

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

Date: December 15, 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 November all treatment processes were either operational or in ready standby except for the #1 primary clarifier that was taken offline on November 8th. This clarifier remained offline for the remainder of November (see notables below for more detail). Flow through the facility in November averaged 0.895 million gallons per day (MGD) and the permit critical 12-month average flow held steady for the fourth consecutive month at 1.12 MGD. The 12-month average flow permit upper limit is 1.2 MGD.

More notable events or tasks accomplished in November include:

1.) The #1 primary clarifier was taken offline on November 8th and slowly drained and pumped empty by November 12th. The main reason for this tank coming offline was to lessen potential odors emanating from the surface of the tank. Both primary clarifiers are equipped with odor control covers over the effluent weirs with any odor being collected and treated in the biological odor control system. Our recent awareness that residents of Great Meadows Road have noticed plant odors, particularly over the last six months, lead operators to make an extra effort to locate and eliminate potential odor sources. It was determined that removing one primary clarifier would reduce potential odor production at the tank surface without significant impact on treatment plant performance. During the slow drain and pump down process plant staff added potassium permanganate to the primary tank to rapidly oxidizing odor-producing compounds. This tank will remain offline until higher flows or plant performance warrants its return to service.



3 gutter supports installed in November to restore proper draining and lessen ice accumulations.

Key Activities This Month/Capital Program cont'd

2.) After speaking with several roofing contractors, but only receiving “not interested” or excessively high quotes, we decided to take on the repair of the copper gutter over the garage bay doors ourselves. Through testing the lift potential/flexibility of this 8-inch square gutter, we realized we could lift out the center sag without compromising the roof panels to which it is soldered. Ultimately, three channel type supports were prepped in the plant shop then installed using a gutter-lifting jig supported by the plant fork truck.

3) During November plant staff noticed sporadic, but brief (<1 minute), episodes where SCADA live display would disappear. Once this condition was observed over several days we contacted SCADA support to describe the problem and see what help they could provide. Their diagnosis was a communication snafu somewhere in the local network. The first step taken was to reduce communication traffic by slightly reducing equipment and process polling from once every 3 seconds to once every 5 seconds. At first, this helped for approximately a week, yet by mid-month sporadic missing data display returned. The next step was to turn off one of the five computers on the network, but again this had only short-term benefit. Finally, on 11/23 a Woodard & Curran SCADA technician came to the CWWTP and swapped out the network communication switch with a new switch. Twenty-two communication cables were moved to this new switch. As of the date of this report, there has not been a recurrence of the loss of data display.

Maintenance Management

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

- a) installed new communication switch for internal SCADA network.
- b) serviced rotary drum thickener spray water booster pump rotometer and solenoid.
- c) drained, cleaned, and inspected # 1 primary clarifier.
- d) installed new supports for roof gutter over garage and grit room to eliminate sag resulting in ice buildups.
- e) performed CoMag process pH probe calibrations and replace one old, poorly performing probe with new unit.

Environmental Compliance

Parameter	Monthly Avg.	Permit Limit	Notes
Flow, MGD	1.12 MGD (12month avg)	1.2 MGD	November avg. = 0.895MGD Max. Daily Flow = 1.02 MG
BOD5 (mg/l)	4 mg/l	30 mg/l	99% average BOD removal in Nov.
TSS (mg/l)	4 mg/l	30 mg/l	98 % average TSS removal in Nov.
Coliform, Geo.Mean #/100ml	1 cfu*/100ml	200 cfu/100ml	1 test on 11/4 produced 4 cfu/100ml
Phosphorus	0.50 mg/l	1.0 mg/l Nov. '10– Mar. '11	0.75 mg/l daily max. on Wed.11/17
Total Ammonia Nitrogen	2.81 mg/l	Report Only	4.18 mg/l daily max. on Thu. 11/11

*cfu =coliform forming unit or colony.

During November, 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 November is 0.50 mg/l, thereby meeting the CWWTP’s winter permit limit not to exceed 1.0 mg/l TP.

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

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.
10/12	6:34 am	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.
11/10	NA	None	NA

Septage Receiving

The Concord WWTF receives septage only from in-Town sources. A total of 194,100 gallons of septage was received at the Concord WWTF in November.

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	210,250	172,400	262,900
November	194,100	155,400	165,300
December		109,600	104,050
Annual Totals:	1,603,050	1,523,000	1,636,000

November '10 WWTP MOR

Sludge Production

During November, 142,500 gallons of liquid sludge, equivalent to 21.18 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	107,558/17.31	99,000/16.03	108,000/18.54
November	142,500/21.18	99,000/16.51	80,500/12.62
December		117,000/17.79	126,000/18.46
Annual Totals:	1,164,198/197.47	1,421,546/223.58	1,241,851/215.88