



## United States Department of the Interior

NATIONAL PARK SERVICE  
Boston Support Office  
15 State Street  
Boston, Massachusetts 02109-3572

*cc. Dave Pincumb  
George Papadopoulos*

IN REPLY REFER TO:

June 5, 1998

Jane F. Downing, Director  
EPA Office of Ecosystem Protection  
JFK Federal Building  
Boston, MA 02203

Re: Wayland Business Center draft NPDES permit - #MA0039853

Dear Ms. Downing,

The National Park Service has reviewed the draft NPDES permit under Section 7(b) of the Wild and Scenic Rivers Act ("WSRA," P.L. 90-542, as amended). Our determination is as follows:

### Jurisdiction Under Section 7(B) of the Wild and Scenic Rivers Act

The proposed discharge of treated wastewater covered by this permit would flow into the Sudbury River in Wayland, Massachusetts. This segment of the Sudbury River is currently subject to a Congressionally-authorized wild and scenic study, pursuant to P.L. 101-628, the Sudbury, Assabet and Concord Wild and Scenic River Study Act of 1990. Any federally licensed water resources projects along this segment of the river must be reviewed under Section 7(b) of the WSRA to determine whether the proposed project would have direct and adverse effects on the river's free-flowing character, or on the values that make it eligible for inclusion in the National Wild and Scenic River System. In the case of the Sudbury, Assabet, and Concord study rivers, such a determination is performed by the National Park Service, representing the Secretary of the Interior. The NPDES permit in question would be issued by the EPA under the federal Clean Water Act, therefore the project is considered to be a federally licensed water resources project.

### Description of Proposed Discharge

The facility served by the sewage treatment plant is a proposed commercial/light industrial development on the site of a former Raytheon research building. Inflow to the plant would be primarily sanitary wastewater; no industrial process water would be generated or treated at the site. An existing treatment plant would be used, although this plant does not have a current NPDES or state permit. Based on a 6/4/98 Special Town Meeting vote, the Town of Wayland has been authorized to take the treatment plant by eminent domain, and would operate it as a public facility. It is NPS's understanding that the proposed NPDES permit is assignable, and that a change in ownership and operation will not result in a change in EPA's proposed permit conditions.

EXHIBIT 49

The permit would allow the discharge of up to 65,000 gpd if nearby existing, failing septic systems are connected to the plant. The discharge would otherwise be limited to 45,000 gpd. The initial permit would be in effect for five years, but the permitted activity would last indefinitely. Disinfection would be achieved through UV radiation. There is no proposed temperature limitation. In addition to limitations for TSS, BOD, pH, and fecal coliform, the permit would limit discharge concentrations of phosphorus to 0.5 mg/l. To reduce the impacts of this nutrient on the river's water quality, however, the draft permit would require that three pounds of phosphorus be eliminated through non-point source controls for every pound discharged. However, this nutrient "trade" would not be required to be achieved until five years from the date the permit is issued.

The permittee would also be required to perform monthly instream monitoring of nutrients, chlorophyll A (a measure of the river's primary productivity), and pH, upstream and downstream of the discharge.

#### Description of Resources Protected Under WSRA

Pursuant to the SuAsCo Wild and Scenic Rivers Study, the NPS has determined that the study segment of the Sudbury River is 1) free-flowing, and 2) possesses several resource values that are "outstandingly remarkable," making the river eligible for wild and scenic designation. These values, which must be protected from direct and adverse effects, include ecological, historical, literary, recreational, and scenic resources. Of these values, ecological, recreational and scenic resources are the most likely to be affected by changes in water quality.

The Sudbury River in the vicinity of the proposed discharge is flanked by extensive freshwater wetlands. Just downstream of the discharge site, the river's floodplain is almost a mile wide. Wetland habitats within this area range from wooded swamps through shrub swamps to deep water marshes, supporting diverse and abundant plant and animal species. Much of the riparian area downstream of the discharge is within Great Meadows National Wildlife Refuge, which was established to protect the abundant waterfowl that inhabit the area.

This reach of the Sudbury River is also highly valued for recreation by canoeists, anglers, bird watchers and photographers. Boaters access the river at a landing on the north side of Rte. 20, just upstream of the proposed discharge point. Both wildlife and scenery are major "draws."

#### Existing Water Quality Concerns

Despite a dearth of detailed information on seasonal and long term trends, there are known water quality problems in the vicinity of the proposed discharge. This segment of the Sudbury is highly eutrophic, and consequently does not consistently meet its Class B "aquatic life" water quality standard. Overgrowths of nuisance aquatic vegetation, including water chestnut, duckweed and filamentous algae, are stimulated by the excessive nutrients in the river. These plants block open water habitat along the river for waterfowl and boaters alike, and reduce dissolved oxygen needed by aquatic animals. They have a negative impact on scenic values, and produce offensive smells when they decay.

A mass balance study of nutrient (nitrogen and phosphorus) loadings performed during the wild and

scenic river study determined that both point source and non-point source controls would be needed to keep nutrient levels from rising above the study baseline amounts. It also found that, unlike most freshwater systems, the SuAsCo rivers may be so enriched by phosphorus that nitrogen is the "limiting" nutrient in many areas. This complicates nutrient abatement efforts, because unlike phosphorus, nitrogen and its compounds are highly soluble, traveling easily in overland runoff and through groundwater.

#### Likely Impacts of Proposed Discharge

The discharge will, at least prior to the implementation of the nutrient trading plan, result in an increase in the amount of both phosphorus and nitrogen in the Sudbury River at the discharge point. At issue is whether these increased loadings would have a measurable, adverse effect on nearby aquatic habitat, recreational use, and scenic values. The likelihood of success in achieving the goals of the nutrient trading plan has also been evaluated.

Since it now appears likely that existing poorly-performing septic systems sited within the 100-year floodplain along Rte. 20 will be tied into the plant, this determination has also examined the possible benefits of plant operation on the river's water quality. The NPS notes that while state and local health laws could be used to force the repair of the failing systems, because of local groundwater conditions, few options exist apart from "tight tanks" or prohibiting occupancy altogether. While no studies have been done on the effects of the failing systems on nearby water quality, it is almost certain that nutrients from these systems are being discharged directly into the river during times of inundation, and that increased nitrogen loadings persist year round.

Due to the existing eutrophic condition of the river, it is readily apparent that any increase in nutrient loadings will tend to exacerbate problems with aquatic vegetation and water quality nonattainment. However, operation of the treatment plant creates an opportunity for mitigating these impacts through the elimination of existing uncontrolled discharges from nearby failing septic systems. Therefore, the National Park Service has determined that the proposed discharge's impacts on the river will not be "direct and adverse" as long as the following conditions are included:

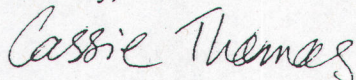
- The "sewer connection option" should be required to be pursued by the Town of Wayland, in the event it becomes an assignee of the permit.
- The nutrient trading standard and implementation schedule must ensure that there is no net cumulative increase in phosphorus loading at the end of the first five year period. The NPS notes that under the schedule set forth in the draft permit, it appears that the permittee could discharge up to 0.125 pounds per day of phosphorus every day for the first five years, and only start eliminating 0.375 lbs/day on the final day of that period. If our understanding of this draft condition is correct, it would take another 2.5 years to "break even," removing an amount of phosphorus equivalent to that which would have been discharged during the first 7.5 years of operation. In other words, the draft permit would allow a net increase in phosphorus loadings for up to 7.5 years. The NPS feels that a nutrient trading scheme can and should be implemented earlier, resulting in no net increase at the end of the initial five-year permit period.

- The NPS encourages EPA to require the permittee to achieve as much of the nutrient trading requirement as is feasible through the elimination of **existing land-based sources** of phosphorus. This requirement is likely to help the permitted activity meet the resource-protection goals created by the river's wild and scenic status because it helps ensure that baseline phosphorus loadings do not increase. While nuisance aquatic plant removal can be a beneficial activity (and the U.S. FWS is already undertaking an active program to combat water chestnut within the wildlife refuge), it does not protect aquatic habitat, recreational and scenic values as much as does not allowing the phosphorus into the system in the first place. By the time nuisance aquatic plants grow, the phosphorus they take up may have cycled between river sediments and the water column for several seasons. It is preferable to reduce phosphorus discharges at upland sources.
- EPA should consider adding seasonal limitations on phosphorus if the need for this is established as a result of the monitoring program. Also, if N:P ratios indicate that N is limiting, EPA should examine the need for a discharge limitation for nitrogen, and/or non-point source reduction for this nutrient.
- In view of the fact that the "technology based" 0.5 ppm phosphorus limitation is derived from the capacity of existing but defunct equipment at this plant, and also that the applicant's consultant is optimistic about the feasibility of using innovative nutrient removal technology such as membrane separation to achieve lower concentrations, NPS strongly encourages EPA to consider using this opportunity to pilot this technology in the basin.

Because there are so many uncertainties regarding the ultimate owner/operator of this plant, its service area, the use of a nutrient trading approach, and the possible use of innovative technology, NPS strongly encourages EPA to schedule a public hearing so that all may learn from the diverse interests involved. In addition, NPS believes that a technical advisory group should be convened to help the regulators and permittee develop appropriate monitoring standards and protocols to verify the results of the nutrient trading plan.

The NPS appreciates the assistance of EPA and the SuAsCo Basin Team in clarifying the technical and policy issues involved in this proposed permit. Thank you for your consideration of this Section 7 determination. Should you have any questions, please contact me at (617) 223-5014.

Sincerely,



Cassie Thomas  
SuAsCo Project Manager

copies: SuAsCo Study Committee  
SuAsCo Coalition  
SuAsCo Basin Team  
Lana Carlsson-Irwin