

MPF Equipment

- Gloveboxes
 - Furnaces
 - Analytical equipment
 - Thermalgravimetric analysis
 - Sampling
 - Initial containerization
- Nuclear ventilation systems
- Nitrogen generation
- Standalone power grid (diesel)
- X-ray technologies
- Non-destructive analysis
 - Calorimetry
 - Gamma
 - Neutron
- Maintenance Shop
- Radiation detection equipment
- High Purity Germanium Detectors
- Criticality monitoring
- Nuclear material tracking
- Shielding systems
- Heavy equipment operations
- Radiological hoods
- Radiological glove bags
- Nuclear Material packaging and shipping
- Intranet surveillance system

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Mobile Plutonium Facility

Unique Capability



The Mobile Plutonium Facility (MPF) is the world's only rapid response capability that can be deployed to characterize, stabilize and package plutonium for shipment to a recipient location. This standalone operating environment is completely self-sufficient. The MPF was designed, built and tested for deployment outside the U.S. to recover nuclear materials at risk for proliferation or use.

Mobile Plutonium Facility Mission

- Develop and maintain a capability to enable denuclearization of nuclear development programs while supporting verification efforts
- Provide for in-country stabilization, packaging and removal of nuclear materials
- Establish expertly trained and deployable teams to ensure DOE's ability to expeditiously respond to emerging threats

High Hazard Operations in Remote Locations

The MPF has a modular design that consists of air transportable International Standards Organization (ISO) containers that can be shipped to the target location. The ISO modules can then be assembled to execute a recovery mission anywhere in the world.

The systems and equipment in the MPF support the safe characterization, stabilization, and packaging of weapons-grade plutonium materials. Most noteworthy, the MPF can stabilize plutonium in forms expected to be found in the plutonium recovery and extraction process, making it safe to ship and store and allowing sufficient time for decisions to be made as to the ultimate disposition of the material.





The MPF: A Specialty Container Nuclear Processing Facility and Staff

The MPF Plutonium Response Team (PRT) is the human component needed to verify, stabilize, package, and ship plutonium material and consists of approximately 30 primary personnel plus alternates on standby. The team's role is to protect human health and safety, and expedite the removal of nuclear materials from a foreign location.

Specific details of a particular mission, such as material properties, quantity, location, duration, destination, and disposition may not be completely known in advance. Hence, the capabilities of the PRT must be deep, broad, and flexible to deal with a wide range of possible situations.



Mission durations could range from several weeks to several months. The premise is to identify capable volunteers who perform similar functions in their regular jobs at DOE sites and national laboratories, provide them with tools adapted for use in a remote location, and train, support, and enable them.

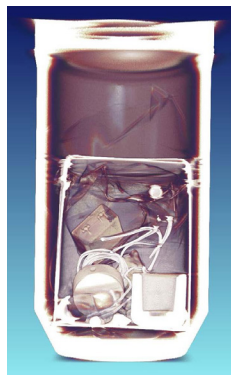
Innovation from Science to Successful Deployment

- Remote recovery operations for small team removal missions
- Processes a capacity of 1-3 kg per day, dependent on the form of plutonium
- Utilizes special designs using shielding materials to reduce dose rates
- Allows for transportation via standard commercial or military sea/land or air transportation
- State of the art radiation monitoring and x-ray systems
- SRNL development of a Material Information Tracking System, a computerized system library for coordinating all gathered data and movement tracking of nuclear materials

Mobile Plutonium Facility



X-ray Technology



Calorimetry



Gamma Detection



Neutron Detection

