

ARMY REACTOR PROGRAM

ARMY REACTOR OFFICE THE SECOND YEAR

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The Army Reactor Office stood up during the fall of 1996 under the provisions of AR 50-7, and in response to findings from a Department of the Army Inspector General (DAIG) evaluation. This article will detail the history of the Army's involvement in nuclear power, what is going on today, and what the future holds.

Background

In the early 1950's, an effort began within the Army to develop non-weapon uses of nuclear energy. MG Kenneth D. Nichols was appointed as Chief of the newly formed Office of Research and Development and the Army began to develop the tech-

nology for power production using nuclear energy. The Atomic Energy Commission formed the Army Reactors Branch in support of the Corps of Engineers Nuclear Power Division in an effort to develop viable nuclear power plants for the U. S. military. The program quickly developed plans for a prototype reactor at Fort Belvoir, Virginia, and funding was approved in 1954. The prototype specifications included the potential for air transportability and a design that would permit the completion of construction within a three-year period.

This prototype was the Army's first operating reactor, the Army Package Power Reactor,

consisting of a pressurized water reactor with a design thermal power of ten megawatts. The reactor was built at Fort Belvoir and was later renamed the SM-1 (Stationary Medium Power-1). An operator training program was organized to provide a supply of qualified reactor operators for the power plants operating in the field. Personnel from all three Services were selected to provide the operating crews, and training was also performed at Fort Belvoir. After a short 18-month construction period, the SM-1 began producing nuclear power on April 8, 1957, and began producing electricity three weeks later. It was the first nuclear



ML-1 Mobile Nuclear Power Plant

power plant in the United States to provide electrical power to a commercial electric grid and was used to train approximately 800 reactor operations personnel during its 16-year life.

From the late-1950's to the mid-1970's, the reactor program included:

- *Two stationary power reactors at Fort Belvoir, VA and Fort Greely, Alaska.*
- *A barge-mounted power reactor that provided electricity to the Panama Canal Zone.*
- *A portable-power reactor in Greenland.*
- *A prototype mobile, truck-mounted reactor that underwent testing in Idaho.*
- *Two prototype reactors to investigate reactor designs both built and tested in Idaho.*
- *Five research reactors to investigate radiological effects, in a number of stateside locations.*

Currently, two fast-burst test reactors remain in operation at Aberdeen Proving Ground and White Sands Missile Range. These are primarily used for nuclear weapon and radiation effects testing.

Call For Action

In 1993, the DAIG conducted a Nuclear Management Evaluation (NME) of the Army's Nuclear Reactor Program. The program at that time was mainly under the management of the Department of the Army Safety (DASAF) as formalized in AR 385-80 (1984). The 1993 NME was prompted by recurring deficiencies found during routine inspections. Mainly, there was not a comprehensive program, and DASAF didn't have any organic nuclear engineering expertise. DASAF mainly depended on contractors for technical input. The NME reported four major find-

ings: First the Department of Defense (DoD) was not in full compliance with the Presidential Decision Directive (PDD) of 23 Sep 61. Subsequently, it was found that the referenced PDD was never signed and the provisions of the Atomic Energy Act of 1954, as revised, were the authority for the Army's reactors.

Second, there was not an Army Staff proponent directly responsible for management of the Army Reactor Program. Subsequently, the Deputy Chief of Staff for Operations and Plans (DCSOPS) assumed proponenty for the Army Reactor Program and, in August 1996, published AR 50-7, Army Reactor Program, establishing the policies, responsibilities, and procedures for its implementation. DCSOPS appointed the United States Army Nuclear and Chemical Agency (USANCA) as the focal point for management of the Army Reactor Program. USANCA established the Army Reactor Office with a GS-15 as the Reactor Program Manager and a Major as the assistant manager, responsible for management of the Army Reactor Program.

Third, the Army lacked overall management of its radiation safety program. As a result, DA formed an Army Staff working group to resolve the Radiation Safety Program issues. This working group revised the occupational radiation protection program and the nuclear reactor health and safety program. A final draft regulation, AR 11-XX, that consolidates and updates the numerous publications previously used to stipulate the Army Radiation Protection Program is currently being staffed. Army Safety has created a Director of Army Radiation Safety to provide safety overview.

Fourth, past decisions on the decommissioned reactors required review in light of current standards. Current standards and regulations are generally more restrictive than those in effect when the Army was decommissioning its reactors. The United States Corps of Engineers (USACE) has designated its Center for Public Works (CECPW) to manage the deactivated reactors and look at the status of the reactors in light of the current regulations. DCSOPS then tasked



MH-1A Barge-Mounted Nuclear Power Plant

the ARO to provide a cost-benefit analysis to decide the best course of action to ensure responsible treatment and final disposition of the deactivated reactors.

The Army Reactor Office

As mentioned, the DCSOPS appointed USANCA as the focal point for management of the Army Reactor Program and home for the Army Reactor Office (ARO). Mr. Tim DeBey was the first program manager, serving from September 1995, one year in advance of the effective date of AR 50-7, until April 1997. During his tenure, Mr. DeBey visited seven reactor sites, researched and determined the Army's continuing responsibilities for the past and current reactors, and prepared temporary reactor permits for five sites. Additionally, Mr. DeBey implemented a comprehensive testing program leading to certification of all operators as part of the overall reactor permit process. The ARO is now managed by Mr. Brendan Burns with MAJ Brent Bredehoff the Assistant Program Manager. They continue to monitor the status of the operational fast-burst reactors and the deactivated power and research reactors. They are specifically involved in the decisions concerning monitoring, disposition, and additional cleanup of the deactivated reactors, and reviewing safety analyses and applications from the two fast-burst reactors for extended operating permits.

The Army Reactor Council

AR 50-7, Army Reactor Program, also requires that an ad hoc council, the Army Reactor Council (ARC), be formed to provide overall executive oversight of the Army Reactor Program. Council members include personnel from ODCSOPS, DA Safety, USANCA, Corps of Engineers, the Surgeon

General, Army Materiel Command, and Test and Evaluation Command. This council meets as required but at least semiannually, and provides a formal mechanism to assure and document to the DCSOPS and DA Safety the safety and status of the Army Reactor Program. The council conducted its first annual operational review of the Aberdeen Proving Ground and White Sands Missile Range reactors in May 1997 and its second in April 1998. These comprehensive reviews looked at compliance and adequacy of the reactor operations and found the reactors to be reliably and safely operated, maintained, and secured.

Current Status

There are currently three shutdown power reactors and one research reactor in storage for long-term radioactive decay, two fast-burst reactors in operation, and the remaining facilities either dismantled and cleaned up or the responsibility of a government agency other than the Army. The three power reactors in storage are the SM-1 at Fort Belvoir, the SM-1A at Fort Greely, and the MH-1A at the James River Reserve Fleet. The research reactor is the old Diamond Ordnance Radiation Facility in Maryland. These facilities had initial defueling and cleanup operations performed at the time of their shutdowns. Final cleanup will be required before the shutdown reactor sites can be turned over for unrestricted use.

Future Activities

The first year and a half of operation under AR 50-7 has resulted in an ongoing, extensive review of all Army reactors to ensure they are being maintained, secured, and operated in a manner that is compatible with current national standards. As the

supporting documentation is approved, reactor permits will be reissued with additional specifications as determined from the review process. The objective of all this effort is for a HQDA-level reactor proponent with an active program to apply current national standards, improve oversight, and resolve concerns at all Army nuclear reactor facilities. The Army Reactor Office at USANCA is working to do just that.

CALENDAR EVENTS

**ARMY REACTOR COUNCIL
MEETING
28 JULY 1998**

**WHITE SANDS MISSILE
RANGE
OPERATING PERMIT
JULY 1998**

**ARMY REACTOR PROGRAM
ANNUAL REPORT
OCTOBER 1998**

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