



**CITY OF ALBANY
BIOSOLIDS MANAGEMENT PROGRAM
DEQ/EPA ANNUAL REPORT — 2008**



I. Background/General

- A. Facility:** City of Albany Wastewater Treatment Plant
310 Waverly Drive, NE
Albany, OR 97321
- NPDES Permit #:** 102024, EPA #OR-002880-1, DEQ File 1098
- Facility Contact:** Herb Hoffer, Environmental Services Manager
- B. Reporting Period:** Calendar Year 2008

C. Narrative Descriptions

1. Biosolids generation process: The City of Albany operates a Wastewater Treatment Plant (WWTP) providing secondary treatment using the activated sludge process. In 2008 the WWTP treated 3,046 million gallons of wastewater of which approximately 148 million gallons was permitted industrial wastewater. The City of Albany does not accept septage or hauled waste. The biosolids generation process consists of primary and secondary clarification, dissolved-air flotation thickening of waste-activated sludge, and anaerobic digestion. Biosolids are then thickened using Andritz belt-filter presses (2), and stored in covered bins. Major features of these facilities are summarized as follows:

- Headworks structure with a mechanically-raked bar screen and gravity grit removal.
- Two circular, primary clarifiers.
- Two complete-mix aeration basins with variable-output aeration blowers.
- Two circular, secondary clarifiers.
- Primary (Raw) sludge pump station and sludge recirculation (RAS) pump station.
- Two rectangular, dissolved-air, flotation thickeners with appurtenant pumping and dry-polymer facilities.
- Two circular, fixed-cover, primary anaerobic digesters with gas mixing and pumped recirculation/water heating system with a primary and stand-by boiler. The primary digesters operate in the mesophilic range 95 to 131 degrees F.

- One floating-cover, secondary, anaerobic digester without mixing or heating, used for sludge storage and gas holding, and two secondary digesters functioning primarily as holding tanks for the biosolids thickening process.
- Solid-bowl, decanter centrifuge for post digestion biosolids thickening, available if needed.
- Pumping and stand pipe facilities for loading of digested liquid biosolids, available if needed.
- Two (cake) Andritz belt-filter presses with liquid or dry polymer capabilities.
- Two 1,750 cubic yard capacity covered bins for cake storage with inclined-screw augers for loading.

2. Biosolids preparation process:

Waste activated sludge is thickened by dissolved-air flotation prior to pumping to digestion. The City has the option of using a solid-bowl decanter centrifuge (Sharples PM-38000) for thickening of digested biosolids prior to land application, or using the Andritz belt filter presses to produce cake. Another option is to pre-thicken the digested sludge with the centrifuge prior to the belt presses to increase efficiency of the belt presses.

3. Biosolids storage and application processes:

Belt filter press thickening of biosolids was used for all finished biosolids thickening in 2008. The biosolids cake is stored in the biosolids storage facility at the Wastewater Treatment Plant until weather conditions are suitable for application. The cake is loaded directly into the truck-mounted Knight spreader via screw conveyors, and hauled capacity is twelve cubic yards of material. The cake is then applied to application sites permitted through DEQ. Again in 2008, virtually 100% of biosolids produced was beneficially applied through our land application program. The only biosolids not beneficially applied was the material produced from late October through the end of the calendar year due to the onset of the rainy season. These biosolids are currently being stored in the City's storage facility awaiting application in 2009.

4. Annual goals, accomplishments, problems, changes:

Albany is a charter member in the National Biosolids Partnership (NBP) and formally committed to the NBP's Code of Good Practice in 2000. In 2006 Albany's Environmental Management System (EMS) was certified by NBP following a third party audit, and in May 2007 the City completed its first annual interim EMS audit and in so doing became the 11th agency nationwide to reach platinum status with the NBP.

- In May 2008, Albany staff performed an internal EMS audit with the assistance of a representative from Clackamas County's Water Environment Services biosolids EMS team. The results of this audit were only two minor nonconformances related to the required annual review of internal management documents. Both nonconformances were corrected within 30 days of the audit.
- The City's biosolids EMS continues to work as a framework of beliefs and methods that ensure the City produces a high quality product that is managed with implications to product quality, environmental impact, and economic sustainability in mind. The absence of any major nonconformances, and the improvements made to address minor nonconformances, demonstrate the City's commitment to continual improvement – the founding principle of the biosolids EMS program. Recognized strengths of Albany's biosolids program include public outreach and our commitment to a goal setting process and continual improvement through the City's Environmental Management System. Biosolids program outreach was highlighted in 2008 by publication of Albany's *Biosolids Quarterly* newsletter, and further outreach was conducted using our booth at the Willamette Valley Ag Expo in Albany in November 2008. The booth was visited by dozens of attendees.
- The third and fourth quarterly biosolids samples (8/7/08 and 11/4/08) showed an increase in the level of Ni, Zn and Mo. Even though the results were less than 50% of the EPA clean Biosolids level (40 CFR 503.13 Table 3), staff collected additional samples in September (9/5/08) and once in December (12/4/08). In order to determine specific causes of the increase in metals levels industrial pretreatment personnel reviewed data from permitted industrial users, and wastewater treatment personnel provided information on changes to operations at the WWTP. No definitive cause has been identified but we are continuing to monitor the metals data and implement preventative and corrective actions in accordance with our Biosolids EMS.

D. Total Annual Production

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|-------------------------------|--|
| 1. Amount generated/prepared: | 785 dry tons |
| 2. Amount land applied: | 599 dry tons
5304 cubic yards of cake |

E. Total Application Acres Utilized: 232

II. Pollutant Monitoring

- A. **Required frequency:** Four times per year, minimum.
- B. **Analytical Results:** See Table 1 & 2.

III. Pathogen Reduction

Sampling and analysis for specific pathogens is not required and was not performed. Pathogen reduction is accomplished through the anaerobic digestion process. Sludge is retained in the primary digesters for an average of 33 days at an average temperature range of 95.8 to 96.1 degrees Fahrenheit and consistently meets the PSRP requirements for Class B biosolids as defined in 40 CFR Part 503.32. Digester temperature monitoring data and detention time data are shown in Attachment A.

IV. Vector Attraction Reduction

The City consistently met volatile solids reduction of 38% through the primary digesters, required in 40 CFR Part 503.33. This is demonstrated through methods and data shown in Attachment B.

V. Biosolids Quality

Statement of Biosolids Quality: The City of Albany produces 100% Class B Biosolids. The sample data listed in Table 1 shows that the measured concentrations for all metals were below the 40 CFR Part 503, Table 3 levels. All of the metals tested were also below the Part 503, Table 1 levels.

VI. Application, Management, and Reporting Requirements

- A. **Site-specific Application Information:** See Table 3.
- B. **Biosolids Test Data:** See Tables 1 and 2.
- C. **Soil Sample Data for third consecutive year of application sites:** See Attachment C.

TEST DATA

Table 1— Pollutant Monitoring

Test data is expressed in mg/kg dry weight.

Date	Cd	Cu	Pb	Ni	Zn	Cr	Ag	As	Se	Mo	Hg
02/05/2008	1.9	256	35.6	36.7	893	36.9	15.5	ND @ 5.0	ND @ 5.0	17.1	0.9
05/13/2008	2.0	265	33.0	35.5	716	35.2	16.5	ND @ 5.0	ND @ 5.0	17.3	1.3
08/07/2008	2.5	322	35.1	63.9	1270	34.9	16.3	ND @ 5.0	ND @ 5.0	34.7	2.5
09/05/2008	1.9	322	35.1	49.0	1160	28.4	12.3	ND @ 5.0	ND @ 5.0	21.5	1.0
11/04/2008	2.1	305	35.1	41.1	1340	29.0	13.1	ND @ 5.0	ND @ 5.0	29.6	1.3
12/04/2008	1.9	308	37.7	42.2	1210	30.9	11.6	N/A	N/A	25.7	1.3
Average	2.0	296	35.3	44.7	1098	32.6	14.2	ND@5.0	ND@5.0	24.3	1.4

Table 2—Nutrient Monitoring

Test data is expressed in % dry weight, except pH which is standard units

Date	K	PO4	NH3	NO3	TKN	Tsol	% Vol	pH
02/05/2008	0.19	1.22	0.76	ND @ 0.01	5.22	14.1	62.0	7.5
05/13/2008	0.18	1.56	0.75	ND @ 0.01	5.96	13.6	68.7	7.6
08/07/2008	0.13	1.58	0.93	ND @ 0.01	5.00	11.6	72.0	7.6
09/05/2008	0.15	1.28	0.75	ND @ 0.01	5.58	14.2	71.0	7.6
11/04/2008	0.13	1.52	0.66	ND @ 0.01	5.30	14.4	70.9	7.5
12/04/2008	N/A	N/A	N/A	N/A	N/A	15.1	70.0	7.6
Average	0.16	1.43	0.77	ND@ 0.01	5.41	13.8	69.1	7.6

On the 12/4/08 test we did not have K, PO4, NH3, NO3, TKN, As or Se analyzed.

Table 3 – Land Application Site Information

	Site ID #	Location (twn, rge, sec)	Crop(s)	Acres applied	N lb/acre applied	Application Rate DT/acre	Total D/T Site	Seasonal Restrictions
Marble	1	14S, 1W, 2	Pasture/ Hay	11.99	79.65	2.15	25.79	0.25 inches of rainfall/24 hours
	2	14S, 1W, 2	Pasture/ Hay	10.70	79.24	2.14	22.89	0.25 inches of rainfall/24 hours
Miller	2	11S, 4W, 22	Pasture	25.85	68.22	1.88	48.62	0.25 inches of rainfall/24 hours: Apr. – Oct.
Wirth	49	12S, 3W,31	Rye Grass	22.44	116.78	3.16	70.98	0.25 inches of rainfall/24 hours: June 1 – Oct 31
	67	13S,3W,7	Rye Grass	47.03	95.91	3.01	141.33	0.25 inches of rainfall/24 hours: June 1- Oct 31
	72	12S, 3W,32	Rye Grass	44.64	108.54	2.91	128.74	.25 inches of rainfall/24 hours: June 1 – Oct. 31
Steele	1	13S,3W,12	Pasture /Hay	17.08	77.05	2.35	40.14	.25 inches of rainfall/24 hours: June 1 – Oct. 31
King	1	10S,2W,11	Pasture /Hay	35.70	78.71	2.40	85.71	.25 inches of rainfall/24 hours: June 1 – Oct. 31
Doty	1	11S,4W,14	Pasture /Hay	8.66	74.36	2.13	18.43	.25 inches of rainfall/24

Kerkilie	1	11S,4W,27	Pasture /Hay	3.04	73.63	2.25	6.83	.25 inches of rainfall/24
	2	11S,4W,27	Pasture /Hay	1.89	72.85	2.09	3.94	.25 inches of rainfall/24
	3	11S,4W,27	Pasture /Hay	1.89	72.85	2.09	3.94	.25 inches of rainfall/24

“I certify, under penalty of law, that the information that will be used to determine compliance with the Class B pathogen requirements in Sec. 503.32(b), the vector attraction reduction requirement in Sec. 503.33(b)(1), and the site restrictions in Sec. 503.32(b)(5) for each site on which Class B sewage sludge was applied, was prepared under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate this information. I am aware that there are significant penalties for false certification including the possibility of fine and imprisonment.”

Herb Hoffer, Environmental Services Manager

Date: _____

