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Report to Secretary, Department of Defense; by Robert G. Rothwell (for Fred J. Shafer, Director, Logistics and Communications Div.

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The military services have a choice of either upgrading their onbase sewage treatment facilities or contracting with civilian sewer system authorities for sewage treatment. From fiscal year (FY) 1972 to FY 1979, the services requested \$169.7 million in military construction funds for 146 projects to upgrade onbase facilities and \$71.3 million for 44 projects to join civilian systems. Findings/Conclusions: The choices were often made without analyzing relative costs and benefits. The Navy and Air Force will pay more for joining civilian systems rather than upgrading onbase systems. The Army was primarily influenced by requirement for secondary treatment. Some bases did not have adequate data on sewage capacity needs which are used in determining their share of construction costs for civilian systems. One base is paying its construction share using operation and maintenance funds instead of military construction funds. This will increase the cost of participation and reduce oversight. In contracting for civilian systems, the services sometimes did not comply with requirements for certified cost or pricing data nor obtain contract pricing reviews. The Department of Defense was revising instructions related to economic evaluation of projects and was directing components in review compliance with requirements. Recommendations: The Secretary of Defense should require contracting officers to support treatment capacity purchases

with engineering estimates of base sewage flow and infiltration volume and with cost effectiveness comparisons. He should require the service Secretaries to: obtain verification that prices were set by law or regulations for contracts negotiated under an exemption; where exemptions do not apply, obtain certified cost or pricing data, a cost or price analysis, and a contract price adjustment where applicable; and assign contract specialists to bases committed to joining civilian sewerage systems. In cooperation with the Director of the Office of Management and Budget, he should request approval to reprogram funds for unforeseen costs of upgrading base plans or participating in civilian systems. He should direct the Secretaries of the services to determine the amount of commercial borrowing they have done to join civilian systems and request funds to prepay such amounts where it is economical.

(HTW)

6808

REPORT BY THE U.S.

General Accounting Office

DOD Problems In Joining Civilian Sewer Systems

The Department of Defense can connect its sewer systems to civilian ones or upgrade on base systems. Sound choices and improved participation in civilian sewer systems require

- consistent analysis of the options to upgrade an onbase system or join a civilian one,
- improved estimates of capacities needed in civilian systems,
- stricter compliance with the proper contracting regulations, and
- more judicious financing arrangements.

This report recommends actions that Defense should take to resolve the problems.



LCD-77-359
JUNE 23, 1978



UNITED STATES GENERAL ACCOUNTING OFFICE

WASHINGTON, D.C. 20548

LOGISTICS AND COMMUNICATIONS
DIVISION

B-166506

The Honorable
The Secretary of Defense

This report describes how the military services negotiate and finance their participation in civilian sewer systems. We made the review to evaluate the decisions to join such systems as a means of complying with the clean water laws.

Our previous report (LCD-76-312, June 18, 1976) discussed the improvements needed in operating and maintaining onbase treatment plants to meet water quality standards.

Our report contains recommendations to you on pages 8, 11, 22, and 28. As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the House Committee on Government Operations and the Senate Committee on Governmental Affairs not later than 60 days after the date of the report and to the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

We are sending copies of this report to the Chairmen of the House Committee on Government Operations, the Senate Committee on Governmental Affairs, the House and Senate Committees on Appropriations, the House and Senate Committees on Armed Services, the House Committee on Public Works and Transportation, and the Senate Committee on Environment and Public Works. We are also sending copies of the report to the Director of the Office of Management and Budget; the Administrator of the Environmental Protection Agency; and the Secretaries of the Army, the Navy, and the Air Force.

Sincerely yours,

R. E. Rothwell
for F. J. Shafer
Director

D I G E S T

The military services have a choice of either upgrading their onbase sewage treatment facilities or contracting with civilian sewer system authorities for sewage treatment.

From fiscal year 1972 to 1979, the Army, the Navy, and the Air Force requested \$169.7 million in military construction funds for 146 projects to upgrade onbase treatment facilities and requested \$71.3 million for 44 projects to join civilian sewer systems. (See p. 2.)

EVALUATING ALTERNATIVES

For seven bases these choices were made without an analysis of their relative costs and benefits. Consequently, the services did not know if they chose the more economical system. (See p. 4.)

To join civilian systems rather than upgrade onbase systems, the Navy will pay 30-percent extra cost and the Air Force will pay 25-percent extra cost. The Army does not set a cost premium. In choosing between onbase and offbase systems, officials were influenced by the July 1, 1977, legal deadline for achieving secondary treatment and other factors. (See pp. 4 to 7.)

Less than 12 percent of the services' construction proposals to the Congress in fiscal years 1976 and 1977 were evaluated by economic analysis. GAO previously recommended that the Secretary of Defense

--make sure that the services use economic analysis when required and document reasons for omitting analysis, and

--evaluate the services' compliance.

The Department of Defense (DOD) said that it was revising instructions to require its components to state on budget exhibits whether construction projects were evaluated by economic analysis and, if not, why not. It was also directing its components to review their compliance with DOD's requirements for economic analysis; DOD will review such analyses during the planning, programing, and budgeting process as appropriate.

If officials adhere to these additional economic analysis requirements, they will have a sounder basis for choosing between improving an onbase plant and joining a civilian system. To better assist the services, the Secretary of Defense should decide whether joining a civilian system merits a cost premium and, if so, issue guidelines to the services on how and when it should be used. DOD expects to issue such guidance soon. (See p. 7.)

SEWAGE CAPACITY NEEDS

The services must have reasonable estimates of sewage capacity needs when joining civilian systems because their share of construction cost is based on the capacity they need. Four bases did not have adequate sewage flow data for determining capacity requirements, six did not prevent rain and groundwater from entering the system and, therefore, included excessive inflow in reserving treatment capacity, and two of them did not update capacity estimates when their requirements changed. (See p. 9.) Reliable flow and infiltration data are essential for determining the present and future capacity which a base should reserve in a civilian sewerage system. In the absence of such data, contracting officers do not have a sound basis for determining the capacity which will be the most economical to reserve in a civilian system.

To avoid buying too much or too little capacity and to reduce the cost of joining civilian systems, the Secretary of Defense should require contracting officers to support treatment capacity purchases with

--engineering estimates of current and future base sewage flow and infiltration volume, and

--comparisons of the cost effectiveness of repairing base sewer lines to avoid infiltration treatment cost with paying for infiltration treatment to avoid sewer line repair cost. DOD agreed but said that the cost to correct infiltration often exceeds its available funds. (See p. 11.)

CONTRACTING FOR SEWAGE TREATMENT

In recent years, bases have contracted for capacity in civilian systems by sharing in the capital costs. In addition, they pay recurring service charges. For eight contracts the services (1) did not comply with the Defense Acquisition Regulation requirements for certified cost or pricing data and defective pricing contract clauses and (2) did not obtain contract pricing reviews.

When participation in a civilian sewer system costs more than \$100,000, the contracting officers should obtain certified cost or pricing data and a cost analysis of such data because the sewer authority is the sole source of the services and its charges are not set by an independent regulatory body. (See p. 12.)

The services disagreed on whether these requirements apply.

--Army: Contracts are exempt because prices are set by law or regulation.

--Navy: Contracts are exempt because prices are based on adequate competition.

--Air Force: Contracts are subject to certified cost or pricing data requirements. (See pp. 14 to 17.)

The terms which the services agreed to were questionable, such as using military construction funds to help a city finance its

share of a joint system and paying part of a city's outstanding debt on an abandoned treatment plant. (See pp. 17 to 19.)

Exemptions for prices set by law or regulation should be verified because the sewer authorities say that their rates are not regulated. DOD sees no need to verify exemptions or to require cost or pricing data when the sewerage system construction is competitively bid. Differing opinions on contracting requirements, the lack of evidence for exemptions, and the questionable contract terms show the need for better compliance with DOD's own procurement regulations and more specialized assistance. (See pp. 20 to 22.)

The Secretary of Defense should have the service Secretaries:

- Obtain verification that prices were set by law or regulations for those sewage treatment contracts which have been negotiated under this exemption from procurement regulations.
- Where such exemptions do not apply, obtain certified cost or pricing data from the civilian system authorities; a cost or price analysis of the data; and a contract price adjustment in all cases where the price was increased because certified data is found defective.
- Assign contract specialists to visit bases committed to joining civilian sewerage systems to assess the prospective contract complexity and the assistance which the procurement team will need to negotiate terms and prices in the Government's interest and in conformity with Federal procurement laws. (See p. 22.)

PAYING FOR SEWAGE TREATMENT

For the military share of the capital costs of joining the civilian sewerage system, service officials usually ask for a lump sum

of military construction funds. In one major exception, the base is paying its \$7 million construction share in the service rate using operation and maintenance funds. The rate includes about \$4 million in interest for 10 years. The use of operation and maintenance funds for this purpose will increase the cost of participation substantially in the civilian systems and deprives the Congress of its basic oversight function. (See p. 23.)

Some Defense officials doubt that construction funds can be authorized in time to meet civilian sewer construction schedules, and that Defense installations can share in system upgrading costs under existing contracts. On the latter question, the Comptroller General decided that payments for capital improvements would be improper where existing contracts do not provide a basis for such payments. (See p. 26.)

The Secretary of Defense, in cooperation with the Director of the Office of Management and Budget, should request approval of the Armed Services and Appropriations committees to reprogram funds for unforeseen costs of upgrading base plants or participating in civilian sewer systems.

DOD sent draft legislation to the Congress which would revise the military construction authorization act to provide for emergency funding of urgent pollution control projects. This should help solve the funding coordination between DOD and the community.

The Secretary should direct the Secretaries of the services to determine the amount of any commercial borrowing they have done to join civilian systems and request funds to prepay such amounts where it is economical. DOD agreed. (See p. 28.)

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ABBREVIATIONS

DOD	Department of Defense
EPA	Environmental Protection Agency
GAO	General Accounting Office

CHAPTER 1

INTRODUCTION

The 1972 amendments to the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.) gave new impetus to State, local, and Federal efforts to improve sewage treatment. The amendments require publicly owned sewage treatment works to achieve secondary treatment by July 1, 1977, to apply the best practicable waste treatment technology by July 1983, and as a goal, to eliminate the discharge of pollutants into navigable waters by 1985. The amendments provide that individual States may set more stringent standards. Military installations are subject to both Federal and State standards.

The 1972 amendments spawned the Nation's largest public works program. About \$19.5 billion has been authorized by the Congress for grants to construct publicly owned treatment facilities or upgrade existing facilities, either in degree of treatment or capacity, to meet 1977 and 1983 standards.

The Clean Water Act of 1977 (Public Law 95-217) extended the secondary treatment deadline for municipalities to July 1, 1983, and authorized an additional \$25.5 billion in construction grants through fiscal year 1982.

The Environmental Protection Agency (EPA) awards local civilian agencies grants of 75 percent of the eligible costs to construct waste water treatment systems. Other funds may come from participating local governments, the State, and private industry. Participating military bases usually pay a share of the costs based on the portion of the system required to meet their needs. As of August 31, 1977, EPA had obligated about \$15.4 billion to the individual States for this grant program.

During this period, the Department of Defense (DOD) received appropriations totaling \$583 million for water pollution abatement projects at DOD installations. These appropriations were for sewage treatment systems, sewer collection systems, industrial waste water systems, and other water pollution projects.

Before spending any funds authorized in fiscal year 1969 and future years for construction of any waste treatment or disposal system in connection with any installation, the Military Construction Authorization Act of 1969 (Public Law 90-408) requires the Secretary of Defense to consult with the Federal Water Pollution Control Administration (now EPA) and determine

--that the degree and type of waste disposal and treatment required in the area of the installation are consistent with applicable Federal or State water quality standards or other requirements and

--that the planned system will be coordinated in timing with a State, county, or municipal program which requires communities to take such related abatement measures as are necessary to achieve areawide water pollution cleanup.

Construction costs incurred by military bases to upgrade onbase sewage treatment systems or join civilian systems are generally funded through the military construction program. The following table shows the appropriation requests and the number of projects to upgrade onbase plants or join civilian treatment systems from fiscal year 1972 to 1979.

<u>Fiscal years</u>	<u>No. of projects</u>	<u>Appropriations requested</u>			
		<u>Army</u>	<u>Navy</u>	<u>Air Force</u>	<u>Total</u>
(millions)					
Projects to upgrade onbase plants:					
1972	40	\$ 2.8	\$ 7.3	\$ 5.5	\$ 15.6
1973	19	2.1	10.3	3.7	16.1
1974	13	0.4	3.8	3.9	8.1
1975	20	11.3	5.7	6.8	23.8
1976	19	26.6	8.1	2.3	37.0
1977	25	25.2	6.5	6.4	38.1
a/1978	2	-	-	8.0	8.0
1979	<u>8</u>	<u>18.7</u>	<u>0.6</u>	<u>3.7</u>	<u>23.0</u>
Subtotal	<u>146</u>	<u>87.1</u>	<u>42.3</u>	<u>40.3</u>	<u>169.7</u>
Projects to join civilian systems:					
1972	5	\$ 0.1	\$ 0.3	\$ 0.4	\$ 0.8
1973	10	13.9	6.0	-	19.9
1974	5	0.3	7.1	0.1	7.5
1975	2	-	-	3.7	3.7
1976	8	0.1	3.2	3.2	6.5
1977	5	0.2	13.0	2.5	15.7
a/1978	2	-	2.1	0.7	2.8
1979	<u>7</u>	<u>b/7.9</u>	<u>3.8</u>	<u>2.7</u>	<u>14.4</u>
Subtotal	<u>44</u>	<u>22.5</u>	<u>35.5</u>	<u>13.3</u>	<u>71.3</u>
Total	<u>190</u>	<u>\$109.6</u>	<u>\$77.8</u>	<u>\$53.6</u>	<u>\$241.0</u>

a/In addition to the services' requests, the Congress appropriated \$12 million for 8 projects to upgrade onbase systems, and \$14.2 million for 5 projects to join civilian systems.

b/This amount includes 2 projects to upgrade civilian systems.

The three services stated in appropriations requests for these fiscal years that civilian systems would be used when local conditions enabled advantageous treatment projects through use of combined systems. Military bases also gain the additional advantage of being relieved of the day-to-day management and operation of sewage treatment facilities.

CHAPTER 2

EVALUATING THE ALTERNATIVES OF UPGRADING AN ONBASE TREATMENT PLANT OR JOINING A CIVILIAN SYSTEM

Officials at seven of the 16 bases we reviewed chose between upgrading an onbase treatment plant and joining a civilian sewer system without analyzing the relative costs and benefits of these alternative systems. Consequently, the services lack assurance that they chose the more economical and effective sewage disposal system.

IMPORTANCE OF ECONOMIC ANALYSIS

An economic analysis is a systematic approach to the problem of deciding how to achieve a given objective in the most efficient and effective manner. Among its key elements are defining the objective, identifying alternatives for achieving the objective, and determining and comparing the costs and benefits of each alternative.

The importance of economic analysis is well recognized in the Congress. For example in approving \$7.4 million for sewage treatment and disposal at Chanute Air Force Base, Illinois, the House Committee on Appropriations mentioned a connection to the community wastewater treatment facility as an alternative that should be pursued. Therefore, it directed the Air Force to report, prior to contract award, on the requirement for the total funding requested and the feasibility and cost effectiveness of connecting to the local treatment facility. (H.R. 95-388, June 2, 1977.)

Defense policy in general requires an economic analysis for choosing between alternatives and specifically calls for one when deciding whether to construct a new waste treatment system or connect to a municipal system.

The services have interpreted DOD's policy differently because DOD has not clearly defined the conditions under which bases should join civilian sewerage systems. The policy requires the services to use municipal or regional waste collection or disposal systems for the disposal of liquid and solid wastes whenever feasible. However, DOD and the three services have no written guidelines on how much extra should be paid above the cost of upgrading a base's plant for the benefit of joining a civilian system.

The DOD Director of Water Programs said that, since DOD would like to get out of the sewage treatment business, joining civilian systems is the preferred choice if the cost of doing so is not much more than the cost of upgrading on-base facilities. Naval Facilities Engineering Command officials said that they would accept proposals to join civilian systems if the costs of doing so are no more than 30 percent greater than the costs of onbase treatment. Air Force officials said bases should join civilian systems if the cost does not exceed the cost of upgrading the onbase facilities by more than 25 percent. Army officials said that they have no established percentage difference in cost for choosing between upgrading an onbase plant or joining a regional system.

DOD indicated the importance of making the right choice in a May 1975 letter to the Environmental Protection Agency. DOD cited its policy for participating in joint treatment facilities to the maximum practicable extent but noted that joint projects have become less attractive because of higher costs, delays in completion, lack of assurance that the projects will be undertaken, and timing differences in budget and funding cycles. DOD said that problems of cost and delays would likely be greater in meeting the 1983 standards where it is already connected to a regional plant and has no cost-effective option to fall back on.

INADEQUATE EVALUATION OF AVAILABLE OPTIONS

The base officials made decisions without making an economic analysis of alternative systems for treating base sewage for seven of the 16 bases reviewed. We believe that this shows the need for DOD to enforce and review its economic analysis requirements to determine whether base commanders are evaluating and selecting the best alternative.

Upgrading onbase plants

Where a civilian system near a base would not be in operation in time for the base to meet the secondary treatment deadline (July 1, 1977) by joining the system, some officials believed that the base had no choice but to upgrade the onbase plant even though its necessary improvements could not be completed until after the July 1977 deadline. The desire to retain effluence for golf course irrigation and other potential onbase uses was another factor which may have influenced officials to upgrade onbase treatment plants.

Fort Detrick, Maryland

Fort Detrick officials did not make an economic analysis of alternatives before deciding to upgrade their onbase treatment plant. Base officials requested and received \$2.5 million in fiscal year 1976 to increase the capacity of the base treatment plant. A base official told us that he did not believe the DOD requirement for economic analysis applied to this project since there were no existing alternatives. Frederick County is building a new sewage treatment plant 3-1/2 miles from Fort Detrick. The City of Frederick, adjacent to the base, plans to enlarge its sewage treatment plant. Base and city officials said that the city was concerned about treating the base's sewage because of possible contaminants from base research projects. The county excluded the base from its planning in the belief that the base was not interested in joining a regional system.

Fort Carson, Colorado

Fort Carson officials did not make an economic analysis of alternatives before deciding to upgrade their treatment plant. Base officials requested and received \$5.1 million in fiscal year 1977 to upgrade the onbase sewage treatment system. A City of Colorado Springs official informed us that the municipal treatment system is capable of handling the base's sewage. A base official believed that connecting to the Colorado Springs system would be too expensive because the sewage would have to be pumped over an approximately 300-foot elevation, and the flow direction would have to be reversed. However, Colorado Springs officials informed us that it was possible to make a connecting line to an existing city sewage pumping station that would require less than a 100-foot elevation change and would not alter the base's present sewage flow direction.

In addition to the Colorado Springs municipal system, a regional system is being planned in the Fort Carson area. Regional officials invited the base to join the system but base officials declined. Fort Carson officials stated that the July 1, 1977, deadline for achieving secondary treatment was a major factor in their decision to not join the regional system. Environmental Protection Agency officials said that they did not want Fort Carson to wait to join the regional system. Base officials advised us that the regional system would be operational in 1980 or 1981 while the onbase improvements are scheduled for completion in 1978 or 1979.

Joining civilian systems

Factors which influenced officials to join civilian treatment systems were anticipation of more stringent water quality requirements, concern about being able to employ and retain qualified employees for the onbase treatment plant, and pressures from State or local governments.

Keesler Air Force Base, Mississippi

Keesler Air Force Base officials did not make an economic analysis of alternatives before deciding to join a civilian treatment system. Base officials requested and were authorized \$2.2 million for fiscal year 1975 to join the civilian system. A base official said that the connection fee and onbase work for joining the civilian system will cost about \$3 million. The base could have upgraded its existing onbase sewage treatment plant, but the work required on the existing plant would have been extensive. In an environmental assessment for the project, the cost of joining the civilian system was estimated to be \$350,000 less than building a new onbase plant, but the assessment did not contain detailed cost data on the alternatives. A base official said that it was obvious that the base should join the regional system.

CONCLUSIONS AND AGENCY COMMENTS

We believe that without economic analyses for deciding between sewage treatment options, service officials did not have a sound basis for determining whether the course of action chosen was more or less economical than other alternatives.

A prior GAO report to the Secretary of Defense indicated that less than 12 percent of the Army, Navy, and Air Force construction proposals submitted to the Congress in fiscal years 1976 and 1977 were evaluated by economic analysis. 1/ We recommended that the Secretary of Defense

--make sure that the services use economic analysis when required and document reasons for omitting analysis and

--evaluate the services compliance.

1/"Before Construction of Military Projects--More Economic Analyses Needed" (LCD-77-315, Mar. 28, 1977).

DOD replied on May 31, 1977, that it considered all requirements, alternatives, and pricing, and provided sufficiently detailed justifications to the Congress to enable a comprehensive review of all proposed projects. Nevertheless, DOD said that it is revising instructions to require its components to state on budget exhibits whether construction projects were evaluated by economic analysis and, if not, why not. DOD is also directing its components to review their compliance with its requirements for economic analysis and will review such analyses during the planning, programing, and budgeting process, as appropriate.

We believe that officials who adhere to these additional economic analysis requirements will have a sounder basis for choosing between improving an onbase plant and joining a civilian system. However, we believe that DOD should have a consistent policy on assigning any cost premium for joining a civilian system.

The Office of Management and Budget agrees (see app. II) that the decision to pay a cost premium for faster compliance would benefit from additional guidance from the Secretary of Defense.

RECOMMENDATION

To assist service officials in choosing between onbase and offbase systems, the Secretary of Defense should decide whether the preference for joining a civilian system merits a cost premium and, if so, issue clarifying instructions on how and when a cost premium should be used.

DOD believes (see app. IV) that the 25-percent to 30-percent premiums are realistic and expects to issue specific guidance on this matter soon.

CHAPTER 3

ESTIMATING SEWAGE TREATMENT CAPACITIES

Installations must have reasonable estimations of their sewage treatment needs to forecast probable construction and treatment charges associated with joining civilian sewage treatment systems. Four installations could not make reliable measurements of their sewage flows; two did not update estimates of capacity needs to reflect changes in sewage volumes; and six installations did not control excessive infiltrations and inflows.

Installations contracting with civilian sewerage system authorities pay charges which vary in proportion to treatment plant costs and the percentage of the plant's capacity reserved by the installation. An inaccurate estimate of requirements will result in the purchase of too much or too little treatment capacity. Therefore, charges will be greater than necessary if excess capacity is purchased or the purchase of insufficient capacity will lead to extra expenses and administrative problems as additional sewage treatment services become necessary.

MEASUREMENT DATA

Four installations visited either had no means of measuring sewage flow or their measurements were unreliable. In the absence of reliable measurements, contracting officials used estimates to calculate sewage treatment requirements to be handled by civilian facilities.

For example, Barksdale Air Force Base, Louisiana, has no sewage flow meters. To determine the amount of sewage to be treated under contract with a civilian sewage plant, installation officials estimated sewage flow as 70 percent of the average daily domestic water consumption. An Air Force sanitation engineer told us that the 70-percent method prescribed in an Air Force manual is not an accurate means of predicting sewage flow. In fact, the average flow at other installations visited varied from 24 to 148 percent of average water consumption. Climate and weather, the condition of sewage lines, and other environmental factors affect the ratio of sewage flow to water consumption.

INFILTRATION AND INFLOW UNCONTROLLED

Rain and ground water entering sewage collection systems increase sewage flow. Leaks in sewage lines (infiltration)

and drainage into manholes and storm drains (inflow) are possible sources of this unwanted water. Isolation of the sewage collection system from these sources can greatly reduce sewage treatment requirements.

Six of the installations visited did not control infiltration and inflow prior to joining a civilian system. Installations can reduce their costs by controlling infiltration and inflow prior to contracting with civilian sewerage system authorities.

For example of the 2.5 million gallons of sewage a day at Mare Island Naval Shipyard, California, which Navy officials contracted to have treated, 1 million gallons a day, or 40 percent, result from infiltration and inflow. Base officials recognized the sewer infiltration problem but did not correct it prior to purchasing sewage treatment from a civilian system.

DOD said (see app. IV) that at Mare Island it plans to correct 31 percent of the infiltration and 72 percent of the inflow, or 66 million of the 207 million gallons a year, but correction of the remainder would take further evaluation of the relative merits of treatment versus repair.

SEWAGE CAPACITY NEEDS NOT UPDATED

In two cases (Fort Belvoir and Fort Monmouth), officials used outdated estimates of sewage treatment requirements in contracting with civilian sewerage system authorities. This can result in unnecessary costs when personnel reductions and infiltration control projects, which reduce sewage flow, are not reflected in requirement estimates.

For example in February 1969 the communities participating in the regional system began constructing a treatment plant which included a capacity of 1.4 million gallons a day for Fort Monmouth. In June 1969 the base accepted the capacity estimate. A regional system official told us that they had built their facilities with sufficient capacity for Fort Monmouth because they were confident that Fort Monmouth would join the system. However, by the time final contract negotiations took place in 1974, the base's population was declining substantially. The installation's actual sewage flow had dropped from about 1.1 million gallons a day in 1969 to about 700,000 gallons a day by 1976.

In our opinion Army officials should not have committed Fort Monmouth to purchase a specific capacity before funds

were appropriated and final contract negotiations were begun in 1974. The initial estimates of requirements should have been qualified as tentative, and Fort Monmouth's sewage treatment needs should have been reassessed before contract negotiations were completed.

CONCLUSIONS

Reliable flow and infiltration data are essential for determining the present and future capacity which a base should reserve in a civilian sewerage system. In the absence of such data, contracting officers do not have a sound basis for determining the capacity which will be the most economical to reserve in a civilian system.

RECOMMENDATION AND AGENCY COMMENTS

The Secretary of Defense should require contracting officers to support treatment capacity purchases with

- actual measurements, where available, or, if not available, engineering estimates of current and future base sewage flow and infiltration volume;
- comparisons of the cost effectiveness of repairing base sewer lines to avoid infiltration treatment cost with the cost effectiveness of paying for infiltration treatment to avoid sewer line repair cost; and
- up-to-date estimates for negotiating the base's requirements prior to civilian system design.

DOD agreed in principle (see app. IV) and said that it strives to arrive at the most accurate capacity estimates. It cited scarcity of funds and the rush to comply with water pollution control laws as factors in preventing full consideration and correction of infiltration.

CHAPTER 4

CONTRACTING DIFFICULTIES

Most electric, gas, and telephone systems are public utilities whose service rates are regulated in most States and are designed to recover capital costs. Most sewage treatment systems, however, are public entities whose rates are not regulated by the States. When a new system or capital improvements are required to meet new treatment standards, these public entities often ask large customers to pay a share of capital costs in advance of service in lieu of recovering capital costs in service rates.

The services have negotiated contracts over \$100,000 for sewage treatment in civilian systems without following the Defense Acquisition Regulation (formerly Armed Services Procurement Regulation) requirements for obtaining contractors' certified cost or pricing data and contract pricing reviews. The services generally contracted to join local sewer systems under the regulations governing procurement of utility services ordinarily subject to Federal, State, or local regulatory bodies. Civilian sewer systems, however, are not ordinarily subject to an independent regulatory body.

CONTRACTING FOR SEWAGE TREATMENT

Defense has delegated to the services the authority to negotiate sewage treatment contracts. The Army Corps of Engineers district offices, the Naval Facilities Engineering Command field divisions, and the Air Force base procurement officers negotiate sewage treatment contracts subject to higher level review and approval. The staffs responsible for public utility contracting also have responsibility for sewage treatment contracting.

Contracting officers for several bases that joined civilian systems used the guidance in the regulation governing procurement of utility services (Defense Acquisition Regulation Supplement No. 5). The October 1974 supplement defines utility services as services such as the furnishing of electricity, gas, water, steam, and sewerage that are available to the general public and performed by governmental agencies or by private companies ordinarily subject to governmental regulations.

Many DOD bases which have contracted for sewerage services are paying a proportionate share of the entire capital costs of the civilian sewer system. (See table on p. 13.) The proportionate capacity that the base reserves in the system usually

determines the base's share of capital costs. DOD's cost share and service charge are negotiated without competition or regulatory control because the civilian sewer agency is the sole source of the services and is not subject to regulation by a public regulatory body.

<u>Installation/State</u>	<u>Contract date</u>	<u>Payments for joining civilian systems</u>		
		<u>Connection line costs</u>	<u>Other capital costs (note a)</u>	<u>Total</u>
(000 omitted)				
Army:				
Fort Belvoir, Va.	7/7/75	(b)	<u>c/\$1,261</u>	<u>c/\$1,261</u>
Fort Monmouth, N.J.	6/26/74	\$ 367	1,416	1,783
Navy:				
Naval Weapons Center, China Lake, Calif.	12/9/74	-	188	188
Fleet Combat Training Center, Dam Neck, Va.	10/11/74	215	-	215
Mare Island Naval Shipyard, Calif.	3/1/74	1,001	3,229	4,230
Pacific Missile Test Center, Point Mugu, Calif.	2/23/77	9	546	555
Naval Construction Battalion Center, Port Hueneme, Calif.	2/23/77	-	1,709	1,709
Air Force:				
Barksdale AFB, La.	6/24/76	-	749	749
Keesler AFB, Miss.	12/8/75	-	2,282	2,282
Travis AFB, Calif.	5/21/76	-	<u>d/7,165</u>	<u>d/7,165</u>

a/Includes the bases' proportionate share of items such as existing systems, improvements to and construction of systems, interceptors, outfalls, etc.

b/Fort Belvoir is constructing onbase connecting lines to the civilian system at an estimated cost of \$3.5 million.

c/The Army is renegotiating the contract with the county to allow an estimated \$1.3 million capital contribution for a pumlover facility. This contribution is required by EPA's cost-sharing guidance.

d/Travis is paying the \$7.2 million in monthly installments over a 10-year period. The amount does not include \$3.9 million bond interest the base will pay.

CONTRACTING REGULATIONS NOT FOLLOWED

The Truth-in-Negotiations Act (10 U.S.C. 2306 (f)) and the Defense Acquisition Regulation provide that the contracting officer shall require contractors to submit cost or pricing data and to certify that it is accurate, complete, and current prior to the award of any negotiated contract expected to exceed \$100,000. The contract must include a clause giving the Government a right to reduce the contract price if the price is increased because the contractor submitted certified data that was not accurate, complete, or current (defective data). Exceptions to these requirements are allowed if the price negotiated is based on

- adequate price competition,
- established catalog or market prices of commercial items sold in substantial quantities to the general public, or
- prices set by law or regulation.

Also, in exceptional cases, the Secretary or head of a procurement agency may waive the requirements.

The cost or pricing data certificate and the related defective pricing contract clauses were not executed in eight of the 10 Army, Navy, and Air Force contracts reviewed. We asked the three services why these requirements had not been met.

The Army said that cost or pricing data was not required for the Fort Monmouth and Fort Belvoir sewage service contracts because contracts for public utility services are exempt since the negotiated prices are set by law or regulations. The Defense Acquisition Regulation (Supp. No. 5) states that rates not established by an effective, independent regulatory body are not considered prices set by law or regulation. An official of the Northeast Monmouth County Regional Sewerage Authority, New Jersey, told us that the Fort Monmouth service rate is not set by an independent regulatory body. In addition to the rate, Fort Monmouth is contributing \$1.8 million to plant construction costs. In the Fort Belvoir contract with Fairfax County, the county sets the sewerage service rate. A county official told us that the rate is not set by an independent regulatory body. We believe that the Fort Monmouth and Fort Belvoir contracts are subject to the cost and pricing data requirements because the exemption for prices set by law or regulation does not apply.

The Navy said that the connection charges paid under the contracts for the China Lake Naval Weapons Center and the Mare Island Naval Shipyard were substantially based upon competitive construction bids received by the sewer system authorities and that the statutory exemption of adequate price competition was applicable. We believe that these contracts do not fit this exemption because the competitive bids that the Navy cites pertain to the sewer authorities' contracts with another party, not to their contracts with the Navy. The weakness of the Navy's argument is also proven by the services having negotiated the contracts under the authority that it was impracticable to obtain competition (10 U.S.C. 2304 (a)(10)).

The Navy said that cost or pricing data was not required for treatment service rates because the annual charges were not expected to exceed \$100,000. We believe that the procurement regulation has broader application than the Navy describes. The regulation does not relate the \$100,000 minimum to any time period. It requires cost or pricing data for any negotiated contract expected to exceed \$100,000, not just \$100,000 a year.

At Keesler Air Force Base, the contracting officer had not required the City of Biloxi, Mississippi, to provide certified cost or pricing data. He believed that the "adequate price competition" exception was applicable, since the city's price would be based on the lowest bid received for construction and expansion of the sewage treatment facility. The Air Force concluded that the contracting officer's interpretation, while reasonable under the circumstances, was a mistake. The Air Force would instruct the base to attempt to amend the contract, if feasible, to include the defective pricing clause and to require the city to produce certified cost or pricing data.

At Travis Air Force Base, the Travis Wastewater Authority, California, submitted a certificate of current cost or pricing data, but the price reduction clause was omitted from the contract. Air Force Headquarters said that it would instruct the base to place the clause in the contract.

CONTRACT PRICING REVIEWS

The negotiation of contracts to join civilian sewerage systems is complicated because prices frequently include both rates for treatment service and costs to finance, construct, and connect to new or expanded treatment plants. Some pricing problems are whether or not:

- The shared capital and operating costs are accurately computed.
- The sharing percentages for connecting lines and equipment, as well as main plants, are based on reasonable estimates of respective use.
- Rates to DOD include a portion of the municipality's interest cost for financing.
- Appropriated military construction funds and/or operation and maintenance funds may be used for the various purposes covered by these contracts.
- Charges to special funds, such as reserve funds for plant and equipment replacement, may properly be shared by DOD.

The Defense Acquisition Regulation, pursuant to The Truth-in-Negotiations Act, requires a contracting officer:

- To obtain a cost analysis whenever cost or pricing data is required. (A cost analysis is the review and evaluation of a contractor's cost or pricing data and the judgment factors applied in arriving at the estimated costs to form an opinion on the degree to which the contractor's proposed costs represent the amount that the contract should cost, assuming reasonable economy and efficiency.)
- To record the negotiation decisions.

Contracting officers obtained advisory pricing reviews for only two of the 10 contracts we reviewed. In both cases (Fort Monmouth and Travis Air Force Base) the Defense Contract Audit Agency review brought about cost reductions.

The Corps of Engineers instructed the audit agency to review most of the proposed capital costs to be shared by Fort Monmouth. The auditors questioned four cost items, one of which was sustained by the negotiators for a price reduction of about \$84,000.

Procurement officials at Travis Air Force Base had the audit agency review the cost proposal submitted by Fairfield, California. The auditors questioned the costs of seven items in the contract proposals. In the negotiations the city changed the allocation of financing costs so that the Air Force paid about \$753,000 rather than \$1,771,000 in financing costs.

We asked Navy and Air Force officials why they do not request pricing reviews on all sewage treatment contracts. Officials in the Naval Facilities Engineering Command Western Division Utilities Branch said that they did not ask for a price review for the China Lake and Mare Island contracts because they normally do not use the services of the Defense Contract Audit Agency. They believe that the agency's role is to audit actual costs charged after a contract is signed. However, a utility branch official planned to request the audit agency's review of the price proposals for Port Hueneme and Point Mugu.

Air Force Headquarters officials said that it is not their policy to request an audit as a regular part of utility contract negotiations. An audit is usually requested only when there is a question about a rate increase or when the Air Force questions the contractor's records.

The contracting officer for Keesler Air Force Base said that he did not request audit assistance because there were no past costs to be reviewed. Barksdale Air Force Base officials said that they had performed their own analysis of Bossier City's contract and cost proposal. One official said that the base would have requested an audit if they had had problems with the city's data.

We believe that the audit agency's role is not fully recognized in the officials' replies. The Defense Contract Audit Agency is responsible for making all necessary contract audits for DOD and provides accounting and financial advisory services to contracting officers for the negotiation and administration of contracts.

Questionable contract payments

Contracting officers agreed to payments to special reserve funds, sharing a city's debt on its existing facilities, and advancing funds for a city's share of construction costs.

Payments to special reserve funds

Some sewage system authorities establish reserve funds for replacement of operating equipment, future expansion of sewer lines or treatment facilities, and bond redemptions. The Environmental Protection Agency requires grantees to charge users enough to keep the treatment plant operating during its service life, usually from 15 to 30 years. EPA officials said that while a reserve fund is not intended for

basic plant replacement or expansion, they do not object if grantees expand the scope of the fund or establish other funds.

California requires grantees to establish a wastewater capital reserve fund to be used for plant and equipment replacement, expansion or improvements to plants, payment of bond principal, and payments required by the Environmental Protection Agency under its industrial cost recovery program. This program requires the grantee to recover from industrial users the grant amount allocable to treatment of their wastes.

The Mare Island Naval Shipyard and Travis Air Force Base contracts provide for payments to a wastewater capital reserve fund. The Defense Contract Audit Agency auditors questioned such payments in the case of Travis Air Force Base, because they would constitute double recovery since the base's capacity charge contains its share of the construction costs. The city, Fairfield, agreed with the audit agency but claimed that the Environmental Protection Agency and the California Water Resources Control Board require that the same user rate be charged all customers. Because the contracting parties did not resolve the differences during negotiations, the contracting officer accepted the disputed charges pending resolution. If the parties agree that the charge is not allocable to the Air Force, the city will refund the payments with interest. In December 1977, the Air Force informed the city that only the portion of the charge attributable to operations, maintenance, and equipment replacement would be acceptable. The city had not responded by April 1978.

Mare Island Naval Shipyard contributes to a similar wastewater capital reserve fund of the Vallejo Sanitation District. The Navy contracted to pay \$4.2 million for its share of construction costs and a user charge of \$320 per 1 million gallons. Vallejo had informed the Naval Facilities Engineering Command that the user charge covered certain capital costs, future expansion, and improvements, but neither the contracting officer nor the Command asked for a Defense Contract Audit Agency pricing review.

The Navy denied that any payments are made to the contractor for future expansion or improvements. It said that the reserve fund is an appropriate charge since the Navy pays only operation and maintenance charges in the rates.

Because of the status of a similar capital reserve fund at Travis Air Force Base (outlined above), we believe that the Navy should obtain an audit of the user charge in the Mare Island Naval Shipyard contract.

Sharing debt on existing facilities

Under the contract between the Navy and Ridgecrest, California, the city will lease the existing China Lake Naval Weapons Center sewage treatment plant. The city will expand and upgrade this plant to treat the combined Navy and city sewage, and will abandon its old plant. In addition to paying the city a nonrefundable connection charge for the Navy's share of construction costs and a refundable connection charge for part of the city's share of construction (see following sec.), the Center will also pay the city a fee for the cost of treating the base's sewage. The service fee, as defined in the contract, covers all maintenance, operations, repair, debt service, financing charges, replacement, and relocation costs of the contractor.

The Navy said that it has not paid any financing charges since it had its capital contribution available when required and that the reference to financing charges will be removed from the contract.

Procurement officials of the Naval Facilities Engineering Command said that the Navy agreed orally that the city could charge the Navy an annual share of remaining bond amortization payments for the old city plant. The procurement officials said that they wanted to help the city through its difficulties in financing both the new operation and the remaining debt on its old system.

Refundable connection charge

The Navy paid \$390,000 of military construction funds to Ridgecrest, California, to finance part of the city's share of the construction costs of the joint sewerage system that will serve the China Lake Naval Weapons Center. The city is to repay this amount to the Navy over a 10-year period by reducing the annual sewage treatment service charges by \$39,000 each year. This arrangement is questionable because funds that were appropriated for military construction were used only indirectly for that purpose, that is, as a contribution for the city's share of construction costs. Also, in view of the payback, the Navy has in effect paid for future services with construction funds instead of operation and maintenance funds ordinarily used to pay for services during the year in which they occur.

CONCLUSIONS, AGENCY COMMENTS, AND OUR EVALUATION

When participation in a civilian sewer system costs more than \$100,000, contracting officials should obtain either

- certified cost or pricing data in support of both the military's contribution to total plant cost and the rate for treatment services and a cost analysis of such data or
- proof for a cost or pricing data exemption, such as a price set by law or regulation or a price based on adequate competition.

Defense Contract Audit Agency services are essential for verifying that the cost elements supporting DOD's contributions to civilian sewer systems and its user rates are allowable and reasonable for the services which the Government receives.

DOD believes (see app. IV) that cost or pricing data is not required where the civilian system construction is competitively bid unless other elements of DOD's contract price exceed \$100,000. As pointed out on page 15, the competitive bids which DOD cites pertain to the sewer authorities' contracts with another party, not to their contracts with DOD. Furthermore, DOD's contracts provide for substantial recurring payments to sewer authorities which are the sole sources of service, in addition to payments for construction costs. Therefore, while we agree that adequate competition from qualified sources for construction would exempt the construction portion of the contract, that exemption could not, in our opinion, be extended to the other contract costs. Also in cases where the Government reimburses a contractor for part of the cost to construct facilities to secure services, such as sewage treatment, the agency needs cost or pricing data to determine that the service rate does not include costs for which the sewer authority has been reimbursed by the Government.

DOD commented (see app. IV) that there is no need to have the Defense Contract Audit Agency verify the determinations as to whether an exception to the cost and pricing data requirements apply, as we had proposed, and that the Defense Acquisition Regulation contains no such requirement.

Section 3-807.3(j) of the Defense Acquisition Regulation states that a contractor shall be required to submit a claim for exemption from certified cost or pricing (DD Form 633-7) if an exemption is claimed on the ground that the contract price is based on an established catalog or market price, or a price set by law or regulation. With each Form 633-7 submission, the contracting officer shall perform or obtain verification (including assistance by audit or contract administration personnel) if the officer deems it necessary to be satisfied with the reliability of the data. The contracting officer may dispense with the submission requirement if the officer knows that a prospective contractor has an acceptable established catalog or market price, or price set by law or regulation for the item.

The regulation for procurement of utility services recognizes that rates not established by an effective, independent regulatory body are not considered prices set by law or regulation and, accordingly, the certified cost or pricing data requirements apply.

Our evidence (see p. 14) shows that the Fort Belvoir and Fort Monmouth sewage rates were not established by an independent regulatory body and, therefore, the rates cannot be considered prices set by law or regulation. The Defense Contract Audit Agency may make annual audits under the terms of the Fort Monmouth contract but the Fort Belvoir contract does not contain such a provision. Unless the Army can verify that the Fort Belvoir rate is set by law or regulation, we recommend that the Army take the necessary action to obtain an analysis of the contract rate. DOD should also make it clear to officials who contract for utility services that sewerage service rates are rarely set by law or regulation.

We proposed that contract specialists be assigned to assess the prospective contract complexity and the assistance which the procurement team will need to negotiate in conformity with procurement laws.

DOD said that the Navy's Engineering Field Divisions currently perform such a function. However, DOD does not believe that every case is too complex for base personnel and agrees with the Army that a specialist is needed only for complex cases. The Army said that assistance is given on request and headquarters is not staffed to negotiate all the contracts.

We did not propose to have headquarters negotiate all contracts but to have a contract specialist make an initial assessment of the complexity of a prospective contract to join a civilian sewerage system so that the specialist can advise the procurement team whether they need special assistance in negotiating DOD's participation. The number of projects, which has not exceeded 10 a year since 1972 (see p. 2), would not make this a burdensome workload. A contract specialist's advice is warranted because of the services' various positions that prices for sewage services

- are set by law or regulation, according to the Army (p. 14);
- are based on adequate competition, according to the Navy (p. 15); and
- are subject to certified cost or pricing data requirements, according to the Air Force (p. 15).

RECOMMENDATIONS

We recommend that for negotiated contracts costing more than \$100,000, the Secretary of Defense direct the service Secretaries to:

- Obtain verification that prices were set by law or regulation for those contracts in which contracting officers granted this exemption from statutes governing procurement negotiation.
- Where exemptions do not apply, obtain certified cost or pricing data from the civilian system authorities; a cost or price analysis of the data; and a contract price adjustment in all cases where the price was increased because certified data is found defective.
- Assign contract specialists to visit bases committed to joining civilian sewerage systems to assess the prospective contract complexity and the assistance which the procurement team will need to negotiate terms and prices in the Government's interest and in conformity with Federal procurement laws.

CHAPTER 5

PAYING THE MILITARY SHARE OF CIVILIAN SYSTEM

CAPITAL COSTS

Service officials generally request military construction funds to pay their share of civilian sewer system construction. Shares for the 10 bases we reviewed ranged from \$188,000 to \$11 million (See p. 13.) For Travis Air Force Base, officials are using operation and maintenance funds to pay, in installments, the share of sewer system capital costs which are included in the service rate. We believe that the use of operation and maintenance funds to pay for Defense's share of system capital costs in the service rate deprives the Congress of its basic oversight function and usually is uneconomical because of the added interest charges. We believe that the statute governing minor military construction (10 U.S.C. 2674) reinforces congressional oversight by establishing clear limitations on the amount of money that may be spent on construction without specific approval by the Congress. While authorizing the military services to spend up to \$400,000 to acquire public works not otherwise authorized by law, including the furnishing of utilities, the statute limits the use of operation and maintenance funds for any project to \$75,000.

PROBLEMS IN FUNDING PARTICIPATION IN CIVILIAN SYSTEMS

Some of the funding problems are whether or not:

- Operation and maintenance funds should be used to pay part or all of a base's share of system capital costs as part of its service rate.
- Military construction rules and limitations should apply to a base's share of system capital costs.
- Military construction appropriations can be obtained fast enough to coordinate with the civilian system schedule.
- Existing sewer service contracts may be renegotiated to share in system upgrading costs.

GUIDANCE ON FINANCING DOD'S SHARE

DOD's regulation for procuring utility services defines a connection charge as a Government payment for special or local facilities which are required to make connection with the nearest point of supply and which are installed and owned by the utility supplier. The regulation (Defense Acquisition Regulation Supp. No. 5, sec. S5-107.2(a)) prohibits use of the connection charge method for the installation of new facilities related to the supplier's production and general backbone system unless authorized by legislation.

Title 40 of the Code of Federal Regulations (sec. 35.925-16) requires the Environmental Protection Agency to determine that the costs eligible for a grant do not include costs of treating wastes from major Federal activities, which another Federal agency has agreed to pay. The code states that such Federal agencies may extend, over a period of years, their contribution to support capital costs incurred by municipal treatment facilities that provide them service.

EPA's December 1975 guidance for Federal agencies joining civilian systems in Program Requirements Memorandum 75-35 states that if the Federal agency's payment of its share of system cost cannot be made on a timely basis, the grantee may finance the Federal share over an agreed upon period and accept periodic payments of principal and interest. Payments would be provided for in 10-year renewable utility contracts which are authorized by the Federal Property and Administrative Service Act (see app. I).

EPA's guidance prompted an exchange of legal opinions within DOD on the meaning of EPA's guidance and on whether construction appropriations or operation and maintenance appropriations can be legally used to pay connection charges.

In a March 1976 memorandum, an attorney in the Office of the Air Force General Counsel stated that a connection charge is payable only from construction appropriations. He also believed that there is nothing to indicate that the authorization for long-term utility contracts may be used as authority to pay capital costs.

In an April 1976 reply to the Air Force, the Counsel for the Naval Facilities Engineering Command outlined several solutions to the connection charge problems. The preferred solution was to submit a full explanation to obtain military construction authorizations and appropriations to make a capital contribution to the utility's plant. In the Navy

counsel's opinion, connection charges, except for backbone plant, are proper charges to operation and maintenance appropriations. He said that the costs of the backbone facilities are usually too large to be absorbed in operation and maintenance funds but one possible method might be to treat them as a kind of expanded connection charge necessary to obtain initial service. The Navy counsel believed that military construction appropriations for acquisition of public works are not, without special authorization, available for connection charges since the Government does not acquire any facilities and equipment.

USING OPERATION AND MAINTENANCE FUNDS FOR SHARING IN CIVILIAN SYSTEM CAPITAL COSTS

In accordance with procurement regulations for utility services, the Military Airlift Command told Travis Air Force Base in early 1975 to avoid connection fees in joining the regional system and directed that the Air Force portion of the capital improvement costs be borne through a user fee and a termination liability clause for the shortest possible time. Under the installment method, the Government will incur interest payments of about \$3.9 million over the 10-year contract.

Travis Air Force Base contracted with the City of Fairfield in 1976 for the base's share of the construction costs of the civilian system. The City sold bonds to finance the base's share of these costs. Under the terms of its contract, the Air Force will pay the bond principal and interest over a 10-year period. If the entire 10-year period is used, the Air Force will pay \$3.9 million in interest in addition to \$7.2 million for its share of the construction costs. The payments from operation and maintenance money will initially amount to about \$676,500 a year. The Air Force's request to construct the onbase connection line did not inform the Congress that the base was also paying a proportionate share of the construction costs in installments with operation and maintenance money.

In commenting on this matter, DOD likened the acquisition of sewage service to procurement of electricity, gas, and water. DOD said that every utility rate includes charges for some construction and that the construction part of the rate will vary according to DOD's capacity requirement in the civilian system. DOD noted that this does not result in acquiring title to the facilities and, therefore, the use of operation and maintenance funds is appropriate.

We believe, however, that DOD's sharing in major sewerage system construction and expansion costs with the alternatives of paying its share directly in a lump sum or indirectly in the service rate sets these purchases apart from the customary utility services. When the capacity in a civilian system is large enough to require a base to share in construction costs under EPA's policy (see app. I), DOD should submit all such requests for authorization under the military construction program. This is consistent with DOD's own regulation which prohibits use of the connection charge method for the installation of new facilities related to the utility supplier's general backbone system unless authorized by legislation.

TIMING AND UPGRADING PROBLEMS

In the next few years many civilian sewerage systems will be upgraded to meet increasingly demanding water quality standards. Some service officials believe that they will have funding problems because many bases will be expected to pay their shares in less time than 2- to 3-year construction budget cycles and because some existing contracts may not allow for payment of higher charges to cover system upgrading costs.

The Navy's Director of the Environmental Protection Division, Office of the Chief of Naval Operations, informed DOD in April 1975 that, of 15 military construction projects containing connection charges which have not been funded, 6 connections totalling \$11.7 million had known timing problems. He noted that a larger number of future timing problems will undoubtedly occur as existing regional systems are upgraded to meet 1977 and 1983 standards. He said that more than 70 Navy activities are connected to municipal systems, and many may require funding for their proportionate share of any additional improvements required by the municipal systems.

The Army expects to pay about \$7 million in upgrading costs for four of its 58 bases connected to civilian systems and \$32 million to have another seven bases join civilian systems. The Air Force expects to pay about \$2 million in upgrading costs at three of its 65 bases connected to civilian systems and \$36 million for 12 of the 20 other bases planning to join civilian systems.

The Air Force General Counsel's August 27, 1976, memorandum raised the question of whether the Air Force can make lump sum payments or assume an additional termination liability

for upgrading the civilian systems now serving two of its bases. The memorandum stated that under the contracts, the Air Force has no obligation or available mechanism to pay the contractor for upgrading his facilities.

In June 1977, the Air Force requested an advance decision on the propriety of renegotiating or terminating sewage service contracts to comport with the aforementioned EPA policy. Under that policy, the expansion or upgrading costs allocable to a Federal installation do not qualify for EPA grant funding. The Comptroller General decided that lump sum or increased installment payments for capital improvements would be improper where contracts do not provide a basis for such payments. (B-189395, Apr. 27, 1978).

CONCLUSIONS, AGENCY COMMENTS, AND OUR EVALUATION

We agree that DOD may use operation and maintenance funds to pay for the cost of minor construction such as connection charges up to some monetary limit. However, we believe that DOD should observe the \$75,000 limit which the Congress set on the use of such funds for minor construction and should request military construction appropriations to pay for the cost of any construction project costing over \$75,000. This would most likely include all projects for installing new facilities related to the utility supplier's general backbone system. The use of operation and maintenance funds for such projects deprives the Congress of its basic oversight function as contemplated in the law governing minor military construction (10 U.S.C. 2674); is not consistent with DOD's own regulations on utility financing; and usually is uneconomical because of the added interest charges.

We recognize that at times, a base may not be able to obtain military construction funds to meet the local agency's construction schedule, since the military construction program budget cycle takes 2 to 3 years from the initial request to congressional approval. This potential timing problem should be eliminated to encourage an open-mindedness in comparing onbase and offbase construction and treatment costs and to coordinate with community programs as required by the Military Construction Authorization Act of 1969 (see p. 1).

Accordingly, we proposed that the Secretary of Defense in cooperation with the Director, Office of Management and Budget, request approval of the House and Senate Armed Services and Appropriations Committees to reprogram funds for unforeseen costs of upgrading base plants or participating in civilian sewer systems when coordination in areawide cleanup cannot wait for obtaining funds through the normal budget cycle.

EPA and DOD agreed with this proposal. But instead of seeking reprogramming approval, DOD said (see app. IV) that it sent draft legislation to the Speaker of the House of Representatives on February 27, 1978, which it believes would provide for emergency funding where it could not wait for funding through the normal budget cycle. The provision has been included in the emergency construction sections of the Senate bill (S. 2636) and House bill (H.R. 11167) to authorize construction of military installations for fiscal year 1979.

We believe the legislative provision is an acceptable solution. However, if the Congress does not accept the provision, the Secretary of Defense should take the reprogramming action we proposed.

RECOMMENDATION TO THE
SECRETARY OF DEFENSE

We recommend that the Secretaries of the services be directed to determine the outstanding amount of civilian system capital shares under commercial market financing (such as the Travis Air Force Base share) and request funds to prepay such amounts where it is economically justified.

DOD agreed (see app. IV) with this recommendation.

CHAPTER 6

SCOPE

We reviewed Defense policies and regulations for choosing between sewage treatment systems and for contracting with civilian systems. We reviewed relevant decisions and contracts over the last 4 years at 16 installations and discussed these matters with responsible officials.

Our review was conducted at the following installations, civilian sewage treatment authorities, and responsible agencies.

INSTALLATIONS

Army

Fort Belvoir, Virginia
Fort Carson, Colorado
Fort Detrick, Maryland
Fort Monmouth, New Jersey
Fort Riley, Kansas

Navy

Fleet Combat Training Center, Dam Neck, Virginia
Mare Island Naval Shipyard, Vallejo, California
Naval Air Station, Whidbey Island, Oak Harbor, Washington
Naval Construction Battalion Center, Port Hueneme,
California
Naval Weapons Center, China Lake, California
Naval Weapons Station, Charleston, South Carolina
Pacific Missile Test Center, Point Mugu, California

Air Force

Barksdale Air Force Base, Louisiana
Keesler Air Force Base, Mississippi
March Air Force Base, California
Travis Air Force Base, California

CIVILIAN SEWAGE TREATMENT AUTHORITIES

City of Biloxi, Mississippi
City of Bossier City, Louisiana
City of Colorado Springs, Colorado
City of Fairfield, California
City of Frederick, Maryland
City of Junction City, Kansas
City of Manhattan, Kansas
City of Oak Harbor, Washington
City of Oxnard, California
City of Port Hueneme, California
City of Ridgecrest, California
County of Fairfax, Virginia
Eastern Municipal Water District, Hemet, California
Frederick County Metropolitan Commission, Maryland
Hampton Roads Sanitation District, Virginia Beach,
Virginia
Northeast Monmouth County Regional Sewerage Authority,
New Jersey
Pikes Peak Area Council of Governments, Colorado
Springs, Colorado
Vallejo Sanitation and Flood Control District,
Vallejo, California

RESPONSIBLE AGENCIES

Department of Defense

Office of the Deputy Assistant Secretary of Defense
for Environment and Safety
Office of the Deputy Assistant Secretary of Defense
for Installations and Housing
Office of the Deputy Assistant Secretary of Defense
for Procurement

Army

Office of the Chief of Engineers, Washington, D.C.
Baltimore District, Corps of Engineers, Baltimore,
Maryland
New York District, Corps of Engineers, New York,
New York
Materiel Development and Readiness Command,
Alexandria, Virginia
Training and Doctrine Command, Fort Monroe, Virginia

Navy

Headquarters, Naval Facilities Engineering
Command, Alexandria, Virginia
Atlantic Division, Naval Facilities Engineering
Command, Norfolk, Virginia
Southern Division, Naval Facilities Engineering
Command, Charleston, South Carolina
Western Division, Naval Facilities Engineering
Command, San Bruno, California

Air Force

Headquarters, United States Air Force, Washington, D.C.
Headquarters, Military Airlift Command, Scott Air Force
Base, Illinois
Headquarters, Strategic Air Command, Offutt Air Force
Base, Nebraska

Environmental Protection Agency

Headquarters, Washington, D.C.
Region VIII, Denver, Colorado
Region X, Seattle, Washington



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D. C. 20460

December 29, 1975

PROGRAM GUIDANCE MEMORANDUM
No. 62

SUBJECT: Allowable Costs for Construction of Treatment Works that
Jointly Serve Municipalities and Federal Facilities

FROM: John T. Rhett, Deputy Assistant Administrator
for Water Program Operations (WH-546)

John T. Rhett

TO: Regional Administrators,

ATTN: Water Program Division Directors

I. PURPOSE

A number of questions have arisen on FWPCA grant funding of the construction of municipal treatment works that would jointly serve Federal facilities and municipalities. This memorandum provides guidance on determination of allowable costs of such treatment works and options for payment of the Federal facility portion of construction costs.

II. ALLOWABLE COSTS

Whenever a planned treatment works will jointly serve a municipality and a Federal facility, that portion of construction cost allocable to the Federal facility will not be allowable for 75 percent construction grant funding, subject to the following exceptions:

1. Facility planning (Step 1) costs.
2. Cost of Step 2 work if a Step 2 grant has been certified by the State for funding to EPA prior to the date of this guidance.
3. Design and construction costs allocable to a Federal facility producing less than 250,000 gallons per day or 5 percent of the total design flow of waste treatment works, whichever is less.

That portion of the construction costs allocable to the Federal facility shall be based on all factors which significantly influence the cost of the treatment works. Factors such as strength, volume, and delivery flow rate characteristics will be considered and included to insure a proportional allocation of costs to the Federal facility.

As a minimum, the portion of construction cost allocable to the Federal facility should be based on the ratio of its total hydraulic requirements, including allowances for future needs, to the total design flow of the treatment works.) The portion (percentage) allocable to the Federal facility must be agreed upon by the municipality and Federal agency, and approved by EPA prior to award of a Step 2 or Step 3 grant, whichever is applicable, for the works or any portion thereof.

As an example, in a \$10,000,000 actual construction project for which the Federal facility share has been agreed upon as 20 percent of the total project cost, the allowable cost and construction grant funding would be as follows:

Total joint project cost	\$10,000,000
Federal facility share	<u>2,000,000</u> (20%)
Maximum allowable cost	\$ 8,000,000
Grant	<u>0.75</u> (75%)
EPA grant funding	\$ 6,000,000

III. OPTIONAL PAYMENT ARRANGEMENTS FOR FEDERAL FACILITY COST SHARE

The EPA grantee may negotiate a payment schedule for the Federal facility share with the concerned Federal agency. If payments are not possible on a timely basis, a possible option is for the grantee to finance, through bonds or a bank loan, the Federal facility cost share over an agreed upon number of years and accept periodic payments of principal and interest. Payments would be provided for in 10-year renewable utility contracts which are authorized by the Federal Property and Administrative Services Act. Other payment options may be possible, depending upon the local situation.

IV. COST SHARING ASSURANCES

The EPA grantee should provide assurances satisfactory to EPA as part of the Step 2 grant application (or Step 3 if the Step 2 grant was awarded prior to the effective date of this guidance) that:

1. the Federal facility cost share has been determined as required herein,
2. the Federal facility cost share has been deducted from the grant eligible costs, and
3. funds comprising the local plus Federal facility cost shares will be provided as needed to meet design and construction payment schedules.



EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF MANAGEMENT AND BUDGET
WASHINGTON, D.C. 20503

March 7, 1978

Mr. Victor L. Lowe
Director, General Government Division
U.S. General Accounting Office
441 G Street, N. W.
Washington, D. C. 20548

Dear Mr. Lowe:

My staff has reviewed your draft report on Department of Defense problems in joining civilian sewer systems.

It is the Administration's position that Federal agencies should not only comply with applicable environmental standards but that they should provide leadership in the nationwide effort to protect and enhance the quality of our air, water and land resources.

When determining the relative cost of on-base and civilian systems, we concur that the relative costs and benefits should be determined in an economically rigorous manner. The decision to pay a cost premium for faster compliance would benefit from additional guidance from the Secretary of Defense.

The Office of Management and Budget is ready to cooperate with the Secretary of Defense on any changes that would expedite compliance within budget limitations.

Sincerely,

A handwritten signature in cursive script that reads "James T. McIntyre, Jr.".

James T. McIntyre, Jr.
Acting Director



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

February 20, 1978

OFFICE OF
PLANNING AND MANAGEMENT

Mr. Henry Eschwege
Director, Community and Economic
Development Division
United States General Accounting Office
Washington, D. C. 20548

Dear Mr. Eschwege:

EPA has reviewed your draft report entitled "Department of Defense Problems in Joining Civilian Sewer Systems" and wishes to provide the following comments.

[See GAO Note 2.]

Also we believe clarification of your recommendation on page 16 is required. The final point of that recommendation suggests that estimates of needed capacity be brought up to date at the time of contract negotiations. We interpret this time to be prior to facility design, as required by the Program Requirements Memorandum.

The consummation of financial arrangements between State, Federal and local governments and agencies for funding area-wide sewage facilities is a very difficult process. To prevent delays to project planning and initiation of construction, it is considered essential that federal facility commitments to participate in them and financial payments to municipalities be made in a timely manner. Therefore, the Environmental Protection Agency strongly supports the recommendation on page 40 of the draft report that DOD obtain approval to reprogram funds for necessary sewage facilities when coordination of civilian sewage projects cannot wait for obtaining funds through the normal budget cycle.

It is inappropriate at this time for us to address in greater depth the broad issues of Federal participation in EPA funded civilian sewage

- 2 -

[See GAO Note 3.]

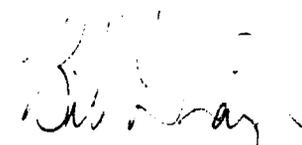
facilities for two reasons:

First, this subject is presently under review by your Office of General Counsel. While not wishing to comment substantively on the issues raised in your report, we disagree with a number of the premises underlying your recommendations which are at variance with prior determinations of the Comptroller General of the United States, such as the letter dated July 26, 1977 to Congressman Larry Pressler.

Second, the recently enacted Clean Water Act bears importantly on the issue. The Agency's strategies to implement this act, when formulated, will be addressed in the proceedings before your General Counsel.

We appreciate the opportunity to comment on this draft report.

Sincerely yours,



William Drayton, Jr.
Assistant Administrator
for Planning and Management

- GAO Notes:
1. Page references in this appendix refer to the draft report and do not necessarily agree with the page numbers in the final report.
 2. Deleted comments relate to matters which were included in the draft report and are omitted in the final report.
 3. In a meeting to obtain clarification of the comments on this page, EPA said that it had no specific disagreements with our recommendations other than its comments on the first page of its reply.



ID
MANPOWER,
RESERVE AFFAIRS
AND LOGISTICS

ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D. C. 20301

26 April 1978

Mr. F. J. Shafer
Director, Logistics and
Communications Division
U. S. General Accounting Office
Washington, D. C. 20548

Dear Mr. Shafer:

This is in reply to your letter to the Secretary of Defense regarding your report dated December 5, 1977, on "DoD Problems in Joining Civilian Sewer Systems," OSD Case #4776, Code 945278.

This report covers the general area of connections by military installations to regional or local civilian waste water treatment plants including cases where decisions were made not to connect. The draft is generally factual and we agree with the thrust of the report.

Connections to regional/local systems are the preferred method as stated in E. O. 11507 and in several Congressional reports. Most DoD projects in the past three years have been accomplished or programmed in this manner. We believe that our exceptions have been justified by adequate economic reasons or by legal requirements to meet pollution abatement deadlines.

The disagreement with the report centers on the use of Operation and Maintenance (O&M) funds to pay for the DoD pro rata of construction work by the local civilian authority. It appears to us that GAO does not understand that every utility rate (e.g. electricity, gas, water) includes charges for some construction and that the DoD has had hundreds of such contracts for many years. There is no question that part of every utility rate involves some construction. When we connect to an existing utility where there is already adequate or almost adequate plant capacity, the rate may include only a small percentage for construction. When a large military installation joins with a small municipal system we may represent 50 percent of plant needs and the rate would reflect this requirement. In these cases we see no difference in principle, only a difference in degree. We are not involved in construction of "public works," we acquire no title to real property, but we do pay for a utility service.

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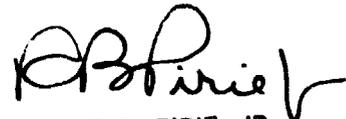
With regard to "connection charges", the method of funding depends upon the circumstances in each particular case, and we proceed under the most appropriate and/or economical method. We must also take into consideration agreements which are acceptable to the local authority and the necessity to meet legal deadlines to abate pollution.

We are also concerned that while the report is entitled "DoD Problems" it does not address a major problem which has had considerable impact on this matter. This major problem relates to the difficulty in hitting a moving target. The entire waste water pollution abatement effort has been an accelerated requirement with several changes in Federal laws, including P.L. 95-217, (December 27, 1977), and a very significant number of changes in state, regional and local laws and regulations. Against this background we believe our overall pollution abatement effort is very good.

We concur with several of the conclusions and recommendations. There are areas of disagreement. A review of the recommendations and our comments on these are presented in Enclosure 1. Also included are detailed Military Department comments on some of the specific cases cited in the draft report. Army comments are presented in Enclosure 2 and Navy comments are in Enclosure 3.

The opportunity to review the draft report is appreciated and the delay in responding is regretted.

Sincerely,



ROBERT B. PIRIE, JR.
Principal Deputy Assistant Secretary
of Defense (MRA&L)

Enclosures

DOD COMMENTS ON THE RECOMMENDATIONS "DOD PROBLEMS PRESENTED IN JOINING
CIVILIAN SEWER SYSTEMS" (OSD CASE #4776)

Recommendation 1:

To assist service officials in choosing between on-base and off-base systems, the Secretary of Defense should decide whether the preference for joining a civilian system merits a cost premium and, if so, issue clarifying instructions to the services on how and when a cost premium should be used in economic analyses.

Comment: Concur. The DoD is fully aware of the statement on the use of municipal and regional waste water treatment systems as included in E. O. 11507. We also have noted strong interest by the Congress, EPA and the various states in the use of the local or regional systems in lieu of on-base systems. Generally, as the record will reveal, we have decided for the civilian system. There are a number of benefits including some intangible, from such connections by the DoD. We are aware of the 25 percent to 30 percent premiums in use by the military departments and believe these are realistic. We propose to issue specific guidance on this point in the near future.

Recommendation 2:

The Secretary of Defense should require contracting officers to support treatment capacity purchases with (1) actual measurements where available and, to the extent actual measurements cannot be taken, engineering estimates of current and future base sewage flow and infiltration volume; (2) comparisons of the cost effectiveness of repairing base sewer lines to avoid infiltration treatment cost with the cost effectiveness of paying for infiltration treatment to avoid sewer line repair costs; and (3) estimates brought up to date at the time of contract negotiation.

Comment:

Concur in principle. Accurate estimates of wastewater treatment requirements are essential for economically defining DoD's participation in regional systems. In each instance DoD strives to arrive at the most accurate figure. It must be remembered that DoD must allow for mobilization requirements, which often create an immediate overcapacity but which provide capacity for defense mobilization use.

Infiltration is a difficult problem. With limitless resources all infiltration could be studied and corrected. Unfortunately with the scarcity of funds available for this purpose, the need for such repairs often exceeds the capability to satisfy them. Also, in some cases it

Enclosure (1)

actually proves less expensive to treat the infiltration and inflow rather than to correct the problem. The rush to comply with the Federal Water Pollution Control Act has also been a factor in preventing full consideration of infiltration problems.

With regard to the Mare Island Naval Shipyard problem (p. 15), a study has been completed which indicates infiltration and inflow (I & I) at approximately 207 MG year. A repair project is planned which will correct 66 MG year or 31 percent of the infiltration and 72 percent of the inflow. Correction of the remaining I & I will be very expensive and require additional analysis to evaluate the relative merits of treatment versus repair.

Recommendation 3:

GAO recommends that, for negotiated contracts over \$100,000 the Secretary of Defense have the service Secretaries:

(a) Obtain Defense Contract Audit Agency verification that prices were in fact set by law or regulations for those contracts which in the Army's opinion come under this exemption from statutes governing procurement by negotiation.

(b) Where exemptions do not apply, obtain certified cost or pricing data from the civilian system authorities; a cost or price analysis of the data; and a contract price adjustment in all cases where the price was increased because certified data is found defective.

(c) Assign contract specialists to visit bases committed to join civilian sewerage systems to assess the prospective contract complexity and the assistance which the procurement team will need to negotiate terms and prices in the Government's interest and in conformity with Federal procurement laws.

Comment:

(a) Non Concur. There is no need to have DCAA verify the determinations made by the services as to whether an exception to the cost and pricing data requirements apply. ASPR contains no such requirement. It must be recognized that utility rate matters involve a specialized field and we believe that a determination in this area should be made by personnel experienced in rate making analyses. The DCAA role in the past in these types of contracts has been limited to cost analysis and recommendations and we feel this role should continue unchanged.

(b) Concur. DoD; however, continues to believe that where the contractor competitively bids the construction, that cost and pricing data is not required unless other elements of the price exceeds \$100,000. For example, the Military Departments price may be fixed as 50 percent of the competitively bid price of a municipal plant, so that the Military Departments price is based upon "adequate price competition."

(c) Partially concur. The Navy reports that the Engineering Field Divisions of the Naval Facilities Engineering Command currently perform such a function. The Army reports that it responds to more complex cases at installation request but that it does not have sufficient staff to handle every case (see Army detailed comment #9). Ideally a utility specialist should visit each base to assist in contract work. However, we do not believe that every case is too complex for base personnel and agree with Army that specialist are needed only for more involved cases.

[See GAO Note 2.]

Recommendation 5:

The Secretary of Defense in cooperation with the Director, Office of Management and Budget, should request approval of the House and Senate armed services and appropriations committees to reprogram funds for unforeseen costs of upgrading base plants or participating in civilian sewer systems when coordination in area-wide cleanup cannot wait for obtaining funds through the normal budget cycle.

Comment: Concur. In a letter dated February 27, 1978, to the Speaker of the House of Representatives, the Secretary of Defense forwarded draft legislation relating to military construction as part of the DoD legislative program for FY 1979. Sections 102, 202 and 302 (Emergency Construction) contain new language relating to "environmental considerations". It is our belief that this authority, if granted by the Congress, would enable us to provide for funds for improving base plants or for participating in civilian waste water treatment plants in cases where we could not wait for funds obtained through the normal budget cycle.

Recommendation 6:

The Secretary of Defense should direct the service Secretaries to:

[See GAO Note 2.]

(b) Determine the outstanding amount of civilian system capital shares under commercial market financing (such as the Travis Air Force Base share) and request funds to repay such amounts where it is economically justified.

Comment:

[See GAO Note 2.]

(b) Concur. The preferred method of funding by DoD is to obtain military construction funds in advance whenever possible.

- GAO Notes:
1. Page references in this appendix refer to the draft report and do not necessarily agree with the page numbers in the final report.
 2. Deleted comments refer to matters which were in the draft report and are omitted in the final report.
 3. Army and Navy comments have been incorporated into the report where appropriate.