

Project Sanguine Short-Circuited

Under pressure from Capitol Hill and citizens' groups, the Pentagon announced last week that it would rethink its submarine-communications transmitter project, which would have turned much of northern Wisconsin into a giant, electrified grid.

The underground grid was to have been an extremely low frequency radio transmitter used to send missile-firing orders to submerged Polaris submarines, eliminating the need for the craft to surface. The Navy called it Project Sanguine.

Congressmen, led by Senator Gaylord Nelson, and conservationists had contended that heat, ground current, and radiation from the grid would endanger humans and the environment.

The Pentagon last week announced that research breakthroughs had shown that "much smaller, lower power transmitters are possible. Consequently," the announcement continued, "during a further research period, expected to last from 6 months to a year, the Navy will evaluate a number of new potential designs, some of smaller size, some located outside Wisconsin, and some that would cause no more interference problems than present commercial power units and radio transmitters."

Project Sanguine would have required an 800-million-watt power generating installation—probably nuclear-powered. Wires, buried at 3- to 6-mile intervals, would bounce signals of about 45 cycles per second off the Precambrian rock shield that underlies most of northern Wisconsin. The system would cover 22,000 square miles—about 26 counties—and would cost \$1.5 billion. It would be virtually bombproof.

The Navy had said earlier that electrical radiation would be given off by the grid, as well as an indefinite quantity of low-frequency rays and heat, but officials had insisted that a \$175,000 study by Hazelton Laboratories, of Falls Church, Virginia, had shown no bad side effects. Opponents fear that wire fences in the area, which Navy officials have admitted may become charged, will carry sufficient power to kill the soil and expose humans and animals to severe shock and perhaps death.

The State Committee to Stop Sanguine, chaired by Kent Shifferd, professor of history at Northland College, Ashland, Wisconsin, was formed this fall to lobby against the system. Shifferd called the Hazelton report "completely inadequate. No ecological survey of the area was done at all." Scientists from the group will examine the report.

Senator Gaylord Nelson, who was governor of Wisconsin when the project was approved 10 years ago, said he was never informed of it. He favors a serious debate in Congress to prove the necessity of the system. "This is a fundamental issue too important to be left solely to the judgment of the Navy," he said.

An aide to Nelson said that 2 years ago the Navy had begun installing a test facility—with 14-mile-long antennas—in a forest near Clam Lake, Wisconsin. That was when state officials and congressmen learned about the project. Then the Navy conducted public meetings around the state. Newspaper articles—most recently a long article in the *Milwaukee Journal's* Sunday supplement—aroused public opinion.

Wisconsinites made their feelings known to Secretary of Defense Melvin Laird also. Laird had been a congressman from Wisconsin's 7th District from 1952 to 1968. At a meeting last month at Stevens Point, Wisconsin, Laird reportedly was blamed for Project Sanguine.

Representatives Henry Reuss and Robert Kastenmeier and Senator William Proxmire also began to lobby against the project after the Navy had revealed it.

The Navy insisted last week that "under no circumstances" would Sanguine be built unless "it could be built in a manner entirely compatible with its surroundings." Research and development work on Sanguine will continue at a cost this fiscal year of \$20 million (bringing the project's budget so far to \$38 million); the decision on deployment will be postponed until next year.—NANCY GRUCHOW

Basic Research: Congress on Prowl

Congressional debate on a weapons and research bill, which began in July with headlines on the ABM, ended last week with a footnote which could demolish all Pentagon-supported basic research.

Two oddly paired congressional hunters are about to join a new foray against such research, armed with what looks at first glance like a rather formidable weapon. The two are Senate Majority Leader Mike Mansfield, (D-Mont.) and House Armed Services Committee Chairman L. Mendel Rivers (D-S.C.). Their weapon is Section 203 of the recently approved military procurement and research authorization bill. Devised by Mansfield to terminate Pentagon support of basic research [and introduced as a Senate amendment by J. W. Fulbright (D-Ark.)], it says the Defense Department shall not finance "any research project or study unless such project or study has a direct and apparent relationship to a specific military function or operation."

In Mansfield's view this language could cut off Pentagon support for about \$400 million a year of "non-mission-oriented" basic and applied research carried out mainly at educational institutions and affiliated organizations. Mansfield apparently would like to see the National Science Foundation pick up the tab for such research in the future.

In the view of Defense officials concerned with administering the new law, however, it is "without effect," since "as a matter of policy, and surely as a matter of rhetoric, all the work we support is relevant to military needs." The Pentagon's initial reaction is to carry on as before. Officials say it will be up to Congress to challenge specific projects. In response, Mansfield's staff suggests the General Accounting Office will be asked to keep an eye on the Pentagon's performance.

All this could evolve into nothing more serious than a genteel debate over legal verbiage and some barely perceptible tightening of Pentagon guidelines. But two factors suggest that the new law could have a far more explosive effect. For one, the more the Pentagon insists that all its research projects are defense-oriented, the more ammunition it gives to students and faculty who want to end university-military ties. The other factor is Congressman Rivers.

In earlier House action, to encourage a show of more "backbone" by academic administrators, Rivers' committee ordered the Pentagon, in the authorization bill, to give 60 days of advance notice before awarding new grants or contracts for academic research, and to inform Congress of each school's record of cooperation with the military. The provision elicited strong opposition from the White House, the Pentagon, and the scientific community (*Science*, 10 October).

The provision was dropped at the insistence of Senate members of the conference committee which drew up the final version of the bill. But the House conferees declared that "the continued award of these defense research and development contracts to educational institutions which appear to be making a determined effort to either ignore or deter our national defense effort will be given very careful scrutiny," and they directed the Pentagon to be ready to supply details, "including the identity of persons receiving classified information." According to a staff member of the House Armed Services Committee, the new Section 203 will help put teeth into any investigation along such lines.

The House-Senate conferees also watered down strict Senate-approved controls on chemical and biological weapons. In the most important change, the Surgeon General was deprived of veto power over open-air testing and transportation of lethal agents. But Senator Thomas J. McIntyre (D-N.H.), sponsor of the Senate CBW amendment, promised to hold hearings soon on the Pentagon's whole CBW effort, including its observance of new safety provisions (*Science*, 22 August).

—ANDREW HAMILTON

A Washington journalist, Andrew Hamilton will be writing for the news section while Philip M. Boffey is on assignment in Japan.