Monthly Operating Report
March, 2009
Concord Wastewater Treatment Plant
Operated by Woodard &Curran

Date: April 14, 2009

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

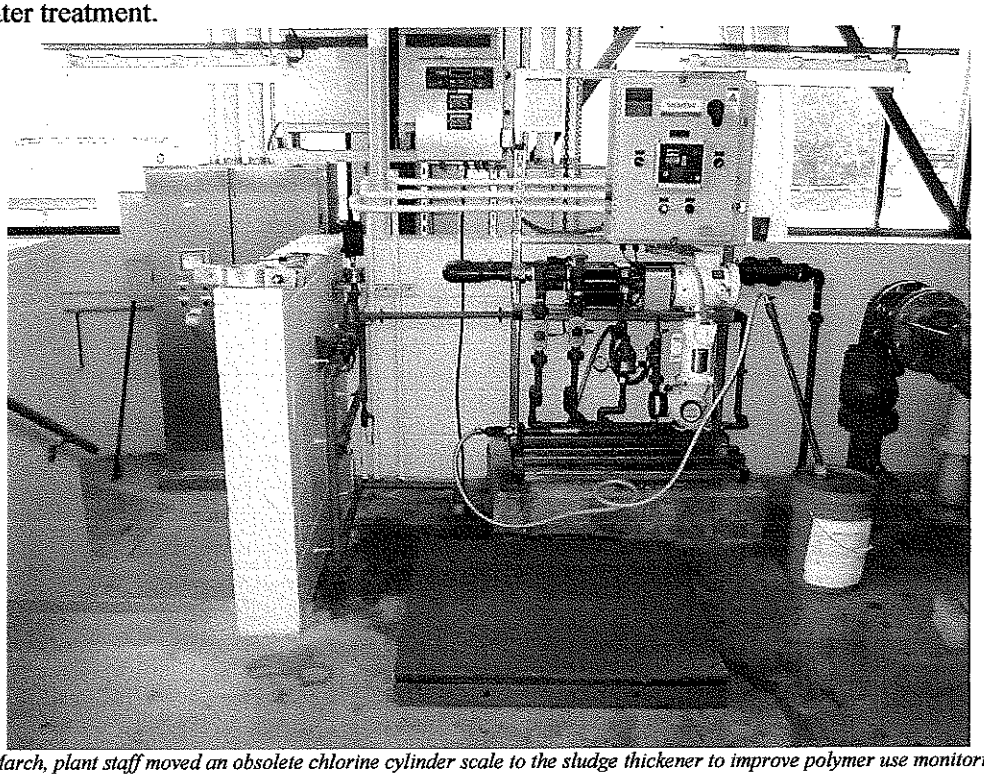
From: Michael Thompson and Staff

Key Activities This Month/Capital Program

During March all treatment processes were either operational or in ready standby. Flow through the facility has returned to only slightly above the long-term monthly average. Average daily flow in March is 1.238 MGD, compared to a long-term monthly average at approximately 1.0 MGD. Importantly, the 12-month rolling average flow, including March, is now at 1.12 MGD and a yet a little further away from the permit limit of 1.2 MGD. This slow drop in the 12-month average flow was helped most significantly by not including the high monthly flow from March '08 (1.734 MGD) in the 12-month average. Barring any prolonged period of above normal precipitation, the facility's 12-month average flow is likely to hover around or slowly decline from the current 1.12 MGD level.

More notable events or tasks accomplished in March included:

1) On March 13, 2009, a new permit compliance condition became effective. On that date, the facility switched to continuous effluent pH monitoring using online instrumentation. This is a change from the former practice of taking three effluent grab samples per day and determining their pH using laboratory equipment. This change in effluent pH monitoring is required due to the recent improvements at the facility. Recent facility upgrades, notably CoMag and SCADA, include the capacity to continuously monitor and automatically control pH at several points within the later stages of wastewater treatment.



In March, plant staff moved an obsolete chlorine cylinder scale to the sludge thickener to improve polymer use monitoring.

2) Plant staff completed the installation of two new blown off lines on the CoMag process caustic feed lines. Previously, these caustic feed lines discharged only to the CoMag process. On occasion, these caustic lines need flushing with hot water to dissolve any caustic that may have solidified in the line or flush away any slime that may accumulate at the discharge port. Flushing into the process ran the risk of creating short-term spikes in pH as the contents of the line quickly moved into the wastewater flow. Now, operators can avoid these pH spikes by repositioning valves so that flushing discharges to a process drain that leads to the plant headworks where any caustic slug is harmlessly diluted.

3) Thanks to the facility upgrade and the installation of an ultra violet light disinfection that easily meets the disinfection needs of the higher quality plant effluent, the use of chlorine at the facility was eliminated exactly one year ago effective March 11. As a result, the former chlorine disinfection equipment at the plant became obsolete and sat in "mothballs". In March, the Town's Water and Sewer Department picked up a number of these good condition components to serve as spare parts or improvements to their existing disinfection equipment. Plant staff also relocated an electro-mechanical chlorine cylinder scale from the former chlorination building to the new sludge rotary drum thickener. Following a bit more tuning and calibration of the scale in its new home, we will more accurately track the consumption rate of polymer used to thicken secondary/tertiary sludge.

Maintenance Management

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

a) troubleshot faulty soft start on the #2 Intermediate pump and removed for trade-in against a new soft start.
b) chipped out pump stand grout to allow access to both thickened sludge pumps oil drain ports.
c) adjusted packing on primary scum plunger pump to stop water leakage.
d) installed new plumbing on lines feeding caustic to the CoMag process to allow periodic line flushing to process drains.
e) replaced CoMag polymer solution feed line to reaction tanks, clean out removed line and put in reserve until next replace/clean cycle.

Air (Odor Control)

There were no odor complaints received at the Concord WWTP during March. Foul air continues to draw from all plant odor control points and receive treatment in the odor control scrubber operating in "dry mode".

Environmental Compliance

Parameter	Monthly Avg.	Permit Limit	Notes
Flow, MGD	1.12 MGD (12-month. Avg.)	1.2 MGD	March avg. = 1.238 MGD
BOD5 (mg/l)	4 mg/l	30 mg/l	98% average BOD removal in March
TSS (mg/l)	7 mg/l	30 mg/l	93 % average TSS removal in March
Coliform, Geo.Mean #/100ml	1 cfu*/100ml	200 cfu/100ml	Daily max. of 4 cfu/100 ml on Tue. 3/31
Phosphorus	0.51 mg/l	1.00 mg/l Nov.'08-Mar.'09	0.76 mg/l daily max. on Tue. 3/24
Total Ammonia Nitrogen	0.87 mg/l	Report Only	0.95 mg/l daily max. on Thu. 3/12

**cfu =coliform forming unit or colony.*

There were no NPDES permit exceedences during the month of March at the Concord WWTP.

During March, 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 March was 0.51 mg/l, thereby meeting the CWWTP permit limit not to exceed 1.00 mg/l TP.

Environmental Compliance, cont'd

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

Finally, over the week of March 8 the Concord WWTP conducted the 2009, 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 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.

Sludge Production

During March, 99,000 gallons of liquid sludge, equivalent to 17.56 dry tons, was transported to Upper Blackstone Water Pollution Abatement District (UBWPAD) in Millbury, Massachusetts.

WWTP Sludge Production in gallons / dry tons

	2009	2008	2007
January	107,500/16.71	112,227/20.15	97,500/12.83
February	86,000/14.13	107,124/18.35	89,500/11.94
March	99,000/17.56	98,500/17.97	99,000/12.91
April		90,000/17.98	143,500/21.55
May		107,000/19.74	170,200/26.40
June		98,500/17.76	152,000/21.29
July		117,000/20.98	161,500/23.60
August		99,000/16.51	143,500/21.31
September		98,000/16.82	126,000/15.27
October		108,000/18.54	230,614/30.28
November		80,500/12.62	128,669/21.13
December		126,000/18.46	140,555/22.69
Annual Totals:		1,241,851/215.88	1,682,535/241.2

Septage Receiving

During March, the facility received 83,250 gallons of septage from Concord residences and businesses.

WWTP Septage Receipts in gallons

	2009	2008	2007
January	10,500	22,750	61,850
February	41,250	60,300	55,000
March	83,250	55,550	48,550
April		152,300	127,000
May		135,150	153,800
June		126,450	128,750
July		117,000	159,050
August		142,400	140,250
September		219,950	112,250
October		262,900	199,700
November		165,300	179,950
December		104,050	42,000
Annual Totals:		1,636,000	1,408,150

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 Alarm Log

Date	Time	Alarm Source	Observations/Corrective Action/Comments
01/03/09	11:21 am	Intrusion	Headworks building door not properly latching following installation of new weather security strip by facility upgrade contractor. High wind rocked door – setting off alarm. Plant staff worked on weather strip to improve door latching.
01/07/09	7:45 pm	Hi Effluent Turbidity	Recent M2 backwash cycles producing very brief jump in turbidity as forward flow resumes. Solution is to shorten time between backwash cycles until overall treatment performance improves with slight operational adjustments over coming days.
02/08/09	10:26 am	Intrusion	High wind blew open addition door. Plant staff already on the way for normal weekend rounds, checked door and securely locked. Contractor made aware of need to rework this as well as other facility upgrade doors and locksets.
Various times in March		HVAC Common alarm	Faulty operation of plant boilers-particularly boiler #2-causing a brief dip in plant hot water loop temperature. Lag or backup boiler reliably responded and automatically brought hot water loop temp back above alarm setpoint. Boiler install vendor and others continue to monitor/troubleshoot plant heating system.