: 3059
Client ID: PBS	Batch ID: 1303	TestNo: E351.2	E351.2	Analysis Date: 8/2/2019	SeqNo: 60564

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	12.5									

Sample ID: LCS-1303	SampType: LCS	TestCode: TKN_S	Units: mg/Kg	Prep Date: 7/31/2019	RunNo: 3059
Client ID: LCSS	Batch ID: 1303	TestNo: E351.2	E351.2	Analysis Date: 8/2/2019	SeqNo: 60565

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	3600	251	3608	0	99.6	50	145				

Sample ID: 19071358-03AMS	SampType: MS	TestCode: TKN_S	Units: % Wt-dry	Prep Date: 7/31/2019	RunNo: 3059
Client ID: Field #3 Soil	Batch ID: 1303	TestNo: E351.2	E351.2	Analysis Date: 8/2/2019	SeqNo: 60568

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	0.294	0.0282	0.09270	0.1874	115	75	125				

Sample ID: 19071358-03AMSD	SampType: MSD	TestCode: TKN_S	Units: % Wt-dry	Prep Date: 7/31/2019	RunNo: 3059
Client ID: Field #3 Soil	Batch ID: 1303	TestNo: E351.2	E351.2	Analysis Date: 8/2/2019	SeqNo: 60569

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	0.286	0.0281	0.09254	0.1874	107	75	125	0.2942	2.80	25	

Qualifiers:

B	Analyte detected in the associated Method Blank	CI	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix In
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

QC SUMMARY REPORT

WO#: 19071358
16-Aug-19

Client: City of Bandon
Project: Dig #3 Sludge

TestCode: TKN_SL

Sample ID: MB-1304	SampType: MBLK	TestCode: TKN_SL	Units: mg/Kg	Prep Date: 7/31/2019	RunNo: 3060
Client ID: PBS	Batch ID: 1304	TestNo: E351.2	E351.1	Analysis Date: 8/2/2019	SeqNo: 60590

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	ND	12.5									

Sample ID: LCS-1304	SampType: LCS	TestCode: TKN_SL	Units: mg/Kg	Prep Date: 7/31/2019	RunNo: 3060
Client ID: LCSS	Batch ID: 1304	TestNo: E351.2	E351.1	Analysis Date: 8/2/2019	SeqNo: 60591

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	3600	251	3608	0	99.6	50	145				

Sample ID: 19071358-01AMS	SampType: MS	TestCode: TKN_SL	Units: % Wt-dry	Prep Date: 7/31/2019	RunNo: 3060
Client ID: Dig #3 Sludge	Batch ID: 1304	TestNo: E351.2	E351.1	Analysis Date: 8/2/2019	SeqNo: 60594

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	9.79	1.04	3.427	6.524	95.2	75	125				

Sample ID: 19071358-01AMSD	SampType: MSD	TestCode: TKN_SL	Units: % Wt-dry	Prep Date: 7/31/2019	RunNo: 3060
Client ID: Dig #3 Sludge	Batch ID: 1304	TestNo: E351.2	E351.1	Analysis Date: 8/2/2019	SeqNo: 60595

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrogen, Kjeldahl, Total	10.0	1.04	3.427	6.524	103	75	125	9.787	2.65	25	

Qualifiers:

B	Analyte detected in the associated Method Blank	CI	Sample container temperature is out of limit as specified at testcode	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	MI	Recovery outside control limits due to Matrix In
ND	Not Detected at the Reporting Limit	PL	Permit Limit	RL	Reporting Detection Limit

Original

NEILSON RESEARCH CORPORATION
Environmental Testing Laboratory
245 South Grape Street * Medford, OR 97501
(541) 770-5678 fax (541) 770-2901

Chain of Custody Record

This Chain of Custody is a LEGAL DOCUMENT and must be filled out accurately.

Section A Required Client Information

Company:	CITY OF BANDON
Address:	PO Box 67
	Bandon, OR. 97411
Email:	wastewater@cityofbandon.org
Phone:	541-347-9122 Fax:
Collected By (Print):	BILL NIELSEN
Collected By (Sign):	Bill Nielsen
Email Report	✓ Yes ___ No
Mail Report	✓ Yes ___ No
Fax Report	___ Yes ___ No

Section B Required Project Information

Project Name:	DIG. #3 SLUDGE
Project Number:	
Report To:	BILL NIELSEN
Copy To:	

Section C Invoice Information

Attention:	BILL NIELSEN
Company Name:	CITY OF BANDON
Address:	P.O. BOX 67
	BANDON, OR. 97411
P.O. #	

Section D Rush Status (Subject to Scheduling)

- X Standard 10-14 Days
- ___ 5 Business Days (50% surcharge)
- ___ 3 Business Days (75% surcharge)
- ___ 24 - 48 hours (100% surcharge)
- ___ Other _____

Authorized ___ Yes ___ No

Section E Sample Information

NRC Workorder # (Lab Use Only): 19071358

Sample ID	Comp/Grab	Matrix*	Date Collected	Time Collected	No. of Containers	Analysis Requested: TRACE METALS	Analysis Requested: FECAL	Analysis Requested: TRACE METALS	Analysis Requested: TRACE METALS	Remarks/Field Data	NRC Sample # (Lab Use Only)
DIG. #3 SLUDGE	COMP	SL	7-30-15	10:15	1	X					01A
DIG #3 SLUDGE	"	SL	7-30-15	10:15	1		X				01B
FIELD #8 SOIL	COMP		7-30-15	8:20	1			X			02A
FIELD #3 SOIL	COMP		7-30-15	8:15	1				X		03A

*Matrix: DW - Drinking Water WW - Wastewater W - Water S - Soil/Solid SL - Sludge O - Oil WP - Wipe OT - Other

Section F Relinquish/Receive

	Sign	Print	Date	Time
Relinquished By:	Bill Nielsen	BILL NIELSEN	7-30-15	10:20
Received By:				
Relinquished By:				
Received By:				
Relinquished By:				
Received By Laboratory:	MBrun	McKenzie Bush	7/31/15	955

Section G Lab Use Only

Temp:	6.0
4°C +/- 2°C:	___ Yes ___ No
Received on Ice:	X Yes ___ No
Number of Bottles Received:	4
pH Checked:	
COC Seals Intact:	___ Yes ___ No ___ NA
Field Blank Included:	___ Yes ___ No

Received Via X UPS ___ FedEX ___ Other ___ Hand

Payment: X Invoice ___ Cash ___ VISA, M/C ___ Check # _____ Amount _____

NEILSON RESEARCH CORPORATION

Neilson Research Corporation
245 S Grape St
Medford, OR 97501
TEL: (541) 770-5678 FAX: (541) 770-2901
Website: www.nrclabs.com

Data Flags

WO#: **19071358**
Date: **8/16/2019**

B	Analyte detected in the associated method blank.
BA	BOD Alternative Calculation: The initial results performed by Standard Methods did not fall within parameters of the Standard Methods calculation. An alternate approved calculation was performed using the HACH method and the value reported is an estimated concentration.
C	Sample(s) does not meet NELAP/ORELAP sample acceptance criteria. See Case Narrative.
C1	Sample(s) does not meet NELAP/ORELAP sample acceptance criteria for temperature.
CF	Results confirmed by re-analysis.
CU	Cleanup performed as specified by method.
D1	The diesel elution pattern for the sample is not typical.
D2	The sample appears to be a heavier hydrocarbon range than diesel.
D3	The sample appears to be a lighter hydrocarbon range than diesel.
D4	Detected hydrocarbons do not have pattern and range consistent with typical petroleum products and may be due to biogenic interference.
D5	Detected hydrocarbons in the diesel range appear to be weathered diesel.
E	Estimated value.
ER	Elevated reporting limit due to matrix. Report limits (MDLs, MRLs & PQLs) are adjusted based on variations in sample preparation amounts, analytical dilutions, and percent solids, where applicable.
FC	Fecal Coliforms: Sample(s) received past 40 CFR Part 136 specified holding time. Results reported as estimated values.
G1	The gasoline elution pattern for the sample is not typical.
G2	The sample appears to be a heavier hydrocarbon range than gasoline.
G3	The sample appears to be a lighter hydrocarbon range than gasoline.
G4	Detected hydrocarbons in the gasoline range appear to be weathered gasoline.
HP	Sample re-analysis performed outside of method specified holding time.
HR	Sample received outside of method specified holding time.
HS	Sample analyzed for volatile organics contained headspace.
HT□	At the client's request, the sample was analyzed outside of method specified holding time.
H	Analysis performed outside of method specified holding time.
J	Analyte detected below the Minimum Reporting Limit (MRL) and above the Method Detection Limit (MDL). The J flag result is an estimated value and the user should be aware that this data is of limited reliability.
L	Dissolved metals were not filtered within 15 minutes of collection per 40 CFR Part 136.
MI	Surrogate, Duplicate Sample (DUP) or Matrix Spikes recoveries are out of control limits due to matrix interference. Sample results may be biased.
N	See Case Narrative on page 2 of report.
NLR	No Legionella Recovered.
PLR	Presence of Legionella Recovered.
Q	Initial calibration verification (ICV), continuing calibration verification (CCV) or laboratory control sample (LCS) exceeded high recovery limits, but associated samples are non-detect and the sample results are not affected. Data meets EPA/NELAP requirements.
R	Relative percent difference (RPD) is outside of the accepted recovery limits.
R1	Relative percent difference (RPD) is outside of the accepted recovery limits. However, analyses are not controlled on RPD values for sample concentrations that are less than the reporting limit.
R3	The relative percent difference (RPD) and/or percent recovery for the duplicate (DUP) or matrix spike (MS)/matrix spike duplicate (MSD) cannot be accurately calculated due to the concentration of analyte already present in the sample.
R4	Duplicate analysis failed due to result being at or near the method reporting limit.
S	Surrogate and/or matrix spike recovery is outside of the accepted recovery limits. Sample results may be biased.
S1	Surrogate or matrix spike recovery is outside of control limits due to dilution necessary for analysis.
SC	Sub-contracted to another laboratory for analysis.
SP	Sample(s) were not collected per EPA Method 5035A protocols. The results are considered minimum values.
#	Value exceeds regulatory level for TCLP contaminant.
X1	The motor oil elution pattern for the sample is not typical.
X2	The sample appears to be a heavier hydrocarbon range than motor oil.
X3	The sample appears to be a lighter hydrocarbon range than motor oil.
*	Value exceeds Maximum Contaminant Level or is outside the acceptable range.

Original

CITY OF BANDON
BIOSOLIDS
MANAGEMENT PLAN
2019

2019

Biosolid Management Plan

City of Bandon

File Number:
Permit Number: 101546

1. Treatment Facility

Introduction:

The City of Bandon (pop. 3,235) owns and operates a municipal sewage collection and treatment system under National Discharge Elimination System (NPDES) permit number 101546. Wastewater processed by the sewage treatment works is principally of domestic origin. The current facility was upgraded in 1994. The facility is an activated sludge plant with aerobic digesters. There is no required local pretreatment permit for this facility. Treated effluent from the treatment plant is discharged to the Coquille River (RM 1.1), in Coos County, Oregon.

A) Wastewater Processing:

Bandon operates an activated sludge plant with aerobic digesters. Designed average dry weather flow is approximately 0.45 million gallons per day (MGD). Influent passes through the headwork (screening and grit removal, flow monitoring, automatic sampling, flow splitting, and grit separation. The plant is run in plug flow, from the headwork in flow enters two aeration basins. Aeration basin #1 is 157,000 gallons, and #2 is 141,000 gallons. Aeration basin effluent is transferred to one of two secondary clarifiers (190,246 gallons each) where solids are allowed to settle out. Portions of the solids are returned to the aeration basin and portions of the solids are wasted to the aerobic digesters. Bandon operates a three cell aerobic digester. The cells are 128,000 gallons (#1), 133,000 (#2), and 133,000 (#3). The aerobic digester is run in series. Sludge can be removed from the digester directly, or pumped to the sludge thickening process where it can thicken before land application or pump to the drying beds (47,270 gallons). Sludge can receive further treatment by desiccation in one of two drying beds prior to being land applied on a regional authorized biosolids site(s). Clarifier effluent is directed to ultraviolet channels for disinfection and discharged to the Coquille River.

B) Solids Processing:

There are three potential end routes for generating biosolids from this facility and they are:

1) Liquid Biosolids removed from the aerobic digester,
2) Dewatered Biosolids taken from the sludge thickening process (after aerobic digester), and
3) Cake Biosolids from the air-drying beds.

C) Solids Storage Structure:

From the aerobic digesters sludge can be pumped to a truck for land application or to the sludge thicken building. Thickened biosolid can be pumped into a trailer for land application, or pumped to one of two drying beds (total about 47,000 gallons). Biosolids can receive further treatment by desiccation in the drying beds prior to being land applied. All Class B biosolids are land applied on a regional DEQ authorized land application site(s).

D) Septage Receiving Facility:

No septage is received at the Bandon wastewater treatment facility.

E) Pretreatment Program:

The city's industrial wastewater pretreatment program protects the environment and the area's wastewater collection, treatment facilities and biosolids quality by regulating potentially contaminated wastewater discharges from commercial and industrial activities.

Bandon's ordinance No. 1254 maintains biosolids quality; currently the city's biosolids are at or below 50% of the "clean sludge" criteria identified in EPA 40 CFR Part 503.13 and Oregon DEQ's Oregon Administrative Rules Chapter 340 Division 50.

II Solid Treatment Processes

The EPA's 40 CFR Part 503 and DEQ's OAR 340-50 allow permittees to use EPA approved alternatives to satisfy Class A and B biosolids pathogen and vector attraction reduction criteria. The permittee must notify the Department in writing and get approval prior to any process change that would utilize pathogen reduction or vector attraction reduction alternatives other than their primary reduction alternatives contained in this management plan. The permittee must also certify that the alternatives used are EPA approved and that sampling and monitoring conforms to the 40 CFR 503 and OAR 340-050 regulations.

Pathogen Reduction

To meet the Part 503 regulatory requirements, pathogen reduction must be met before vector attraction reduction or at the same time vector attraction reduction is achieved.

Class A Biosolids

pathogen reduction treatment and then again after pathogen treatment at which time the viable helmith ova must be less than 1 PFU per 4 grams of total solids (dry weight bases).

Class B biosolids can be met by using one of three alternatives, the two primary alternatives used by this facility are Alt. 1) Monitor sewage sludge for fecal coliform 503.32(b)(2), and Alt. 2) Use Process to Significantly Reduce Pathogen (PSRP) 503.32(b)(3).

Alt. 1) Monitor sewage sludge for fecal coliform 503.32(b)(2) requires that seven samples of treated sewage sludge (biosolids) be collected and that the geometric mean fecal coliform density of these samples be less than 2 million MPN per dry gram biosolid (dry weight basis).

Alt. 2) Use Process to Significantly Reduce Pathogen (PSRP) 503.32(b)(3)* considers sludge treated in one of the PSRP's listed in Appendix B of the 40 CFR Part 503 to meet Class B biosolid criteria for pathogen reduction. For this facility the following PSRP's are primarily used:

- #1 Aerobic digestion, sludge is treated in air/oxygen for a specified residence time at a specified temperature. Values of the mean cell residence time and temperature shall be between 40 days at 20C (68F) and 60 days at 15C (59F)
- #2 Air Drying, sludge air dried on beds for a minimum of three months ambient temperature above 0C (32F) two out of the three months,

- #3 Lime stabilization, sufficient lime is added to the sewage sludge to raise the pH of the sewage sludge to 12 with no further addition of alkali agent, and maintain sludge pH of 12 active-mix for two hours.

* The Department recommends the permittee still collect and run a geometric mean for fecal coliform density on a representative sample each year to ensure the pathogen reduction is less than 2 million MPN per dry gram biosolid (dry weight basis).

C) Vector Attraction

This facility primarily uses the following vector attraction reduction options:

Opt. 1) The percent of volatile solid reduction calculation to use for anaerobic digester that is decanted and that does not have appreciable grit accumulation would be the Van Kleeck or Approximate Mass Balance (AMB) equation depending upon the percent of solids in the decantant (Attachment A).

Opt. 2) To meet the biosolid vector attraction reduction requirements an aerobic digester must provide a 40 day detention time at 20C in a completely mixed high rate digester in order to achieve a volatile solids reduction of 38% or more. There are alternative volatile solid reduction

With all Class A alternatives microbial monitoring for fecal coliforms or *Salmonella* sp. is required (see section A and B below). This management plan lists the primary alternative and options employed by the permittee to meet Class A and B biosolids criteria.

A) Monitoring for Fecal Coliform or *Salmonella* sp.

Monitoring for Fecal Coliform or *Salmonella* sp. is required to detect growth of bacterial pathogens. Because Class A biosolids may be used without site restrictions, all Class A material must be tested to show that the microbial requirements are met at the time when it is ready to be used, disposed, sold or given away. In addition to meeting process requirements, Class A biosolids must meet one of the following requirements:

- Either the density of the fecal coliforms in the biosolids be less than 1,000 MPN per gram total solids (dry gram weight),
- *Or* the density of *Salmonella* sp. bacterial in the biosolids be less than 3 MPN per 4 grams of total solids (dry weight basis).

Unlike Class B biosolids, Class A requirements are not based on an average value. Sampling for Class A biosolids consists of at least seven (7) discrete samples taken over a 2 week period. Test results are required before Class A material can be released for use or disposal. The microbial requirement that a Class A biosolids must meet is either:

- At the time of use or disposal, or
- At the time the biosolids are prepared for sale or given away in a bag or other container for land application, or
- At time the biosolid or material derived from the biosolid is prepared to meet the requirements in 503.10(b), 503.10(c), 503.10(e) or 503.10(f).

B) Class A Pathogen Reduction Alternatives

Alt. 1) Sewage Sludge treated in known Processes 503.32(a)(5)

This requirement relies on comprehensive monitoring of bacteria, enteric viruses and viable helmith ova to demonstrate adequate reduction of pathogens:

- Either the density of the fecal coliforms in the sewage sludge be less than 1,000 MPN per gram total solids (dry gram weight), *or* the density of *Salmonella* sp. bacteria in the sewage be less than 3 MPN per 4 grams of total solids (dry weight basis).
- The density of enteric viruses in the sewage sludge must be test prior to pathogen reduction treatment and then again after pathogen treatment at which time the enteric viruses must be less than 1 PFU per 4 grams of total solids (dry weight basis).
- The density of viable helmith ova in the sewage sludge must be tested prior to

methods that are deemed equivalent to the 38% volatile solid reduction criteria under the EPA's and the DEQ's regulations.

Opt. 3) When the 38% volatile solids reduction cannot be met for aerobically treated solids vector attraction reduction can be demonstrated by showing a less than 15% additional volatile solid loss during bench-scale aerobic batch digestion (2% TS or less) of the sewage sludge for 30 additional days at 20C (68F).

Opt. 4) The Specific Oxygen Uptake Rate (SOUR) for sewage sludge treated in an aerobic process shall be equal to or less than 1.5 milligrams (mg) of oxygen per hour per gram of total solids (2% or less total solids, dry weight basis) at a temperature of 20C.

Opt. 5) Aerobic treatment of sludge for at least 14 days at over 40C (104F), during the process the average temperature must be over 45C (Compost).

Opt. 6) The pH of the sewage sludge shall be raised to a pH of 12 or higher by the addition of alkali agent and without the addition of more alkali agent. The batch shall remain at a pH of 12 or, for two hours or more active mix; and at a pH of 11.5 of higher for an additional 22 hours.

Opt. 7) The sewage sludge must achieve 75% solid by drying prior to mixing with other materials. Sewage sludge treated in aerobic or anaerobic process (i.e. sewage sludge that does not contain unstabilized solids generated in primary wastewater treatment).

Opt. 8) Sewage sludge land applied shall be incorporated into the soil within 6 hours after application or placement on the land.

III Biosolid Characteristics

Bandon's treatment works utilizes an activated sludge process. The treatment facility wastes activated sludge from the secondary clarifiers to the aerobic digester. The sludge under goes a minimum of 60 days of digestion at a minimum temperature of 15C prior to removal and staff performing a volatile solids reduction calculation. For the past five years the average volatile solids reduction criteria has been achieved by Bandon's wastewater treatment facility.

Annually, Bandon has generated approximately 24 dry tons of biosolids. For the year 2018, Bandon land applied 24 tons (21.6 dry metric tons) of Class B biosolid. Under the 40 CFR Part 503, Bandon is required to sample biosolids two times per year. Frequency of monitoring depends on the amount biosolid generated that is marketed to be sold or given away, land application and surface disposal.

Sampling

The following are sampling reference publications: "Sludge Sampling and Analysis Guidance Document", (EPA 1993) and ASTM Standard E 300-86, "Standard Practice for Sampling Industrial Chemicals" (ASTM 1992a).

1) Aerobic Digesters

Sample location: Sample port on discharge line from the digester to the storage lagoon.

2) Number and type of sample taken per day: Class B Biosolids, composite of 7 or more discrete samples collected throughout the pump over sampling period.

Sample storage and transport: Samples are stored at 4C in ice chest or refrigerator. Samples are transported in ice chest to maintain temperature during delivery to laboratory. Pathogen samples are delivered to lab within six hours of sample collection.

Sample analysis method: EPA 9045; EPA 160.3; EPA 160.4; SM 4500-NH3B; EPA 353.2; EPA 365.3; EPA 351.3; SW-846 7060; SW-846 6010; SW-846; SW-846 7481; SW-847 7471; SW-846 7740; SM18th, 9221E.1; SM 18:9260D.1; ASTM D 4994-89; EPA 600/1-87/014; EPA 8240; EPA 1613; EPA 8270; EPA 1613B; EPA 1668 (many include one or more of the referenced methods).

3) Sludge Thickening Process

Sample location: Center of 8 quadrants from the basin.

Number and type of sample taken per event: Composite from all sampling points in each lagoon. Sample includes the entire proposed sludge column to be dredged (not the water cap above the sludge layer).

Sample storage and transport: Composite sample is stored at 4C in ice chest or refrigerator. Samples are transported in ice chest to maintain temperature during delivery to laboratory. Pathogen samples are delivered to lab within 6 hours of sample collection.

Sample analysis method: EPA 9045; EPA 160.3; EPA 160.4; SM 4500-NH3B; EPA 353.2; EPA 365.3; EPA 351.3; SW-846 7060; SW-846 6010; SW-846; SW-846 7481; SW-847 7471; SW-846 7740; SM 18th, 9221E.1; SM 18:9260D.1; ASTM D 4994-89; EPA 600/1-87/014; EPA 8240; EPA 1613; EPA 8270; EPA 1613B; EPA 1668 (may include one or more of the referenced methods).

4) Air Drying Beds (ADB)

Sample location: Center of four quadrants from each ADB in service.

Number and type of sample taken per batch: Four discrete samples from each ADB in service are mixed together to form a composite sample, a minimum of six times per year.

Sample storage and transport: Samples are stored at 4C in ice chest or refrigerator. Samples are transported in ice chest to maintain temperature during delivery to laboratory. Pathogen samples are delivered to lab within 6 hours of sample collection.

Sample analysis method: EPA 9045; EPA 160.3; EPA 160.4; SM 4500-NH3B; EPA 353.2; EPA 365.3; EPA 351.3; SW-846 7060; SW-846 6010; SW-846; SW-846 7481; SW-847 7471; SW-846 7740; SM18th, 9221E.1; SM 18:9260D.1; ASTM D 4994-89; EPA 600/1-87/014; EPA 8240; EPA 1613; EPA 8270; EPA 1613B; EPA 1668 (may include one or more of the referenced methods).

5) Compost

Sample location: Random depths and locations within the compost pile.

Number and type of sample taken per batch: 7 discrete samples are mixed together to form a composite sample for metal analysis. NOTE: for Class A Biosolid seven discrete samples are required for pathogen testing.

Sample storage and transport: Sample is stored at 4C in ice chest or refrigerator. Samples are transported in ice chest to maintain temperature during delivery to laboratory. Pathogen samples are delivered to lab within six hours of sample collection.

Sample analysis method: EPA 9045; EPA 160.3; EPA 160.4; SM 4500-NH3B; EPA 353.2; EPA 365.3; EPA 351.3; SW-846 7060; SW-846 6010; SW-846; SW-846 7481; SW-847 7471; SW-846 7740; SM 18th, 9221E.1; SM 18:9260D.1; ASTM D 4994-89; EPA 600/1-87/014; EPA 8240; EPA 1613; EPA 8270; EPA 1613B; EPA 1668 (may include one or more of the referenced methods).

Biosolid Analysis:

Biosolid Chemical Analysis:

From the Bandon's 2018 biosolids analysis the following is a representative sampling of the biosolid metal concentration.

Metal	lb./acre-yr.	site life years
Arsenic (As)	0.062	588
Cadmium (Cd)	0.003	11378
Chromium (Cr)	0.	0
Copper (Cu)	0.816	1641
Lead (PB)	0.053	5020
Mercury (Hg)	0.0010	15558
Molybdenum (Mo)	0..020	805

Nickel (Ni)	0.045	8335
Selenium (Se)	0.0150	5916
Zinc (Zn)	3.720	919

The site life would be limited to 588 years based on the Arsenic loading Bandon's 2019 biosolid analysis (Attachment B).

Biosolid Nutrient Analysis:

For the year 2019, the biosolids contained about 482 pounds lbs. total nitrogen (N) , Bandon needs approximately 2.96 acres to land apply on to handle their annual biosolid nitrogen production.

IV Biosolids Beneficial Reuse Program

Transportation and Land Application:

Biosolids are off loaded into city owned tanker truck at the plant. The biosolids loading area is impounded in case of accidental spillage of biosolids during the truck loading process. This area has a drain that ties back into the facility. During the summer months Bandon's biosolids are land applied on one site totaling 18 acres. The biosolid land application sites are capable of assimilating Bandon's annual total nitrogen production. The perennial agronomic biosolid land application rate for pastures and grass is 140 lb. available N per acre-yr. The agronomic land application rate for annual rye grass, the predominate crop utilized by Bandon's land application program, is 100 lb. available N per acre-yr.

Land application: Bandon land applies on authorized pastures and farmlands. All DEQ site authorizations for Bandon are part of Bandon's Biosolid Management Plan. Bandon currently has 18 acres that are authorized for land application.

Biosolids Site Management Information:

Site	Use / acres	lb. N/acre	lb. N/site
Dew Valley	18	100	482
Total	18	100	482

Long term biosolid application rates and site restrictions are contained in the biosolid site authorization letter. References to the OAR 340-50, the 40 CFR Part 503, site

setbacks, site agronomic loading rates, land application restrictions and site restrictions are also detailed out in the site authorization letter.

BIOSOLIDSLAND APPLICATION PLAN

Agronomic Application Rate and Site Crops

Biosolids is required to be land applied to a site at a rate that is equal to or less than the agronomic rate for the site. An agronomic rate is the quantity of Biosolids application rate designed to provide the annual total amount of nitrogen needed by a crop and to minimize the amount of nitrogen passing below the root zone of the crop or vegetation to groundwater.

Biosolids application rates for the **Bandon** sites were developed based on Oregon State University (OSU) Extension Service Fertilizer Guide: **Seed Production Agronomy FG 63**. The annual application rate for **hay** is **100** available nitrogen (N) per acre, unless the application site demonstrates additional nitrogen is required to match crop uptake rates. (**Note: If more than one type of crop is used at the same site, then state each type of crop and the application rate.*) The land application sites authorized for use can assimilate the total plant available nitrogen the Biosolid sprovides on an annual basis. Specific site agronomic loading rates are stated in the Department issued site authorization letters.

Site Inventory of Existing and Potential Sites

The **City of Bandon** currently land applies Biosolids to the Department authorized sites listed in the **<table below/Appendix letter>**. Surface application of Biosolids is performed using a **4000 gallon tanker truck for delivery and a portable 6x6 Pioneer pump and spray cannon can be used.** Site maps with the general location and size of existing authorized sites are included as Appendix **<state letter>** of this Biosolids management plan. The **City of Bandon** currently has **18** acres that are authorized for land application. This is an adequate land base for current **<and future>** operations, based on current Biosolids generation rates.

Biosolids Land Application Site Inventory
**Note: May be included as an Appendix*

Site Name/Identifier	Site location (Lat/Long)	Area (ac)	Type of Crop	Application (lb. N/ac)	Time of year applied (month)	Harvest Cycle
Timber Ridge	43 5' N	18	HAY	100	JUNE/	YEAR
	123 21' W				OCT.	

Site Selection Criteria for a New Site

If necessary, the **City of Bandon** will locate additional sites for land applying biosolids. Prior to using any site for land application, the **City of Bandon** is required to receive a written site authorization letter from the Department. The following site conditions will be considered when determining the suitability of a site for land application:

- All sites will be located on **<agricultural/forest/reclamation>** land in **<name of county or more defined area>**.
- A site should be on a stable geologic formation not subject to flooding or excessive run-off from adjacent land.
- Minimum depth to permanent groundwater should be four feet **<and the minimum depth to temporary groundwater should be one foot at the time when application of liquid Biosolids occurs>**.
- Topography should be suitable for normal agricultural operations. **<Biosolids should not be land applied on bare soils when the slope exceeds 12 percent.>**.
- Soil should have a minimum rooting depth of 24 inches.

Public Notification

The **City of Bandon** will notify the public of the proposed land application activity by **phone and on site visit. A current copy of the city's Bio-Solid Manage Report will be available for review.** Each year prior to land application of alkaline-stabilized domestic septage, the **City of Bandon** will verify for those sites to be used for the year that the property owners who received prior notification have not changed. If a property owner has changed, notification of the land application activity will be made to the new property owner and documented.

Site Management Practices

Site access restrictions and setbacks will be followed as required in OAR 340-050, 40 CFR 503, and outlined in the Department's site authorization letters. The **City of Bandon** will ensure that access is restricted by appropriate means as necessary, such as fencing or posting of signs at the land application site. Biosolids land application will not occur in those areas designated as buffer strips and will be achieved through accurate measurement of the buffer area prior to commencing land application.

Crop Management Practices

As listed in the Biosolids Land Application Site Inventory table on page **9**, Biosolids are applied to **Hay**. Timing of application and the harvest cycle of the crop are also listed. Soil conditions must be favorable for application such that runoff, leaching, or soil compaction does not occur. The timing of land application will take into consideration tilling and irrigation practices that may occur on an authorized site.
**Note: If tilling or irrigation occurs, describe those practices.*

The overall management of nutrients at the land application sites takes into account the amount of Biosolids land applied, the amount of commercial fertilizers used and the amount of residual nutrients in the soil. When additional sources of nitrogen (e.g., commercial fertilizer) are applied to a site, then the application of Biosolids should be reduced to compensate for the additional nitrogen loading.

If Biosolids is applied to a site 2 out of 3 years at the agronomic rate, prior to the third application, a representative composite soil sample will be collected from grab sample taken across the entire site, and analyzed by an independent commercial laboratory. If existing nitrate-nitrogen levels in the soil profile are elevated, the Biosolids application rate, site management practices, or both will be adjusted. Application rates must be adjusted to account for available nitrogen carried over from previous applications. If crop removal of nitrogen exceeds the calculated agronomic rate, additional nitrogen may be required to sustain crop production.

V Contingency Options

In the event biosolids are spilled between the treatment facility and the land application site, Bandon's sewage treatment works shall contain the spill, lime, absorbent (for example sand) and remove spilled sludge solids spills with a front end loader or shovels and dispose of the spillage at a DEQ authorized application or disposal site. All spills into waters of the state or spills on the ground surface that are like to enter waters of the state shall be reported immediately to Oregon Emergency Response System (OERS) at 1-800-452-0311 and your regional biosolids coordinator at 541-440-3338. All spills of 25 gallons or more on the ground surface shall be report to the regional biosolids coordinator at 541-440-3338.

VI Reporting

Daily Reporting and Recordkeeping (40 CFR 503.17 & 40 CFR 503.18):

Each year prior to land application of biosolids the source operators shall check to see if contiguous property owners have changed. The operators shall keep a record of contact (date, and/or written log of phone call with name and number, and/or Xerox of postcard with name and address, etc.,) with contiguous property owners, which notify them of the biosolid land application practice. Operator shall provide this documentation in the annual biosolid report.

Annual Reporting

The Annual Biosolid Report is due February 19, of each year for the previous year's land applied biosolids. Part of this report is the submittal of the daily site logs, which have the date, time, and quantity gal-lb. N/acre land applied for each day-tank-batch land applied. Site logs shall have a scaled map showing the site and the land application location that coincides with the daily site loading methods (truck spreader bar, irrigation cannon). Daily records should clearly show the location of daily biosolid loading site log.

Annual Report shall have a signed copy of the certification statements for pathogen reduction, vector attraction reduction and biosolids have been land applied at approved agronomic loading. Person signing statements should be the operator of record at the treatment plant. The operator shall show how the vector attraction reduction was met i.e., volatile solids reduction was achieved by time and temperature, the Van Kleeck equation filled out with digester records (MCRT), bench scale test, sour test or any other EPA approved alternative method appropriated for biosolid generated at your facility. Certification of pathogen reduction is required and is satisfied by submittal of test results in the Annual Biosolid Report. All the previous year's biosolids sampling and analysis that is required by the permit shall be included in Bandon's Annual Biosolid Report (in the year's annual report appendix).

VII Certification Statement

The City of Bandon's facility is capable of meeting their primary alternatives for achieving Class B biosolid pathogen and vector attraction reduction criteria. As required under 40CFR 503.17 a signed Class B biosolid and vector attraction certification statements shall accompany all biosolids that are land applied (Attachment C). For Class B biosolid annual biosolid analysis must be provided upon request. Certification statements must also show conformance with nutrient and land application loading rates where applicable.

Attachment A

Calculation of the % volatile solids reduction for the aerobic digesters is to be based on comparison of a representative grab sample of total and volatile solids entering the digestion process (a weighted blend of the primary and secondary clarifier solids) and a representative composite sample of the solids existing in the sludge holding tanks.

Typically in the past we've used the Van Kleeck equation for digesters. The assumption is that there is no grit accumulation in the digester. This volatile solids equation assumes the fixed solids input equals the fixed solids output. The Van Kleeck equation is appropriate if the digester decantant is low in total solids. The Van Kleeck equation can be used to calculate the volatile solids reduction for a digester that decants provided VSb equal VSd

FVSR: Fractional Volatile Solids Reduction

$$FVSR = 1 - VSb * (1-VSf) / VSf(1-VSb)$$

VSf Feed Sludge Fractional Volatile Solid, (kg/kg)
VSb Digested Sludge (digester bottom) Fractional Volatile Solids, (kg/kg)
VSd Decantant Fractional Volatile Solids

For this equation to be valid VSb must equal VSd.

For digesters with decant withdrawal (decant high in solids) and no grit accumulation, where the volatile and fixed concentrations are known for all streams as well as the volumetric flow rates for the decant and digester sludge then the Approximate Mass Balance equation should be used.

FVSR: Fractional Volatile Solids Reduction

$$FVSR = Fyb - Byb - Dyd / Fyb$$

Fyb (F) Feed Sludge Volumetric Flow Rate (m3/d)
(yb) Feed Sludge Volatile Solids Concentration (kg/m3)

Byb (B) Digester Sludge (bottom) Volumetric Flow Rate (M3/d)
(Bb) Digester Sludge (bottom) Volatile Solids Concentration (kg/ m3)

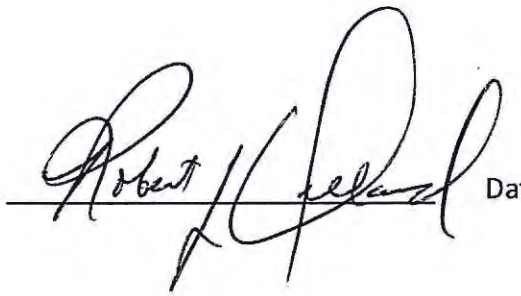
Dyd (D) Decantate Volumetric Flow Rate (m3/d)
(yd) Decantate Volumetric Solids Concentration (kg/ m3)

Assumptions: Fixed Solids and Volatile Flows Streams.

Attachment C

Class B Biosolid Certification Statement

"I certify, under penalty of law, that the information used to determine compliance with Class B Pathogen Reduction requirements in 40 CFR Part 503.32 Sec.(b)(2) and Vector Attraction Reduction requirements 40 CFR part 503.33 Sec.(b)(1) was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluated this information. I certify that all Class B biosolids land applied has met the above mentioned Pathogen and Vector Attraction Reduction requirements. I also certify that all Class B biosolids were land applied at ergonomic rates. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.

Signature  Date 2/10/2020

DMR PAGES SHOWING

MCRT, VOLATILE REDUCTION AND GALLONS REMOVED & SITE APPLICATION LOGS

WASTEWATER TREATMENT PLANT PROCESS CONTROL REPORT

June 2019

ALKALINTY INF MG/L	ALKALINTY EFF MG/L	AMMONIA INF MG/L	AMMONIA EFF MG/L	NITRATE INF MG/L	NITRATE EFF MG/L	AEROBIC DIGESTER 1 MLSS MG/L	MLSS GALS	MLSS LBS	PH	DO PPM	TEMP	% VOLA TILE	AEROBIC DIGESTER 2 MLSS MG/L	MLSS GALS	MLSS LBS	PH	DO PPM	TEMP	% VOLA TILE	AEROBIC DIGESTER 3 MLSS MG/L	MLSS GALS	MLSS LBS	PH	DO PPM	TEMP	% VOLA TILE	DAYS SRT
						9490			3.94	5.5	22.3	81	9980			3.21	2.9	23.0	82	10500			5.59	1.5	23.0	82	
						9210			3.43	2.9	22.3	85	9970			3.04	1.3	22.3	80	11010			4.74	1.0	24.7	82	
						9130			6.13	2.5	17.8	84	10130			3.66	1.4	21.8	82	9510			6.00	1.6	22.3	82	2
						8810			4.22	2.3	21.6	82	10600			4.44	3.7	22.0	82	9940			6.96	0.8	22.2	81	
160	130	35.0	17.0			9950			5.98	5.6	18.8	84	10690			5.77	1.5	18.1	84	10260			4.89	2.1	22.8	82	1
						10530			3.36	2.7	22.6	84	10550			4.72	4.3	23.1	82	8740			3.50	2.0	22.9	82	
						12640			6.18	1.7	21.0	82	9470			6.07	2.5	22.6	80	9070			3.05	5.0	22.6	83	
						9210			5.18	1.9	24.1	81	9800			4.44	5.3	23.7	80	8370			2.89	4.7	22.6	84	
						9940			5.58	2.6	23.8	81								9710			4.83	3.6	22.6	86	
													11570			3.38	4.1	21.4	81	9050			7.06	1.4	22.1	79	1
170	130	24.0	21.0			11110			5.80	1.1	24.0	82	10220			3.64	3.5	22.4	83	9630			6.42	3.6	22.4	83	
						12290			6.53	0.5	21.2	82	11360			4.15	5.0	22.4	82	10120			3.86	1.1	22.3	82	
330	260	59.0	38.0	0.00	0.00	112310	0	0	56.33	29.3	239.5	908	114340	0	0	46.52	35.5	242.8	898	115910	0	0	59.78	28.4	272.5	988	6
170	130	35.0	21.0	0.00	0.00	12640	0	0	6.53	5.6	24.1	85	11570	0	0	6.07	5.3	23.7	84	11010	0	0	7.06	5.0	24.7	86	2
160	130	24.0	17.0	0.00	0.00	8810	0	0	3.36	0.5	17.8	81	9470	0	0	3.04	1.3	18.1	80	8370	0	0	2.89	0.8	22.1	79	1
165	130	29.5	19.0	0.00	0.00	10725	0	0	4.95	3.1	21.0	83	10520	0	0	4.23	3.2	22.1	82	9659	0	0	4.98	2.4	22.7	82	ERR
																100											
170	130	35.0	21.0	ERR	ERR	12640	ERR	ERR	6.53	5.6	24.1	85	11570	ERR	ERR	6.07	5.3	23.7	84	11010	ERR	ERR	7.06	5.0	24.7	86	2
160	130	24.0	17.0	ERR	ERR	8810	ERR	ERR	3.36	0.5	17.8	81	9470	ERR	ERR	3.04	1.3	18.1	80	8370	ERR	ERR	2.89	0.8	22.1	79	1

RECEIVING STREAM COQUILLE RIVER
R.M. 1.1

LIQUID SLUDGE DISPOSAL			DEWATERED SLUDGE DISPOSAL					MAN HRS		DAILY LOG
GALS MOVED	% SOLIDS	FROM AND TO LOCATIONS	GALLONS REMOVED	LBS OUT	CU. YDS.	% SOLIDS	FROM AND TO LOCATIONS	PER DAY	DAY	REGARDING BREAKDOWN, BYPASSING, ODORS, COMPLAINTS, ETC.
								2.5	1	HOSED MIQ. LIQ. CHANNEL, HOSED CLARIFIER
								2.5	2	HOSE CLARIFIER, HOSED HEAD WORKS, RAN COMPACTOR.
								16.0	3	RAS PUMP PLUGGED- TOOK APART FOR RAG REMOVAL.
								24.0	4	INF. PUMP #2 MOTOR REBUILD ONSITE AND INSTALLED. SCRUB CLARIFIER.
								21.0	5	3WATER PUMP MAINTENENCE, FLUSH EFF. CHANNEL.
								12.0	6	WASH DOWN DEWATERING MACHIN / ROOM. PUMP SCUM BOX.
15878	1.0	LEFFS FIELD # 7		1324.0				24.0	7	JAR TEST DIG.#1, HOSED CLARIFIER, HOSED MIX. LIQ. CHANNEL.
								2.5	8	CLEANED AB. PROBE, JAR TEST DIG.#1, AIRLIFT DIG. #2 INTO #3.
								2.5	9	ADD OIL TO LARGE VARI SPEED BLOWER, JAR TEST DIG.#1, HOSED HEAD WRKS
								20.5	10	PRESSURE WASH DEWATERING ROOM, HOSED HEAD WORKS.
								24.0	11	HOSED HEAD WORKS, HOSED MIX LIQ. CHANNEL
23971	1.0	LEFFS FIELD # 7		1999.0				23.0	12	AIR LIFT DIG.#1 INTO #2, HOSED CLARIFIER / NET GREESE.
								16.0	13	JAR TEST DIG.#2 HASED CLARIFIER.
								23.0	14	PUMP SCUM BOX, HOSED HEAD WORKS, HOSED MIX LIQ. CHANNEL.
								2.5	15	HOSED HEAD WORKS, HOSED CLARIFIER, RAS PUMP CHECKED.
								2.5	16	SHUT DIG.#2 OFF, HOSED HEAD WORKS, HOSED MIX LIQ. CHANNEL
								16.0	17	JAR TEST DIG. 1 AND 2, HOSED CLARIFIER, HOSED HEAD WORKS
								8.0	18	UNPLUG RAS PUMP AND GRIT PUMP. BILLING, PLANNING MEETING
								24.0	19	SCRUBED CLAIFIER
								24.0	20	CLEANED UV'S / CLEANED CHANNELS
								24.0	21	PUMPED SCUM BOX / DECANTED # 2 DIG.
								2.5	22	GRIT PUMP PLUGGED, JAR TEST 1 AND 3 DIGESTER
								2.5	23	# 1 DIG. OFF
15785	0.9	LEFFS FIELD # 7		1185.0				21.0	24	DECANTED # 1 DIG. / HOSED CLAIFIER
								21.0	25	HOSED MIX LIQ CHANNEL, SCRUBBED CLARIFIER, RAN COMPACTOR.
31859	1.0	LEFFS FIELD#7		2657.0				21.0	26	HOSED CLARIFIER, HOSED MIX LIQ. CHANNEL,
								24.0	27	REPLACED BELTS BLOWER #5610,
31967	1.0	LEFFS FIELD # 1		2666.0				24.0	28	JAR TEST DIG.#3, PUMPED SCUM BOX. HOSED CLARIFIER.
								2.5	29	UNPLUGED GRIT PUMP
								2.5	30	HOSED CLAIFIER
									31	
119460	4.9		0.0	9831.0	0.0	0.0	ALL DEWATERED SLUDGE IS	435.5		ADDITIONAL INFORMATION
31967	1.0		0.0	2666.0	0.0	0.0	CAKE AND MEASURED IN CU	24.0		
15785	0.9		0.0	1185.0	0.0	0.0	YDS.	2.5		
ERR	1.0		0.0	1966.2	0.0	0.0		14.5		
31967	1.0		ERR	2666.0	ERR	ERR		24.0		
15785	0.9		ERR	1185.0	ERR	ERR		2.5		

I CERTIFY, UNDER PENALTY OF LAW, THAT THIS DOCUMENT AND ALL ATTACHMENTS PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCED WITH A SYSTI DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALU THE INFORMATION SUBMITTED. BASED UPON MY INQUIRY OF THE PERSON OR PERS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GAT THE INFORMATION, THE INFORMATION SUBMITTED IS, TO BEST OF MY KNOWLEDGE A BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICA PENALTIES TO SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FI AND IMPRISONMENT FOR KNOWING VIOLATIONS. THE MONTHLY AVERAGE DIGESTE IS BASED ON THE MONTHLY AVERAGE TOTAL DIGESTER POUNDS DIVIDED BY THE MO TOTAL POUNDS HAULED WHICH IS DIVIDED BY THE NUMBER OF DAYS OF THE MONTH GIVES A TRUE SRT.

SIGNATURE: _____

WASTEWATER TREATMENT PLANT PROCESS CONTROL REPORT

July 2019

ALKALINTY		AMMONIA		NITRATE		AEROBIC DIGESTER 1							AEROBIC DIGESTER 2							AEROBIC DIGESTER 3							
INF MG/L	EFF MG/L	INF MG/L	EFF MG/L	INF MG/L	EFF MG/L	MLSS MG/L	MLSS GALS	MLSS LBS	PH	DO PPM	TEMP	% VOLA TILE	MLSS MG/L	MLSS GALS	MLSS LBS	PH	DO PPM	TEMP	% VOLA TILE	MLSS MG/L	MLSS GALS	MLSS LBS	PH	DO PPM	TEMP	% VOLA TILE	DAYS SRT
						12420			6.87	0.8	21.6	81	11750			4.05	2.4	22.9	82	10300			2.67	3.0	23.2	82	
190	140	28.0	19.0			13790			7.24	0.6	20.0	83	12020			6.07	1.0	22.7	82	13610			3.50	5.1	22.9	82	
						12270			7.39	0.6	21.3	83	11100			5.72	1.8	23.3	82	12980			4.27	10.4	23.1	83	
						12590			7.24	0.6	21.6	83	10060			4.00	1.2	25.0	81	13040			4.56	4.6	23.3	82	1
						13450			7.17	0.7	22.3	83	10880			5.96	3.1	25.3	80	13810			5.94	6.5	24.3	81	1
180	140	25.0	16.0			10980			7.10	0.6	23.1	83	10950			6.60	1.2	24.8	79	10380			3.63	3.4	23.9	83	
						9740			7.42	0.6	23.2	84	10040			6.06	1.3	24.8	81	10810			3.10	1.5	25.0	82	1
						9240			6.73	2.6	22.5	84	9200			4.65	3.1	24.2	82								
210	180	25.0	16.0			8790			6.52	4.8	20.9	85								12550			5.01	7.9	23.7	81	
						8430			6.81	0.8	21.0	85	11070			4.59	3.7	22.3	84	12690			3.12	3.7	23.0	82	1
						8710			6.54	0.5	21.0	85	9510			5.52	2.5	22.2	84	11160			3.71	1.4	22.8	83	1
190	170	23.0	16.0			8470			6.93	0.2	21.2	86	9020			6.52	0.4	22.0	84								
						7710			7.06	0.4	21.1	86	7820			6.54	0.6	22.9	83	11960			4.67	1.1	22.9	84	
						9710			6.67	0.6	21.1	85	9090			5.86	1.1	20.9	83	10150			4.03	1.4	22.3	83	
770	630	101.0	67.0	0.00	0.00	146300	0	0	97.69	15.0	301.9	1176	132530	0	0	72.14	23.4	303.3	1067	143440	0	0	48.21	50.0	280.4	988	10
210	180	28.0	19.0	0.00	0.00	13790	0	0	7.42	4.8	23.2	86	12020	0	0	6.60	3.7	25.3	84	13810	0	0	5.94	10.4	25.0	84	1
180	140	23.0	16.0	0.00	0.00	7710	0	0	6.52	0.2	20.0	81	7820	0	0	4.00	0.4	20.9	79	10150	0	0	2.67	1.1	22.3	81	
195	160	25.5	17.5	0.00	0.00	10750	0	0	6.97	2.5	21.6	84	9920	0	0	5.55	1.8	23.3	82	11953	0	0	4.02	4.2	23.4	82	ERR
																			145								
210	180	28.0	19.0	ERR	ERR	13790	ERR	ERR	7.42	4.8	23.2	86	12020	ERR	ERR	6.60	3.7	25.3	84	13810	ERR	ERR	5.94	10.4	25.0	84	1
180	140	23.0	16.0	ERR	ERR	7710	ERR	ERR	6.52	0.2	20.0	81	7820	ERR	ERR	4.00	0.4	20.9	79	10150	ERR	ERR	2.67	1.1	22.3	81	

RECEIVING STREAM COQUILLE RIVER
R.M. 1.1

LIQUID SLUDGE DISPOSAL			DEWATERED SLUDGE DISPOSAL					MAN HRS		DAILY LOG
ALS MOVED	% SOLIDS	FROM AND TO LOCATIONS	GALLONS REMOVED	LBS OUT	CU. YDS.	% SOLIDS	FROM AND TO LOCATIONS	PER DAY	DAY	REGARDING BREAKDOWN, BYPASSING, ODORS, COMPLAINTS, ETC.
								16.0	1	GRIT PUMP PLUGGED / KOOTZ TO LOOK AT CLARIFIER # 1
								16.0	2	DECANT# 1 DIG.
								24.0	3	AIRLIFTED # 1 DIG. TO # 2 / DECANTED # 3
								2.5	4	SCRUBBED CLAIFIER
								24.0	5	HOSED CLARIFIER / HEADWORKS
								2.0	6	
								2.0	7	JAR TEST # 2 DIG.
19846	1.0	LEFFS FIELD # 1		1655.0				24.0	8	REMOVED RUBBER # 1 CLARIFIER
								24.0	9	PUMPED SCUM BOX
15879	1.0	LEFS FIELD # 1		1324.0				24.0	10	SCRUBBED CLAIFIER
								23.0	11	REPLACED PACKING # 2 3 WATER PUMP
31662	1.0	LEFFS FIELD # 2		2641.0				20.0	12	PUMP SCUM BOX
								2.5	13	
								2.5	14	
15876	1.0	LEFFS FIELD # 2		1324.0				24.0	15	SANDBLASTING # 1 CLAIFIER
								24.0	16	REMOVED # 1 INF. PUMP FOR REPAIR
								20.0	17	DECANTED # 3 DIG./ KOONTZ SANDBLASTED # 1 CLAIFIER
								16.0	18	PUMPED SCUM BOX / SCRUBBED CLAIFIER
15924	1.0	LEFFS FIELD # 2		1328.0				24.0	19	DECANTED # 2 DIG.
								2.0	20	RAS PUMP CHECK
								2.0	21	
15880	1.0	LEFFS FIELD # 2		1324.0				24.0	22	AIRLIFTED # 2 DIG. TO # 3
								24.0	23	SCRUBBED CLAIFIER
15846	1.0	LEFFS FIELD # 2		1322.0				24.0	24	JAR TEST # 3 DIG / INF. MOTOR TO HPS FOR REPAIR
								22.0	25	# 3 DIG/ OFF
								20.0	26	DECANTED # 3 DIG / KOONTZ SANDBLASTED # 1 CLAIFIER
								2.5	27	
								2.5	28	HOSED CLARIFIER / HEADWORKS
								24.0	29	
									30	
31862	1.0	LEFFS FIELD #6							31	
162775	8.0		0.0	10918.0	0.0	0.0	ALL DEWATERED SLUDGE IS	461.5		ADDITIONAL INFORMATION
31862	1.0		0.0	2641.0	0.0	0.0	CAKE AND MEASURED IN CU	24.0		
15846	1.0		0.0	1322.0	0.0	0.0	YDS.	2.0		
ERR	1.0		0.0	1559.7	0.0	0.0		15.9		
31862	1.0		ERR	2641.0	ERR	ERR		24.0		
15846	1.0		ERR	1322.0	ERR	ERR		2.0		

I CERTIFY, UNDER PENALTY OF LAW, THAT THIS DOCUMENT AND ALL ATTACHMENTS PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCED WITH A SYSTE DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALL THE INFORMATION SUBMITTED. BASED UPON MY INQUIRY OF THE PERSON OR PERS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATI THE INFORMATION, THE INFORMATION SUBMITTED IS, TO BEST OF MY KNOWLEDGE A BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICA PENALTIES TO SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FI AND IMPRISONMENT FOR KNOWING VIOLATIONS. THE MONTHLY AVERAGE DIGESTE IS BASED ON THE MONTHLY AVERAGE TOTAL DIGESTER POUNDS DIVIDED BY THE MC TOTAL POUNDS HAULED WHICH IS DIVIDED BY THE NUMBER OF DAYS OF THE MONTH GIVES A TRUE SRT.

SIGNATURE:

WASTEWATER TREATMENT PLANT PROCESS CONTROL REPORT

August 2019

ALKALINTY		AMMONIA		NITRATE		AEROBIC DIGESTER 1							AEROBIC DIGESTER 2							AEROBIC DIGESTER 3							
INF MG/L	EFF MG/L	INF MG/L	EFF MG/L	INF MG/L	EFF MG/L	MLSS MG/L	MLSS GALS	MLSS LBS	PH	DO PPM	TEMP	% VOLA TILE	MLSS MG/L	MLSS GALS	MLSS LBS	PH	DO PPM	TEMP	% VOLA TILE	MLSS MG/L	MLSS GALS	MLSS LBS	PH	DO PPM	TEMP	% VOLA TILE	DAYS SRT
160	120	30.0	20.0			9580			7.19	0.3	22.5	85	7860			6.66	0.3	24.2	84	10100				1.9	24.2	84	
						8790	59109	4333	6.63	1.1	22.3	84	7130	108283	6439	4.45	2.8	23.9	84	10110	90175	7604	2.46	3.1	23.9	84	14
						8400	59109	4141	4.68	2.1	22.1	85	10010	110372	9214	4.47	3.0	20.9	84	8920	91570	6812	5.15	7.0	23.6	80	9
180	140	33.0	22.0			8500	34056	2414	7.04	0.8	21.6	81	8850	102015	7530	4.64	4.5	22.2	89	1010	99230	836	5.94	0.6	22.7	71	8
						7780			5.48	1.4	21.7	87	7960			3.98	3.0	22.6	85	8400			5.72	0.6	22.8	85	
						8110			5.45	2.2	21.7	85								9550			5.50	1.2	22.7	83	
210	180	46.0	36.0			7790			7.06	1.9	21.7	88	8870			5.76	2.1	22.6	84	8060			3.80	1.4	22.7	85	
						7270			6.43	1.0	22.9	85	9060			6.28	0.6	23.2	84								
						6930			6.66	1.9	22.7	86	8520			5.07	1.5	23.9	84	9790			4.75	3.6	22.8	85	
190	135	50.0	28.0			5450			5.08	4.6	22.6	87	7210			3.33	4.3	23.3	86	8020			5.30	1.8	22.1	84	
						5020	74768	3130	3.91	4.3	21.5	87		102015						9060	113157	8550	6.22	0.7	21.8	84	10
						5150	84162	3615	6.27	1.2	22.2	87	8190	89481	6112	3.43	2.1	22.0	86	8940	102712	7659	4.92	2.1	22.0	84	7
180	140	31.0	26.0			4880	52063	2119	6.68	2.6	21.9	86	9120	105495	8024	5.54	2.3	22.3	85	9080	97837	7409	5.45	0.6	22.0	83	15
920	715	190.0	132.0	0.00	0.00	93650	363267	19752	78.76	25.4	287.4	1113	92780	617661	37319	53.61	26.5	251.1	935	101040	594681	38870	55.21	24.6	273.3	992	62
210	180	50.0	36.0	0.00	0.00	9580	84162	4333	7.19	4.6	22.9	88	10010	110372	9214	6.66	4.5	24.2	89	10110	113157	8550	6.22	7.0	24.2	85	15
160	120	30.0	20.0	0.00	0.00	4880	34056	2119	3.91	0.3	21.5	81	7130	89481	6112	3.33	0.3	20.9	84	1010	90175	836	2.46	0.6	21.8	71	7
185	150	40.0	28.0	0.00	0.00	7230	59109	3226	5.55	2.5	22.2	85	8570	99927	7464	4.87	2.4	22.8	85	8420	99114	6478	5.02	2.1	22.8	83	ERR
																111											
210	180	50.0	36.0	ERR	ERR	9580	84162	4333	7.19	4.6	22.9	88	10010	110372	9214	6.66	4.5	24.2	89	10110	113157	8550	6.22	7.0	24.2	85	15
160	120	30.0	20.0	ERR	ERR	4880	34056	2119	3.91	0.3	21.5	81	7130	89481	6112	3.33	0.3	20.9	84	1010	90175	836	2.46	0.6	21.8	71	7

RECEIVING STREAM COQUILLE RIVER
R.M. 1.1

LIQUID SLUDGE DISPOSAL GALS REMOVED	% SOLIDS	FROM AND TO LOCATIONS	DEWATERED SLUDGE DISPOSAL GALLONS REMOVED	LBS OUT	CU. YDS.	% SOLIDS	FROM AND TO LOCATIONS	MAN HRS PER DAY	DAY	DAILY LOG REGARDING BREAKDOWN, BYPASSING, ODORS, COMPLAINTS, ETC.
								16.0	1	AIRLIFTED # 1 DIG. TO # 2 / PUMPED SCUM BOX
								24.0	2	SCRUBBED CLAIFIER / PRESSURE WASHED CLAIFIER
								2.0	3	
								2.0	4	JAR TEST # 2 DIG.
15892	1.0	LEFFS FIELD # 6		1325.0				23.0	5	CHECK PONE NORTH AVE. PUMP STATION
								15.0	6	DECANT # 2 DIG.
31674	0.9	LEFFS FIELD # 6		2377.0				21.0	7	AIRLIFTED# 1 DIG. TO # 2 OVER NIGHT
								24.0	8	AVERY PLUMMING TESTED ALL BACKFLOW DEVICES
15962	1.0	LEFFS FIELD # 6		1331.0				22.0	9	CLEANED UV'S AND CHANNELLS
								2.5	10	
								2.5	11	JAR TEST # 3 DIG.
								24.0	12	REMOVED RAGS HEADWORKS
								24.0	13	FLAGED FOR P. WORKS
								21.0	14	SCRUBBED CLAIFIER / PRESSURE WASHED CLAIFIER
								24.0	15	RAS PUMP CHECK, AIR LIFT DIG#1 INOT #2
								24.0	16	JAR TEST DIG 2 AND 3. HOSED MIX. LIQ. CHANNEL
								2.5	17	HOSED CLARIFIER, CLEANED AB PROBE.
								2.5	18	AIR LIFT DIG. #1 INTO #2
								21.0	19	SCRUBBED CLARIFIER, PRESSURE WASH, HOSED MIX. LIQ. CHANNEL
								19.0	20	HOSED CLARIFIER, GREESE RAS, PUMP - SLIDE GATES, AUGER / GRINDER
								16.0	21	WORK WITH HACH ON AMMONIA/ PH PROBE. PUMP SCUM BOX
								13.0	22	
								16.0	23	REMOVED RAGS FROM AUGER
								2.0	24	JAR TEST # 3 DIG.
								2.5	25	UNPLUGED 3 WATER PUMPS
15897	0.9	LEFFS FIELD # 3		1193.0				24.0	26	CHECKED CALIBRATION EFF. SAMPLER
								22.0	27	SCRUBBED CLAIFIER / PRESSURE WASHED CLAIFIER
31622	0.9	LEFFS FIELD # 3		2374.0				24.0	28	AIRLIFTED # 2 DIG. TO # 3
								24.0	29	HOSED CLAIFIER/ M. L. CHANNEL
15856	0.9	LEFFS FIELD # 3		1190.0				24.0	30	# 2 DIG. OFF DECANT
								2.5	31	
126903	5.6		0.0	9790.0	0.0	0.0	ALL DEWATERED SLUDGE IS	488.0		ADDITIONAL INFORMATION
31674	1.0		0.0	2377.0	0.0	0.0	CAKE AND MEASURED IN CU	24.0		
15856	0.9		0.0	1190.0	0.0	0.0	YDS.	2.0		
ERR	0.9		0.0	1631.7	0.0	0.0		15.7		
31674	1.0		ERR	2377.0	ERR	ERR		24.0		
15856	0.9		ERR	1190.0	ERR	ERR		2.0		

I CERTIFY, UNDER PENALTY OF LAW, THAT THIS DOCUMENT AND ALL ATTACHMENTS PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCED WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED UPON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES TO SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT FOR KNOWING VIOLATIONS. THE MONTHLY AVERAGE DIGESTER TOTAL IS BASED ON THE MONTHLY AVERAGE TOTAL DIGESTER POUNDS DIVIDED BY THE MONTHLY TOTAL POUNDS HAULED WHICH IS DIVIDED BY THE NUMBER OF DAYS OF THE MONTH GIVES A TRUE SRT.

SIGNATURE:

WASTEWATER TREATMENT PLANT PROCESS CONTROL REPORT

September 2019

ALKALINTY INF IG/L	ALKALINTY EFF MG/L	AMMONIA INF MG/L	AMMONIA EFF MG/L	NITRATE INF MG/L	NITRATE EFF MG/L	AEROBIC DIGESTER 1 MLSS MG/L	MLSS GALS	MLSS LBS	PH	DO PPM	TEMP	% VOLA TILE	AEROBIC DIGESTER 2 MLSS MG/L	MLSS GALS	MLSS LBS	PH	DO PPM	TEMP	% VOLA TILE	AEROBIC DIGESTER 3 MLSS MG/L	MLSS GALS	MLSS LBS	PH	DO PPM	TEMP	% VOLA TILE	DAYS SRT	DAYS MCRT
						6220	70853	3675	5.66	2.1	23.1	85								7570	81125	5122	3.61	2.7	23.7	84	6	32.6
100	140	31.0	25.0			6650	79465	4407	7.04	1.1	22.1	86	8160	81821	5568	5.74	6.5	23.0	85	7440	68591	4256	3.53	2.3	22.9	84	15	26.1
						5850			5.09		22.9	85	7410			3.85	4.3	22.2	85	7530			2.72	2.9	21.6	83		
						7610			5.94	1.0	21.6	85	7580			4.42		22.6	86	7700			3.02	1.9	19.9	86		
160	100	41.0	28.0			7220			5.29	0.6	22.7	86	9110			6.39	4.1	23.9	84	7660			2.84	3.9	22.3	86		
						5590			7.17	0.6	19.2	85	8060			6.83	2.1	21.4	87	6880			3.74	1.5	22.7	86		
						6700			4.72	2.8	20.7	85	6910			4.52	3.0	22.1	84	7160			3.25	3.3	21.8	87		
140	120	28.0	20.0			6330			4.10	3.4	21.4	88								10180			4.60	3.9	21.9	85		
						5230	104518	4559	4.48	1.1	21.8	86	9550	92267	7349	3.22	3.2	22.0	82	9340	106194	8272	3.57	4.0	22.5	84	9	28.0
200	150	42.0	24.0			5810	114696	5558	6.77	2.1	21.7	85	6930	61627	3562	5.99	2.2	22.9	87	7940	92267	6110	2.83	3.5	22.7	84	7	27.9
						5300	56761	2509	3.72	5.9	20.3	86	6540	100623	5488	3.79	4.6	21.8	85	9980	75554	6289	3.50	4.2	21.6	84	11	0.0
						4910			2.89	5.6	18.3	87								8490			2.98	3.7	20.1	87		
690	510	142.0	97.0	0.00	0.00	73420	426293	20708	62.89	26.3	255.6	1027	70250	336336	21967	44.75	30.0	201.9	765	97870	423731	30049	40.39	37.8	263.7	1020	50	114.6
200	150	42.0	28.0	0.00	0.00	7610	114696	5558	7.17	5.9	23.1	87	9550	100623	7349	6.83	6.5	23.9	87	10180	106194	8272	4.80	4.2	23.7	87	15	32.6
140	100	28.0	20.0	0.00	0.00	4910	56761	2509	2.89	0.6	18.3	85	6540	61627	3562	3.22	2.1	21.4	82	6880	68591	4256	2.72	1.5	19.9	83	7	0.0
170	125	35.0	24.0	0.00	0.00	6260	85729	4034	5.03	3.3	20.7	86	8045	81125	5492	4.97	3.8	22.4	85	8156	84746	6010	3.37	3.2	22.0	85	ERR	22.9
																105												
200	150	42.0	28.0	ERR	ERR	7610	114696	5558	7.17	5.9	23.1	87	9550	100623	7349	6.83	6.5	23.9	87	10180	106194	8272	4.80	4.2	23.7	87	15	32.6
140	100	28.0	20.0	ERR	ERR	4910	56761	2509	2.89	0.6	18.3	85	6540	61627	3562	3.22	2.1	21.4	82	6880	68591	4256	2.72	1.5	19.9	83	7	0.0

RECEIVING STREAM COQUILLE RIVER
R.M. 1.1

LIQUID SLUDGE DISPOSAL GALS REMOVED	% SOLIDS	FROM AND TO LOCATIONS	DEWATERED SLUDGE DISPOSAL GALLONS REMOVED	LBS OUT	CU. YDS.	% SOLIDS	FROM AND TO LOCATIONS	MAN HRS PER DAY	DAY	DAILY LOG REGARDING BREAKDOWN, BYPASSING, ODORS, COMPLAINTS, ETC.
								2.5	1	JAR TEST # 2 DIG.
								2.5	2	
								8.0	3	BILL ADMIR. LEAVE / HOSED CLAIFIER
15886	0.8	LEFFS FIELD # 3		1060.0				16.0	4	UNPLUGED GRIT PUMP
								16.0	5	SCRUBBED CLAIFIER / MIXERS IN AB OFF
15787	0.7	LEFFS FIELD # 3		922.0				16.0	6	HOSED EFF. CHANNEL
								2.5	7	
								3.0	8	STEVE AT WATER PLANT WITH JIM
								16.0	9	FLIGHT INSPECTED PUMPS / HIMMELRICK CLEANED WET WELLS
								16.0	10	MEETTING WITH CITY MANAGER AND BOB DILARD
								11.0	11	BOB DILLARD SIGHNED DMR'S
								16.0	12	SCRUBBED CLAIFIER / MIXERS IN AB OFF
								16.0	13	AIRLIFTED # 2 DIG. TO # 3
								15.0	14	CRANBERRY WEEKEND / SET UP DISPLAYS CITY COUNCIL
								2.5	15	
								16.0	16	REPLACED BLOWER BELTS ON 2 SPEED
								17.0	17	CLEANED DO-SS PROBE WITH VINEGOR
								16.0	18	AIRLIFTED # 2 DIG. TO # 3
								16.0	19	DECANTED # 3 DIG.
								13.0	20	HELPED JIM AT WATER PLANT
								2.5	21	PUMPED SCUM BOX
								2.5	22	
31753	0.9	LEFFS FIELD # 6		2383.0				16.0	23	# 1 DIG. OFF
								16.0	24	UNPLUGED GRIT PUMP / HOSED CLAIFIER
31682	0.8	LEFFS FIELD # 6		2114.0				16.0	25	MEETTIN CITY HALL / DYER PARTERSHIP
								16.0	26	SCRUBBED CLAIFIER / MIXERS IN AB OFF
15987	1.0	LEFFS FIELD # 6		1333.0				8.0	27	NO WASTEING
								3.0	28	
								3.0	29	# 2 DIG. OFF
								16.0	30	DECANT # 2 DIG.
									31	
11095	4.2		0.0	7812.0	0.0	0.0	ALL DEWATEREO SLUDGE IS	336.0		ADDITIONAL INFORMATION
31753	1.0		0.0	2383.0	0.0	0.0	CAKE AND MEASUREO IN CU	17.0		
15787	0.7		0.0	922.0	0.0	0.0	YDS.	2.5		
ERR	0.8		0.0	1562.4	0.0	0.0		11.2		
31753	1.0		ERR	2383.0	ERR	ERR		17.0		
15787	0.7		ERR	922.0	ERR	ERR		2.5		

I CERTIFY, UNDER PENALTY OF LAW, THAT THIS DOCUMENT AND ALL ATTACHMENTS WERE PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCED WITH A SYSTEM DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALUATE THE INFORMATION SUBMITTED. BASED UPON MY INQUIRY OF THE PERSON OR PERSONS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATHERING THE INFORMATION, THE INFORMATION SUBMITTED IS, TO BEST OF MY KNOWLEDGE AND BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICANT PENALTIES TO SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FINES AND IMPRISONMENT FOR KNOWING VIOLATIONS. THE MONTHLY AVERAGE DIGESTER SRT IS BASED ON THE MONTHLY AVERAGE TOTAL DIGESTER POUNDS DIVIDED BY THE MONTHLY TOTAL POUNDS HAULED WHICH IS DIVIDED BY THE NUMBER OF DAYS OF THE MONTH. THIS GIVES A TRUE SRT.

SIGNATURE:

WASTEWATER TREATMENT PLANT PROCESS CONTROL REPORT

October 2019

ALKALINTY		AMMONIA		NITRATE		AEROBIC DIGESTER 1							AEROBIC DIGESTER 2							AEROBIC DIGESTER 3							
INF MG/L	EFF MG/L	INF MG/L	EFF MG/L	INF MG/L	EFF MG/L	MLSS MG/L	MLSS GALS	MLSS LBS	PH	DO PPM	TEMP	% VOLA TILE	MLSS MG/L	MLSS GALS	MLSS LBS	PH	DO PPM	TEMP	% VOLA TILE	MLSS MG/L	MLSS GALS	MLSS LBS	PH	DO PPM	TEMP	% VOLA TILE	DAYS SRT
						4560			2.82	8.5	18.2	86	7270			4.24	9.0	18.4	85								
190	160	37.0	5.0			7020			5.01	7.0	17.7	88	5810			4.08	8.3	18.1	87	12360			6.86	1.0	20.0	86	
						6710	71636	4009	5.41	2.8	18.8	86		104801						11300	73465	6923	7.05	1.3	20.5	81	4
220	180	48.0	34.0			8810			6.54	1.1	18.8	85	10080			5.60	2.2	19.0	85								
													9240			3.55	6.6	18.3									
						8800			7.25	2.9	18.7	85	12610			3.92	5.9	19.9	85								
190	140	34.0	28.0			10200			7.44		18.6	84								11720			4.32	6.1	18.8		
																				10630			4.32	5.7	18.5	85	
						13790	66156	7609	7.48	0.5	18.6	84		10097						12590	89481	9396	4.48	2.9	18.8	84	5
200	160	34.0	28.0			13300			7.50	0.3	18.2	84								11790			5.06	1.0	19.1	86	
						12150	75550	7656	7.50	1.0	16.4	84								9690	67198	5431	5.88	2.0	17.7	80	5
						11820			7.55	0.4	14.1	83	11520			7.54	0.8	13.6	83	11100			5.69	1.5	15.6	85	
130	110	39.0	28.0																								
930	750	192.0	124.0	0.00	0.00	97160	213342	19274	64.50	24.5	178.1	849	56530	114898	0	26.93	32.8	107.3	425	91180	230144	21750	43.66	21.5	149.0	587	14
220	180	48.0	34.0	0.00	0.00	13790	75550	7656	7.55	8.5	18.8	88	12610	104801	0	7.54	9.0	19.9	87	12590	89481	9396	7.05	6.1	20.5	86	5
130	110	34.0	5.0	0.00	0.00	4560	66156	4009	2.82	0.3	14.1	83	5810	10097	0	3.55	0.8	13.6	83	9690	67198	5431	4.32	1.0	15.6	80	4
175	145	41.0	19.5	0.00	0.00	9175	70853	5833	5.19	4.4	16.5	86	9210	57449	0	4.82	5.5	17.9	85	11398	76715	7250	5.46	2.7	18.6	84	ERR
																65											
220	180	48.0	34.0	ERR	ERR	13790	75550	7656	7.55	8.5	18.8	88	12610	104801	ERR	7.54	9.0	19.9	87	12590	89481	9396	7.05	6.1	20.5	86	5
130	110	34.0	5.0	ERR	ERR	4560	66156	4009	2.82	0.3	14.1	83	5810	10097	ERR	3.55	0.8	13.6	83	9690	67198	5431	4.32	1.0	15.6	80	4

RECEIVING STREAM COQUILLE RIVER
R.M. 1.1

LIQUID SLUDGE DISPOSAL ALS IOVED	% SOLIDS	FROM AND TO LOCATIONS	DEWATERED SLUDGE DISPOSAL GALLONS REMOVED	LBS OUT	CU. YDS.	% SOLIDS	FROM AND TO LOCATIONS	MAN HRS PER DAY	DAY	DAILY LOG REGARDING BREAKDOWN, BYPASSING, ODORS, COMPLAINTS, ETC.
								16.0	1	CLARIFIER # 1 REPAIR, AIR LIFTED DIG. #2 INTO # 3. HOSED CLARIFIER.
								16.0	2	CLARIFIER, #1 REPAIN CONT. CLEANED AB. PROBE. DECANT DIG. #3
								16.0	3	CLARIFER #1 REPAIR FINISHED. JAR TEST DIG. #2
								16.0	4	SCRUBBED CLARIFIER, HOSED MIX. LIQ. CHANNEL.
								2.5	5	TIGHTENED PACKING ON 3 WATER PUMPS. JAR TEST #2 DIG. HOSED MIX LIQ
31879	1.0	LEFFS FIELD # 8		2659.0				2.5	6	DRAINED #2 CLARIFIER. DIG. #2 OFF.
								16.0	7	DECANT DIG.#2. AIRLIFT #1 INTO #2 DIG.
								16.0	8	DRAINED DIG #3 FOR REPAIR, STAFF MEETING. HOOKED UP PUMP TO #3 DIG.
								16.0	9	MET BOB DILLARD. FINAL INSPECT CLARIFIER #1. HOSED HEAD WORKS.
								16.0	10	CLEANED DIG # 3. REPLACED DIFFUSERS IN DIG. # 3.
								16.0	11	DECANT #1 DIG. SCRUBBED CLARIFIER. HOSED HEAD WORKS.
								2.5	12	HOSED MIX. LIQ. CHANNEL. HOSED HEAD WORKS. HOSED CLARIFIER.
								2.5	13	JAR TEST DIG. #2 HOSED HEAD WORKS, HOSED MIX. LIQ.
								5.0	14	SHUT DIG.#2 OFF. REPAIR AIRLIFT PIPE IN DIG.#3.
								16.0	15	CLARIFIER #1 OFFICIAL START UP. FINISH DIG. #3 REPAIRS,
								16.0	16	PUMP # 2 INTO #3, AIRLIFT DIG #2 INTO #3, HOSED MIX. LIQ CHANNEL.
								16.0	17	HOSED CLARIFIER, FINISH PUMPING DOWN #2.
								16.0	18	SCRUBBED CLARIFIER, PUMPED SCUM BOX, WASTE INTO #3.
								3.0	19	CLEANED AB PROBE. JAR TEST DIG. # 1, HOSED CLARIFIER.
								3.0	20	JAR TEST DIG. #1. ADD OIL TO VARI SPEED BLOWER. SHUT DIG.#1 OFF.
								16.0	21	BIOXIDE DELIVERY, DECANT DIG. #1, HOSED HEAD WORKS
31654	1.3	LEFFS FIELD # 8		3432.0				16.0	22	HOSED HEADWORKS / COMPACTER/ TIGHTINED 3 WATER PACKING
								16.0	23	HOSED CLAIFIER / HEADWORKS
								13.0	24	CLEANED A @ B CHANNELS / REPLACED ALL 6 SENSORS @ SLEEVES
								10.0	25	RAN # 1 CLAIFIER FOR 1 HOUR
								2.5	26	HOSED M. L . CHANNEL / CLAIFIER
								2.5	27	
31633	1.0	LEFFS FIELD # 8		2638.0				16.0	28	CLEAN OUT # 2 DIG / REPLACED DEFFISERS
								16.0	29	SCRUBBED CLAIFIER
								16.0	30	REESE ELCT. WORKED ON ALARMS FOR NEW CLAIFIER / WORKING
								13.0	31	NEW INF. PUMP AT PLANT
85166	3.3		0.0	8729.0	0.0	0.0	ALL DEWATERED SLUDGE IS	366.0		ADDITIONAL INFORMATION
31879	1.3		0.0	3432.0	0.0	0.0	CAKE AND MEASURED IN CU	16.0		
31633	1.0		0.0	2638.0	0.0	0.0	YDS.	2.5		
ERR	1.1		0.0	2909.7	0.0	0.0		11.8		
31879	1.3		ERR	3432.0	ERR	ERR		16.0		
31633	1.0		ERR	2638.0	ERR	ERR		2.5		

I CERTIFY, UNDER PENALTY OF LAW, THAT THIS DOCUMENT AND ALL ATTACHMENTS PREPARED UNDER MY DIRECTION OR SUPERVISION IN ACCORDANCED WITH A SYSTE DESIGNED TO ASSURE THAT QUALIFIED PERSONNEL PROPERLY GATHER AND EVALL THE INFORMATION SUBMITTED. BASED UPON MY INQUIRY OF THE PERSON OR PERS WHO MANAGE THE SYSTEM, OR THOSE PERSONS DIRECTLY RESPONSIBLE FOR GATI THE INFORMATION, THE INFORMATION SUBMITTED IS, TO BEST OF MY KNOWLEDGE A BELIEF, TRUE, ACCURATE, AND COMPLETE. I AM AWARE THAT THERE ARE SIGNIFICA PENALTIES TO SUBMITTING FALSE INFORMATION, INCLUDING THE POSSIBILITY OF FI AND IMPRISONMENT FOR KNOWING VIOLATIONS. THE MONTHLY AVERAGE DIGESTEI IS BASED ON THE MONTHLY AVERAGE TOTAL DIGESTER POUNDS DIVIDED BY THE MC TOTAL POUNDS HAULED WHICH IS DIVIDED BY THE NUMBER OF DAYS OF THE MONTH GIVES A TRUE SRT.

SIGNATURE:

2019

CITY OF BANDON - WASTEWATER TREATMENT PLANT

ON SITE BIO-SOLIDS APPLICATION LOG

Dave 67,692 gal

Site location and number: Daveleffs Field # 1

Date	Setting #	Digester Totalizer Start	Digester Totalizer Stop	Multiply by 100	Gallons Out	Pounds Out	Loads	Operator	Comments
5-28-19	1-2	0	31967		31,967	2666	8	SH/SJ	Startsock
7-8-19	3	0	19916		19,916	1655	5	SH	
7-8-19	4	0	15,879		15,879	1324	4	SH	Finisock
7.									

2019

CITY OF BANDON - WASTEWATER TREATMENT PLANT

ON SITE BIO-SOLIDS APPLICATION LOG

Site location and number: Jeffs Field #2 Dawn

Date	Setting #	Digester Totalizer Start	Digester Totalizer Stop	Multiply by 100	Gallons Out	Pounds Out	Loads	Operator	Comments
7-12-19	1-2	0	34,662		34,662	2641	8	SK SJ	
7-15-19	3	0	15,876		15,876	1324	4	SH	
7-18-19	4	0	15,824		15,824 ~~1324~~	1328	4	SJ	85 88 gals
7-22-19	5	0	15,880		15,880		4	SH	
7-24-19	6	0	15,546		15,546	1322	4	SH	

CITY OF BANDON - WASTEWATER TREATMENT PLANT

ON SITE BIO-SOLIDS APPLICATION LOG

Done 9/1, 14/19 gals

Site location and number: Left's Field #3

		Digester Totalizer		Multiply by 100	Gallons Out	Pounds Out			
Date	Setting #	Start	Stop				Loads	Operator	Comments
8-26-19	1	0	15857		15857	1183	4	SH	Start
8-28-19	2-3	0	31422		31422	2374	8	SJ SL	
8-30-19	4	0	15,956		15856	1190	4	S.H	
9-4-19	5	0	15886		15886	1060	4	SJ	
9-6-19	6	0	15787		15886	992	4	SJ	Finished

CITY OF BANDON - WASTEWATER TREATMENT PLANT

ON SITE BIO-SOLIDS APPLICATION LOG

Site location and number: Loft's Field #6

Date	Setting #	Digester Totalizer Start	Digester Totalizer Stop	Multiply by 100	Gallons Out	Pounds Out	Loads	Operator	Comments
7-31-18	1-2	0	31862		31862	2657	8	SJ	
8-5-18	3	0	15882		15,882	1325	4	SH	Done
8-7-18	4-5	0	31074		31,074	~~2644~~ 2377	8	SJ	95,850 gals
8-8-18	6	0	15962		15,962	1331	4	SH	

2011

CITY OF BANDON - WASTEWATER TREATMENT PLANT

ON SITE BIO-SOLIDS APPLICATION LOG

Start Field Season.

Site location and number: Dave Ieee's Field # 7

Date	Setting #	Digester Totalizer Start	Digester Totalizer Stop	Multiply by 100	Gallons Out	Pounds Out	Loads	Operator	Comments
5-8-19	1	0	15,878		15,878	1384	4	SH	Start
5-12-19	2-3	0	23,971		23,971	1999	12	SH/SJ	
5-24-19	4	0	15,785		15,785	1185	4	SJ	
5-25-19	5	0	15,983		15,983	1200	4	SH	
5-26-19	6	0	15,876		15,876	1192	4	SJ	
									Done 83,681 gals

CITY OF BANDON - WASTEWATER TREATMENT PLANT

ON SITE BIO-SOLIDS APPLICATION LOG

Site location and number: Lefft Field # 8

		Digester Totalizer		Multiply by 100	Gallons Out	Pounds Out			
Date	Setting #	Start	Stop				Loads	Operator	Comments
9-13-19	1-2	0	31753		31,753	2383	8	SH	
9-25-19	3-4	0	31,682		31,682	2114	8	SH	
9-27-19	5	0	15987		15,987	1333	4	SH	
10-7-19	6-7	0	31879		31879	2659	8	SH	
10-23-19	8-9	0	31654		31654	3932	8	SH	
10-28-19	10-11	0	31633		31633	2638	8	SH	

DEQ AUTHORIZATION LETTER

LETTER OF AGREEMENT

CITY OF BANDON &

DEW VALLEY

DAVID LEFF PROPERTY

AGREEMENT BETWEEN
CITY OF BANDON
AND
DAVID LEFF

This agreement is entered into by and between David Leff, hereinafter referred to as Landowner, and the City of Bandon, a municipal corporation.

WHEREAS, the City of Bandon operates a municipal wastewater treatment plant which produces an end product of sludge; and

WHEREAS, the City of Bandon needs a location at which this material may be disposed; and

WHEREAS, the Landowner is willing to allow the use of his fields for such disposal considering that the material presents no serious hazard to the Landowner's fields and would act as a fertilizer encouraging the growth of hay and young trees.

NOW, THEREFORE, IT IS HEREBY AGREED that the City of Bandon may apply sludge from their municipal wastewater treatment plant to Landowner's fields subject to the following terms and conditions:

A. Site Designation

1. For purposes of this agreement, each contiguous area to which sludge is applied shall be called a "disposal site".
2. Each sludge spray irrigation gun set up shall be called a "setting".
3. The City of Bandon shall secure prior approval from the Landowner or designee to use a disposal site.
4. Each disposal site and setting shall bear a unique number for purposes of record keeping.
5. The City of Bandon shall measure, stake, number and map each setting in accordance with the City's equipment capabilities.
6. A map will be maintained, jointly by the Landowner and the City of Bandon, showing the location of each disposal site setting

used.

7. The Landowner may, at any time, temporarily or permanently discontinue a disposal site if it is deemed necessary.

B. Posting of Disposal Site Areas

1. The Landowner shall post approaches to disposal sites with no trespassing signs to control access.
2. The Landowner shall further agree to gate, lock and provide key to the City of Bandon, approaches to disposal sites if access is not controlled by no trespassing signs.
3. The City of Bandon shall post approaches to disposal sites to advise of the disposal activities during application of sludge and maintain such posting for a minimum period of 45 days after completion of such application and/or as required by regulatory agencies.
4. Such signs shall include terminology as may be required by regulatory agencies.

C. Method of Disposal

The City of Bandon shall dispose of sludge in the following manner:

1. Application only on sites designated by the DEQ and Landowner.
2. Application shall be rotated among the designated sites and settings.
3. Application shall be under pressure utilizing a spray gun.
4. All equipment shall stay on the roads.
5. There shall be no application within any drainage ditch.
6. No more than 100 pounds/acre of nitrogen shall be applied in any given two year cycle unless more is allowed by DEQ in writing.

D. Documentation

1. The City of Bandon shall furnish the Landowner a quarterly summary of the number of loads of sludge applied to designated sites including the date of application and quantities spread.
2. The City of Bandon shall furnish the Landowner a copy of such other data as is required by regulatory agencies.
3. Upon completion of use of a given disposal site, the City of Bandon shall furnish the Landowner such data pertaining to that site as is available which would be relevant to tree growth, including the total amounts of nitrogen and water applied to the site.

E. Maintenance of Landowner's Roads

The City of Bandon shall maintain the Landowner's roads used hereunder in accordance with the following:

1. Repair of Specific Damage

   It shall be the responsibility of the City of Bandon to repair any specific road damage caused by operation of the City.

2. Unusual Road Damage

   The Landowner will perform maintenance of unusual road damage which is not related to the use by the City of Bandon. Examples of unusual road damage would be major slides, culvert replacement and wash out of a fill.

F. Comply with Laws

The City of Bandon shall strictly comply with all environmental and other laws, regulations, and DEQ recommendations applicable to the disposal of municipal sludge. The Landowner reserves the right to promulgate

rules not inconsistent with the terms of this agreement and the City of Bandon agrees to comply with the same as soon as reasonably possible.

G. Termination

This agreement may be terminated by either party upon thirty (30) days written notice or at any other time by mutual agreement of the parties. In case of breach of this agreement by the City of Bandon, the Landowner may order the immediate suspension of the application of sludge on his property. Notwithstanding the termination or suspension of this agreement, the rights and obligations of each party under Paragraphs D, E, F, and H shall continue in full force and effect.

H. Hold Harmless

It is hereby agreed that the City of Bandon shall indemnify, defend and hold harmless David Leff and his agents and employees from all claims, actions, demands, loss, damage or expense by any person or persons whatsoever arising out of this agreement and/or the application of sludge on Mr. Leff's fields by the City of Bandon. Actions covered by this paragraph include, but are not limited to, actions by governmental officials for the cleanup of hazardous wastes.

CITY OF BANDON

City Manager

City Attorney

Wastewater Treatment Plant

10/11/00
Date

PROPERTY OWNER

David R. Leff

87432 Cranberry Creek Ln.

Bandon, Or. 97411-9215

10-11-00
Date

Oregon
John A. Kitzhaber, M.D., Governor

Department of Environmental Quality
Western Region Roseburg Office
725 SE Main
Roseburg, OR 97470
(541) 440-3338
FAX (541) 440-3396

October 11, 2000

Bill Nielson
Bandon Wastewater Treatment Plant
PO Box 67
Bandon OR 97411

Re: File number 5664
Authorization to Land Apply Biosolids
David Leff Property
87432 Cranberry Creek Lane
Bandon OR
Twp. 29S S, R. 15W W. Sec. 24 and 25

Bill:

This letter represents approval of your request to apply aerobic biosolids the above referenced property. Approval is subject to criteria detailed in the Oregon Administrative Rules, Chapter 340, Division 50 and the following conditions:

Responsibility:
It is the responsibility of Bandon Wastewater Treatment Facility (BWTF) to insure the proper handling and application of all biosolids generated. Transportation of the biosolids to the application site shall be done in such a manner as to prevent leaking or spilling the biosolids onto the highways, streets, roads, waterways or other land surfaces not approved for biosolids application.

Site Description:
The site has approximately 30 acres of hay pasture and trees, which can be used for biosolid land application. The site is on the West Side of Highway 101 just south of Bandon, Oregon. The land application of biosolids on this ranch is to help to remediate and stabilize the farm's sandy loam-loamy sand soils. This authorization is good for two years at which time another site visit is required to review the farm practices and crop response to land applied biosolids over the previous two years. This authorization can be renewed in two years as an on going remedial land application practice to help reestablish the soil organic horizon on this farm. This biosolids application site is only that portion of this parcel that is shaded on the enclosed map.

Based upon an evaluation of this property the Department is pleased to grant you authorization to land apply stabilized biosolids subject to the conditions under your National Pollutant Discharge Elimination (NPDES) permit and the following stipulations:

1. This site is approved for summer application (June 1 through Oct. 31) of biosolids. During biosolid land application, care should be taken to avoid wet soil conditions, which may have occurred as a result of precipitation, especially in low and concave areas of sites. Application is authorized when the temporary water table is at least 12 inches below the ground surface.

2. Biosolids shall be applied evenly and in a manner to prevent ponding or runoff.

3. Biosolids shall not be applied closer than 50 feet to any drainage ditch, channel, pond or waterway or within 200 feet of any well or domestic water source.

4. Biosolids application rate shall not exceed approximately 32,000 gallons/acre/years. Changes in biosolids characteristics or crops management may necessitate appropriate adjustments in the application rate to maintain proper agronomic nitrogen loading (75 to 100 lb. Total N/acre depending upon digester-solids analysis).

5. If other sources of nitrogen are used, the biosolids application rate must be reduced so that commercial nitrogen in combination with biosolids nitrogen does not exceed agronomic loading rate of this site (100 lb. Total N/acre-year).

Site Use Limitations:

1. Controlled access to the biosolids site must be maintained for a period of 12 months following biosolids application.

2. Grazing animals should not be allowed on pasture within 30 days following biosolids application and 90 days for lactating animals.

Accidental Spillage:

The permittee shall immediately clean up any spillage of biosolids and notify the DEQ Roseburg office at 440-3338 of any such occurrences. Spillage which cannot be completely cleaned up shall be covered with hydrated lime (calcium Hydroxide) or lime (calcium oxide). A 50-lb. bag of liming material shall remain available during transportation of the biosolids.

Monitoring:

1. BWTF shall maintain daily records of accumulated biosolids application. Daily land application shall be kept on a field grid map or other easily readable system. BWTF is responsible for tracking the land application of biosolids on daily basis (number of dry pounds Nitrogen land applied per acre).

2. A copy of this authorization letter and the biosolids certification statements shall be carried with all biosolids s that are to be land applied. The responsible parties who apply biosolids shall review these documents prior to land applying biosolids to this site.

3. BWTF shall provide the DEQ with monthly summaries of biosolids land application activities along with a current BWTF biosolids analysis in BWTF's annual report due February 19 of each year.

4. A copy of this site authorization letter and a signed biosolid pathogen and vector attraction reduction certification statement shall accompany all biosolids land applied at this site.

If you have any questions regarding this approval please call me at 440-3338.

Sincerely,

Paul Kennedy

Paul Kennedy, RS
Environmental Specialist

cc: Biosolids Program, DEQ-Portland

DEPARTMENT OF ENVIRONMENTAL QUALITY

ROSEBURG REGIONAL OFFICE

725 SE Main Street, Roseburg OR 97470

FAX

Date: 10-12-2000

Number of pages including cover sheet: 4

To:
BILL NIELSON
BANDON STP

RUBEN KRETZSCHMAR
COOS BAY DEQ

Phone: 347-9122

Fax phone: 541-347-1415

CC:

From:
PAUL KENNEDY
RSB DEQ

Phone: (541) 440-3338

Fax phone: (541) 440-3396

REMARKS: ☐ Urgent ☐ For your review ☐ Reply ASAP ☐ Please comment

John A. Kitzhaber, M.D., Governor

Western Region Eugene Office
165 East 7th Avenue, Suite 100
Eugene, OR 97401
(541) 686-7838
FAX (541) 686-7551
OTRS 1-800-735-2900

October 3, 2014

Bill Nielsen, Wastewater Supervisor
City of Bandon
P.O. Box 67
80 Fillmore Ave
Bandon OR 97411

RE: City of Bandon Biosolids Management Plan Approval
File No. 5664
NPDES No. 101546
Coos County

Dear Mr. Bill Nielsen:

The Department of Environmental Quality (Department) has reviewed the City of Bandon's updated 2014 Biosolids Management Plan. Based upon review of the Biosolids Management Plan, the Department is pleased to advise the City that its Biosolids Management Plan is approved subject to the following conditions:

1. The City shall not make any significant changes in its solids handling activities that could substantially change the quality, or quantity of Biosolids, or land application activities outlined in the Biosolids Management Plan.

2. The City shall notify the Department of the connection of any new Significant Industrial User (SIU) to provide the Department the opportunity to evaluate the impact on Biosolids quality, or quantity.

3. The City shall maintain detailed records adequate to characterize its solids stabilization, Biosolids handling, and land application activities.

4. Annually, by February 19th, a comprehensive report shall be submitted to the Department's Eugene office that describes solid handling for the previous year. At a minimum, the report shall include the following:

   - Data on each site that received Biosolids that demonstrates biosolids were applied at agronomic rates and all other required management practices were followed.

   - Information sufficient to demonstrate that biosolids met pathogen reduction requirements required under **40 CFR § 503.32** and vector attraction standards required under **40 CFR § 503.33.**

   - A detailed description of any violation of **40CFR § 503, or OAR Chapter 340 Division 50** and remedial actions taken to prevent the recurrence of similar violations in the future.

5. For Class B biosolids, application sites must meet the site selection criteria set forth in OAR 340-050-0070 and must be located within Coos County. For proposed new application sites that are deemed by the DEQ to be sensitive with respect to residential housing, runoff potential or threat to groundwater, an opportunity for public comment shall be provided in accordance with OAR 340-050-0030.

6. Under OAR 340-050-0030(3) this site authorization is a part of Bandon's Biosolid Management Plan (BMP) are enforceable under Bandon's NPDES permit; Under OAR 340-050-0031(2) and (3) these plans are part of your NPDES permit shall remain in effect until your NPDES expires and/or the site is terminated.

If you have any questions about this Biosolids Management Plan approval please call me at (541) 687-7439.

Sincerely,

Paul Kennedy, NRS3
Water Quality Program
Western Region DEQ– Eugene Office

CC: Steve Nichols, WQ Program, Coos Bay DEQ
File