FACT SHEET

MANAGEMENT GUIDANCE FOR BARIUM SULFATE

BACKGROUND

Barium sulfate is a radiopaque compound that is insoluble in water and dilute acids. Formulations of barium sulfate are used for radiological diagnostic procedures involving the upper and lower gastrointestinal tract.

USED FORMULATIONS

Whether the radiological procedure involves taking the material orally or rectally, the patient uses most of the formulation. After the radiographs are taken, the patient will eventually pass the barium formulation when using the bathroom either at the healthcare facility or at home. The discharged formulation should not affect the sewage treatment plant operations or cause regulatory noncompliance.

UNUSED FORMULATIONS

The U.S. Army of Public Health Center performed the Toxic Characteristic Leaching Procedure test on three samples of barium sulfate diagnostic aids from two different manufacturers. The analytical results were 5.97 milligrams per liter (mg/L), 7.07 mg/L, and 4.33 mg/L. The mean value obtained was 5.79 mg/L, which is well below the regulatory limit of 100 mg/L (Title 40 Code of Federal Regulation (CFR) Part 261.24, Toxicity characteristic). Any unused portion from the milkshake or enema procedure may be poured into the toilet and flushed. The empty container may be recycled or disposed with the general trash. Tests on wastewater treatment sludges show leachable barium levels to be below the regulatory threshold in 40 CFR Part 261.24.

FIELD DISPOSAL

Field medical units are now receiving new equipment that will allow these barium formulations to be used as a diagnostic aid in the field. Areas of use can range from training areas on military installations to areas of armed conflict. Use the same disposal methods as described above. Only host country requirements would modify the guidance provided here.

ASSISTANCE

Contact the U.S. Army Public Health Center, Environmental Health Sciences Division at 410-436-3651 or usarmy.apg.medcom-aphc.mbx.hmwp@mail.mil for additional assistance.