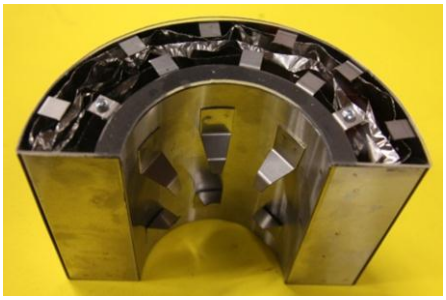
Permanent Shielding

Permanent shielding is broadly defined as any shielding system that can be placed into position “permanently”. This may seem obvious, but this definition covers a variety of different solutions that are tailored to the needs of the location. Of course, the advantage of this shielding is that it saves man hours and REMs during future outages, opens up areas that may have previously been restricted access, and can free up space in a crowded work environment, both inside and outside containment. While these solutions may cost more to install, the long term cost savings can be significant.

For example:

- As with all instances of eliminating radiation exposure, the key is to provide shielding between the source and the worker. In many instances, the arrangement of the piping may be such that temporary shielding put into place may have to be more bulky than necessary. It would be better to put the shielding closer to the source. This may involve installing shielding directly on the pipe. Adding shielding directly to the pipe can reduce the overall weight of shielding needed and free up the space around the system previously occupied by temporary blankets. Types of shielding may include encased lead, T-Flex® pipe shielding, or thermal insulation with integrated shielding.
- If placing shielding directly onto the pipe is not an option, it may be possible to permanently install shielding into locations around the contamination. By constructing robust support structures that are seismically qualified, lead panels or other shielding could be mounted directly to the supports, perhaps with access doors as needed.
- Due to seismic issues or accessibility requirements, shielding may not be able to be left permanently in place. Even if the shielding can’t be left into place, support structures can still be installed to reduce future shielding installation hours. Track systems can be installed and qualified, and shielding could be mounted to the track on rollers that allow the shielding to be rolled out of the way and stored in seismically qualified cabinets. Temporary shielding blankets or panels could be constructed to expedite installation on the permanently mounted support structures.



Thermal MRI with attenuation shielding layer

Track mounted moveable lead paneling

These are just a few solutions. There are other existing solutions and new custom designs that have yet to be imagined. Once the constraints are understood, solutions can be discovered.

So having stated a few of the advantages, what are some of the limitations?

Perhaps the greatest issue is the seismic qualification. This involves extensive engineering analysis of pipe systems and supports, neighboring systems, other support structures, etc. This can be a costly undertaking that can be offset by the future savings.

Additionally, environmental considerations (temperature, humidity, etc.), access to areas, shielding system costs, and other factors must be weighed against the long term dose and labor savings.

The choice is not always easy, but NPO is ready to be your partner in finding the best solution. Please allow us partner with you to review your needs and propose solutions that management can support. Let us help you be a champion for safety at your facility.