8.9 Remote Handling Equipment Test Stand

8.9.1 Function, Basic Configuration and System Boundaries

The remote handling equipment test stand has the following functions;
- Testing and maintenance of remote handling equipment
- Cask storage
- Maintenance training and rescue simulation

8.9.2 Requirements

8.9.2.1 Environmental Conditions

Typical operating conditions for in-hot cell repair maintenance are;
- Atmosphere: air;
- Pressure: 1 bar absolute;
- Temperature: ~ 40°C
- Radiation < none (TBD)
- Contamination: (inside of the stand) activated dust, beryllium;
  (outside of the stand) none
- Estimated tritium release rates from components are very low.
- Magnetic field: zero.

8.9.2.2 Testing

The functional testing of the following equipment must be performable.

1) IVT;
100° deployment system
Telescopic mast and end-effector driving system
Vehicle traveling system
Swing-arm driving system
Rail-docking mechanism
2) Divertor cassette handling equipment;
Pinion driving system
Cantilever arm driving system
Gripper driving system
3) Transfer Cask;
Cask docking system

8.9.2.3 Shielding

The fundamental strategy assumes that sufficient shielding will be provided to allow hands-on access.

8.9.2.4 Reliability

All equipment shall be conservatively designed and have factors of reliability to render failure extremely unlikely during the life of the machine.

8.9.2.5 Durability

All equipment must be designed to last the life time of the machine.

8.9.2.6 Access

Man access is required to the remote handling equipment test station floors.

8.9.2.7 Cost

The facility must be optimized with respect to cost. It is imperative that the dimensions are kept within a reasonable size.

8.9.2.8 Occupational Radiation Exposure Limits

Operation in the remote handling equipment test stand must comply with the ALARA principles (see the PSR and the PDS).

8.9.3 Codes and Standards

- Control system standards:
  - IEC 204-1, 1992: Electrical equipment of industrial machines, or
  - ANSI/NFPA 79: Electrical standard for industrial machinery
- Machinery (Robot) safety standard:
  - ISO 10218, 1992 Manipulating industrial robots. Safety, or
  - ANSI/RIA R15.06-1992 Industrial robots and robot systems. Safety requirements
- Welding and inspection: generic at the time of procurement
- Materials: generic at the time of procurement
- Standard Control system items: generic at the time of procurement