Comstock, Gregg

From: Comstock, Gregg
Sent: Friday, September 17, 2010 4:26 PM
To: 'Theall Chuck-MSEIMDF'
Cc: Jon Warzocha; Ives, Wayne; Currier, Paul M.; Roy, Stephen; Bennett, Derek; Trowbridge, Philip
Subject: Springfield Power WQC thru October 15th for withdrawals from Otter Pond and Gile Pond

Mr. Theall,

This email serves as a water quality certification for water withdrawal by truck from public access locations on Otter Pond in New London and Sunapee, and Gile Pond in Sutton. The certification is issued to Springfield Power, 54 Fisher Corner Road, Springfield, NH, and satisfies the requirements of RSA 485-A:12.IV for certification that new water withdrawals requiring registration under RSA 488:3 will comply with Water Quality Standards.

WQCWD 2010-001

A. INTRODUCTION

On August 25th, 2010, the New Hampshire Department of Environmental Services (DES) issued an interim certification to Springfield Power, 54 Fisher Corner Road, Springfield, NH (Applicant), to withdraw water by truck from public access locations on Otter Pond in New London (and Sunapee) and Gile Pond in Sutton (the Activity) to provide evaporative cooling water (cooling water) for the Applicant's biomass power generation facility at 54 Fisher Corner Road in Springfield on an interim basis. This is due to the failure of the plant's normal source of cooling water (an on-site wellfield and surface water from an on-site wetland). Until a more permanent source of cooling water is developed, operation of the powerplant depends on trucked water for cooling. The August 25th interim certification included the following conditions:

1) This is an interim certification based on the immediate need of the applicant and a summary review of the affected surface waters. The certificate shall be in effect until midnight on September 17, 2010 or until a regular certification is issued, whichever occurs first.

2) Otter Pond and Gile Pond are of sufficient size and volume so that withdrawal of a maximum of 160,000 gallons per day will not significantly affect pond water elevation or streamflow from either pond during the period from the issuance of this certification until September 17, 2010.

3) The Activity shall withdraw no more than 160,000 gallons per day during each day of operation from either Otter Pond or Gile Pond.

On September 9, 2010, DES received a letter from the Applicant's engineer (Horizons Engineering) requesting DES to extend the interim certification through October 15, 2010 to allow additional time for ambient temperatures to cool further to the point where the on-site water resources can keep up with the evaporative loss of the facility.

This Water Quality Certification documents laws, regulations, determinations and conditions related to the Activity for the attainment and maintenance of NH surface water quality standards, including the provisions of NH RSA 485-A:8 and NH Code of Administrative Rules Env-Wq 1700, for the support of designated uses identified in the standards.

B. CERTIFICATION APPROVAL

Based on the findings and conditions noted below, the New Hampshire Department of Environmental Services (DES) has determined that the Activity will not violate surface water quality standards, or cause additional degradation in surface waters not presently meeting water quality standards. DES hereby issues this Water Quality Certification subject to the conditions specified in section E of this certification:

C. STATEMENT OF FACTS AND LAW

1) NH RSA 485-A:12, IV states: "No activity that involves surface water withdrawal or diversion of surface water that requires registration under RSA 488:3, that does not otherwise require the certification required under paragraph III, and which was not in active operation as of the effective date of this paragraph, may commence unless the department certifies that the surface water withdrawal or diversion of surface water complies with state surface water quality standards applicable to the classification for the surface water body. The certification shall include any conditions on, modifications to, or monitoring of the proposed activity necessary to provide reasonable assurance that the proposed activity complies with applicable surface water quality standards. The department may enforce compliance with any such conditions, modifications, or monitoring requirements as provided in RSA 485-A:22."

2) NH RSA 488:3 states the following "Registration Required. –
I. No person shall withdraw or discharge a cumulative amount of more than 20,000 gallons of water per day, averaged over any 7-day period, or more than 600,000 gallons of water over any 30-day period, at a single real property or place of business without registering the withdrawal or discharge with the department. Transfers of such volume of water shall also be registered. Registration shall be in addition to any required permits.
II. No registration shall be transferred to another person without written notification to the commissioner.

3) NH RSA 485-A:8 and Env-Wq 1700 (Surface Water Quality Regulations, effective May 21, 2008) together fulfill the requirements of Section 303 of the Clean Water Act that the State of New Hampshire adopt water quality standards consistent with the provisions of the Act.

4) Env-Wq 1701.02, entitled "Applicability", states that:

"(a) These rules shall apply to all surface waters.

(b) These rules shall apply to any person who causes point or nonpoint source discharge(s) of pollutants to surface waters, or who undertakes hydrologic modifications, such as dam construction or water withdrawals, or who undertakes any other activity that affects the beneficial uses or the level of water quality of surface waters."

5) Env-Wq 1702.46 defines surface waters as "perennial and seasonal streams, lakes, ponds and tidal waters within the jurisdiction of the state, including all streams, lakes, or ponds bordering on the state, marshes, water courses and other bodies of water, natural or artificial," and waters of the United States as defined in 40 CFR 122.2."

6) Env-Wq 1703.01 (c) states that "All surface waters shall provide, wherever attainable, for the protection and propagation of fish, shellfish and wildlife, and for

recreation in and on the surface waters."

7) Antidegradation provisions are included in Env-Wq 1702 and Env-Wq 1708. Env-Wq 1708.02 states that "Antidegradation shall apply to: (a) Any proposed new or increased activity, including point source and nonpoint source discharges of pollutants, that would lower water quality or affect the existing or designated uses;(b) Any proposed increase in loadings to a waterbody when the proposal is associated with existing activities; (c) Any increase in flow alteration over an existing alteration; and (d) Any hydrologic modifications, such as dam construction and water withdrawals."

D. FINDINGS

1) Otter Pond and Gile Pond are surface waters of the State.

2) The Applicant began withdrawing water from Otter Pond in July, 2010 and from Gile Pond in August, 2010.

3) The proposed surface water withdrawals from Otter Pond and Gile Pond require registration under RSA 488:3 and water quality certification under RSA 485-A:12, IV. The facility has registered the withdrawals with DES and is seeking certification to continue withdrawing water from Otter Pond and Gile Pond through October 15, 2010.

4) According to the Applicant, the facility's cooling water demand has remained constant since the facility was constructed. They have not requested an increase in withdrawal volume from historic levels. Their average annual demand is approximately 300,000 gallons per day (gpd) and their maximum historical summer demand is estimated to be approximately 489,600 gpd (although this may be high due to double counting of flows – this problem has since been corrected with the addition of more meters).

5) Up until a few years ago, all of the facility's cooling water was supplied by six vertical overburden wells located in an on-site wetlands (Wells # 1 -6) and a bedrock well (Well #8). The six overburden wells are installed at varying depths but are commonly 20 to 25 feet deep and screened across a 10 to 20 foot thick sand and gravel aquifer that underlies about 20 to 25 feet of peat deposits below the bog. According to Horizons Engineering the shallow sand/gravel aquifer below the on-site wetlands is believed to still have sufficient capacity to meet the facility's cooling water demand.

Water quality in the shallow aquifer for the six overburden wells is relatively poor due to dissolved iron. Over the years the iron has caused significant well screen fouling (due to iron encrustation) which, over time, has resulted in a significant decline from the driller's reported wellfield yield of approximately 340 gallons per minute (gpm) to 10 gpm. In 2008, the Applicant began withdrawing surface water from the on-site wetlands complex to make up for the decline in well yield.

Because the six overburden wells are located within the wetland it is not possible to access and maintain the well heads with rehabilitation equipment. In 2010, two replacement overburden wells (Wells # 13 and 14) were installed on the edge of the on-site wetlands to replace lost yield from two of the historic overburden wells. Well #13 is an angle well and Well #14 is a vertical well. Both wells withdraw groundwater from the same shallow aquifer as the original six overburden wells and can be relatively easily maintained. In addition, the existing bedrock well (Well #8) was recently hydrofractured which increased its current yield from approximately 15 gpm to 20 gpm.

In summary, wells that are currently on-line include Wells # 1, 2, 3, 6, 8, 13 and 14. Wells # 4 and 5 are off-line because they are not yielding any flow. Even with the above seven wells on line, the extended dry conditions over the past two months has caused production capacities to fall off. Horizons Engineering estimates that the facility is

currently limited to approximately 150,000 gpd in groundwater source capacity. As a result, the facility has requested approval to continue withdrawing water from Otter Pond and Gile Pond until October 15th when ambient temperatures cool further to the point when the on-site water sources can keep up with the evaporative loss of the facility. In addition, it is expected that the area will receive more rain by then.

Horizons Engineering is currently planning an aggressive groundwater source development program for the facility which will include the installation of both bedrock and angle overburden wells which will be permitted through the DES Drinking Water and Groundwater Bureau. The goal is to develop adequate capacity to completely replace the original six production wells with additional capacity to allow wells to rest by 2013. It is presently estimated that 2 to 3 bedrock wells and 2 to 4 additional angle wells will be required to achieve this goal.

Due to the location of the aquifer under the wetland, it is only practical to conduct test drilling during the winter months. The Applicant plans to complete additional aquifer test work this winter and to install one of the additional overburden replacement wells mentioned above in 2011. In addition the Applicant is also investigating the feasibility of deepening bedrock Well #8 to further increase its production. According to Horizons Engineering, the addition of this new well coupled with occasional surface water withdrawals from the on-site wetlands is expected to meet short-term water needs.

6) In addition to withdrawing water from Otter Pond and Gile Pond, the Applicant has purchased water from the Manchester, Lebanon and Londonderry. A breakdown of the volumes supplied by each source from July through September 16, 2010 is shown in the table below.

Withdrawal Source	July (gallons)	July (% of total month)	August (gallons)	August (% of total month)	Sept thru 9M6M10 (gallons)	Sept through 9M6M10 (% of total month)	Total (gallons)	Total (% of Total)
Otter Pond	366,000	27.0%	2,088,000	53.2%	972,000	47.0%	3,426,000	46.6%
Gile Pond	0	0.0%	372,000	9.5%	792,000	38.3%	1,164,000	15.8%
Lebanon Water Works	60,000	4.4%	660,000	16.8%	0	0.0%	720,000	9.8%
Londonderry Water Works	42,000	3.1%	0	0.0%	0	0.0%	42,000	0.6%
Manchester Water Works	888,000	65.5%	804,000	20.5%	306,000	14.8%	1,998,000	27.2%
Total (gallons)	1,356,000		3,924,000		2,070,000		7,350,000	
Total (truck loads)	226		654		345		1,225	

7) Otter Pond (NHLAK801060402-12-01) has a drainage area of approximately 9,920 acres (15.5 square miles) and a surface area of approximately 185 acres. Flow from Otter Pond discharges over a dam and into Otter Brook for approximately 1200 feet before discharging to Lake Sunapee. The Lake Sunapee outlet is the start of the Sugar River which flows to the Connecticut River. The Applicant's facility is relatively close to Otter Pond (on the other side of I-89) and the drainage area for Otter Pond includes the Applicant's on-site wetland complex and wellfield discussed above. According to Horizons Engineering, the on-site wetland complex and Otter Pond are hydraulically connected. That is, according to pump tests, much of the water pumped from the aquifer beneath the on-site wetlands is water that would otherwise be discharged to the on-site wetlands complex that feeds Otter Pond. Consequently, the impact of the proposed direct withdrawals (via trucking) from Otter Pond, on Otter Pond water levels and volumes, should not be significantly different than the impact in the past when essentially all the cooling water was withdrawn from the wells in the on-site wetlands complex. A maximum daily withdrawal via trucks of 154,000 gpd corresponds to a depth of approximately 0.03 inches (approximately 1/32 of an inch) in the pond. A maximum

weekly withdrawal rate of 672,000 gallons per week corresponds to a depth of approximately 0.13 inches (approximately 1/8 of an inch). Assuming no rain these limits correspond to a maximum potential drop in pond elevation due to proposed truck withdrawals of approximately ½ inch (= 4 weeks x 1/8) over the 4 week period from September 18th through October 15th.

8) Gile Pond (NHLAK700030303-02) has a drainage area of approximately 243 acres (0.38 square miles) and a surface area of approximately 54.9 acres. Flow from Gile Pond discharges to an approximate 1800 foot long unnamed stream which discharges into Lane River. Flow from the Lane River discharges to the Warner River and eventually the Contoocook River and Merrimack River. A maximum daily withdrawal via trucks of 78,000 gpd corresponds to a depth of approximately 0.05 inches (approximately 1/16 of an inch) in the pond. A maximum weekly withdrawal rate of approximately 288,000 gallons per week corresponds to a depth of approximately 0.19 inches (approximately 3/16 of an inch). Assuming no rain these limits correspond to a maximum potential drop in pond elevation due to proposed truck withdrawals of approximately 3/4 of an inch (= 4 weeks x 3/16) over the 4 week period from September 18th through October 15th.

9) On August 31, 2010, a representative from DES visited Otter Pond and Gile Pond. The water surface elevation in Otter Pond was below the top of the first stop log in the dam and was limited to leakage through the cracks between the stop logs. There was no surface water flow observed in the outlet stream from Gile Pond. Similar situations have been observed in other surface waters due to the extended period of dry weather in the State. Comparison of precipitation at Lake Sunapee with historical precipitation (Mt Sunapee 1958-2006), indicates that precipitation in July and August of 2010 was below the historic median values (see table below).

	July	August
Median 1958 – 2006 (inches)	3.65	3.22
2010 (inches)	2.63	1.55

E. WATER QUALITY CERTIFICATION CONDITIONS

1) The Activity shall not cause or contribute to a violation of surface water quality standards. DES may modify this Certification to include additional conditions to ensure the Activity complies with surface water quality standards, should DES determine that surface water quality standards are being violated as a result of the Activity.

2) This certification replaces the certification issued on August 25th, 2010 and shall be in effect until midnight on October 15, 2010 unless otherwise authorized by DES.

3) This certification applies to surface water withdrawn by truck from public access locations on Otter Pond in New London and Sunapee, and Gile Pond in Sutton.

4) The Activity shall withdraw no more than 154,000 gallons per day and no more than 672,000 gallons per week from Otter Pond.

5) The Activity shall withdraw no more than 78,000 gallons per day and no more than 288,000 gallons per week from Gile Pond.

6) The Applicant shall keep records of the daily volume and source of all surface water withdrawals since July 1, 2010 and shall submit a summary of such daily withdrawals within 48 hours of receiving a request from DES as well as by October 20,

2010.

F. APPEAL

If you are aggrieved by this decision, you may appeal the decision to the Water Council. Any appeal must be filed within 30 days of the date of this decision, and must conform to the requirements of Env-Wc 200. Inquiries regarding appeal procedures should be directed to NHDES Council Appeals Clerk, 29 Hazen Drive, PO Box 95, Concord, NH 03302-0095; telephone (603) 271-6072.

If you have questions regarding this Certification, please contact Paul Currier at (603) 271-3289 or Gregg Comstock at (603) 271-2983.

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