

**Monthly Operating Report
December, 2010
Concord Wastewater Treatment Plant
Operated by Woodard & Curran**

Date: January 12, 2010

To: Alan Cathcart, Concord Water & Sewer Superintendent
cc: Chris Whelan, Town Manager
Richard Reine, Director Concord Public Works

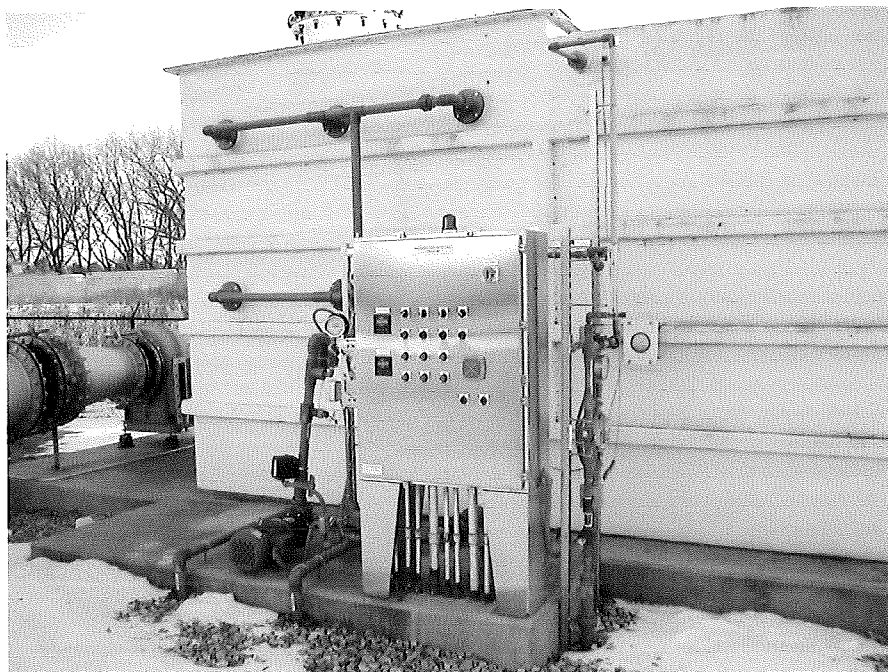
From: Michael Thompson and Staff

Key Activities This Month/Capital Program

During December all treatment processes were either operational or in ready standby except for the #1 primary clarifier which was taken offline on November 8th. This clarifier remained offline throughout December in an attempt to lessen possible odor coming off the clarifier water surface, particularly during this seasonally flow period. Flow through the facility in December averaged 0.958 million gallons per day (MGD) and the permit critical 12-month average flow dropped slightly to 1.11 MGD. The 12-month average flow permit upper limit is 1.2 MGD.

More notable events or tasks accomplished in December include:

1.) During December plant staff took a number of steps to prepare outside equipment and processes for the winter season. This included shutting off and draining a number of plant water hydrants located throughout plant grounds. Two hydrants remain on with continuous hose discharge into open tank so we always have plant water available to wash down both primary and secondary clarifiers. 50% of the draft tubes on both trickling filters were covered to prevent cold air from penetrating too far into the filters and negatively impacting their performance. Finally, plant staff shutdown and drained the water portions of the biological odor control system to prevent freeze ups and damage to plumbing. The much lower level of odor generated around the facility in cold weather continues to be collected and treated in this continually operating "dry" winter mode.



Biological odor control system with water flow stopped and plumbing drained for winter.

Key Activities This Month/Capital Program cont'd

2.) On December 20th CPower called for an audit of the Demand Response program that the WWTP participates in. This program provides monthly incentive payments to standby power generators who can remove their electrical demand from the grid in the event of unusually high loads such as occur in a heat wave. CPower procedures include up to two audit events per year to ensure that participants are still capable of shedding load. On 12/20 plant staff simulated loss of utility at 12:05 pm and restored to normal power at 2:37 pm. During this time the entire plant ran on generator power, drawing approximately 120 amps and consuming 11.2 gallons diesel fuel per hour of operation.

Maintenance Management

Following is a brief list of a portion of maintenance items completed in December:

- a) continued with disassembling, inspecting, and rebuilding of two spare UV bulb wiper assemblies.
- b) replaced worn rubber components, including check ball seats and check balls, on the #3 primary sludge pump.
- c) serviced both trickling filters including lubrication of center bearings, flush distributor arms, clean nozzles, remove debris/leaves from surface of media, and cover 50% of draft tubes for winter.
- d) drained and removed all wet (freeze susceptible) components of the biological odor control system including recirculation pump, humidification system, and pH probe.
- e) installed insulation and structural cover to unfinished wall behind laboratory counters/cabinets

Environmental Compliance

Parameter	Monthly Avg.	Permit Limit	Notes
Flow, MGD	1.11 MGD (12month avg)	1.2 MGD	December avg. = 0.958 MGD Max. Daily Flow = 1.09 MG
BOD5 (mg/l)	4 mg/l	30 mg/l	99% average BOD removal in Dec.
TSS (mg/l)	11 mg/l	30 mg/l	94% average TSS removal in Dec.
Coliform, Geo.Mean #/100ml	2 cfu*/100ml	200 cfu/100ml	1 test on 12/30 produced 36 cfu/100ml
Phosphorus	0.61 mg/l	1.0 mg/l Nov. '10- Mar. '11	0.78mg/l daily max. on Mon. 12/13
Total Ammonia Nitrogen	0.67 mg/l	Report Only	0.78 mg/l daily max. on Mon. 12/13

*cfu = coliform forming unit or colony.

During December, the Concord WWTP performed continuous two-stage total phosphorus (TP) removal using aluminum sulfate. First stage chemical TP treatment occurred in the secondary clarifiers and second stage TP treatment took place within the CoMag® advanced treatment process. The monthly average effluent TP concentration in December is 0.61 mg/l, thereby meeting the CWWTP's winter permit limit not to exceed 1.0 mg/l TP.

Additionally, during December all effluent disinfection was performed using ultra violet light.

Finally, over the week of December 12th the Concord WWTF conducted the 2010, fourth-quarter Whole Effluent Toxicity (WET) sampling event. The 48-hour LC50, a.k.a. acute toxicity test, for *Ceriodaphnia* is >100% and permit complying. The 7-day NOEC, a.k.a. chronic toxicity test, is 100%. Monitoring of chronic toxicity is a permit requirement; however, there are currently no chronic toxicity limitations. A copy of the complete WET test report prepared by our contracted lab is enclosed for your review.

December '10 WWTP MOR

Alarm Activity

This section provides the Town information on events that activate the facility's alarm response system. These events occur while the plant is unmanned and while both the plant's SCADA system and *Lexington Alarm* are monitoring the facility's alarm system. This report identifies alarm activity from the start of the calendar year to the present.

Concord WWTP Off-Hours Alarm Log

Date	Time	Alarm Source	Observations/Corrective Action/Comments
01/18/10	12:50 pm	Power Failure	Brief power bump resulted in a handful of drive and panel faults. The on call operator responded on site and reset equipment without incident.
2/10	NA	None	NA
3/10	NA	None	NA
4/10	NA	None	NA
5/15/10	8:45am	Intrusion	An internal motion detector went off on this quiet Saturday morning but follow-up onsite inspection by both plant staff and police found no signs of a problem- i.e. false alarm.
6/10	NA	NA	NA
7/10/10	8:35am	Intrusion	An internal motion detector went off on this quiet Saturday morning but follow-up onsite inspection by both plant staff and police found no signs of a problem- i.e. false alarm. Suspect some sort of equipment operation may have triggered this alarm- investigating.
8/23/10	1:55am	Power Failure	5 minute outage/generator run required remote SCADA access reset of numerous pieces of equipment.
8/24-8/25/10	11:50pm-3:30am	Power Failure	Roughly 4 hour outage/generator run required onsite response to deal with equipment faults and resets.
8/25	9:05am	Power Failure	10 minute outage/generator run was handled by onsite personnel.
10/12	6:34 am	Intrusion	An internal motion detector went off on this quiet Saturday morning but follow-up onsite inspection by both plant staff and police found no signs of a problem- i.e. false alarm.
11/10	NA	None	NA
12/12/10	11:20 am	Power Failure	Roughly 1 1/3 hr long outage/generator run on this Sunday was handled by weekend operator.
12/12/10	4:26 and 8:31 pm	Intrusion	Headworks Building alarm set off by high wind shaking door.

Septage Receiving

The Concord WWTF receives septage only from in-Town sources. A total of 132,750 gallons of septage was received at the Concord WWTF in December.

WWTP Septage Receipts in gallons

	2010	2009	2008
January	32,500	10,500	22,750
February	25,750	41,250	60,300
March	171,750	83,250	55,550
April	211,500	168,250	152,300
May	125,950	150,900	135,150
June	184,950	151,450	126,450
July	90,800	138,500	117,000
August	173,250	137,750	142,400
September	182,250	203,750	219,950
October	210,250	172,400	262,900
November	194,100	155,400	165,300
December	132,750	109,600	104,050
Annual Totals:	1,735,800	1,523,000	1,636,000

December '10 WWTP MOR

Sludge Production

During December, 134,750 gallons of liquid sludge, equivalent to 21.73 dry tons, was transported to Upper Blackstone Water Pollution Abatement District (UBWPAD) in Millbury, Massachusetts.

WWTP Sludge Production in gallons /dry tons

	2010	2009	2008
January	89,000/15.61	107,500/16.71	112,227/20.15
February	90,000/16.81	86,000/14.13	107,124/18.35
March	90,000/15.65	99,000/17.56	98,500/17.97
April	135,000/23.57	153,000/23.94	90,000/17.98
May	97,980/15.76	170,670/24.27	107,000/19.74
June	99,000/18.28	153,000/20.83	98,500/17.76
July	99,000/16.81	126,000/20.57	117,000/20.98
August	108,000/18.61	76,376/11.81	99,000/16.51
September	106,160/17.88	126,000/21.65	98,000/16.82
October	107,558/17.31	99,000/16.03	108,000/18.54
November	142,500/21.18	99,000/16.51	80,500/12.62
December	134,750/21.73	117,000/17.79	126,000/18.46
Annual Totals:	1,298,945/219.20	1,421,546/223.58	1,241,851/215.88