EXHIBIT M

STATE OF NEW HAMPSHIRE
DEPARTMENT OF ENVIRONMENTAL SERVICES

2008 SECTION 305(b) AND 303(d)
CONSOLIDATED ASSET AND LISTING METHODOLOGY

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STATE OF NEW HAMPSHIRE

Inter-Department Communication

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FROM Jeffrey G. Andrews, P.E., Supervisor
Industrial Permits Section

AT(OFFICE) NHDES
WD, WWEB

SUBJECT Interim Final Policy on 7Q10 and Withdrawals for Fresh Water Surface Waters

TO George C. Berlandi, P.E., Supervisor
Permits & Compliance Section

The purpose of this memorandum is to present the interim final policy for deriving 7Q10's for gaged and ungaged freshwater rivers and streams. The policy is based on the use of Dr. S. Lawrence Dingman's equation for calculating 7Q10 and his responses to my letter to him dated October 2, 2001. The policy is considered interim since we will be following it only for waters for which Total Maximum Daily Loads (TMDL) are being developed and for new or increased discharges. For all other permits to be issued through 2004 the 7Q10 and dilution factor contained in the previous permit will be used. This is to prevent delays in EPA's congressionally mandated NPDES permit backlog reduction project that ends in 2004.

Scenario I. For those facilities where an active gage is downstream of the facility's discharge (See Attachment I) use the Dingman Ratio Proration Method (DRPM) as described below. Note that in this scenario the gage is assumed to take into account all of the consumptive water withdrawals above it.

1. Determine 7Q10 at gage using flow statistics for the entire period of record for which regulation is the same as currently exists.
2. Calculate 7Q10 for the area upstream of the discharge location using the Dingman Equation.
3. Calculate the 7Q10 for the entire basin upstream of the gage using the Dingman Equation.
4. Prorate the 7Q10 at the gage to the discharger's location by multiplying the gage 7Q10 by the ratio of the "upstream Dingman flow (item 2 above)" to the "entire basin Dingman flow (item 3 above)."
5. When the water source for the discharger is within the basin upstream of the discharger's location the prorated 7Q10 is assumed to be located downstream of the discharge. Similarly, if the discharger's water source is from another basin then the prorated 7Q10 is assumed to be located upstream of the discharge.

Scenario II. For those facilities where an active gage is upstream of the facility's discharge (See Attachment II).

1. Determine 7Q10 at gage using flow statistics for the entire period of record for which regulation is the same as currently exists.
2. Calculate 7Q10 for the "intervening" area between the discharger and the upstream gage using the Dingman Equation.
3. Adjust the "Dingman 7Q10" for the intervening area by adding or subtracting the "net" withdrawal or input figure calculated by considering all of the inputs and consumptive surface or groundwater withdrawals located in the intervening area not including the discharger's flow, the discharger's water supply or the water supply for any "indirect" dischargers to a POTW. Calculate the net withdrawal or input figure in accordance with the Section that follows titled "Consumptive Withdrawals."
4. Add the adjusted Dingman 7Q10 to the 7Q10 at the gage to determine the 7Q10 at a point just downstream of the discharger. Again, if the water source for the discharger is outside of the basin then the 7Q10 is upstream of the discharge.

Scenario III. For those facilities where there are active gages upstream and downstream of the facility's discharge (See Attachment III). Note that in this scenario the gages are assumed to take into account all of the consumptive water withdrawals above them.

1. Determine 7Q10 at each gage using flow statistics for the entire period of record for which regulation is the same as currently exists.
2. Subtract the 7Q10 for the upstream gage from the 7Q10 for the downstream gage to obtain a 7Q10 for area between the two gages.
3. With the 7Q10 calculated in item 2. above, and considering the drainage area between the two gages as the entire basin, use Scenario I (steps 2 to 5) and the DRPM to calculate the 7Q10 for the area between the discharger and the upstream gage.
4. Add the 7Q10 for the upstream gage to the 7Q10 calculated above (for the area between the discharger and the upstream gage) to obtain the 7Q10 downstream of the discharger. The 7Q10 is assumed to be at a point downstream of the discharger unless the water source for the discharger is from outside of the entire basin above the downstream gage.

Scenario IV. For those facilities located on ungaged streams (See Attachment IV), the net input/withdrawal figure calculated in accordance with the Section that follows titled "Consumptive Withdrawals" would be used directly to adjust the 7Q10 calculated using the Dingman equation. If withdrawals are greater than inputs then the Dingman 7Q10 would be reduced. If inputs exceed withdrawals then the Dingman 7Q10 would be increased. As noted in Scenario II, the Dingman 7Q10 should not be adjusted for discharger's flow, the discharger's water supply or the water supply for any "indirect" dischargers to a POTW. The 7Q10 will be at a point downstream of the discharger unless the water source for the discharger is from outside of the basin upstream of the discharger.

Consumptive Withdrawals:

The following lists Consumptive Withdrawals that will be used in the calculation of 7Q10:

- All surface water discharges (inputs) and consumptive withdrawals listed in the DES Water Use database (WATRUSE) should be considered.
- Any groundwater withdrawals located within stratified drift areas along the surface waters in the drainage area being evaluated should be considered.
- Unless there is information that shows that a bedrock well has a direct hydraulic connection to the surface water in question then it should not be considered. Bedrock wells are identified with the water use "SUBTYPE" code as "WB" in the DES Water Use database.
- Turbine water, once thru cooling water and other non-consumptive uses where the surface water being evaluated (or groundwater in a nearby stratified drift area) is the source water can be ignored.
- For withdrawals from seasonal businesses such as agriculture or construction stone washing, the adjusted average daily process water usage rate (ADJAVGDU) in units of 1,000 gal/day should be used. Seasonal businesses can be recognized by the presence of zeroes in some of the monthly flow data.
- For withdrawals from businesses with year round operation the average daily usage (AVGDU) in 1,000 gal/day should be used.

- Snowmaking withdrawals should be ignored unless it is determined that the flows at the USGS gage that were used to develop the 7Q10 occurred in the winter.

- For POTW, since flows normally increase from year to year due to growth, the most recent years worth of the AVGDU flow data should be used.

- For businesses and industries the average of the flow data (either AVGDU or ADJAVGDU) for last three years should be used.

- The flow data should be inspected before use to ensure that it is accurate. For example, any unusually large changes in flows from month to month or year to year should be questioned. If flow values are inaccurate or based on unusual operations they should be discarded. If an entire years worth of data is inaccurate throw out the data for that year and use the earlier year's data. If one or more months of flow values are inaccurate then discard the data for those months and calculate a new annual flow figure similar to the ADJAVGDU. If changes to the Water Data database are necessary due to new information on data errors report them to the database manager.

The above policy changes the location where 7Q10's have historically been determined from upstream of discharger to downstream. This change is necessary for consistency between the TMDL program and the NPDES program. As POTWs or industries increase their design or permitted flow, respectively, the river flow upstream of the discharger will decrease as the upstream water usage by the discharger increases. However, the river flow just downstream of the discharge should remain constant as long as the water supply for the discharger is located in the basin above.

For the TMDL program, the downstream 7Q10s will allow for a water balance during the modeling runs for existing as well as design conditions.

For the NPDES program, for the situation where the water source is in the basin (which is the vast majority of the cases) the dilution factors will be equal to the downstream 7Q10 divided by the discharger's flow all times 0.9. For the unusual case where the water source is outside of the basin, the dilution factor will be equal to the sum of upstream 7Q10 plus the discharger's flow divided by the discharger's flow all times 0.9.

If you have any questions on the new 7Q10 policy please call me at 271-2984.

Attachment
02MEM12

cc: Stergios Spanos, P.E.
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