

The Edwin R. Bradley Radiological Laboratory at the US Army Chemical School at Fort McClellan, Alabama, is just that—a teaching laboratory concerned with radiation. Named for Ed Bradley, a long-time instructor with the School, the lab is located in the basement of Building 2281. The lab supports the Radiological Division of the NBC Propensity

Training Department at the US Army Chemical School.

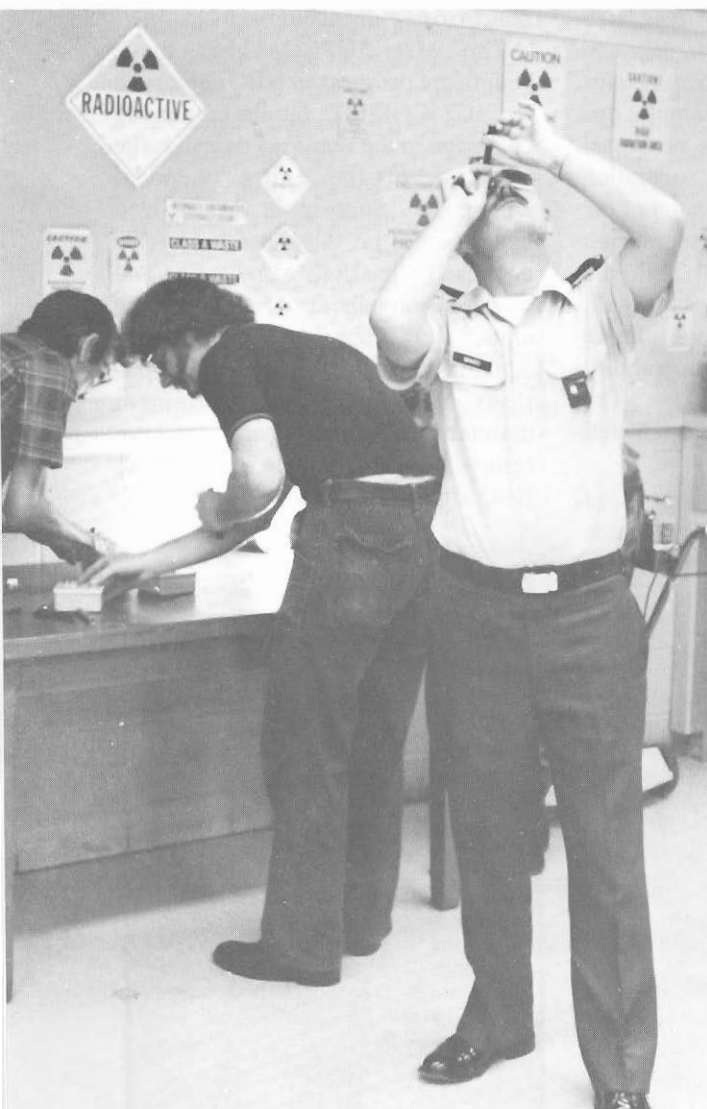
The lab, regulated by the Nuclear Regulatory Commission (NRC), operates under two NRC licenses that permit the use of radioactive material. The lab is inspected annually.

A radiological response team assigned to the lab assists in handling any type of radiological accident on

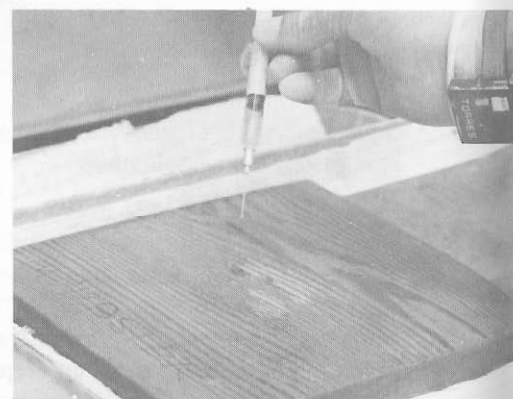
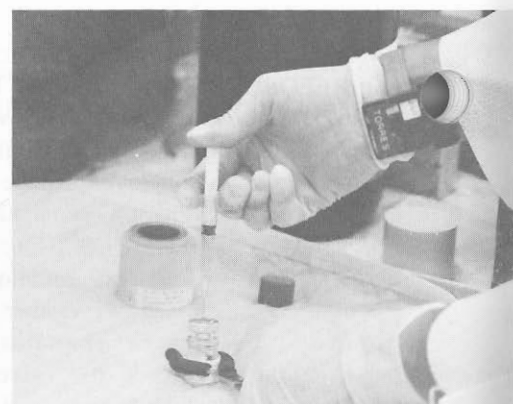
Fort McClellan or Pelham Range, should one occur. The lab also supports Fort McClellan and Department of the Army in case of a nuclear accident. Fort McClellan is listed on the Nuclear Weapon Accident Response Procedures Manual. In the event of such an accident, lab personnel ensure the health and safety of the individuals in the accident area.

—ever wonder what's going on?

A Look Inside the Rad Lab



Above, SSG Ward reads a dosimeter prior to certifying it with the UDM-2 calibrator, above right. Right, a student zeros a dosimeter.



Top, health physics technician extracts radioactive Gold-198 and applies to wood. (Note: Needle shield removed for photo.)

Safety first is the rule of the lab. Students wear personal radiation monitoring badges and are thoroughly monitored before they leave the lab. Radiological safety officers (RSOs) are always present in the room with the students during the entire lab practical exercises. No major accidents have occurred with students working with "hot" radioactive material.

Radioactive materials are used for training purposes only and are kept in a secure area within the lab. Only qualified individuals have access to the storage area.

There is always the possibility that a student may accidentally drop material on the floor. If that material is radioactive, the lab floor becomes

contaminated. Such minor accidents seldom happen, but if one occurs, the RSOs survey the area, mark "hot spots," and decontaminate the floor.

All students in courses requiring use of the laboratory must familiarize themselves with the AN/PDR27 radiacmeter and be able to determine whether the radioactive contamination is a beta and/or a gamma emitter. Officer Basic Course, Chemical Officer Advance Course, NBC Specialist Course, and Basic Noncommissioned Officer Course students also receive instruction in the lab on the use of radiac instruments. Two complete courses are taught in the Lab: the Radiac Calibrator Custodian Course for local radiation protection personnel (RPOs) and the Radio-

logical Safety Course for installation RPOs and above.

The Radiac Calibrator Custodian Course, one week long, trains officer, enlisted, and civilian personnel to serve as calibrator custodians and/or local RPOs. Students completing the course return to their units and/or places of assignment as qualified radiac calibration custodians. Their jobs will be to supervise the use of radiac calibrators or local radiation safety programs.

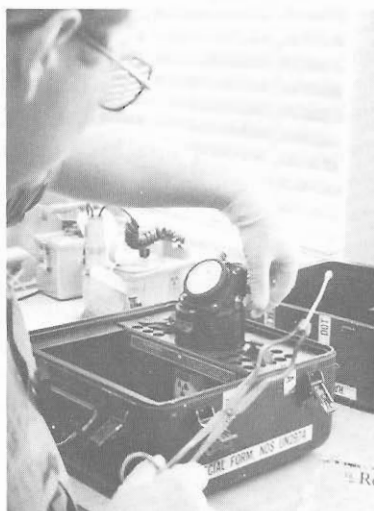
All radiac instruments must be calibrated. If not, they give false readings when used for monitoring suspected radioactive areas—a potentially life-threatening situation. Students spend laboratory time working with the AN/UDM-2, AN/



Left, 1LT Pool places smear into scaler to determine possible contamination. Above, a radiological laboratory practical exercise. Below, SSG Miller applies decontaminant to contaminated wood.



Top, SP4 Casey inserts batteries in AN/PDR27. Right, SP4 Casey prepares for a leak test of UDM-2.



UDM-6, and AN/UDM-7C radiac calibrators. The AN/UDM-6 and -7C contain the radioactive source plutonium 239. The AN/UDM-2 contains the radioactive source, strontium-yttrium 90.

Putting the radiac instruments into one of these known radiation fields

(strontium-yttrium 90 or plutonium) and taking a reading will determine whether or not the instrument is measuring correctly. If not, it must be adjusted (or calibrated) until it gives the correct reading.

The Radiological Safety Course is three weeks long and provides officers, enlisted, and civilian personnel with the skills and knowledge pertaining to radiological safety principles and procedures. Students completing the course qualify to

perform the duties of a radiation protection or control officer at the installation level and above.

The RPO has a peacetime role. He makes sure the Army can train and function in a peacetime environment.

Through classroom and laboratory work, students receive a working knowledge of fundamental radiological safety principles for ionizing and nonionizing radiation. They learn the practical application of those principles to the storage, handling, transportation, disposal, reporting, control, and general safety aspects of radioisotopes, neutron sources, microwave, laser, and machine-produced radiation.

Practical exercises are part of the course and the future RPOs spend about 60 hours in the laboratory. During one lab exercise, the students decontaminate different types of surfaces—metals, wood, glass, plexiglass, and ceramic—that have been radioactively contaminated. Wearing rubber gloves and eye protection, they decontaminate the surfaces, using a variety of decontaminants. Then the students monitor the surfaces with a radiacmeter to determine whether any contamination remains. The results are recorded and compared.

Students also become familiar with the different materials used in radiation shielding. Shielding materials in routine use range from 1/8-inch to two inches thick and include such diverse materials as steel, lead, water, and concrete. A sample shield is placed between a radiacmeter and a radioactive source. The meter is read with and without the shield in place to determine the effectiveness of the shielding material.

The laboratory fills a vital need for the Chemical School, Fort McClellan, and the Army. In an emergency, it could also serve as an important resource for the surrounding area. Skills taught there can be put to use by students upon returning to their respective assignments, whether military or civilian.

Top, lab RSO monitors student's hands for plutonium contamination. Bottom, SSG Sargent is monitored by SFC Desantis, lab RSO, for Gold-198 contamination.

