



UNITED STATES GENERAL ACCOUNTING OFFICE  
REGIONAL OFFICE  
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GOVERNMENT CENTER  
BOSTON, MASSACHUSETTS 02203

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October 29, 1976



John A. S. McGlennon, Regional Administrator  
Environmental Protection Agency, Region I  
2203 John F. Kennedy Federal Building  
Government Center  
Boston, Massachusetts 02203

Dear Mr. McGlennon:

We recently reviewed 28 projects funded by the Environmental Protection Agency in Region I under the Federal Water Pollution Control Act, as amended (Public Laws 84-660 and 92-500). We believe that two of these projects--Lebanon, New Hampshire and East Providence, Rhode Island--require your attention.

In the Lebanon project a decision was made to dispose of treatment plant sludge by incineration rather than by available sanitary landfill. Based on information obtained during our review we question whether incineration was the most cost effective alternative and whether EPA should have participated in the cost of the incinerator. Because the information we obtained from the various parties involved is conflicting, we believe that you should determine whether the most cost effective alternative, was, in fact, selected and, if not, that you determine the reasons for the decision made and the responsible party(s). We are proposing that you inquire further into this matter in order to determine what further action, if any, is warranted and to highlight the need for the Agency to critically evaluate the basis for decisions which impact cost effectiveness.

In the East Providence project the plant is unable to meet design criteria and has numerous operation and maintenance problems many of which are the result of design deficiencies. A grant increase to replace sludge pumps has already been approved and another grant for additional corrective work is pending. Since the grantee is responsible for successfully completing a project, we question whether it is appropriate for EPA to provide additional funding to correct deficiencies in the project. Accordingly, we suggest that you reassess the justification for the grant increase and carefully evaluate the scope of any further grant requests from the Blackstone Valley Sewer District, East Providence.

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Pertinent information on each project is summarized below.

LEBANON, NEW HAMPSHIRE

Lebanon, New Hampshire, with a population of about 10,000 persons, received two grants to construct wastewater treatment facilities. Grant C-330091, totaling \$3,090,150, was for construction of interceptor sewers and a primary treatment plant. Grant C-330092, totaling \$5,581,706 was for construction of additional interceptor sewers, a secondary treatment addition, and an incinerator for sludge disposal.

The chronology below cites key dates and events concerning Lebanon's facilities.

<u>DATE</u>	<u>EVENT</u>
May 11, 1964	Agreement signed between municipality and a consulting engineering firm for design of a primary treatment plant. (Primary plant not constructed because Federal funds were not available for the projet.)
June 2, 1970	The consulting engineer issued an updated engineering report recommending secondary treatment by extended aeration.
December 27, 1972	The Agency awarded grant C-330091 for the primary treatment facilities.
March 1, 1973	The Agency awarded grant C-330092 for the secondary treatment addition and incinerator.
June 27, 1973	Agreement signed between the municipality and the consulting engineer for design of secondary treatment addition and incinerator.
August 19, 1974	Two construction contracts awarded--one for the primary treatment facility and one for the secondary treatment addition and incinerator.

Justification for the Incinerator

The consulting engineering firm, in its 1970 engineering report to Lebanon, recommended disposal of sludge using sanitary landfill. In January 1973, shortly after Lebanon was awarded its first grant, a decision was made to incinerate Lebanon's sludge. An incinerator was added and designed with the secondary treatment additions.

We have been unable to determine which of the parties involved --Lebanon, the New Hampshire Water Supply and Pollution Control Commission (Commission), EPA Region I or the consulting engineer-- was responsible for the decision to incinerate Lebanon's sludge. Information provided us has been conflicting and generally unsubstantiated.

The City Manager told us that Lebanon had no involvement in deciding the method of sludge disposal. It left this decision entirely to its consulting engineer with the stipulation that Lebanon wanted the most efficient and economical plant possible. Officials of the consulting engineering firm said they planned to landfill Lebanon's raw, centrifuged sludge, but in January 1973 the Agency required that sludge be stabilized before landfill. As a result of the requirement, these officials stated that the Commission required incineration.

Commission officials maintained that it was the Agency which required the incinerator. Region I officials, however, stated that they did not make the decision to incinerate Lebanon's sludge, and Region I files provide some support for this position. The files show that on January 15, 1973, the Agency told the consulting engineer that Lebanon's sludge had to be stabilized before landfill to conform with the Agency's new requirements.

Commission officials stated that the consulting engineer told them the 36-acre treatment plant site did not have a 10-year sludge capacity as required by the Commission and the possibility of other landfill sites was not discussed. On the other hand, officials of the consulting firm told us they did not study the feasibility of landfilling Lebanon's sludge at the time of the January 1973 decision to incinerate. According to Region I officials, however, the firm decided on incineration because Lebanon did not have a satisfactory landfill site. Region I officials accepted the firm's determination without question, even though:

- almost all New Hampshire treatment plants use some method of land disposal,
- Lebanon's treatment plant, with a design flow of 1.65 mgd was not unusually large, and
- Lebanon and its surrounding area are sparsely populated.

Region I officials said that since the Agency recognizes both landfill and incineration as acceptable methods of sludge disposal, they approve, as a matter of policy, the method recommended by the consulting engineer and approved by the State agency.

Incinerator alternative  
may not be cost effective

The construction contractor's bid price included over \$1 million for the incinerator and its housing, of which the Agency will reimburse Lebanon at least \$750,000. The incinerator will also increase plant operating costs to be borne by Lebanon. Although on a number of occasions over a five-month period we requested the consulting engineer to furnish us estimated incinerator operation and maintenance costs, this information has not been provided. The firm provided Lebanon with an operation and maintenance cost estimate of \$370,000 annually for the total sewer department but Lebanon officials do not know how much of the \$370,000 relates to the incinerator.

The consulting engineer's design provides for landfill disposals of sludge at the treatment facility area during incinerator overhauls. A truck for transporting sludge is provided under grant C-330091.

In addition to the landfill area at the site, Lebanon has a 117-acre area located within a mile of the treatment plant, about half of which it plans to use as a solid waste sanitary landfill. In June 1972, the New Hampshire Department of Health and Welfare reviewed and approved 25 of these acres for solid waste sanitary landfill. The Department official who approved the site and who approves all New Hampshire landfills, told us he was not requested to approve any Lebanon landfill site for sludge disposal. He said the 25 acres approved are very favorable for landfill because the water table is low and the sand is deep. Although the remaining 92 acres were not tested, he saw no reason why the site could not accommodate sludge as well as solid waste.

BLACKSTONE VALLEY SEWER DISTRICT  
EAST PROVIDENCE, RHODE ISLAND

The Blackstone Valley Sewer District Commission (Commission) serves Pawtucket, Central Falls, East Providence, Lincoln and Cumberland, Rhode Island. In 1966, the Commission received EPA grant C-440051 for a secondary treatment addition to the Bucklin Point regional treatment plant in East Providence. The grant amount as adjusted totaled \$6.6 million. The Commission contracted with a joint venture--a local firm and a New York partnership--to design the secondary treatment addition. The project was completed in 1973.

The upgraded facility with an average design flow of 31 mgd cannot meet secondary treatment standards and is experiencing numerous operation and maintenance problems. One of these involves four new sludge return pumps which had to be removed from service and repaired within 16 months of initial operation. Since then, the

pumps have continued to require repairs every 3 to 5 months, hampering plant operation. In addition, excess grit, not removed by preliminary treatment, settles with the primary treatment sludge and increases maintenance on the sludge pumps. Scum skimming in the primary treatment settling tanks is also ineffective.

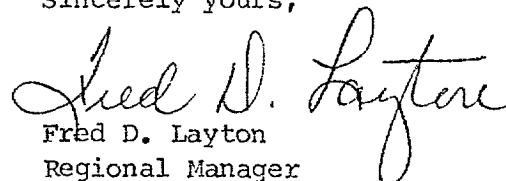
The Commission contracted with the designer of the original plant in February 1975 to study the situation. This firm identified numerous design deficiencies which require correction before the plant can operate reliably and provide secondary treatment. Officials of the Agency's Municipal Facilities Branch, the Rhode Island State agency, and the Commission agree the design has several major deficiencies. The joint venture denies responsibility. Although the New York partnership, which provided the sanitary expertise in the joint venture, has disbanded, a principal of that firm told us that several aspects of the plant's design, now causing problems, were decided by the Commission. He also stated that many problems are caused by lack of proper operation and maintenance. Regarding the frequent breakdown of the sludge pumps, he maintained that the construction contractor did not provide the size specified. The Commission, however, went to arbitration with the contractor over the sludge pumps, and the arbitration board found that the contractor had provided the specified pumps. Officials of the State agency said that the contractor told the design firm the pumps were unsuitable before installation, but they insisted their design was correct. State officials also stated that the reason for going to arbitration was to develop evidence against the design firm.

The Commission's present consulting engineer estimated it will cost between \$2 million and \$3 million to correct the plant's design deficiencies. EPA Region I approved a grant increase of \$126,556 which will partially finance the corrective work and a new grant application is pending.

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We will appreciate hearing the results of inquiries you may make into these matters and any action you plan to take. We would like to acknowledge the assistance provided by your staff. Should you need additional information we may have, please contact Mr. Nicholas Carbone of my staff at 223-5355.

Sincerely yours,

  
Fred D. Layton  
Regional Manager