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UNITED STATES GENERAL ACCOUNTING OFFICE

WASHINGTON, D.C. 20548



LOGISTICS AND COMMUNICATIONS
DIVISION

B-189955

OCT 19 1977

The Honorable William Proxmire
United States Senate

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Dear Senator Proxmire: **Accounting Office except on the basis of specific approval
by the Office of Congressional Relations.**

This report is in response to your request, dated April 22, 1977, concerning alleged mismanagement practices at the Facilities Engineering Support Agency, Fort Belvoir, Virginia.

The primary issues cited in the constituent's letter pertaining to potential waste and conflict follow:

- Decommissioning of a nuclear power barge by the U.S. Army Corps of Engineers after it spent more than \$1 million to install an emergency core cooling system.
- The civilian contractor doing modification work on the power barge had 18 workers on the project who are retired military members of the Facilities Engineering Support Agency.
- The Facilities Engineering Support Agency is accepting all missions offered so it can stay in existence to protect its civilian personnel, most of whom are retired former military members of the unit.

CONCLUSION

- The Army is decommissioning the nuclear power barge Sturgis after spending more than \$1 million to install an emergency core cooling system. When the system was installed, the Sturgis was being used in the Canal Zone.
- Facilities Engineering Support Agency officials advised us that no former agency personnel who were retired military worked for the contractor on this project.
- When the Facilities Engineering Support Agency lost its nuclear mission, additional responsibilities were added.

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--The Facilities Engineering Support Agency's civilian workforce is 89, 7 of which are retired military formerly assigned to the agency.

BACKGROUND

In the early 1950s the Army decided to develop nuclear power plants as a potential source to supplement conventional electrical power supply. The program became a joint venture of the Army and Atomic Energy Commission. The Atomic Energy Commission developed the nuclear reactors, while the Army developed the non-nuclear systems and facilities, and assumed operational control of the plants. The Facilities Engineering Support Agency was assigned these responsibilities by the Army.

The first nuclear power plant was capable of producing 2 megawatts of electricity and became operational at Fort Belvoir, Virginia, in 1957. Others of various types and designs were built at different locations. The following chart is a complete listing of the Army's nuclear power plants, capacities, and periods of operation.

<u>Plant</u>	<u>Electric power</u>	<u>Location</u>	<u>In service</u>
SM-1	a/2 MW	Ft. Belvoir, Va.	1957-1973
SM-1A	b/1,640 kw	Ft. Greely, Ark.	1962-1972
SL-1	200 kw	National Reactor/ Testing Station, Ind.	1958-1960
PM-1	1,520 kw	Sundance, Wyo.	1962-1968
PM-2	2,000 kw	Camp Century, Greenland	1960-1963
PM-3A	1,800 kw	McMurdo Sound, Antarctica	1962-1972
MH-1A	10 MW	Gatun Lake, Canal Zone/Ft. Belvoir	1968-1976 (being decommis- sioned)

a/Megawatts.

b/Kilowatts.

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After the plants were built and tested, the Army eventually closed all the plants because they were too costly to operate.

The last reactor (MH-1A) was fashioned into a ship as a nuclear power barge and was named Sturgis. It was built for use as a contingency reserve since it offered strategic mobility to the nuclear power supply.

The Sturgis was sent to the Canal Zone in July 1968 to assist the Panama Canal Company in providing electricity to its customers, including the U.S. military. At the time, there was an electricity shortage because of insufficient water supply to operate the hydroelectric power plants. The water shortage was caused by increased ship traffic through the Canal Zone due to the Vietnam conflict and closing of the Suez Canal.

The Sturgis helped alleviate the power shortage by providing electricity from its reactor. To produce the 356 million kilowatt hours of power furnished by the Sturgis, the hydroelectric plant would have to use approximately 1.92 trillion gallons of water. This is equivalent to the amount of water required to transit 12 ships a day.

Original plans called for the Panama Canal Company using the Sturgis for 2 to 3 years. With the increase of power demand--about 6 percent annually--the company decided to use it through 1976.

In June 1974 it was determined that to comply with requirements of the Atomic Energy Commission, an emergency core cooling system would have to be added to the Sturgis. This system would provide a backup water cooling system for the reactor should the primary system become ruptured. A contract was awarded during the same month to a commercial firm to add to the cooling system.

In July 1976 the military commander in the Canal Zone requested that the Sturgis be withdrawn from the area because he was concerned that it might be damaged by acts of violence during the ongoing treaty negotiations between the United States and Panama.

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The Sturgis was returned to the United States in December 1976. Attempts were made to find other uses for it, but exorbitant operating costs made these efforts impossible. The Army is spending \$1.6 million to decommission the Sturgis.

DECOMMISSIONING OF STURGIS AFTER EXPENDITURE OF
MORE THAN \$1 MILLION TO INSTALL SAFETY EQUIPMENT

As a result of interim acceptance criteria published in the Federal Register in June 1971, all existing nuclear power plants were required to install an emergency core cooling system. Since the Army's policy was to adhere to standards, codes, and guides of the Atomic Energy Commission, the Facilities Engineering Support Agency initiated studies between June 1971-June 1974 to define system requirements and prepared a conceptual design.

Prior to awarding a contract for the cooling system, Army Corps of Engineers officials visited the Canal Zone in 1974 to determine future requirements for the Sturgis. Panama Canal Company officials indicated that they wanted to retain the Sturgis until 1980 or 1981. The Army then decided to install the cooling system and informed Panama Canal Company officials that they would have to share the cost. Agreement in principle was reached that the company would share up to 50 percent of \$2 million for completion of the work, with reimbursement effective after installation.

The company was relieved from this agreement after the decision to withdraw the vessel. However, Army officials stated that the U.S. Government was partly compensated for the modification. Their reasoning was based on the company paying for electricity produced by the Sturgis operating at only 50-percent capacity for approximately a year while modification work was in progress.

CONTRACTUAL ARRANGEMENTS

Invitations to bid on a competitively negotiated contract for an emergency core cooling system, including design fabrication and installation, were sent to 15 firms, soliciting bids. Two firms submitted bids.

--Hanover Engineering, Newtown, Connecticut, submitted a bid for \$1,371,228.

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--SunTac Nuclear, Incorporated, Philadelphia, Pennsylvania, submitted a bid for \$1,982,000).

On June 28, 1974, a cost-plus-fixed-fee contract for \$917,752 was awarded to SunTac Nuclear, Inc., for design and delivery only of the emergency core cooling system with a completion date of July 1, 1976.

There were 19 modifications to the contract, which eventually totaled \$3,150,565. By far, the most costly modification was the \$991,164 for installation of the cooling system. Army officials told us that the contract did not include installation because of the lack of funds and the belief that the cost estimate for installation was out of line. Furthermore, the Army did not award the contract to the lowest bidder because they felt that he was not qualified to do the job.

At the time of the award, SunTac Nuclear, Incorporated, was in partnership with the Catalytic Corporation of Philadelphia, Pennsylvania, and NUS Incorporated of Rockville, Maryland. At the time, SunTac had one employee and a president, but had done commercial business prior to this contract.

Initially, most of the work under the contract was done by NUS Incorporated. When NUS and Catalytic Incorporated dissolved their relationship, an agreement was reached with the Government whereby Catalytic assumed responsibility for the contract. SunTac Nuclear, Incorporated, became a division of Catalytic Incorporated. We did not review the procurement procedures followed in awarding and administering this contract.

DECISION TO WITHDRAW STURGIS

During the summer of 1976 the Commander of the 193d Infantry Brigade received intelligence information of potential acts of violence in the Zone during the protracted treaty negotiations between the United States and Panama. Based on this information, he requested that the Sturgis be withdrawn.

The Commander and Director, Facilities Engineering Support Agency, visited the Canal Zone in July 1976 and persuaded the Commander of the 193d Infantry Brigade to

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delay movement of the Sturgis until December 1, 1976. This action was necessary so that the mechanical portion of the emergency core cooling system could be completed and deployment options studied.

The Panama Canal Company believed that they could use the Sturgis if it were available and economically attractive; however, the plant's capacity was not considered vital for their needs in light of the 193d Infantry Brigade Commander's risk assessment. Furthermore, the company would be able to partly compensate for the loss of the Sturgis by purchasing 30 megawatts of power from the Republic of Panama's Bayano Hydroelectric Plant.

The mechanical portion of the emergency core cooling system modification was completed in the Canal Zone, and the Sturgis was returned to the United States in December 1976.

RETIRED MILITARY MEMBERS WORKING WITH CONTRACTOR

Facilities Engineering Support Agency personnel advised us that no former agency retired military personnel worked for the contractor on this project.

We did learn that since the Army's nuclear program has been eliminated, former military members of the unit are accepting jobs not only with Catalytic, but with other firms in the nuclear business that can use their skills.

ACTIVITY ACCEPTING BUSINESS TO PROTECT CIVILIAN EMPLOYEES WHO ARE RETIRED MILITARY

Since the Facilities Engineering Support Agency is phasing out the Sturgis, which is the last nuclear power plant, the activity's mission had to be redesigned.

The activity is currently performing the following mission:

- Facilities Engineer Support--the command furnishes assistance to 180 installation commanders worldwide in the form of testing electrical systems, energy saving programs involving structures, heat distribution systems, and general energy systems.
- Nontactical Generator Programs--the program involves storage and maintenance of a nontactical generator at Tooele Army Depot, Utah. The purpose of the program

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is to store and maintain generators used in Vietnam to preclude a severe shortage of generators for facilities, as occurred during the early stages of that conflict. The unit also makes generators available to the State Department for use abroad. The agency currently is providing generator support to the Dominican Republic.

- Energy Research and Development--this responsibility was assigned to the Agency in 1975 primarily in response to the energy crisis. Acting as lead agency for the Corps of Engineers, the Agency is primarily concerned with assisting post commanders to conserve energy.
- Army Facilities Components Systems--this mission was assigned in April 1977. The unit acts as a repository for drawings and designs of buildings for various facilities such as airfields, base camps, and post facilities. Should a war or other contingency occur, the theater staff engineer would use these designs for facilities rather than design the facilities himself.
- Military Occupational Specialty Training--the unit conducts courses for operators of large diesel and gasoline turbine driven generators.

RETIRED MILITARY PREVIOUSLY WITH
UNIT NOW WORKING AS CIVILIANS WITH
FACILITIES ENGINEERING SUPPORT AGENCY

There are seven military retirees assigned to the unit in civilian capacities who were formerly military members of the unit. The total permanent civilian workforce is 89.

We have not presented this report to the Department of Defense for official comment. However, we have discussed the results with Department officials. After 30 days from the date of this report, we will send copies to the Secretaries of Defense and the Army.

Sincerely yours,


for Fred J. Shafer
Director