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

Date: March 13, 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

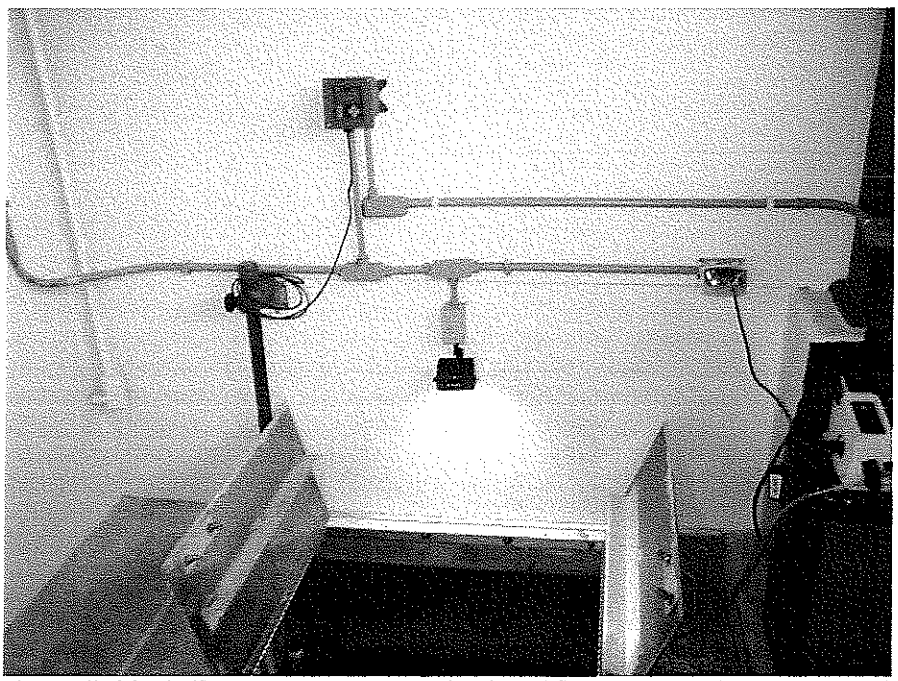
From: Michael Thompson and Staff

Key Activities This Month/Capital Program

During February all treatment processes were either operational or in ready standby. Flow through the facility continued to ease in February. Average daily flow in February is 1.118 MGD, down by roughly 140,000 gpd compared to January (1.278 MGD ave. daily flow) and down by roughly 340,000 gpd compared to December's high flow rates (1.457 MGD ave. daily flow). Ultimately, the 12-month rolling average flow, including February, is now at 1.16 MGD and slowly moving away from the permit limit of 1.2 MGD. This slow drop in the 12-month average flow should continue if the current trend toward normal precipitation persists through March.

More notable events or tasks accomplished in February included:

1) On March 13 2009, a new permit compliance condition will become effective. On that date the facility must continuously monitor and record effluent pH 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 monitor and control pH at several points within the later stages of wastewater treatment. In February, we reinstalled a pH monitor that had formerly been in service at the now obsolete chlorine contact tank. Now, this relocated pH meter continuously monitors wastewater flowing over the finger weirs at the end of the UV disinfection channel. This new instrumentation installation, performed by onsite staff, also includes a new sample access hatch with lighting, and an effluent flow signal input to the effluent composite sampler.



Newly installed final effluent pH monitor, access hatch, and flow proportional composite sampling.

2) In February, plant staffers Rich Dolata and Mike Thompson, completed all training required by Woodard & Curran for Electrical Worker Qualification certification. This recently developed program exists to ensure our personnel's safety and compliance with OHSA's Arc Flash Protection Program. Prerequisite training for this certification includes first aid, CPR, lock out tag out, blood borne pathogens, and extensive electrical safety training including each individual demonstrating competency with a multi-meter and the donning and doffing of the arc flash kit now on hand at the WWTF. The Arc Flash Protection Program requires all personnel working within close proximity to 50 volts, or higher, to attain this Electrical Worker Qualification certification.

3) On February 10, Interstate Electrical Services Corp., began to resolve an assortment of incomplete, out of code, or obsolete electrical system work at the wastewater treatment facility. This work addressed such items as; exposed wires and out of code receptacles within the alum bulk storage area, temporary power supply through open intermediate pump station float control panel, exposed wires and open pull boxes used for routing primary scum well level, obsolete septage pump seal water solenoids, CoMag polymer mixer power via temporary extension cord to mezzanine receptacle, lab power distribution panel L4 inaccurate and obsolete labeling, and "hanging in space" receptacle and flow signal within the caustic containment area.

Maintenance Management

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

a) plant staff worked with an electrical subcontractor for several days in February to resolve a number of incomplete or obsolete electrical system features throughout the WWTP.
b) installed new check valve components on the #1 pump in the basement addition mechanical sump.
c) completed installation of a pH probe/monitor in the UV effluent finger weirs. This new pH signal, along with temperature, is now tracked continuously through the facility's SCADA system. This automatic and continuous pH monitoring will replace effluent pH grab sampling effective March 13, 2009 per NPDES permit requirements.
d) painted plant water pumps and mounting skid.
e) regular snow blower operation, loader operation, and snow shovel operation to keep up with February snow fall.

Air (Odor Control)

There were no odor complaints received at the Concord WWTP during February. Foul air continues to be collected from all plant odor control points and delivered to the odor control scrubber operating in "dry mode" to prevent freeze ups while also treating odors.

Environmental Compliance

Parameter	Monthly Avg.	Permit Limit	Notes
Flow, MGD	1.16 MGD (12-month. Avg.)	1.2 MGD	February avg. = 1.118 MGD
BOD5 (mg/l)	5 mg/l	30 mg/l	97% average BOD removal in February
TSS (mg/l)	8 mg/l	30 mg/l	93 % average TSS removal in February
Coliform, Geo.Mean #/100ml	1 cfu*/100ml	200 cfu/100ml	Daily max. of 2 cfu/100 ml on Thu. 2/5 & Tue. 2/10
Phosphorus	0.98 mg/l	1.00 mg/l Nov.'08-Mar.'09	1.28 mg/l daily max. on Mon. 2/2
Total Ammonia Nitrogen	1.27 mg/l	Report Only	1.51 mg/l daily max. on Wed. 2/11

**cfu =coliform forming unit or colony.*

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

February '09 WWTP MOR

During February, 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 February was 0.98 mg/l, thereby meeting the CWWTP permit limit not to exceed 1.00 mg/l TP.

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

Sludge Production

During February, 86,000 gallons of liquid sludge, equivalent to 14.13 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		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 February, the facility received 41,250 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		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.