

**Monthly Operating Report
September, 2010
Concord Wastewater Treatment Plant
Operated by Woodard & Curran**

Date: October 18, 2010

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 September all treatment processes were either operational or in ready standby except for alternate offline status for the two secondary clarifiers while they undergo routine maintenance inspections. Flow through the facility in September averaged 0.82 million gallons per day (MGD) and the permit critical 12-month average flow held steady at 1.12 MGD. The 12-month average flow permit upper limit is 1.2 MGD.

More notable events or tasks accomplished in September include:

- 1.) The #2 secondary clarifier was returned to online service on 9/22 after a thorough cleaning and submerged equipment inspection. This tank and associated rake arm, stilling well, skimmer assembly, pipes, and flap valves all appear to be in good condition. On 9/27 the #1 secondary clarifier was taken offline and drained and cleaned. This tank and its associated equipment will receive preventive maintenance and an evaluation for more extensive corrective maintenance during October. One online secondary clarifier readily handles all flow through the facility although we prefer to have two tanks on line if they are available.
- 2.) On September 23, the Town (Alan and Harry) and W&C (Mike) were in the midst of a monthly operations meeting when two DEP personnel walked into the plant. It was insightful to have both Alan and Harry onsite to experience the method that DEP uses to inspect facilities. In this case, our new DEP regional inspector Joseph Nerden, and his supervisor Kevin Brander, arrived unannounced to perform an annual walkthrough inspection. This inspection includes a review of operating equipment and staffing levels. The five of us toured the facility from headworks to UV effluent and discussed the various treatment process and their performance. Overall, the tour and discussion took roughly an hour and appeared to go well. It is typical for these inspections to lead to no further action or response and it is likely that we will not see Mr. Nerden until his next unannounced inspection next year.



UV bank A module 1 in maintenance rack while plant staff repair the bulb wiper air cylinder

Maintenance Management

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

- a) performed semi-annual oil change on both primary clarifiers.
- b) performed oil change and a discharge plumbing modification on the #2 inside sanitary drain submersible pump.
- c) repaired faulty local H-O-A switch on the #2 secondary clarifier.
- d) installed new cartridge air filter on aerated sludge blower makeup air line.
- e) installed a new squeegee on the #2 secondary clarifier scum skimmer.

Environmental Compliance

Parameter	Monthly Avg.	Permit Limit	Notes
Flow, MGD	1.12 MGD (12month avg)	1.2 MGD	September avg. = 0.82 MGD
BOD5 (mg/l)	2 mg/l	30 mg/l	99% average BOD removal in Sept.
TSS (mg/l)	2 mg/l	30 mg/l	99 % average TSS removal in Sept.
Coliform, Geo.Mean #/100ml	1 cfu*/100ml	200 cfu/100ml	1 test on 9/27 produced 2 cfu/100ml
Phosphorus	0.19 mg/l	0.2 mg/l Apr.– Oct. '10	0.24 mg/l daily max. on Wed. 9/1 and Thu.9/23
Total Ammonia Nitrogen	1.49 mg/l	Report Only	1.76 mg/l daily max. on 9/29

*cfu =coliform forming unit or colony.

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

Finally, over the week of September 12, the Concord WWTF conducted the 2010, third quarter Whole Effluent Toxicity (WET) sampling event. The 48-hour LC50, a.k.a. acute toxicity test, for *Ceriodaphnia* was >100% and permit complying. The 7-day NOEC, a.k.a. chronic toxicity test, was 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.

Septage Receiving

The Concord WWTF receives septage only from in-Town sources. A total of 182,250 gallons of septage was received at the Concord WWTF in September.

WWTP Septage Receipts in gallons

	2010	2009	2008
January	32,500	10,500	22,750
February	25,750	41,250	60,300
March	171,750	83,250	55,550
April	211,500	168,250	152,300
May	125,950	150,900	135,150
June	184,950	151,450	126,450
July	90,800	138,500	117,000
August	173,250	137,750	142,400
September	182,250	203,750	219,950
October		172,400	262,900
November		155,400	165,300
December		109,600	104,050
Annual Totals:	1,198,700	1,523,000	1,636,000

September '10 WWTP MOR

Sludge Production

During September, 106,160 gallons of liquid sludge, equivalent to 17.88 dry tons, was transported to Upper Blackstone Water Pollution Abatement District (UBWPAD) in Millbury, Massachusetts.

WWTP Sludge Production in gallons /dry tons

	2010	2009	2008
January	89,000/15.61	107,500/16.71	112,227/20.15
February	90,000/16.81	86,000/14.13	107,124/18.35
March	90,000/15.65	99,000/17.56	98,500/17.97
April	135,000/23.57	153,000/23.94	90,000/17.98
May	97,980/15.76	170,670/24.27	107,000/19.74
June	99,000/18.28	153,000/20.83	98,500/17.76
July	99,000/16.81	126,000/20.57	117,000/20.98
August	108,000/18.61	76,376/11.81	99,000/16.51
September	106,160/17.88	126,000/21.65	98,000/16.82
October		99,000/16.03	108,000/18.54
November		99,000/16.51	80,500/12.62
December		117,000/17.79	126,000/18.46
Annual Totals:	914,140/158.98	1,421,546/223.58	1,241,851/215.88

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
01/18/10	12:50 pm	Power Failure	Brief power bump resulted in a handful of drive and panel faults. The on call operator responded on site and reset equipment without incident.
2/10	NA	None	NA
3/10	NA	None	NA
4/10	NA	None	NA
5/15/10	8:45am	Intrusion	An internal motion detector went off on this quiet Saturday morning but follow-up onsite inspection by both plant staff and police found no signs of a problem- i.e. false alarm.
6/10	NA	NA	NA
7/10/10	8:35am	Intrusion	An internal motion detector went off on this quiet Saturday morning but follow-up onsite inspection by both plant staff and police found no signs of a problem- i.e. false alarm. Suspect some sort of equipment operation may have triggered this alarm- investigating.
8/23/10	1:55am	Power Failure	5 minute outage/generator run required remote SCADA access reset of numerous pieces of equipment.
8/24-8/25/10	11:50pm-3:30am	Power Failure	Roughly 4 hour outage/generator run required onsite response to deal with equipment faults and resets.
8/25	9:05am	Power Failure	10 minute outage/generator run was handled by onsite personnel.
9/10	NA	NA	NA