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

Date: May 15, 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

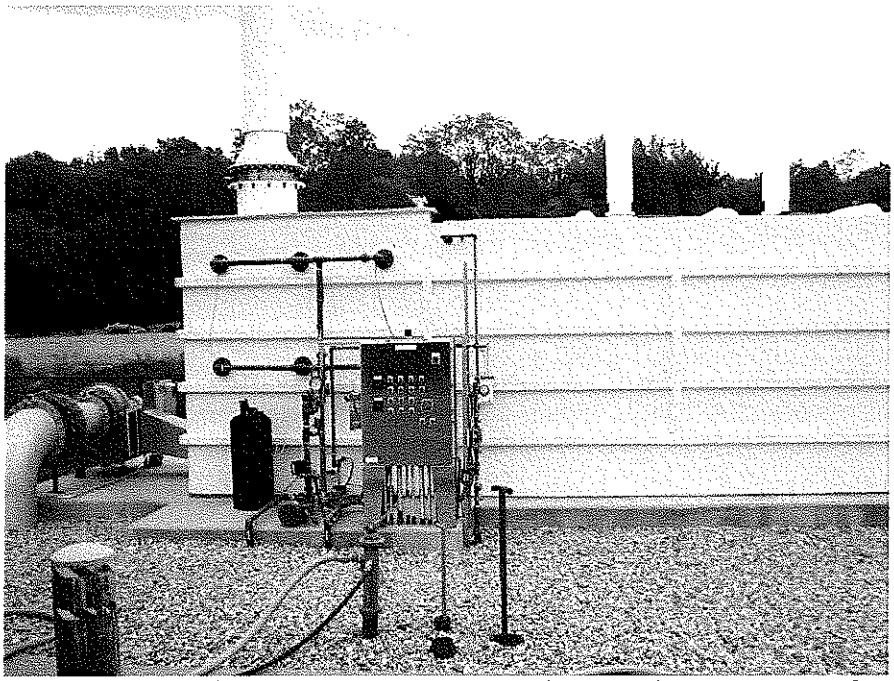
Key Activities This Month/Capital Program

During April all treatment processes were either operational or in ready standby. Flow through the facility continues to run only slightly above the long-term monthly average. Average daily flow in April is 1.169 MGD, compared to a long-term monthly average at approximately 1.0 MGD. The 12-month rolling average flow, including April, is now at 1.11 MGD and a yet a little further away from the permit limit of 1.2 MGD. 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 1.11 MGD level.

More notable events or tasks accomplished in April included:

1) The new, more stringent, "in season" total phosphorus limit of 0.2 mg/l became effective in April. Previously the facility "in season" total phosphorus limit had been 0.75 mg/l. Three effluent samples per week (an increase from previous two samples per week) are analyzed for total phosphorus. The average of all samples collected in a month must now not exceed 0.2 mg/l. There is no daily maximum limit for total phosphorus. The monthly average total phosphorus in April is 0.11 mg/l thus meeting permit requirements.

2) The odor control system, that had been running all winter in "dry mode", was restored to full normal operation in April. During cold weather and up until the third week of April, the odor control system continuously received foul air from all odor collection points in the facility, such as the head works building and grit room. In this dry operation, only foul air feeds into the odor control vessel where it receives treatment prior to discharge out the second stage exhaust stacks. This method of operation provides a level of treatment sufficient for the lower odor loads typical in cold weather months. No odor complaints were received during this period of dry or cold weather operation. Now, with the risk of hard freezes over, the odor control system is in full normal operation where water continuously circulates in the first stage and humidification occurs in the second stage. This wet mode of operation provides the additional treatment capacity, particularly the capacity to treat hydrogen sulfide, needed during warm weather when odors generation increases.



The biological odor control system was returned to normal operation in April.

Maintenance Management

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

a) installed new VFD bypass soft start on the #2 intermediate pump.
b) removed rag locking up #1 basement drains sump pump.
c) replaced two drum rollers on inlet end of rotary drum sludge thickener.
d) repositioned high level floats on caustic bulk storage tanks.
e) continued to install former chlorine cylinder scale in new use as RDT polymer scale.

Environmental Compliance

Parameter	Monthly Avg.	Permit Limit	Notes
Flow, MGD	1.11 MGD (12-month. Avg.)	1.2 MGD	April avg. = 1.169 MGD
BOD5 (mg/l)	3 mg/l	30 mg/l	99% average BOD removal in April
TSS (mg/l)	2 mg/l	30 mg/l	99 % average TSS removal in April
Coliform, Geo.Mean #/100ml	1 cfu*/100ml	200 cfu/100ml	Daily max. of 1 cfu/100 ml on Tue. 3/31
Phosphorus	0.11 mg/l	0.20 mg/l Apr.'09 – Oct. '09	0.18 mg/l daily max. on Thu. 4/30
Total Ammonia Nitrogen	0.85 mg/l	Report Only	1.08 mg/l daily max. on Tue. 4/28

**cfu =coliform forming unit or colony.*

There were no NPDES permit exceedences during the month of April 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.

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

Sludge Production

During April, 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	153,000/23.94	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 April, the facility received 168,250 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	168,250	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.
04/09	NA	NA	No after hours alarms in April