



Rolls-Royce

Considerations in Developing a New Fissile Transport Package

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Activities and Skills

Activities

- Typically those described are for design of a Fresh Fuel package
- Similar activities apply for other designs

Skills and disciplines:

- Engineering
- Physics
- Operators
- Technical authors

Design Boundary

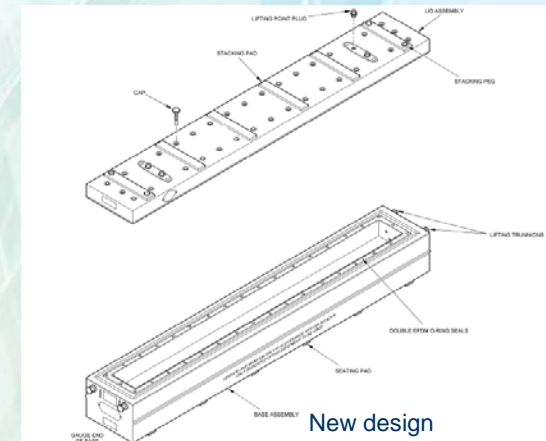
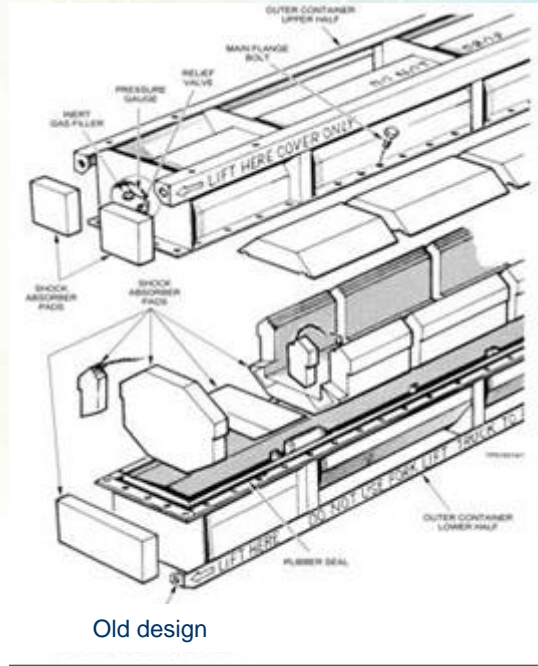
Payload

Human Factors

Lifetime Considerations

Local Ambient Conditions

User Restrictions



Initial Design

Concept Design

Materials of Construction

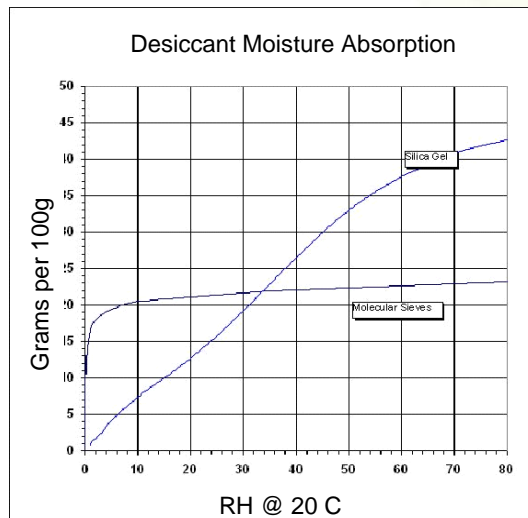
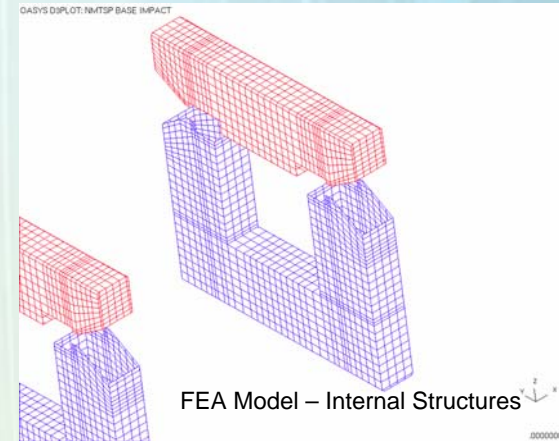
Design for Manufacture



Initial Design

Scoping of Impact Performance

Sealing & Humidity Control



Supporting Test Work

**Impact Absorber
Characteristics**



Test Sample after
Impacts

Lid Screw Tensile Tests

Impacts to Flat Faces

Thermal Test Simulation

Static Crushing



Test Sample after Fire

Detail Design

Consolidation:

- Practicalities
- User needs
- Manufacturing



Detailed Analysis

Bounding Impact Studies

Thermal Justification

Criticality

Drop testing & Validation

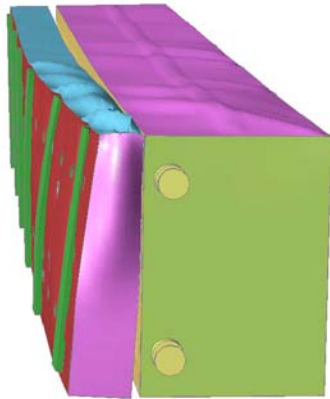
Normal Condition Tests

Accident Condition Tests



Drop testing & Validation

Validation of Impact Predictions



Post Slapdown Validation Run



Post Slapdown Drop

Conclusions

- Many disciplines are required in the design and development of transport packages
- Mechanical engineering is the lead discipline, with extensive support needed by Dynamic Stress engineering, and Physicists.
- Many other supporting disciplines are required

