

Concrete, ND - The countdown toward completion of the world's greatest eyes - the North Dakota Safeguard System being deployed here and at Nekoma, ND, for detection of ballistic missiles - is continuing toward operational readiness next year.

Scheduled to be turned over to ARADCOM (Army Air Defense Command) in October, the section-by-section checkout of the highly refined radar system has already included tests in which orbiting satellites have been tracked.

Essentially, all of the mind-boggling electrical equipment has been installed on the two sites. Only the progressive testing remains before G.I. Joe, Uncle Sam and John Q. Public can theoretically sit back and say, "Whew, now we can't be attacked without knowing about it."

The system and its effects upon the world are massive.

Conceived by this nation's greatest engineers and military geniuses, Safeguard represents defense of this country's offensive capabilities. It is the deterrent that hopefully will make it suicidal for our enemies to ever attempt to defeat us by nuclear means. Our retaliatory means - the Minuteman missiles we have employed around the nation - should always be safe... safe until technology finds new and better offensive weapons.

"If it does its job," Glen Robertson, Safeguard director of public affairs, says, "they (the Spartan and Sprint defensive, intercept missiles of Safeguard) will never be fired. Its (Safeguard's) job is to make the Minuteman a protected offensive weapon and deterrent."

There are five major components of Safeguard: Perimeter Acquisition Radar (PAR), the long-range radar based near Concrete; Missile Site Radar (MSR), the short-range radar based near Nekoma; Spartan missile, the long-range intercept missile for which 30 cells are a part of the MSR site; Sprint missile, the short-range, high velocity intercept missile for which there are 16 cells on the MSR site and four remote fields of 16, 14, 12 and 12 each located nearby, and the data processor which ties everything together.

"Everything else (electrical and other utilities, housing, maintenance, security, life-keeping services and facilities) is just to support the five major components," Robertson says.

There are tremendous backups to make sure that the tactical support system is always functional. Both PAR and MSR site buildings have their own modern, highly automated power plants and highly-refined equipment to control their environments. The cooling system for the computers has equipment to deionize the water and remove all electricity carrying characteristics from it so that it doesn't contaminate the computer program. Both water and chilled air are used in the highly technical and delicate process.

Heat exchangers taking heat created by the data processing equipment provide internal heat for the radar buildings.

In operation, Safeguard will scan the atmosphere until a return, or target, is detected. With a detection, it will be possible to focus a part of the antenna elements on the target, while the remainder continue scanning.

The radar screen is not the conventional sweeping light ray that most of us envision. There will be nothing in pictorial form. Instead, information will appear in a symbolic display on the consoles. It will consist of answers to whatever questions the operator asks of the computer.

Once a detection is made, the computer and radar will together be capable of providing information on the identification of the target, its type, size, mass, direction, speed, whether it is in orbit or on a ballistic re-entry path and if it is on a re-entry path, from where it was launched, its predicted impact, its threat and the defense options available.

The computer and radar will also be responsible for launching of the intercept missiles, guiding them toward the target and, at the right time, detonation of the warheads.

"Should the defense missiles ever be fired," Robertson says, "they will be detonated on command, not on impact or by any other means. The missiles would be launched and guided to target, not put up there like a shotgun blast hoping a duck will fly into it."

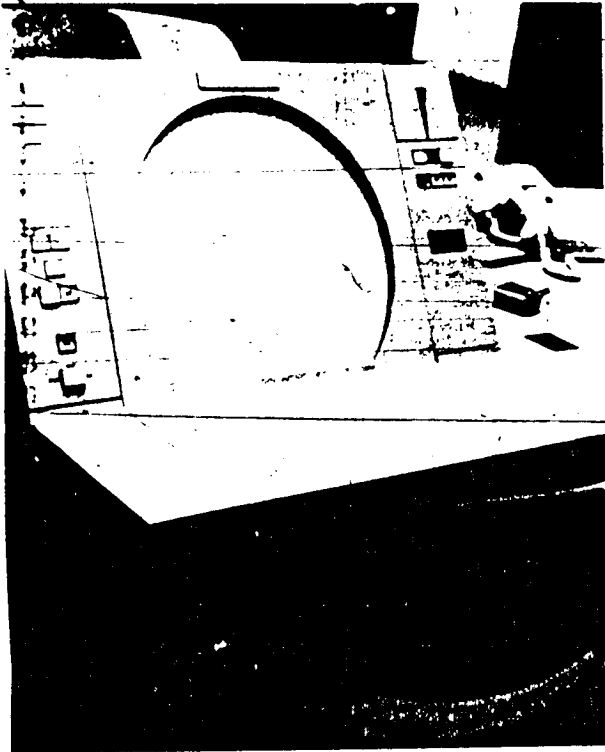
Once the system is activated, man will basically stand back and watch. He will, of course, first have to give the computer its commands, but from that point on all the decisions can be made by the electrical machinery. The human commands will only enable it to do whatever has to be done.

The United States has invested some \$5.6 billion into the concept, design and construction of the system, although only some \$460 million has been spent in North Dakota. The cost figure of construction on the sites, however, does not include money spent for military pay during construction or for the family housing units (200 of them at the MSR site).

Neither does it include the missiles that will be deployed in the area.

The biggest expense has been the 20 years of research and development that began in the 1950s and includes the MSR prototype - the Kwajalein Missile Range on the Marshall Islands in the Pacific southwest of Hawaii. There is no prototype of the PAR facility.

Work in North Dakota began in 1969 with the Army Corps of Engineers in charge of physical construction. Control has since passed to the US Army Safeguard System Command through the site activation commander for installation of equipment and testing. ARADCOM will become the operational command when the final change in control occurs in October.



Hot seat

It will be at this console that the commander will make decisions and give commands to the computer if the ABM Safeguard System is ever needed in time of attack, or emergency. This console is at the PAR site. A similar console is at the MSR (Missile Site Radar) building near Nekoma, N.D., which is headquarters for Safeguard.



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Computer checkout

A test engineer sits in the command room of the PAR (PERIMETER Acquisition Radar) building near Concrete, N.D., as he gives commands to the data processor and fellow engineers during checkout of the

electrical machinery. The screen in front of him is one of the display consoles that will give information on targets tracked by the radar.