

REINSTALLATION ASSESSMENT  
OF  
IOWA ARMY AMMUNITION PLANT

REPORT NO. 127

JANUARY 1980



US ARMY  
TOXIC AND HAZARDOUS MATERIALS AGENCY

ABERDEEN PROVING GROUND, MARYLAND 21010

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PLANT, MIDDLETOWN, IA 52638.

organic acids, salts (sodium nitrite, zinc phosphate, barium chromate), and metal stripping solutions. (A more complete listing of materials along with locations may be found in "Achieving a Better Environment")<sup>13</sup>

Yards C, D, E, F, G, H, and J are used for the storage of high explosives, riot control agents, and munitions containing radioactive elements. These materials are kept in earth-covered igloos and above ground magazines. Riot control agents (CS and CN) are contained in filled munitions whereas high explosives are both in bulk form and in end items. High explosives include TNT, RDX, HMX, lead azide, lead styphnate, tetryl, black powder, PETN, PBX, ammonium nitrate, composition B, composition A, various propellant powders, and other mixtures. Finished items containing these materials include various warheads, grenades, mines, fuzes, rounds of various calibers, and detonators.

Carcinogens and oncogens that have been used at IAAP include asbestos, benzene, beryllium, chloroform, MOCA (methylene-bio-ortho-chloroaniline), nitrosamines, o-toludine, zinc chromate, and trichlorethylene.<sup>12</sup>

#### b. Chemical Agents

There have been no lethal or toxic chemical agents stored or handled at IAAP. CS and CN-filled munitions are stored in various magazines as mentioned in Section II.A.6.a.

#### c. Biological

There have been no biological agents handled or stored at IAAP.

#### d. Radiological - Permits and Licenses

Atomic Energy Commission (AEC) activities on IAAP began with the takeover of Line 1 facilities in 1947; production by AEC began in September 1949. These facilities were operated for AEC and later for Energy Research and Development Administration (ERDA) by Mason & Hanger - Silas Mason Co., Inc., the Army GOCO operator for the remainder of the installation. Other facilities used by AEC/ERDA included Yard C; Division B Explosive Disposal Area; parts of Yards E, F, and L; an area just west of Line 5B; and the FS Area<sup>14</sup> (Figure 4).

Little information was available on former AEC activities at IAAP due to the secret nature of the work. Line 1 was used to assemble nuclear weapons and several high explosives were used there. Radioactive materials handled on Line 1 were received in a sealed configuration and were swipe tested for leaks before use. All buildings involved in the radioactive material operation were surveyed prior to ERDA's departure (1 July 1975) and were found to be clean by contractor.<sup>15</sup>

The only real property identified as having been contaminated with radioactive material was area FS-12 located at the north end of the FS Area. During the period of December 1965 through December 1973, area FS-12 was the site for the destructive testing of 701 shots of D-38 (depleted uranium 238) and high explosives. During these tests, 4,023,900 grams (1.7442 curies) of D-38 were dispersed to the environment. Following these tests, the FS Area was surveyed for radioactivity and subsequently decontaminated by removing the topsoil. During July 26 through August 2, 1974, 1,221 71.9-liter containers of contaminated material were shipped to a commercial firm (Nuclear Engineering Company, Sheffield, Illinois) for disposal.

Personnel from EPA visited IAAP on September 7, 1977 to review the status of radioactive contamination of the facility. A limited survey of the area by EPA showed gamma ray levels that ranged up to 10 times the background level. A sample of soil at the point of highest reading and a water sample from Long Creek which drains the firing site area were sent to the EPA Las Vegas Laboratory for analyses. Results of analyses were sent to IAAP in a letter dated May 30, 1978. The IAAP personnel subsequently called EPA for an evaluation of the results and were told that there was "absolutely nothing to be concerned about."<sup>16</sup>

IAAP currently has two permits and one license to handle radioactive material. Permit No. P14-01-03 (expires 28 February 1979) authorizes receipt and storage of sealed sources of strontium 90-yttrium 90: 10 sources of 50 millicuries each and 10 sources of 5 millicuries each for use in density gages. Presently there are three gages.

Under Permit No. P41-01-02 amendment 02 (expires 31 August 1981), coverage is provided for the use of sealed sources of cesium-137 (8 microcuries in a dosimeter calibrator), nickel-63 (8 microcuries in a gas chromatograph), and thallium-204 (0.1 millicuries in an electron capture assembly). These instruments are used, respectively, to calibrate dosimeters, to analyze pesticides, and to measure thickness of metals.

License number 16-17692-01 authorizes the use of sealed sources of cobalt 60: one source of 200 curies and three sources of 1,000 curies for radiography; one source of 25 millicuries and another source of 100 millicuries for instrument calibration.

The probability of contaminating the environment with these sealed isotopes is considered by the contractor to be very small.<sup>13</sup>

In the early 1960's, an atomic bomb that had received minor damage in an airplane crash was brought to IAAP for disposal. The bomb was disassembled, part of it went to the Explosive Disposal Area and the classified parts were sent off the installation for disposal. No radioactive contamination resulted from this exercise.

Source: Installation Asst of IMP  
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Figure 4. Facilities that were used by the  
Furns Division A. E. C. (ERDA Plant)

