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

Date: August 18, 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 July all treatment processes were either operational or in ready standby excluding the #1 primary clarithickener which was offline for sandblasting/painting and hardware rehabilitation.. Flow through the facility in July averaged 0.96 million gallons per day (MGD) and the permit critical 12-month average flow now stands at 1.1 MGD. The 12-month average daily flow permit limit is 1.2 MGD. Barring any prolonged period of above normal precipitation, the facility's 12-month average flow is likely to continue to hover around the current 1.10 MGD level.

More notable events or tasks accomplished in July included:

1) The capital improvement project to provide sandblasting, painting, and hardware rehabilitation on both primary clari-thickeners and the grit detritor commenced in July. Contractors Hemi Enterprises and Lydon Millwrights are proceeding with this contract with the Town targeting a September project completion (weather permitting). It is anticipated that this project will provide roughly another ten years of operating service before another rehab would be considered.

An overview of the # primary clari-thickener undergoing sandblasting in late July.

2) The regular plant staff was without Maintenance Manager Rich Dolata until July 13 when he returned to normal work after six weeks of short-term disability due to chronic lower back pain. W&C backfilled Rich with one of our O&M specialists; Harvey King, Jack of all Trades. Harvey focused on the operation of the rotary drum thickener and providing calibration and a maintenance SOP write-up for the facility's Hach turbidimeters.

Maintenance Management

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

a) welder in to repair broken welds on rotary drum thickener drum bands.
b) scrape, apply rust transformer, prime, and finish paint grit room ductile iron plumbing.
c) disconnect power and conduits from #1 primary clarifier bridge in preparation for startup of sandblast, repair, and paint project.
d) re-install factory repaired CoMag® settling tank effluent turbidimeter.
e) repair lightning damaged effluent flow meter.

Environmental Compliance

Parameter	Monthly Avg.	Permit Limit	Notes
Flow, MGD	1.10 MGD (12-month. Avg.)	1.2 MGD	July avg. = 0.96 MGD
BOD5 (mg/l)	3 mg/l	30 mg/l	99% average BOD removal in July
TSS (mg/l)	3 mg/l	30 mg/l	98 % average TSS removal in July
Coliform, Geo.Mean #/100ml	2 cfu*/100ml	200 cfu/100ml	Daily max. colony count of 10/100 ml on Mon. 7/20.
Phosphorus	0.19 mg/l	0.20 mg/l Apr.'09 – Oct. '09	0.32 mg/l daily max. on Thu. 7/16
Total Ammonia Nitrogen	0.62 mg/l	Report Only	1.13 mg/l daily max. on Wed. 7/22

**cfu =coliform forming unit or colony.*

There was one NPDES permit exceedance during the month of July at the Concord WWTP. Specifically, on July 15, between 12:29 PM and 12:50 PM, a 21 minute period, the CWWTP effluent pH exceeded its 8.3 maximum pH permit limit with a maximum reading of 8.63 SU occurring at 12:40 PM. It appears a faulty pH probe produced a brief automatic overfeed of sodium hydroxide. This faulty pH probe was replaced with a spare probe on the afternoon of July 15 thereby re-establishing normal automatic effluent pH compliance.

During July, 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 July is 0.19 mg/l, thereby meeting the CWWTP's permit limit not to exceed 0.20 mg/l TP.

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

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Septage Receiving

During July, the facility received 138,500 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	168,250	152,300	127,000
May	150,900	135,150	153,800
June	151,450	126,450	128,750
July	138,500	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

Sludge Production

During July, 126,000 gallons of liquid sludge, equivalent to 20.57 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	153,000/23.94	90,000/17.98	143,500/21.55
May	170,670/24.27	107,000/19.74	170,200/26.40
June	153,000/20.83	98,500/17.76	152,000/21.29
July	126,000/20.57	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

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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.
04/09	NA	NA	No after hours alarms in April
5/27/09	7-9pm	CoMag eff pH	pH meter inaccurately reading –required cleaning and calibration. Caustic pumps checked for normal operation.
6/20/09	2 pm	CoMag low eff pH	Both caustic feed pumps to CoMag effluent had become air bound. On call operator came on site and bled air from pump and restored normal auto feed of caustic based on pH input from SCADA.
07/09	NA	NA	No after hours alarms in July.