



REPORT OF THE  
COMPTROLLER GENERAL  
OF THE UNITED STATES

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Reasons For Delay In The  
Construction Of The Duck Creek  
Waste Treatment Plant,  
Garland, Texas

Environmental Protection Agency

Processing and approval of the Federal grant to help finance the treatment plant took 2 years due to unclear agency directives, a local controversy concerning the plant's regional status, and a major construction cost increase.

The April 1976 project completion date was not met, due to a disagreement concerning the eligibility of certain plant equipment for Federal funding and other concurrent delays, and completion is now scheduled for the fall of 1977.

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JULY 29, 1976

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COMPTROLLER GENERAL OF THE UNITED STATES  
WASHINGTON, D.C. 20548

JUL 29 1976

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The Honorable Alan Steelman  
House of Representatives

Dear Mr. Steelman:

Your letter of October 8, 1975, requested that we review a grant which the Environmental Protection Agency awarded to the city of Garland, Texas, on June 30, 1973, for expansion of its Duck Creek waste treatment plant. You specifically asked us to determine the reasons for delay in processing Garland's grant application, the reasons for any construction delay, the present status of the project, and the facts surrounding an apparent error on the grant application that had been reported in a local newspaper.

Garland applied for a Federal grant in March 1971 to expand its waste treatment plant; however, various problems delayed processing and approval of the grant until June 1973. These included a lack of clear Agency directives, a controversy over the designation of the project as a regional waste treatment facility, and a major increase in the construction cost estimate.

In April 1974 Garland awarded the construction contract and scheduled contract completion for April 1976. The city now expects to begin plant operations sometime between August and November 1977. This delay resulted primarily because control equipment necessary for the operation of the plant was not procured on time due to a controversy as to whether the equipment was eligible for Federal funding. Garland had requested control equipment which the Agency will not approve as eligible until the city demonstrates that it is cost effective.

The error discussed in the newspaper article was due to the city's including an amount in the general construction contract for process control equipment that was \$1.2 million less than the estimated cost.

The results of our review are explained in greater detail in the following sections of this report. Appendix I summarizes the project grant increases which occurred.

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We made our review at the offices of the city of Garland and its consulting engineers; the Texas Water Quality Board, Austin, Texas; the Environmental Protection Agency's region 6, Dallas, Texas; and the Environmental Protection Agency headquarters in Washington, D.C. We held discussions with Agency, State, and local officials; examined project files; and visited the construction site.

WASTE TREATMENT CONSTRUCTION GRANT  
PROGRAM AND THE GARLAND PROJECT

The Agency's municipal waste treatment construction grant program was created by the Federal Water Pollution Control Act Amendments of 1956 (Public Law No. 84-660, 70 Stat. 498). This act, as amended, entitled grant recipients to obtain Federal assistance up to 55 percent of eligible project costs to construct waste treatment facilities. The Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. 1251 et seq., Supp. III 1973) reorganized and expanded existing law, broadened program goals, and increased the maximum Federal share to 75 percent of eligible project costs.

Agency regional offices administer the construction grant program. The Agency's headquarters furnishes general support and program guidance to the regions. The Agency allocates construction funds to each State on the basis of a statutory formula. State water pollution control agencies, the Texas Water Quality Board in this instance, then determine which projects will be funded and their order of funding.

A municipality receiving a Federal grant is responsible for planning, designing, constructing, operating, and maintaining the approved waste treatment facility. The municipality generally engages an engineering consultant to help plan and design the project, prepare applications, and supervise construction. Project plans and specifications and other items requiring approval are sent first to the State water pollution control agency and then to the Agency. Both the State and the Agency provide technical assistance to grantees.

Garland initially applied for a Federal grant on March 29, 1971, under the 1956 act, as amended. Expansion of the existing plant was needed because, according to a 1971 engineering report, the plant was designed to treat 10 million gallons of waste water a day but could treat efficiently only 7.5 million gallons. According to the city the plant may be required to treat 29 million gallons a day in 1985. The expanded plant is to be an advanced waste treatment facility capable of treating 30 million gallons a day.

In August 1972 the Agency awarded the city a \$5.1 million grant and in December 1972 increased it to \$6.9 million. However, construction under this grant never began, because the low bid received for the general construction contract was \$17.7 million and funds were not available under the 1956 act, as amended, to increase the grant.

Garland relinquished the grant and in April 1973 reapplied for funds under the 1972 amendments. In June 1973 the Agency awarded Garland a \$16.6 million grant. The general construction contract was awarded in April 1974 and construction was nearly completed in April 1976. However, plant operations will not start until the latter part of 1977 because components essential to plant operations have not been installed.

#### REASONS FOR DELAY IN APPLICATION PROCESSING

According to the Agency, about 2 months are generally needed to process a municipal application for construction grant funds. Garland submitted the initial application to the Texas Water Quality Board in March 1971, and the Agency awarded a grant in August 1972. During this 16-month period, several problems occurred which delayed grant approval. For example, Agency officials said that the agency was revising its regulations, forms, and procedures for grant processing at that time. Thus Garland was unsure as to the data the Agency needed for its review and approval of the application. Agency regional officials indicated that the lack of clear instructions made their review function more time consuming.

Another problem, which delayed approval of the initial grant and which took a year to resolve, involved whether the Duck Creek project would be designated as a regional waste treatment facility. The project was initially designated as a regional waste treatment facility for the area in accordance with a comprehensive regional sewage plan. The Texas Water Quality Board approved this designation in April 1971. However, property owners objected to the plant as a regional facility; therefore the Texas Water Quality Board withdrew its approval of the designation in August 1971. In the meantime, the Agency would not approve a grant for the Duck Creek project unless it conformed to a comprehensive regional sewage plan.

In April 1972 the Texas Water Quality Board declared that (1) the area needed a regional waste treatment system, (2) the North Texas Municipal Water District would be the government entity responsible for designing, constructing, and operating such a system, and (3) the Duck Creek plant would not be a regional waste treatment facility. This action was acceptable to the Agency which officially certified in July 1972 that the Duck Creek project conformed to the area's comprehensive plan.

Shortly after the initial grant was awarded in August 1972, the consulting engineer informed Garland that the construction cost estimate had increased from \$7.7 million, the amount the grant was based on, to \$17 million. According to the consulting engineer, about 60 percent of this increase in construction cost resulted from changes in the scope of the work, such as the addition of a railroad spur and access road, and the remainder resulted from inflation, the need to conform to Federal health and safety requirements, and the inclusion of an amount for contingencies.

Some of the increase was apparently due to a low original estimate. The consulting engineer officials told us that it lacked a good basis for preparing the original cost estimate because it was not aware of plants with comparable features. Therefore the consulting engineer based its estimate on equipment supplier cost quotations which it said bore little relationship to the prices ultimately received.

Although Federal regulations require grantees to notify the Agency immediately of major changes in project scope, Garland waited until mid-December 1972, when bids for the general construction contract were opened, to tell the Agency about the increased cost. The low bid was \$17.7 million--\$10 million greater than the original estimate.

During January and February 1973, several meetings were held among Garland, Texas Water Quality Board, Agency, and consulting engineer officials to find some way to continue the project. The Agency told Garland that its initial grant, funded with fiscal year 1972 funds, could not be increased because funds for that year had been fully committed to other projects.

The Agency advised the city that it could seek fiscal year 1973 funds but that it would have to submit another application and thus meet the eligibility requirements of the newly enacted 1972 amendments. After considering other alternatives, Garland asked the Agency to withdraw the grant, and on April 27, 1973, the city applied for a larger grant under the 1972 amendments. The Agency awarded a \$16.6 million grant to the city on June 30, 1973.

We asked Garland officials why they had waited to notify the Agency of the increase in the project cost estimate. The officials told us that they had not thought notification was necessary or worthwhile until after construction bids were received. They expressed the belief that, had they given prompt notification, the Agency would have had them follow the same procedure, that is, obtain bids before requesting an increase in the grant.

In commenting on our report, however, the city stated that representatives of the city and consulting engineer officials verbally notified the Agency about the cost increase on several occasions before the receipt of bids. According to the city, the Agency verbally instructed the city to withhold written notification of the increase until after bids on the project were received. However, Agency officials insisted that they had not been notified. They said that funds under the 1956 act, as amended, had been committed by the fall of 1972 and that such a notification would have created considerable concern in the Agency and would have required some action.

#### CONSTRUCTION DELAYS AND PRESENT STATUS

Garland opened the second set of bids for the general construction work on November 29, 1973, about 1 year after the first set was opened. In April 1974 Garland awarded the general contract of \$21.1 million to the low bidder and scheduled contract completion for April 1976.

In June 1976 Garland estimated that the plant would not become operational until sometime between August and November 1977 when installation of the computerized process control and monitoring system is to be completed. This delay was caused primarily by a disagreement between Garland and the Agency on the eligibility of the system for Federal funding and the method of procuring it. The Agency's position as of June 1976 was that the system would be funded if the city could demonstrate it was cost effective.

Even if the two parties had been able to agree on both of these matters, the plant would still not become operational until 1977 due to other concurrent delays involving the plant's sludge-dewatering system and power supply.

#### Process control system

Process control systems are generally eligible for Federal funding; however, on several occasions the Agency indicated that Garland's system, currently estimated to cost over \$2 million, may be too sophisticated and expensive for the proposed plant. Garland maintained that the high degree of automation would reduce future operating costs and was needed to achieve the plant's water quality goals.

Planning for the process control system began in mid-1971 when the initial grant application was being processed. At that time Garland was considering a 5-year project to automate various city services on the basis of a proposal by a major computer company. One part of the comprehensive proposal included computerizing the Duck Creek plant. When installed,

this computer and its various components--the process control system--is to essentially run the plant, performing such functions as opening and closing valves and turning pumps on and off. To implement the Duck Creek automation plan, between October 1971 and April 1976 the city awarded several contracts to the computer company for purchasing the computer and various services.

The Agency was concerned also about the city's plans for procuring and installing the process control instrumentation, which is the most costly part of the total system. According to Agency records, in the fall of 1972 the city requested that its contract with the computer company for purchasing the computer be amended by change order to provide for the instrumentation part of the system. However, the Agency denied the city's request because the proposed procedure was contrary to competitive procurement practices.

After the second grant and general contract were awarded, the city selected a competitive procurement procedure, and in October 1974 the city asked the Agency for advice on whether it could be used to procure the instrumentation. Under this procedure, potential contractors are asked to submit technical proposals on the work and materials to be furnished for the project. The proposals are then evaluated against project requirements and selected companies are requested to submit bids.

The Agency gave its approval, but not until 10 months later, in August 1975. Agency officials told us that they had not promptly approved the city's request because they feared that approval would be construed as meaning that the process control system was eligible for Federal funding.

Garland, however, did not wait for Agency approval. In April 1975 Garland requested technical proposals from equipment controls companies. Although the request was held open until mid-June 1975, only one proposal was received. Because it was concerned that the single proposal might constitute a sole-source procurement, the city instructed its consulting engineer to recommend a new procurement method. Eventually the consulting engineer determined that inviting the controls company to bid on the proposed work was not contrary to competitive procurement practices and was the most expeditious course to take. On November 28, 1975, the city requested permission from the Agency to negotiate with the controls company. The Agency granted approval on December 11, 1975, with the stipulation that such approval did not indicate that the process control system was eligible for Federal funding.

The controls company subsequently bid \$2.2 million to do the proposed work, but in February 1976 the city rejected the

bid because it was too high. As of June 1976 Garland was implementing a procurement plan involving (1) the direct procurement of instruments requiring a long leadtime for delivery and (2) the award of a contract which would be advertised for bidding in September 1976 for the procurement of other instruments and process control system installation.

We noted that considerable disagreement and confusion existed during the handling of the process control problem by the city and the Agency. In April 1975 the Agency informed the city that the process control system would be eligible for Federal funding if the city demonstrated that the system was cost effective. After that date, the city prepared a draft cost-effectiveness analysis which was submitted to the Agency late in 1975. The city also has been engaged in streamlining the process control system to eliminate unnecessary and costly functions. The Agency was notified by the Texas Water Quality Board that the city had officially submitted the final cost-effectiveness analysis to the board on June 16, 1976. According to the Agency, its review of the analysis will take no longer than 30 days after the document is received.

#### Concurrent delays

The completion of the Duck Creek plant will also be delayed because the building to house the sludge-dewatering equipment was structurally undersized. The consulting engineer had designed the building on the basis of shop drawings a subcontractor submitted in December 1971. In December 1973, the subcontractor submitted revised drawings which included heavier equipment, but the building's inadequate structure was not noted until after construction of the building had begun. When we completed our review, work on the building had been stopped, pending a determination of who would pay for the additional costs of about \$200,000 to restructure the building. A city official told us that the sludge-dewatering system should be completely installed by March 1977.

As of April 1976 the plant had no permanent power supply, which will also delay project completion. City officials explained that the city of Dallas annexed certain areas which included the Duck Creek plant site and that this changed the determination of which of two electric utility companies in the area would serve the plant. Furthermore, the change in companies necessitated the installation of a transformer, which requires a long leadtime for delivery. The officials estimate that installation will be completed by December 1976.



APPARENT GRANT APPLICATION ERROR

According to a Garland newspaper article, a city review disclosed a \$1.2 million clerical error in the grant application. We found that the \$1.2 million represented an amount for the process control system which the city felt should have been provided for in the grant but which was not, due to an apparent oversight by the city in soliciting bids on the construction contract.

As previously discussed, the Agency awarded the city a \$16.6 million grant in June 1973. Project plans and specifications had not been approved by the Agency at that time. The grant amount was based, in part, on an estimated construction cost of \$20 million, including \$2.1 million for the process control system. Total project costs, including consulting services and contingencies, were estimated to be \$22.1 million. On September 18, 1973, an Agency official advised the city that project plans and specifications had been approved but that process control system costs were not eligible for Federal funding. However, the Agency did not amend the grant to exclude these costs nor reduce the grant amount.

In October 1974 the city solicited bids on the construction contract and advised prospective bidders to include in their proposals an amount for a process control system, although the system was to be installed by a subcontractor selected by the city. The city, however, instructed the bidders to include only \$850,000, rather than \$2.1 million, in their proposals. According to a memorandum between city officials, including only \$850,000 in the instructions to bidders was unintentional.

Garland accepted the low bid of \$21.2 million and then requested the Agency to increase the grant amount because the bid was greater than the previous \$20 million construction cost estimate. On March 8, 1974, the Agency amended the grant to show the \$21.2 million construction bid and to increase the grant to \$17.5 million. The city accepted the amended grant on March 18, 1974.

About a year later, city officials reviewed the grant and realized that the grant was based on the low bid which included an amount for the process control system that was \$1.2 million less than the system's estimated cost. City officials have referred to this as a clerical error of \$1.2 million.

As discussed earlier, Federal funding for the process control system depends on the city's demonstrating that the system is cost effective.

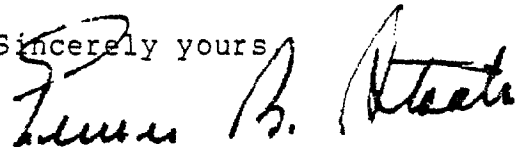
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Agency and city officials were given an opportunity to comment on this report. The Agency agreed with the facts as presented in the report, however, the city had several concerns. Its primary concern involved our conclusion that the delay in completing the construction contract was primarily due to the controversy between the city and the Agency over the eligibility of the process control system for Federal funding. The city stated that the eligibility question had no effect on the procuring and installing of the system and that the city was not responsible for any delay caused by this issue. The city accepts responsibility for delays due to the city's use of nontraditional procurement practices and the need to update system specifications.

In our opinion, procurement is dependent on anticipated funding, and procurement of the process control system would have been expedited had the Agency initially agreed to fund the process control system. However, the sophistication of the proposed system raised questions as to whether it was eligible for Federal funding. As previously discussed, the Agency delayed approving the city's request to procure the system because the Agency feared that such approval might also constitute funding approval. In addition, a city report on the process control system problem stated that the question of eligibility had caused considerable delay. We believe responsibility for the delay rests with both parties, because of the disagreement and confusion which characterized the handling of this matter.

The city also wanted us to recognize that a considerable amount of time had been spent on this project. According to the city many problems arose, such as the change to the program under which the grant was initially processed, which caused problems and delay and required considerable city time to resolve.

Sincerely yours



Comptroller General  
of the United States

DUCK CREEK WASTE TREATMENT PLANT  
SUMMARY OF PROJECT GRANT INCREASES

<u>Event</u>	<u>Date</u>	<u>Construction cost</u>	<u>Total project cost (note a)</u>	<u>Grant amount</u>
Original grant	8/ 8/72	\$ 7,747,000	\$ 9,213,000	\$ 5,067,150
Grant increased because of change in percent of Federal participation	12/27/72	7,747,000	9,213,000	6,909,750
New grant under the 1972 act	6/30/73	<u>b/</u> 19,981,000	22,139,000	16,604,250
Grant increased because the low bid exceeded the construction cost estimate	3/ 8/74	<u>c/</u> 21,178,220	23,336,200	17,502,150

a/Construction cost plus amounts for various services, such as architect engineering, and for contingencies.

b/Includes \$2,068,000 for the process control system.

c/Includes \$850,000 for the process control system.