

Monthly Operating Report
March, 2012
Concord Wastewater Treatment Plant
Operated by Woodard & Curran

Date: April 16, 2012

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

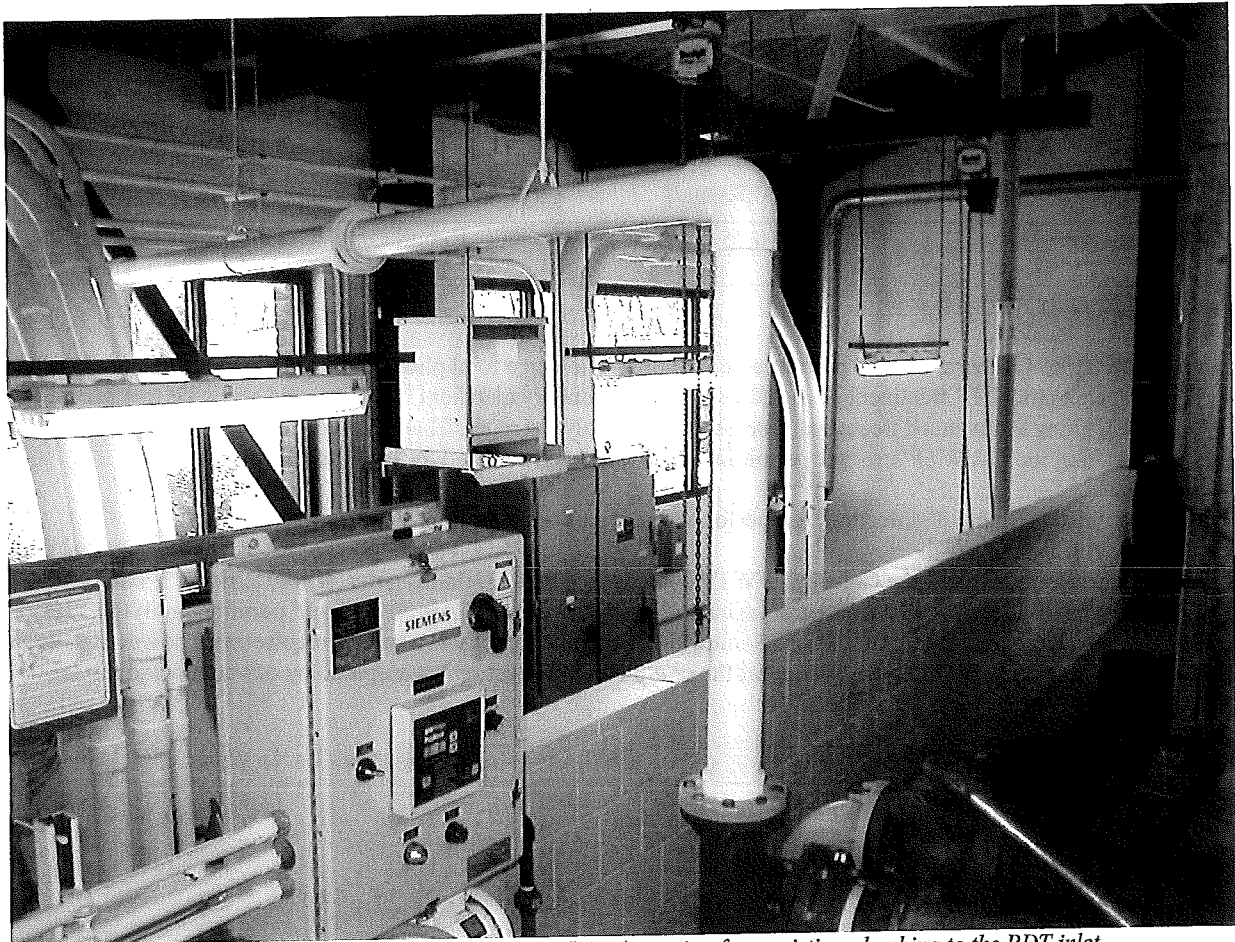
From: Michael Thompson and Staff

Key Activities This Month/Capital Program

During March all treatment processes were either operational or in ready standby. Flow through the facility in March averaged 1.00 million gallons per day (MGD) and the permit critical 12-month average flow dropped slightly to 1.2 (1.19) MGD. The permit upper limit for the 12-month average flow is 1.2 MGD. This represents a return to permit complying 12-month average flow after two months (Jan & Feb '12) of non-compliance for this permit parameter.

More notable events or tasks accomplished in March include:

1.) In March, plant staff installed a heavy duty PVC pipeline for the feed of primary sludge to the sludge rotary drum thickener (RDT). The RDT was installed to thicken a blend of sludge from the secondary clarifiers (biological sludge) and the CoMag process (chemical sludge). These two sludges are continuously blended in the aerated sludge tank and fed to the RDT at the operator's discretion. This bio/chem sludge blend is very thin and relatively difficult to thicken. By introducing a small proportion of primary sludge to the blend, the sludge has a much better thickening characteristic. Ultimately, a thicker sludge discharge from the RDT means less sludge volume and less cost for sludge disposal at an offsite sludge processing facility.



The new overhead primary sludge pipeline (beige) running from existing plumbing to the RDT inlet.

March '12 WWTP MOR

2.) Plant staff completed the installation of a new mechanical seal on the #2 septage chopper pump. This pump had been out of service since January due to a badly leaking seal. We are unsure of the exact cause of the seal failure but suspect that the pump may have run "dry" due to a solids blockage. Ultimately, the seal faces may have heated up to the point of thermal fatigue and cracking. We are re-considering the installation (or lack of) seal cooling water for these two pumps.

Maintenance Management

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

- a) Performed semi-annual oil changes on both primary clarifier sludge collector gear boxes and bearings.
- b) Concord Public Works excavated and removed a failing 3-inch diameter yard hydrant adjacent to the primary clarifiers and installed a new larger bore "fire-type" hydrant in its place.
- c) A SCADA systems technician reviewed possible integration of plant water system and high-pressure air system into the rest of the facility's SCADA network.
- d) Installed new fan belt and fan timer on the restroom exhaust fan.
- e) Installed a new 4-inch pipe to provide the operational option to convey primary sludge to the rotary drum sludge thickener.

Environmental Compliance

Parameter	Monthly Avg.	Permit Limit	Notes
Flow, MGD	1.2 MGD (12month avg)	1.2 MGD	Mar. avg. = 1.00 MGD Max. Daily Flow = 1.10 MG on Wed. 3/7/12
BOD5 (mg/l)	4 mg/l	30 mg/l	98% average BOD removal in March
TSS (mg/l)	8 mg/l	30 mg/l	95% average TSS removal in March
Coliform, Geo.Mean #/100ml	2 cfu*/100ml	200 cfu/100ml	Max daily f-coliform count of 8/100 ml occurred on 3/29/12
Phosphorus	0.82 mg/l	1.0 mg/l Nov '11– Mar '12	1.01 mg/l daily max. occurred on Tue. 3/20
Total Ammonia Nitrogen	0.25 mg/l	Report Only	0.32 mg/l daily max. on Tue. 3/27

*cfu = coliform forming unit or colony.

Throughout March, the Concord WWTF performed continuous two-stage total phosphorus (TP) removal using aluminum sulfate. First stage chemical TP treatment occurred in the two secondary clarifiers, while second stage TP treatment took place within the CoMag® advanced treatment process. The monthly average effluent TP concentration in March is 0.82 mg/l, thereby meeting the CWWTF's winter permit limit not to exceed 1.0 mg/l TP as a monthly average.

Also during March, all effluent disinfection was performed using ultra violet light.

Finally, over the week of March 4 the Concord WWTP conducted the 2012, first-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 50%. 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.

March '12 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
Jan. '12	Various	Intrusion	South Clarifier Rm. single door triggered several nuisance intrusion alarms in January. Plant personnel replaced wiring to the magnetic pickup on the door and slightly adjusted the position of the pickup- so far so good.
Feb. '12	3:28 AM	Numerous	A very brief loss of utility power lead to a number of motor faults that required reset by an onsite operator as the SCADA system was inaccessible too.
Mar. '12	NA	NA	No off hours alarms in March.

Septage Receiving

The Concord WWTP receives septage only from in-Town sources. A total of 83,000 gallons of septage was received at the Concord WWTP in March.

WWTP Septage Receipts in gallons

	2012	2011	2010
January	56,000	44,050	32,500
February	34,000	31,750	25,750
March	83,000	102,950	171,750
April		139,750	211,500
May		113,500	125,950
June		130,000	184,950
July		73,750	90,800
August		69,500	173,250
September		98,750	182,250
October		82,250	210,250
November		90,250	194,100
December		117,250	132,750
Annual Totals:	173,000	1,093,500	1,735,800

Sludge Production

During March, 99,452 gallons of liquid sludge, equivalent to 13.71 dry tons, was transported to Upper Blackstone Water Pollution Abatement District (UBWPAD) in Millbury, Massachusetts.

WWTP Sludge Production in gallons /dry tons

	2012	2011	2010
January	112,896/17.12	98,309/16.78	89,000/15.61
February	62,183/11.1	72,916/13.5	90,000/16.81
March	99,452/13.71	72,617/13.89	90,000/15.65
April		81,000/14.90	135,000/23.57
May		108,000/27.85	97,980/15.76
June		108,000/19.67	99,000/18.28
July		106,060/17.69	99,000/16.81
August		135,224/18.83	108,000/18.61
September		108,008/15.10	106,160/17.88
October		141,003/23.05	107,558/17.31
November		114,905/20.28	142,500/21.18
December		105,573/18.56	134,750/21.73
Annual Totals:	274,531/41.93	1,251,615/205.18	1,298,945/219.20