

**Monthly Operating Report
November, 2011
Concord Wastewater Treatment Plant
Operated by Woodard & Curran**

Date: December 21, 2011

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 November all treatment processes were either operational or in ready standby. Flow through the facility in November averaged 1.334 million gallons per day (MGD) and the permit critical 12-month average flow settled at 1.19 MGD. The permit upper limit for the 12-month average flow is 1.2 MGD.

More notable events or tasks accomplished in November include:

1.) The exploration into how the WWTF can perform in meeting possible/pending changes to the discharge permit concluded in November. Specifically, on November 10, the aluminum sulfate (alum) feed rate to the process was lowered to meet a 1.0 total phosphorus permit limit. The higher alum feed rates prior 11/10 were part of an alum and total aluminum dose response study initiated in late August. The analytical results and operational observations collected during this investigation are being compiled and summarized in a report.



On 11/15 the settleable solids test shows the impact (high sett. solids and color) Deaconess WTP sludge has on the influent but very negligible impact on final effluent.

2.) Maintenance Foreman Richard Dolata had to take a leave of absence starting 11/29. Rich had been feeling a “heart burn” sensation for a couple weeks prior when engaged in strenuous activity. Ultimately, a check up with his Dr led to the determination that bypass surgery was necessary. Rich underwent surgery on 11/30 and he is likely to be out of work for approximately six weeks for recovery.

November '11 WWTP MOR
Maintenance Management

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

- a) Performed semi-annual preventive maintenance inspection on M2 the electromagnetic filter located on the discharge of the CoMag process.
- b) Performed annual oil change on the #1 plant high-pressure air compressor.
- c) Subcontractor pulled, dumped, and returned the 20-yard grit roll-off, at which time the grit room received a thorough wash-down and inspection.
- d) Troubleshoot leaks on the lab cold water backflow prevention device.
- e) Performed monthly cleaning and calibration of the plant effluent and CoMag process pH probes.

Environmental Compliance

Parameter	Monthly Avg.	Permit Limit	Notes
Flow, MGD	1.19 MGD (12month avg)	1.2 MGD	Nov. avg. = 1.334 MGD Max. Daily Flow = 1.53 MG
BOD5 (mg/l)	2 mg/l	30 mg/l	99% average BOD removal in November
TSS (mg/l)	2 mg/l	30 mg/l	99% average TSS removal in November
Coliform, Geo.Mean #/100ml	1 cfu*/100ml	200 cfu/100ml	All daily f-coliform counts were actually 0 colonies/100 throughout November
Phosphorus	0.20 mg/l	1.0 mg/l Nov '11– Mar '12	0.24 mg/l daily max. occurred on Thu. 11/17
Total Ammonia Nitrogen	1.97 mg/l	Report Only	2.98 mg/l daily max. on Tue. 11/22

*cfu = coliform forming unit or colony.

During November, the Concord WWTP performed continuous two-stage total phosphorus (TP) removal using aluminum sulfate. First stage chemical TP treatment occurred in the two secondary clarifiers and second stage TP treatment took place within the CoMag® advanced treatment process. The monthly average effluent TP concentration in November is 0.20 mg/l, thereby meeting the CWWTP's winter permit limit not to exceed 1.0 mg/l TP. This rather low effluent TP for November was a result of the alum dose response study over the first 10 days of November. Higher, but permit complying, final effluent TP levels are expected for the balance of this coming winter season.

Finally, during November all effluent disinfection was performed using ultra violet light.

Septage Receiving

The Concord WWTP receives septage only from in-Town sources. A total of 90,250 gallons of septage was received at the Concord WWTP in November. Additionally, in November 16,000 gallons of Deaconess Water Treatment Plant sludge was delivered to the sewer system for treatment and disposal at the WWTF.

WWTP Septage Receipts in gallons

	2011	2010	2009
January	44,050	32,500	10,500
February	31,750	25,750	41,250
March	102,950	171,750	83,250
April	139,750	211,500	168,250
May	113,500	125,950	150,900
June	130,000	184,950	151,450
July	73,750	90,800	138,500
August	69,500	173,250	137,750
September	98,750	182,250	203,750
October	82,250	210,250	172,400
November	90,250	194,100	155,400
December		132,750	109,600
Annual Totals:	976,250	1,735,800	1,523,000

November '11 WWTP MOR

Sludge Production

During November, 114,905 gallons of liquid sludge, equivalent to 20.28 dry tons, was transported to Upper Blackstone Water Pollution Abatement District (UBWPAD) in Millbury, Massachusetts.

WWTP Sludge Production in gallons /dry tons			
	2011	2010	2009
January	98,309/16.78	89,000/15.61	107,500/16.71
February	72,916/13.5	90,000/16.81	86,000/14.13
March	72,617/13.89	90,000/15.65	99,000/17.56
April	81,000/14.90	135,000/23.57	153,000/23.94
May	108,000/27.85	97,980/15.76	170,670/24.27
June	108,000/19.67	99,000/18.28	153,000/20.83
July	106,060/17.69	99,000/16.81	126,000/20.57
August	135,224/18.83	108,000/18.61	76,376/11.81
September	108,008/15.10	106,160/17.88	126,000/21.65
October	141,003/23.05	107,558/17.31	99,000/16.03
November	114,905/20.28	142,500/21.18	99,000/16.51
December		134,750/21.73	117,000/17.79
Annual Totals:	1,146,042/186.62	1,298,945/219.20	1,421,546/223.58

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
Jan. '11	NA	NA	
Feb. '11	3:00 am	Hi-Effluent turbidity	Links in process monitoring data/trends reveal an inaccurate caustic feed to CoMag effluent. Operations staff ultimately performs hotwater flush of the caustic feed system to remove solidified caustic and restore accurate caustic pumping.
Mar. '11	NA	NA	
Apr. '11	NA	NA	
May '11	NA	NA	
June 26-Sunday	9:30 am	Intrusion	South Clarifier Rm. dbl. door not fully engaged in closed position – wind rocked door.
July '11	NA	NA	
Aug. '11	Scattered	Intrusion	South Clarifier Rm. single door triggered several nuisance intrusion alarms in mid-August. Plant personnel were finally able to stop the trouble by firming up an apparent loose/wet wire connection within the door frame.
Sep. '11	NA	NA	
Oct. '11	NA	NA	
Nov. '11	NA	NA	