Acid Neutralization Chip Tank Inspection Procedure SOP

1. **Purpose / Background**
   The following steps are an added precaution and should be followed when performing inspections, maintenance, or removal of acid neutralization chip tanks located in laboratories under the sinks.

   MWRA regulation 360CMR10 prohibits the pouring of any acid or alkaline aqueous solution down the drain that does not have a pH of between 5.5-12.0 including sinks fitted with these passive neutralizers.

2. **Scope**
   This SOP should be followed when dealing with all under the sink chip tanks at the Institute. Authorized Department of Facilities personnel perform maintenance on this equipment.

3. **Prerequisites**
   Sinks designated for the disposal of low-level aqueous radioactive liquid waste are labeled and must be surveyed by a member of the Radiation Protection Program (RPP). Call RPP at 2-3477 to schedule the survey as part of the routine maintenance before opening any chip tank. RPP staff may need to be present during the procedure for oversight depending on the survey results.

4. **Procedures**
   Lab personnel working with human blood and body fluids are trained to decontaminate the fluids prior to sink disposal. This will prevent the possible contamination of the chips with human pathogenic organisms.

   The following steps are an added precaution and should be followed when performing routine inspections and maintenance on acid neutralization chip tanks located in laboratories under the sinks.

   1. Wear safety glasses and neoprene gloves when performing the operation.
   2. The Biosafety Program (BSP) recommends that prior to opening a chip tank in a Biological Lab it be flushed with 10% chlorine bleach. Let the bleach stand in contact with the chips for about 20 minutes.
   3. Remove the tank cover slowly.
   4. Flush the tank with sufficient tap water to achieve at least 3 tank volume changes. The flushing plus the existing acid neutralizing chips should eliminate any acid hazard.
   5. Visually inspect the tank contents and perform maintenance

5. **Roles & Responsibilities**
   The Industrial Hygiene Program and BioSafety Program provide guidance for safely performing chip tank work.
The Environmental Management Program is responsible for providing regulatory guidance for the disposal of aqueous and solid chip tank waste.

The Radiation Protection Program provides radiation surveys to chip tanks potentially contaminated with radioactive waste.

The Department of Facilities (DOF) personnel perform routine maintenance and disposal of chip tanks.

6. Training
DOF and EHS personnel familiar with this SOP are authorized to perform this work.

7. Monitoring Requirements
Authorized EHS Personnel should perform radiation and pH monitoring when a chip tank is to be removed from any department, lab or center (DLC).

8. Record Management
RPP special survey record (Form RP-101)

9. References

9.1 Standards
MWRA regulations - 360 CMR 10.023 (19) - require that any water treatment filter backwashes be specifically authorized and meet all regulated limits and prohibitions.

10. Definitions
Chip Tank – A tank filled with crushed limestone rock. Limestone in chip or rock form is an alkaline and it will neutralize low pH acid. The effective ingredient in Limestone is Calcium Carbonate, which reacts with strong acids to form water, carbon dioxide and calcium salts. The salts usually precipitate into a sludge that will settle into the bottom of the tank.