

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

Date: September 28, 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 August all treatment processes were either operational or in ready standby expect for the #1 secondary clarifier which was off line until 8/27 for scheduled maintenance including rehabilitation of clarifier drive bearings and seals and sandblasting and painting of all metal components including the drive, rake arm, center column, and bridge. Flow through the facility in August averaged .98 million gallons per day (MGD) and the permit critical 12-month average flow settled at 1.10 MGD. The permit upper limit for the 12-month average flow is 1.2 MGD.

More notable events or tasks accomplished in August include:

1.) A significant capital improvement project to include rehabilitation of the #1 secondary clarifier wrapped up in August. Contractors Hemi Enterprises and Lydon Millwrights worked as a team to dismantle, sand blast and paint, and reinstall the metal components of this secondary clarifier. While the contractors performed these tasks, Woodard & Curran plant staff disassembled the clarifier drive, cleaned bearing cavities, and installed new wear components such as bearings and seals. The rehabbed drive was returned to the painters for finish painting prior to being reinstalled on the clarifier by the millwrights. The #1 secondary clarifier has now been repainted and rehabbed and is expected to be in very good operational shape for approximately another ten years.



A view of the rehabbed #1 secondary clarifier prior returning to service on 8/27/11.

August '11 WWTP MOR

2.) Plant staff performed a series of full-scale dose response tests to gain a better understanding of how effluent metals concentration might change with a range of aluminum sulfate (alum) feed rates to the treatment process. Currently alum is used to coagulate and precipitate phosphorus out of the wastewater stream prior to discharge to the Concord River. This dose- response study will continue into at least September. Information gained in the study will be useful in determining how best to respond if/when the facility's NPDES (discharge) permit changes.

Maintenance Management

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

- a) Plant staff completed the rehabilitation and reassembly of the #1 secondary clarifier drive including a thorough internal cleaning and inspection and installation of new seals and bearings.
- b) Contractors completed sandblasting and painting the #1 secondary clarifier, then reinstalled the drive and bridge and new sludge flights and plastic squeegees.
- c) a Woodard & Curran O&M specialist/master electrician reinstalled power to the #1 secondary clarifier including a number of new fixtures and conduit.
- d) Plant staff installed new rubber squeegees on both secondary clarifier scum skimmers and adjusted the squeegee setting on both primary clarifier scum skimmers.
- e) Plant staff performed a break-in lubrication check/top off on the recently rehabbed #1 trickling filter center bearing.

Environmental Compliance

Parameter	Monthly Avg.	Permit Limit	Notes
Flow, MGD	1.10 MGD (12month avg)	1.2 MGD	avg. = 0.98 MGD Max. Daily Flow = 1.33 MG
BOD5 (mg/l)	3 mg/l	30 mg/l	99% average BOD removal in August
TSS (mg/l)	2 mg/l	30 mg/l	99% average TSS removal in August
Coliform, Geo.Mean #/100ml	1 cfu*/100ml	200 cfu/100ml	All daily f-coliform counts were actually 0 colonies/100 throughout August.
Phosphorus	0.18 mg/l	0.2 mg/l Apr '11– Oct. '11	0.37 mg/l daily max. occurred on Wed. 8/24
Total Ammonia Nitrogen	0.46 mg/l	Report Only	1.72 mg/l daily max. on Thu. 8/11

*cfu = coliform forming unit or colony.

During August, the Concord WWTP performed continuous two-stage total phosphorus (TP) removal using aluminum sulfate. First stage chemical TP treatment occurred in the #2 secondary clarifier and second stage TP treatment took place within the CoMag® advanced treatment process. The monthly average effluent TP concentration in August is 0.18 mg/l, thereby meeting the CWWTP's summer permit limit not to exceed 0.2 mg/l TP.

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

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.

August '11 WWTP MOR

Alarm Activity, cont'd

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 connect within the door frame.

Septage Receiving

The Concord WWTP receives septage only from in-Town sources. A total of 69,500 gallons of septage was received at the Concord WWTP in August.

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		182,250	203,750
October		210,250	172,400
November		194,100	155,400
December		132,750	109,600
Annual Totals:	705,000	1,735,800	1,523,000

Sludge Production

During August, 135,224 gallons of liquid sludge, equivalent to 18.83 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		106,160/17.88	126,000/21.65
October		107,558/17.31	99,000/16.03
November		142,500/21.18	99,000/16.51
December		134,750/21.73	117,000/17.79
Annual Totals:	782,126/128.19	1,298,945/219.20	1,421,546/223.58