Information Paper from: US Army TACOM-RI LCMM
Date: 11 April 06

U.S. Army TACOM Life Cycle Management Command (LCMC) Request to Exempt the GID-3 ACADA Chemical Detector, Chemical Agent Monitors (CAMS) and Improved Chemical Monitor from specific NRC license and SSDR Requirements

References:

a. NRC Sealed Source Registration NR-1129-103-S
b. NRC Sealed Source Registration NR 1129-101-S
c. NRC license 12-00722-06 issued to US Army TACOM-RI

The US Army TACOM LCMC possesses sealed source device registrations for the GID-3 ACADA and Chemical Agent Monitor (CAM) and Improved Chemical Agent Monitor (ICAM). These devices are specifically licensed by US Army TACOM LCMC, Rock Island, IL. These devices are also licensed by the US Navy and US Air Force under their own respective master radioactive materials license. The Army possesses the SSDR's for these devices. The Army believes that these devices which contain a maximum of 15 and 30 mci of Ni63 (low energy beta emitter) do not pose a risk to public safety or the user under any condition in which they are used. The fact that these devices are under military control would prevent contact of the devices by the general public. The Army, Navy and Air Force will continue to maintain control of these devices as required in their applicable radiation safety programs.

The Army is requesting to amend the referenced sealed source device registrations (SSDR's) for the GID-3 ACADA and CAM/ICAM monitors to exempt them from specific and general licensing. Our request is based on rational provided below.

A. Conditions of Use and Control.

The CAM/ICAM and M22 GID-3 are manufactured and distributed to the Army, Navy and Air Force by Smiths Detection, Edgewood, MD. These devices are generally licensed by Smiths Detection. The Army, Navy and Air

Force are issued a specific number of detectors that are issued to enlisted soldiers and civilian (Federal) security personnel. The Army, Navy and Air Force maintain an inventory of the devices. At no time are these devices distributed outside of their control without coordinating with the other branch of service. Databases are established to account for the devices. Technical manuals for the CAM/ICAM and GID-3 ACADA direct users and maintainers not to tamper with the drift tube module contained inside the device. Lost devices will continue to be reported to the applicable radiation safety office regardless if lost on Federal property, during training exercises or in public domain. Disposal of the devices will be controlled through the appropriate radiation safety office for each service. The Army, Navy, Air Force will continue to control the use of these devices through their respective radiation safety program.

B. Exemption under 10 CFR, Part 30.20, Gas and Aerosol detectors containing by-product material.

The GID-3 ACADA and CAM/ICAM by design are gas detectors. As stated in part 30.20 gas detectors are exempt from licensing pursuant to 32.26. Since the Army, Navy and Air Force will not manufacturer, process, or initially transfer for sale the detectors or monitors, the exemption for licensing for these devices should apply.

C. Leak Testing Data From the Devices.

Annual Leak testing of the CAM/ICAM over the past 10 years has yielded more that 100,000 test samples. The CAM's ICAMs has shown a failure rate of less than 0.015 percent. The Army considers a failed test in excess of 1,000 dpm (0.00045 uci) which is far below the limit set forth by the NRC (0.05 uci). In addition, maintenance leak tests performed on the CAM/ICAM Ni63 drift tubes has not shown any failures in the 10 year period.

The GID-3 ACADA and CAM/ICAM's are exempt from annual leak testing. The licensee contacted the manufacturer (distributor) to gather leak test data from maintenance performed on the GID-3. The manufacture had indicated

that over 600 maintenance leak tests were performed on the GID-3 drift tube Ni63 cell and test results showed no contamination. Over 1,000 ICAM's were repaired at Army maintenance facility and only one drift tube assembly failed leak testing (1,700 dpm (0.76 nanocuries)). This data provides evidence that the Ni63 sourse contained inside the housing is stable and is not migrating out of the drift tube module. The Air Force and Navy have performed leak testing showing similar results.

D. Radiation hazards to the User and General Public

These devices are identical to the GID-3's and CAM2 already available commercially. Since the initial fielding of the CAM/ICAM (1995) and GID-3 ACADA (1999)by the Army, there has not been a documented case of personnel being exposed to Ni63 from the handling the devices or performing maintenance on the device. The source of this information is from thousands of maintenance leak test surveys conducted at hundreds of locations throughout the Army. In addition, Ni63 bioassay's were never required for US Army personnel from handling or performing maintenance on the devices. The US Army Center for Health Promotion and Preventative Medicine (USACHPPM), Aberdeen, MD has never had a positive test result bioassay for Ni63.

The CAM/ICAM contains a maximum of 15 mci and the GID-3 ACADA 30 mci of Ni 63 (low energy beta emitter 63 KeV). Based on the characteristic of Ni63, configuration on the drift tube module that contains the Ni63 source, and extremely low probability for internal exposure, the device poses no threat to the general public or user and therefore should be exempt from licensing.