



U.S. Department of Energy
Office of Civilian Radioactive Waste Management



Surface Facility Design and Operations Overview

Presented to:
Nuclear Waste Technical Review Board

Presented by:
Robert C. Slovic
Nuclear Facilities
Bechtel SAIC Company, LLC

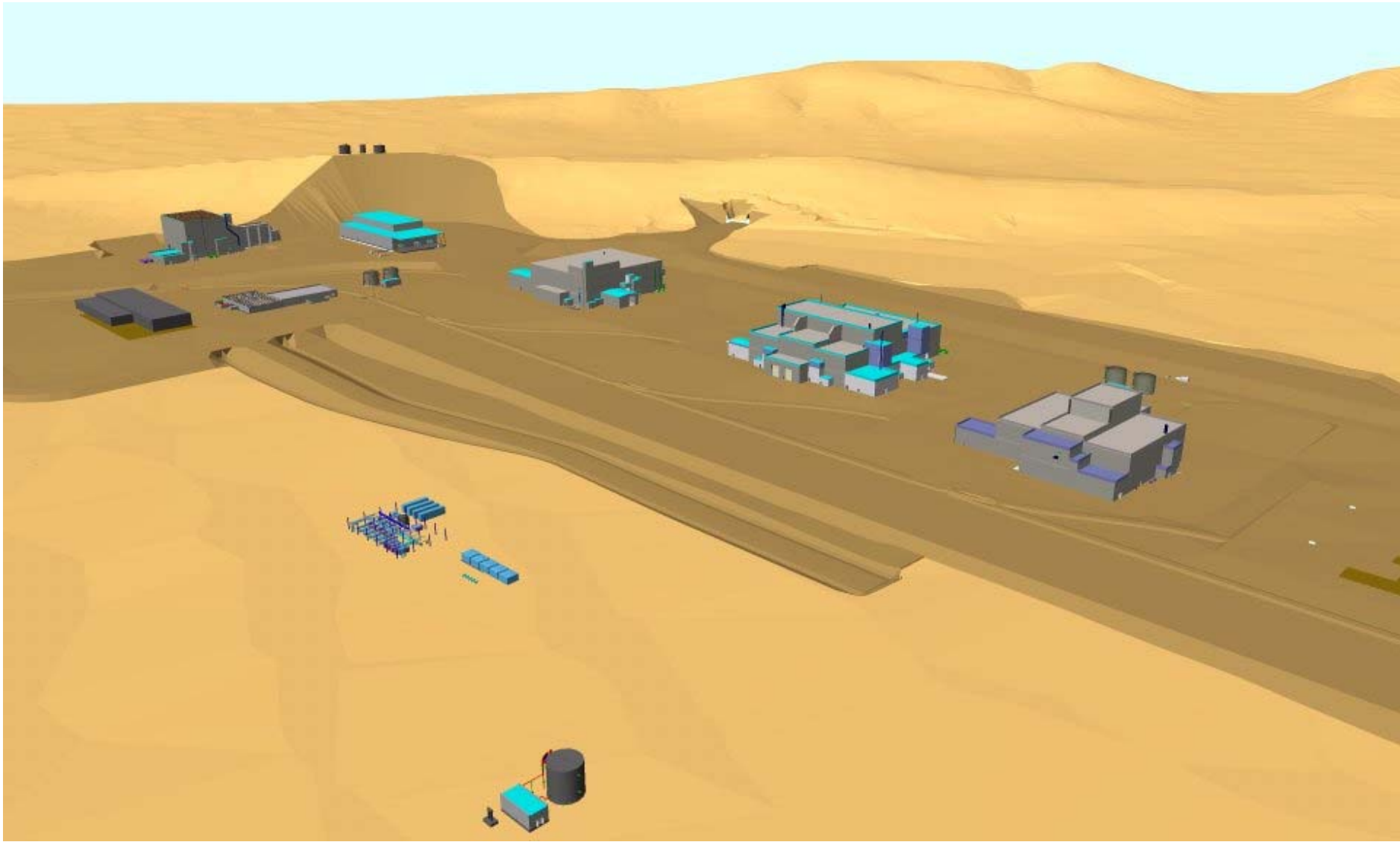
September 19, 2007
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Acronyms

- **CRCF** **Canister Receipt and Closure Facility**
- **CSNF** **Commercial Spent Nuclear Fuel**
- **DPC** **Dual-purpose Canister**
- **GROA** **Geological repository operations area**
- **HLW** **High-level Radioactive Waste**
- **IHF** **Initial Handling Facility**
- **ITS** **Important to Safety**
- **PCSA** **Preclosure Safety Analysis**
- **RF** **Receipt Facility**
- **TAD** **Transportation, Aging and Disposal**
- **WHF** **Wet Handling Facility**



Site Model Looking West



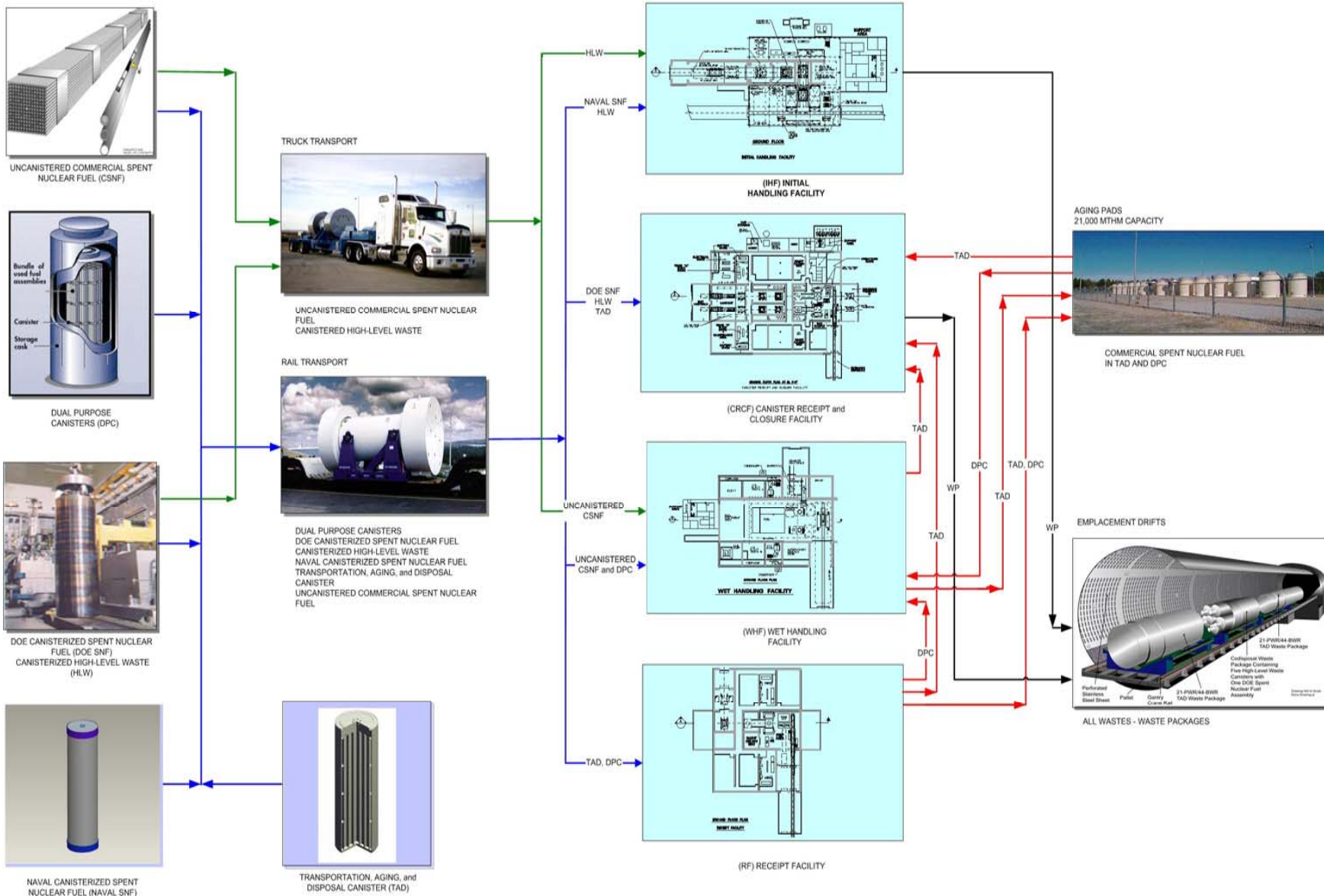
CONCEPT OF OPERATIONS - NUCLEAR FACILITIES

WASTE FORM

TRANSPORTATION

MATERIAL HANDLING AND PACKAGING FACILITIES

AGING AND DISPOSAL FACILITIES



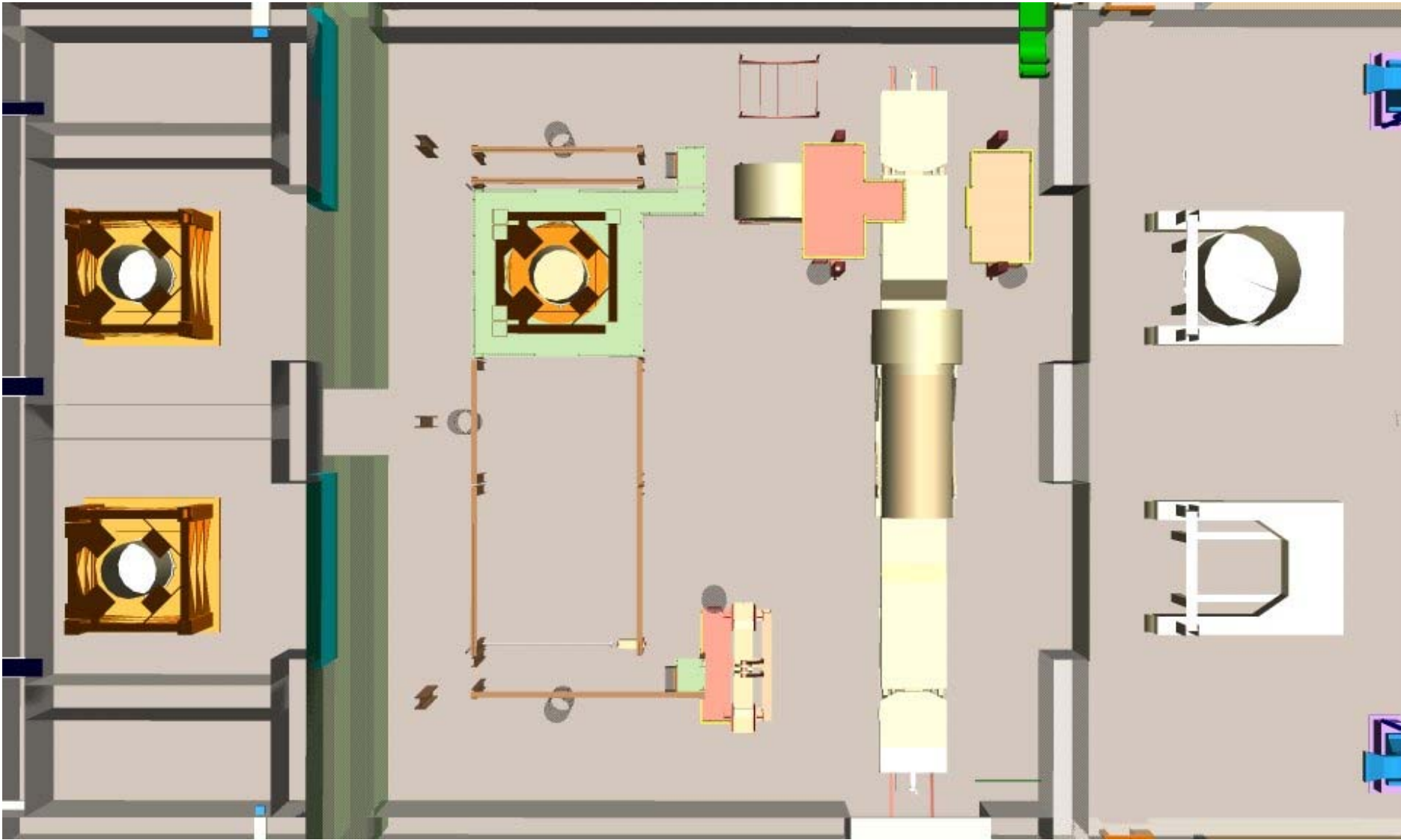
Waste Forms and Features by Facility

<i>Waste Forms</i>		<i>Facilities</i>			
		Initial Handling Facility (IHF)	Canister Receipt and Closure Facility (CRCF)	Wet Handling Facility (WHF)	Receipt Facility (RF)
HLW	Canister	X	X		
Naval SNF	Canister	X			
DOE SNF	Canister		X		
CSNF	Uncanistered			X	
CSNF	TAD		X	X	X

<i>Features</i>				
WP Loading and Closure	X	X		
ITS Seismic Structure	X	X	X	X
ITS Mechanical Handling	X	X	X	X
ITS Confinement		X	X	X
ITS HEPA Exhaust		X	X	X
ITS Emergency Power		X	X	X
Remediation Capability	Dry	Dry	Wet and Dry	Dry



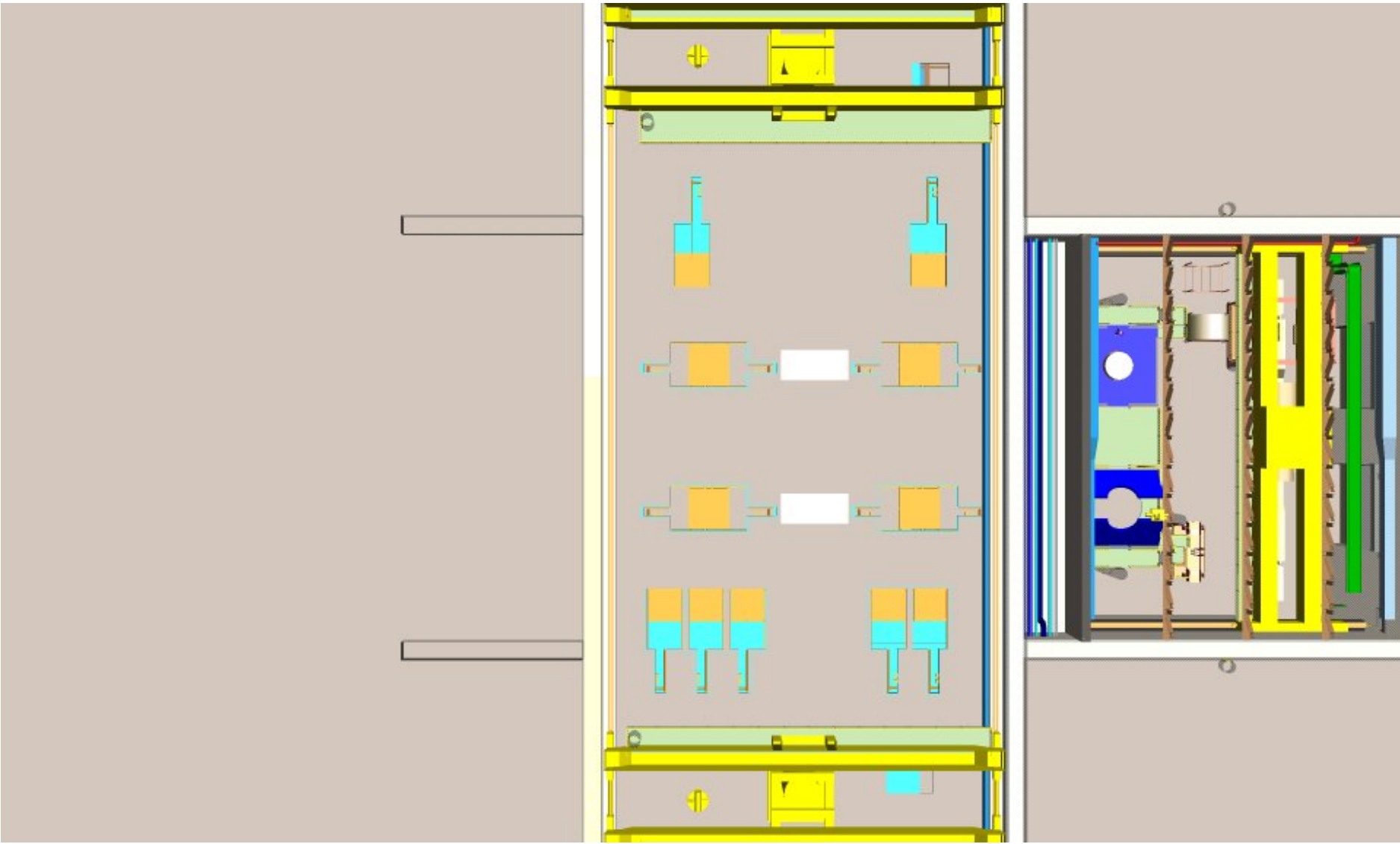
CRCF Receipt Area Plan



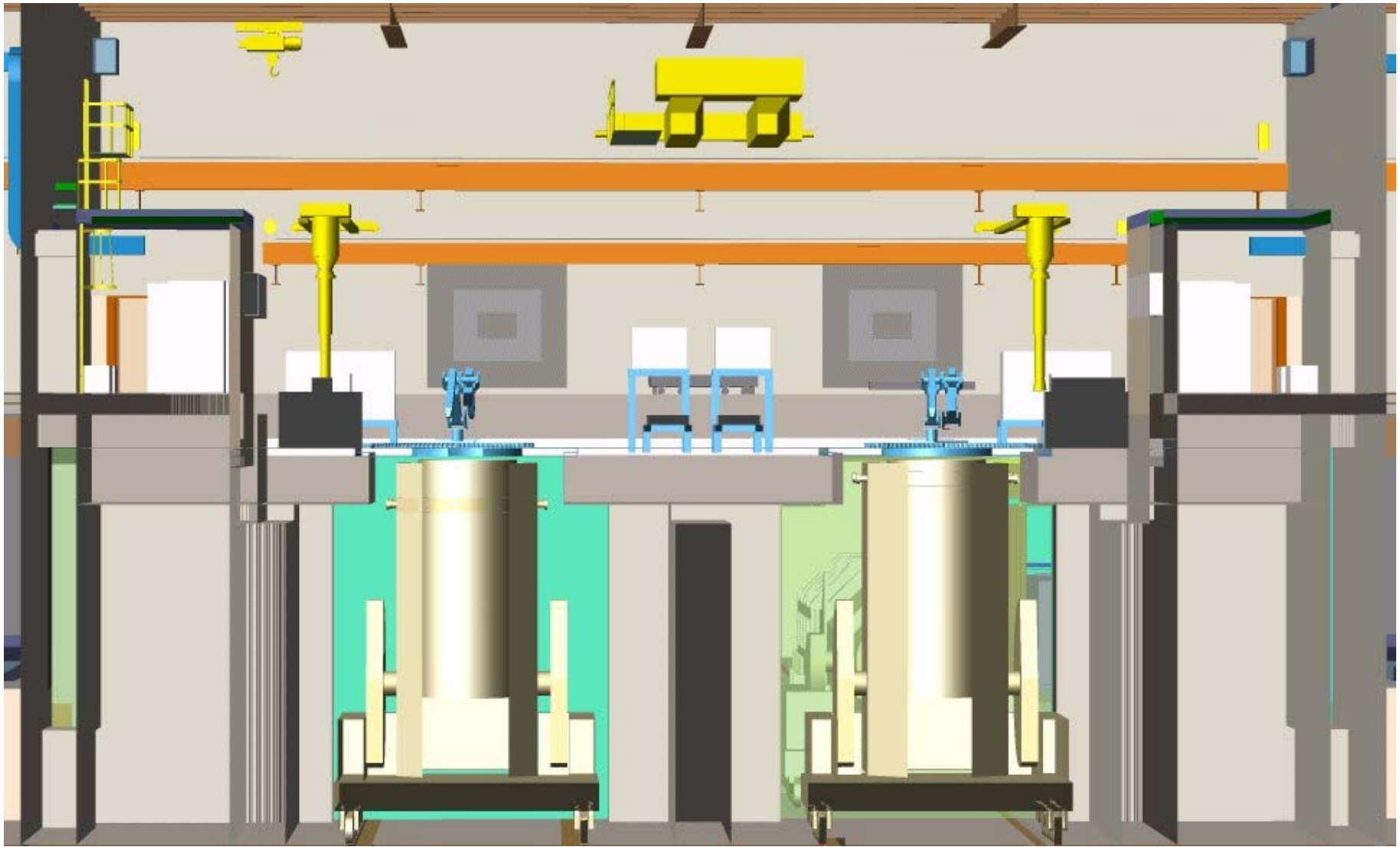
CRCF Section



CRCF Transfer Room Plan



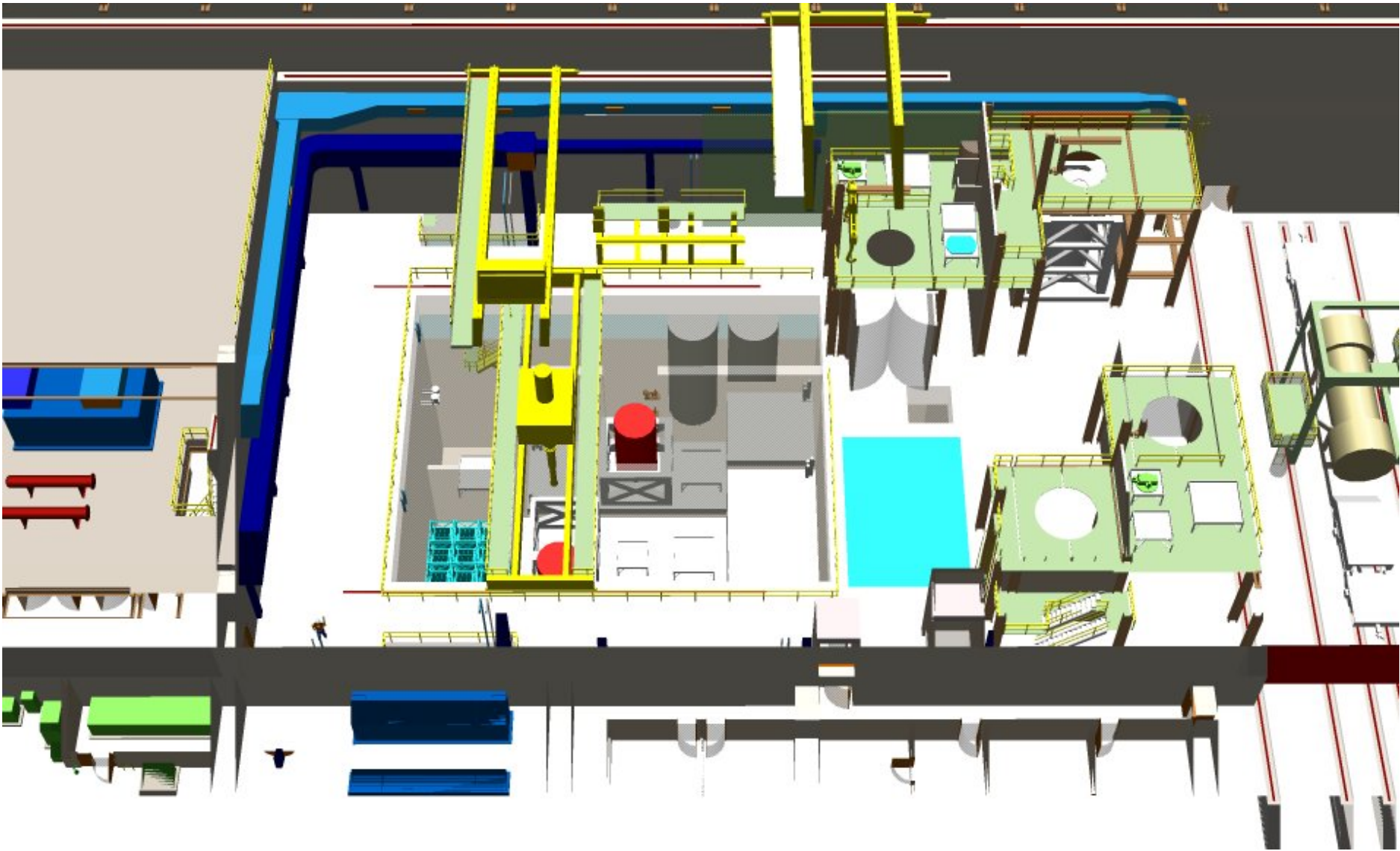
CRCF Waste Package Closure Cell Section



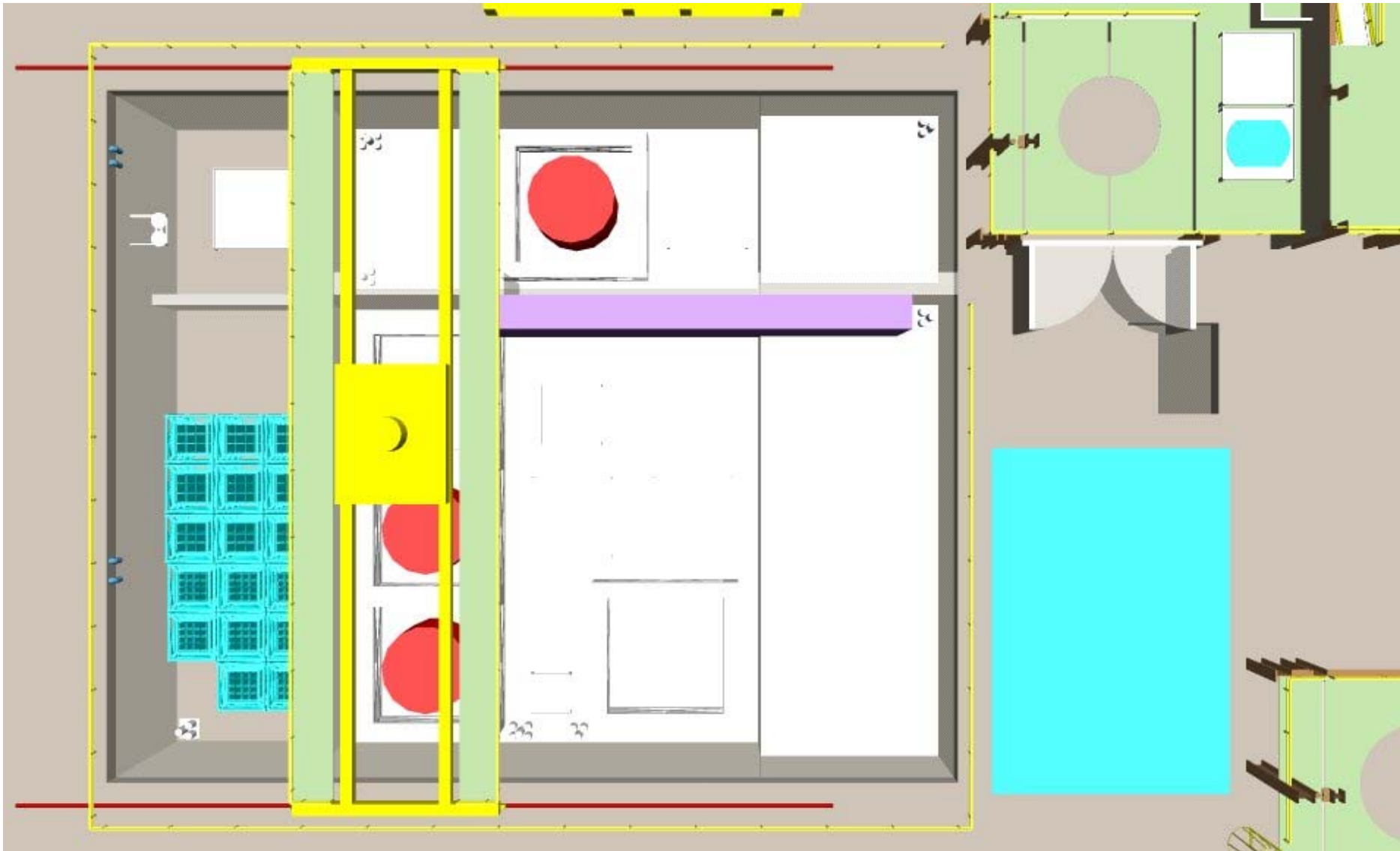
CRCF Waste Package Loadout Area Plan



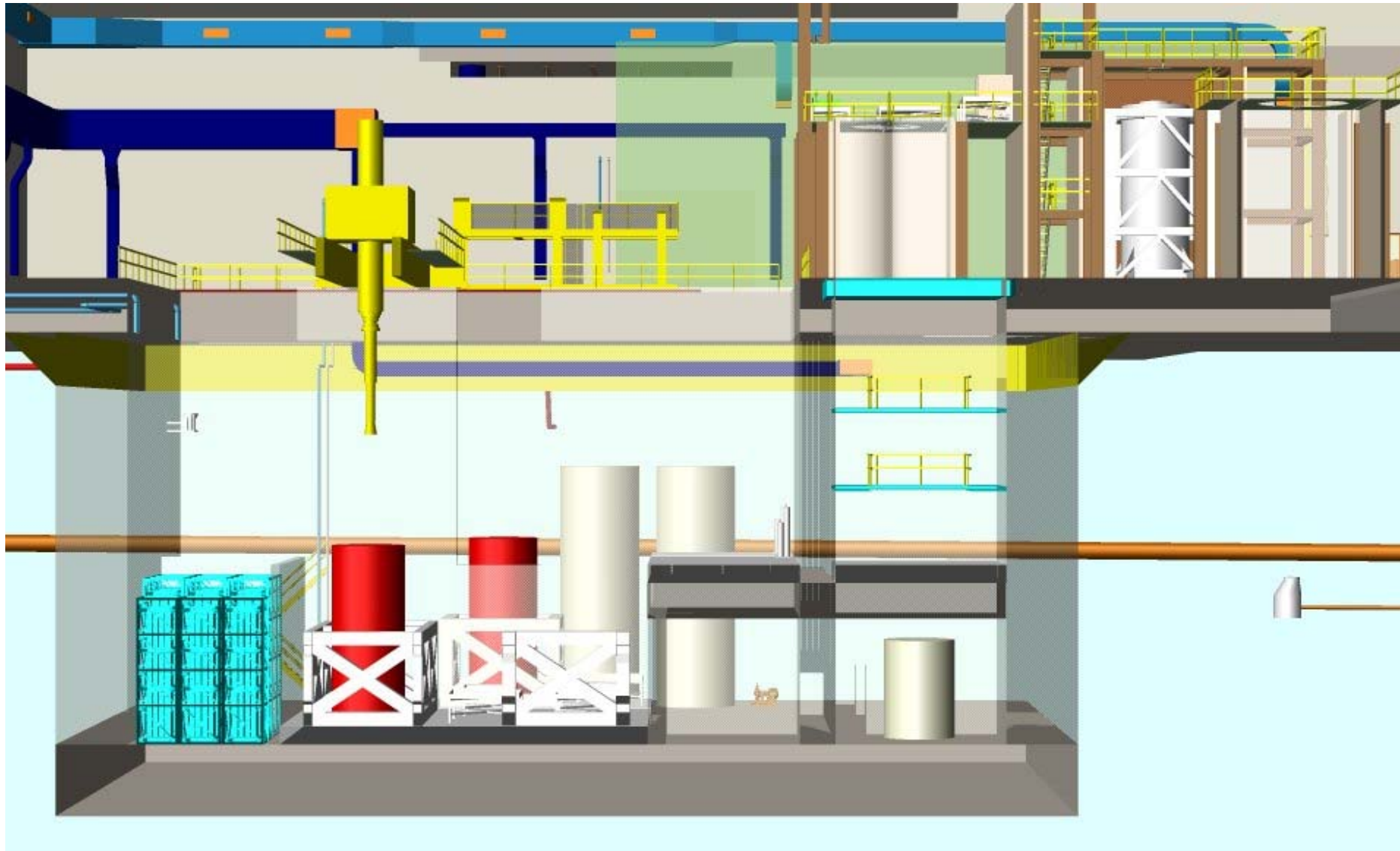
WHF Pool Room



WHF Pool Plan



WHF Pool Section

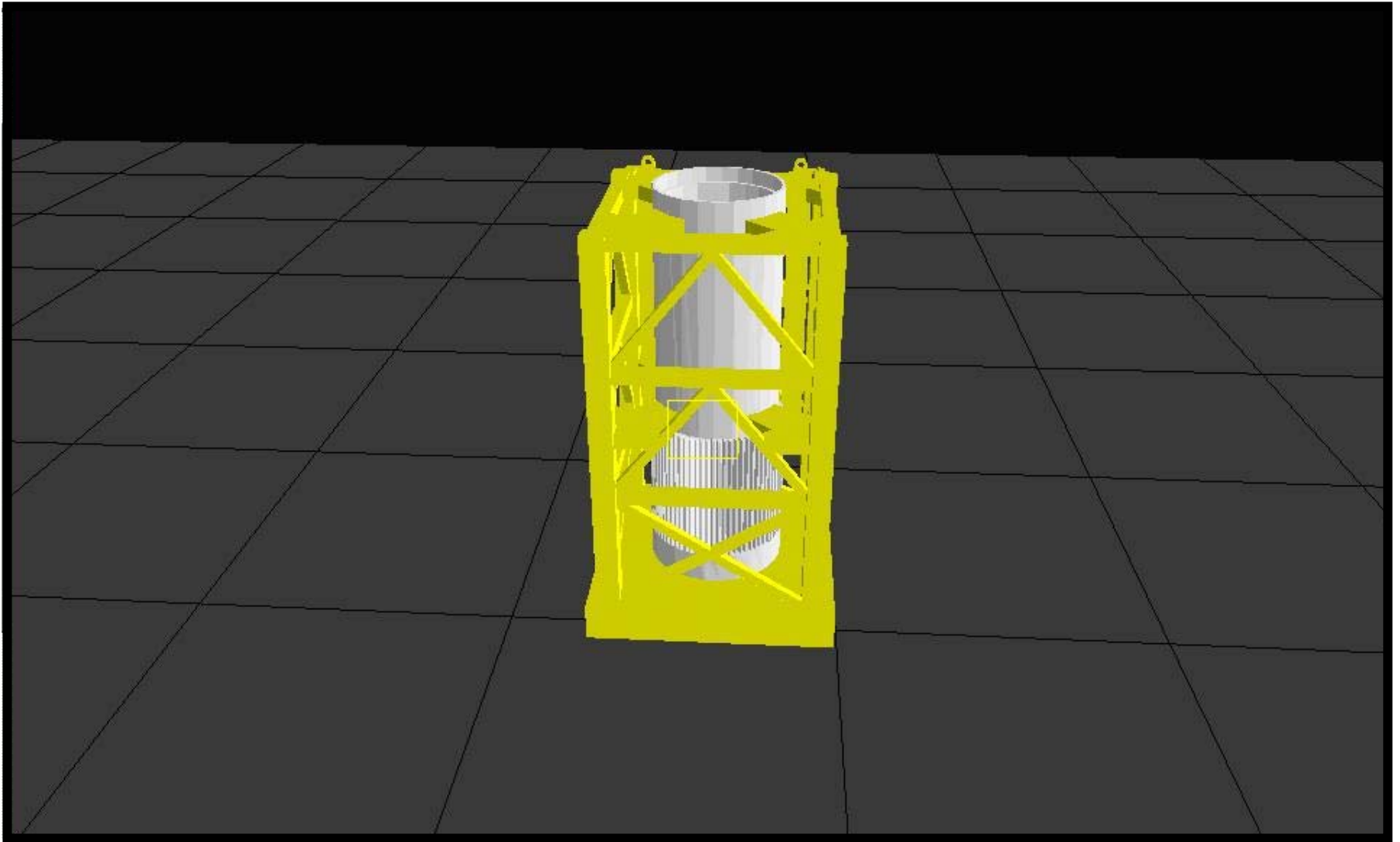


Commonality of Waste Handling Equipment

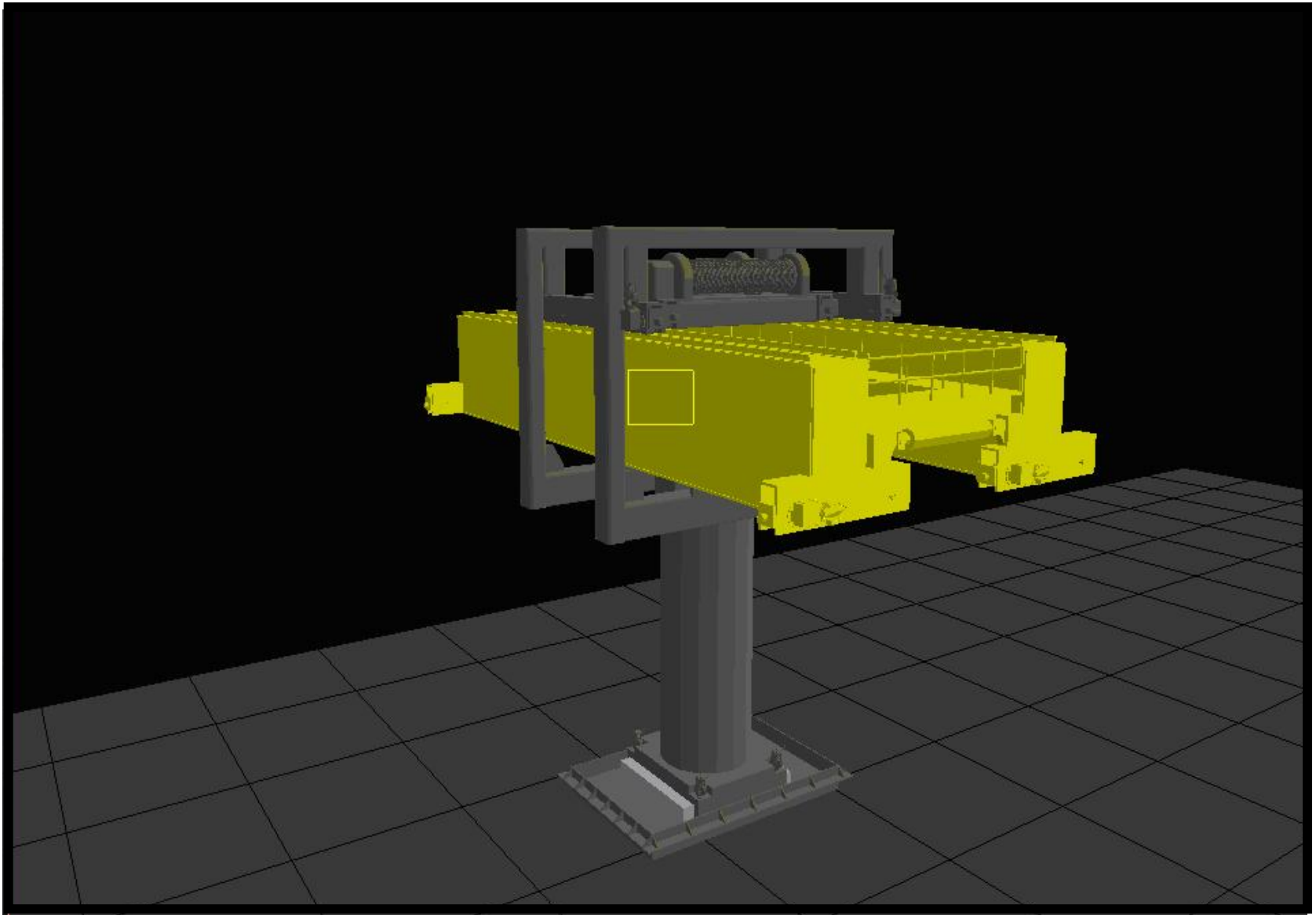
	<i>Facilities</i>			
	Initial Handling Facility (IHF)	Canister Receipt and Closure Facility (CRCF)	Wet Handling Facility (WHF)	Receipt Facility (RF)
Mechanical Handling Equipment				
Cask Handling Crane	X	X	X	X
Cask Transfer Trolley	X	X	X	X
Canister Transfer Machine	X	X	X	X
Waste Package Transfer Trolley	X	X		
Transport and Emplacement Vehicle	X	X		
Site Transporter		X	X	X
Spent Fuel Transfer Machine			X	
TAD Closure			X	
DPC Cutting			X	



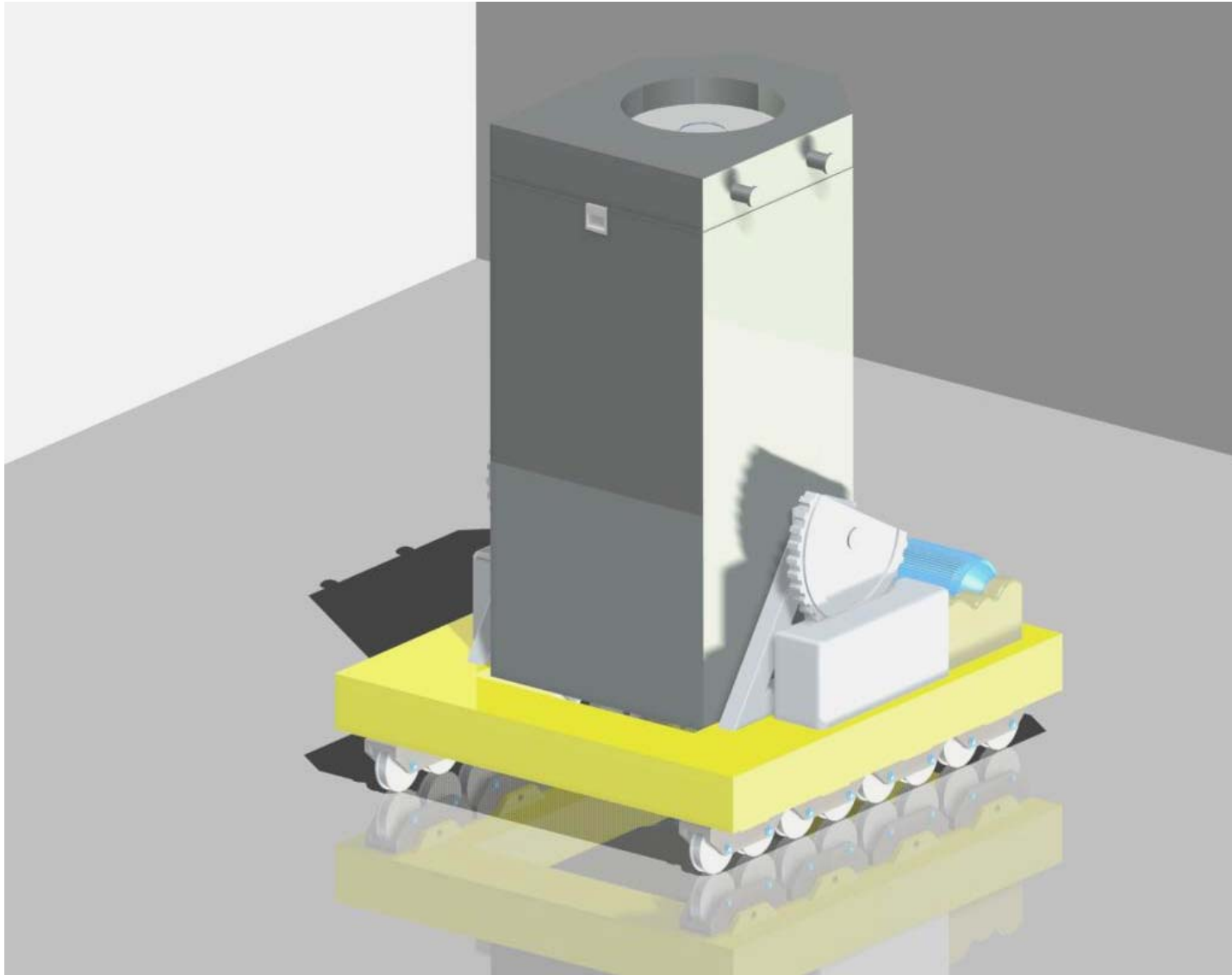
Cask Transfer Trolley



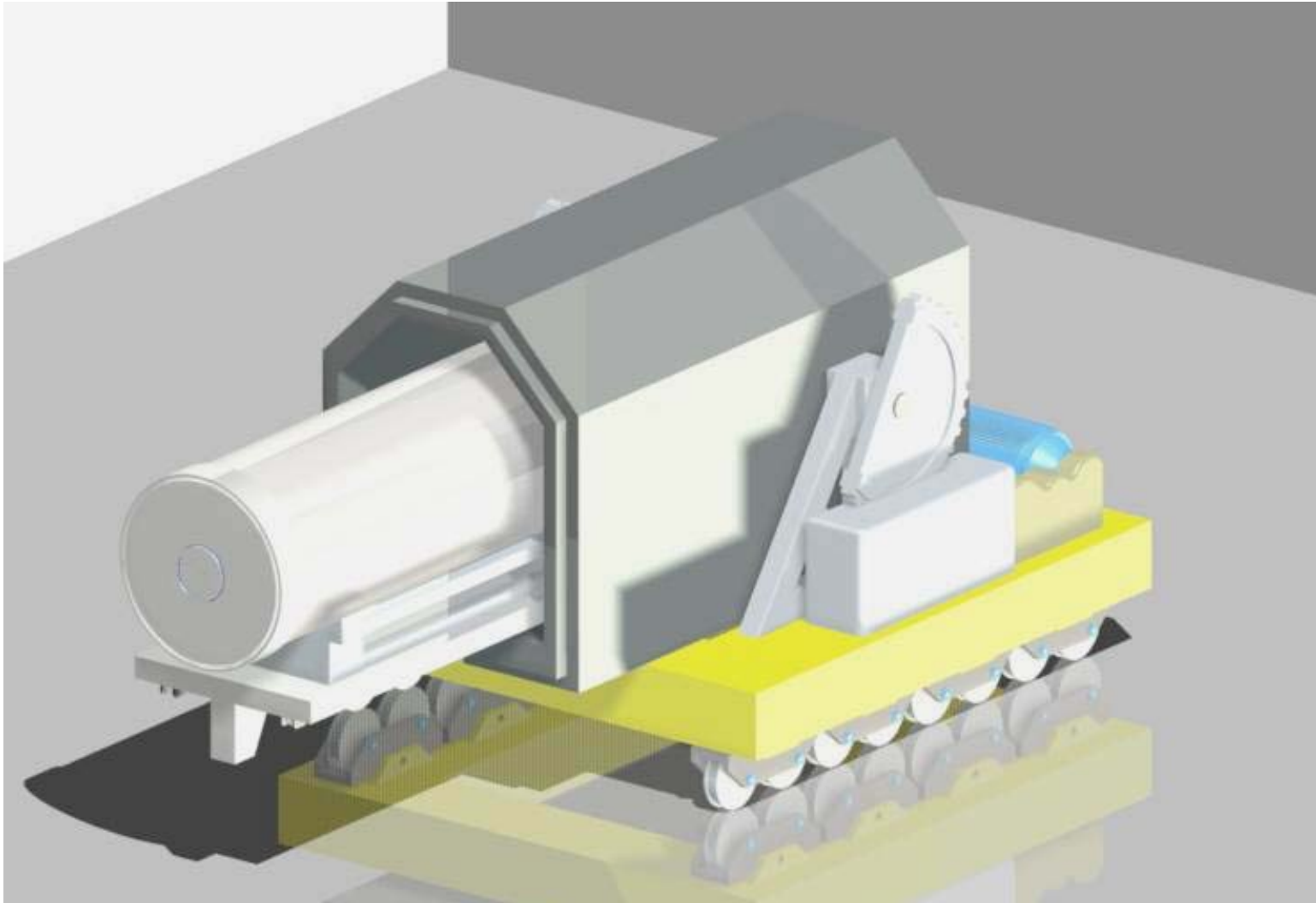
Canister Transfer Machine



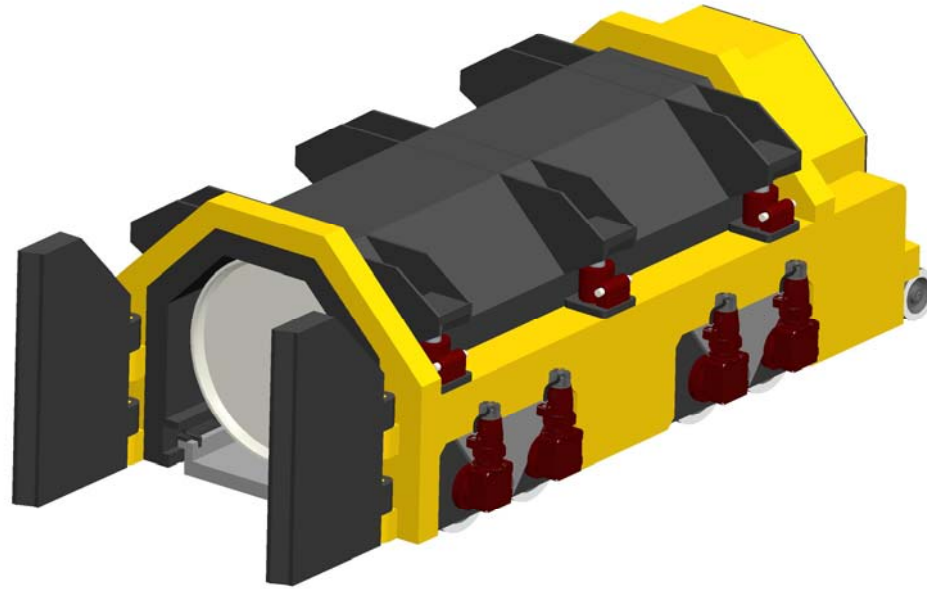
Waste Package Transfer Trolley Up Position



Waste Package Transfer Trolley Down Position



Transport and Emplacement Vehicle



Mechanical Handling Equipment Principal Design Codes

- **Cask handling cranes, site transporters, the spent fuel transfer machine, TAD closure equipment and DPC cutting equipment are currently in use at commercial nuclear plants and will be designed to the consensus codes and standards for the type of equipment. For example, the cask handling cranes and spent fuel transfer machine will be designed to ASME NOG-1 [*Rules for Construction of Overhead and Gantry Cranes (Top Running Bridge, Multiple Girder)*]**



Mechanical Handling Equipment Principal Design Codes (Continued)

- **The cask transfer trolley and the waste package transfer trolley do not have a consensus design code and therefore will be designed to the applicable portions of ASME NOG-1 and AISC *Manual of Steel Construction***
- **The canister transfer machine is essentially a crane and will be designed to ASME NOG-1**
- **The transport and emplacement vehicle does not have a consensus design code and therefore will be designed to the applicable portions of ASME NOG-1, and AISC *Manual of Steel Construction***



Structural Principal Design Codes

The surface facility structures are designed in accordance with the following principal codes and standards:

- ***ACI 349-01, Code Requirements for Nuclear Related Concrete Structures***
- ***ANSI/AISC N690-1994, American National Standard Specification for the Design, Fabrication, and Erection of Steel Safety-Related Structures for Nuclear Facilities***

