Irradiator Technology H315
Session 2
Industrial Irradiators

- General
- Design
- Industrial & Research Facilities

Irradiator Categories

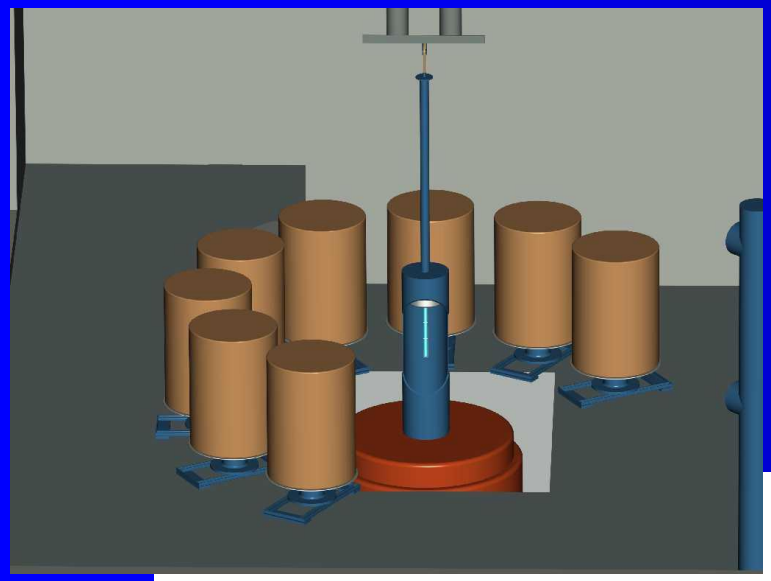
- Category I
- Category II
- Category III
- Category IV

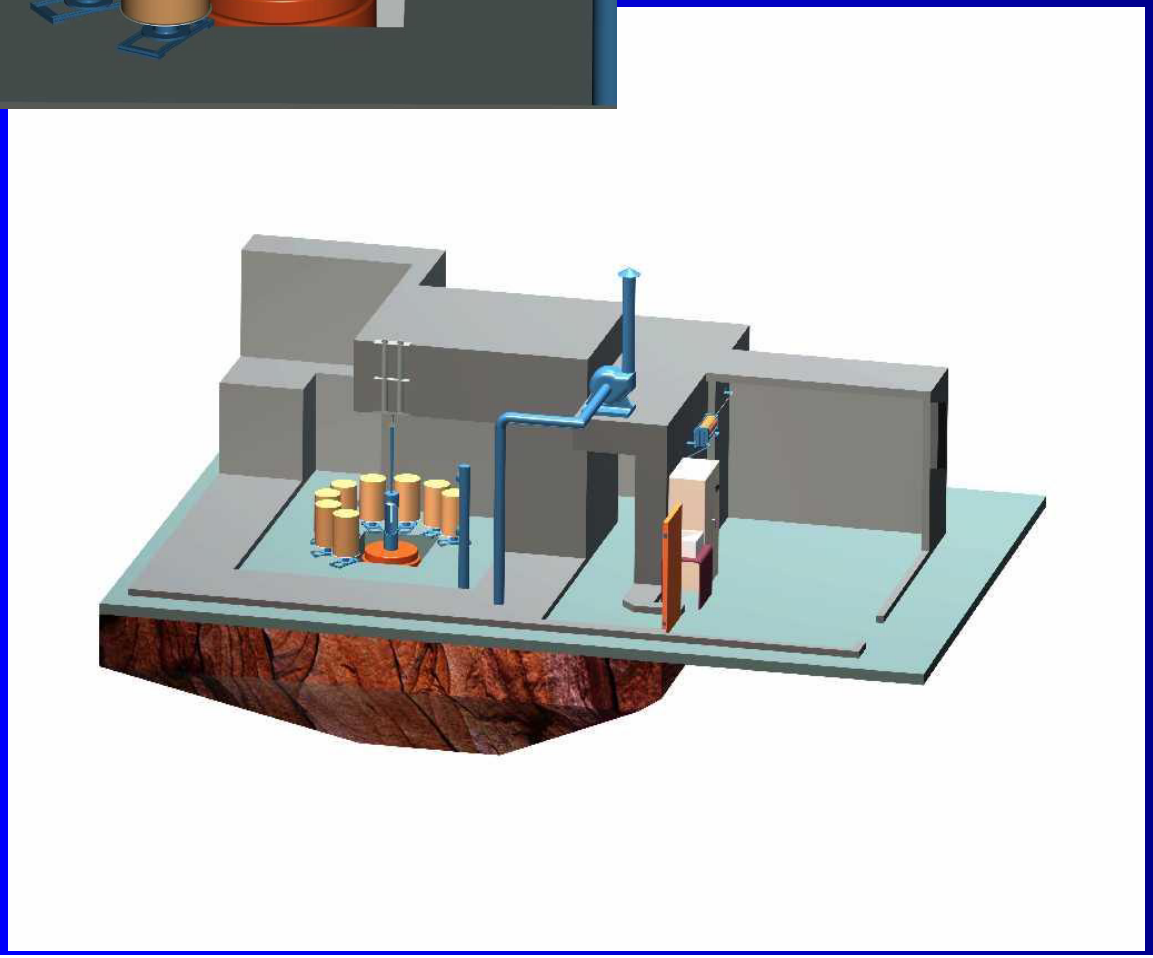
Category I

Self contained
Dry source storage
irradiator

Category II

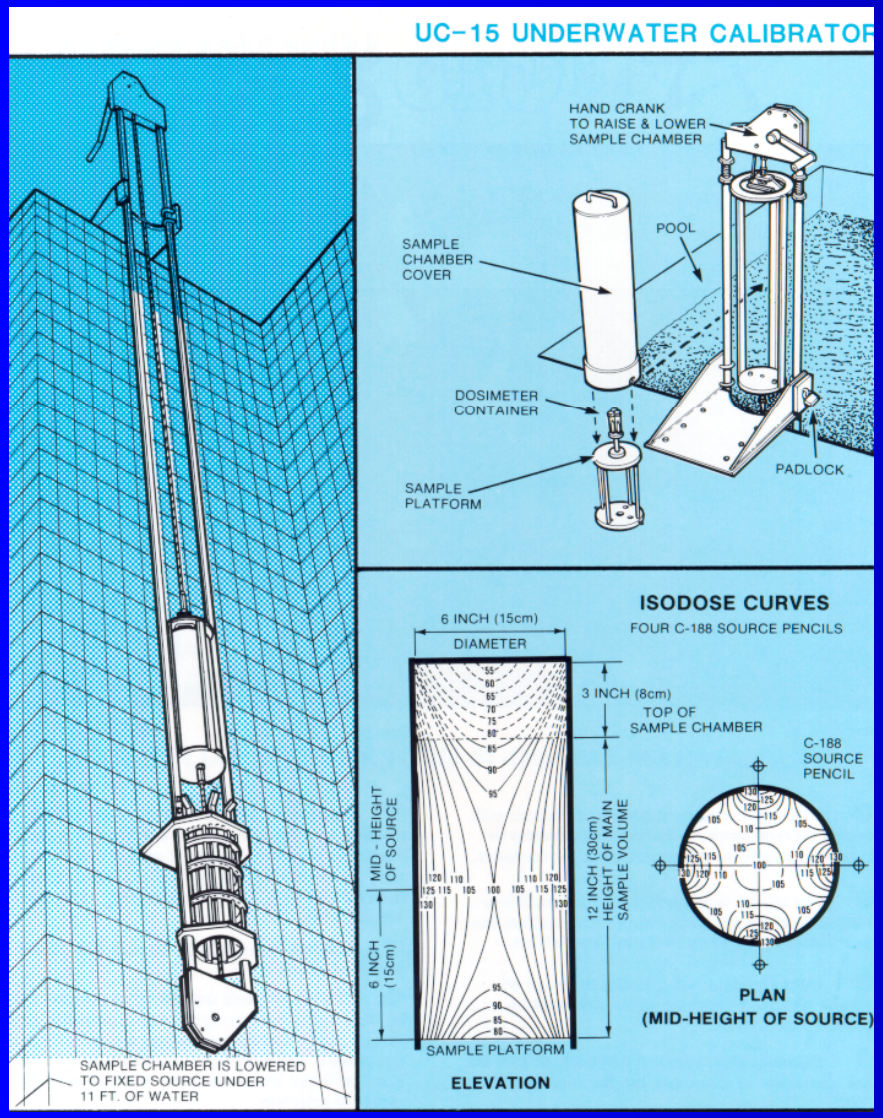
Panoramic
Dry source storage
irradiator

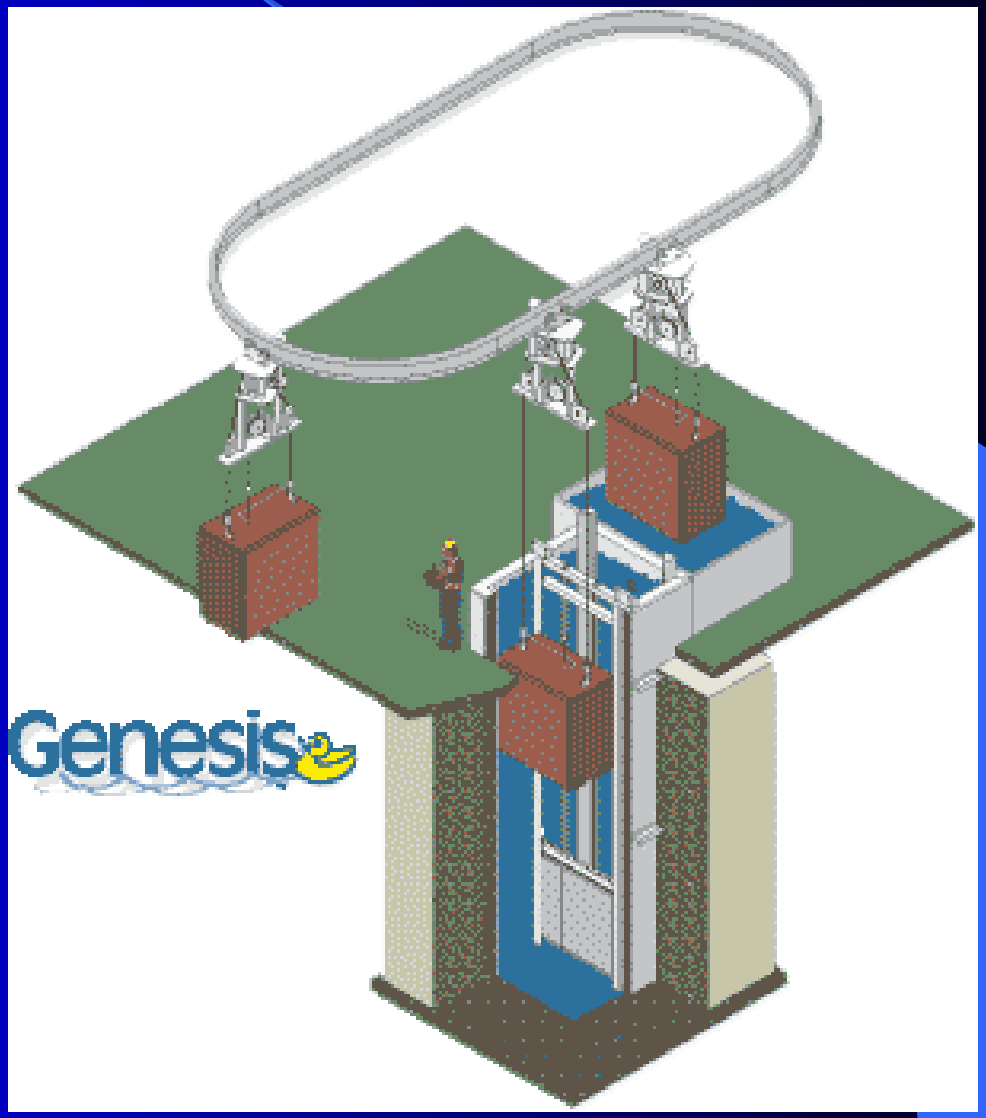




Category III

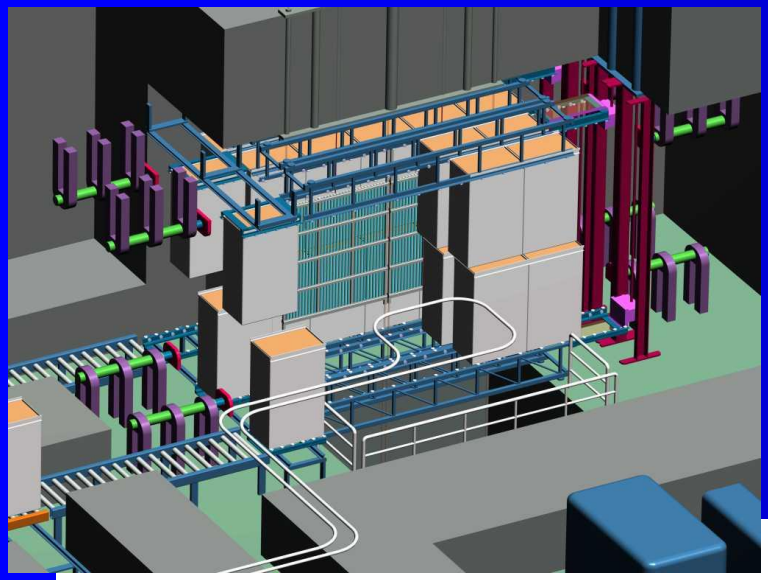
Self contained
Wet source storage irradiator





Category IV

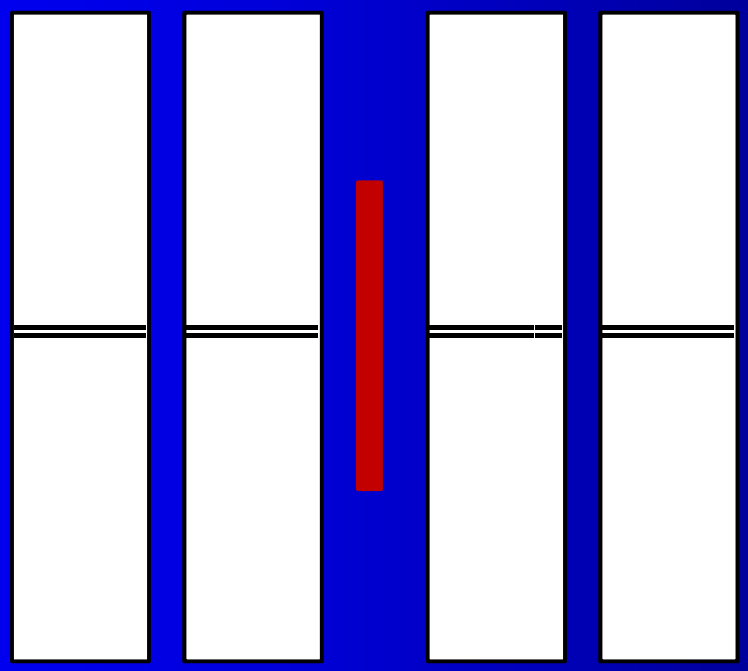
Panoramic
Wet source storage
irradiator



Irradiator Design

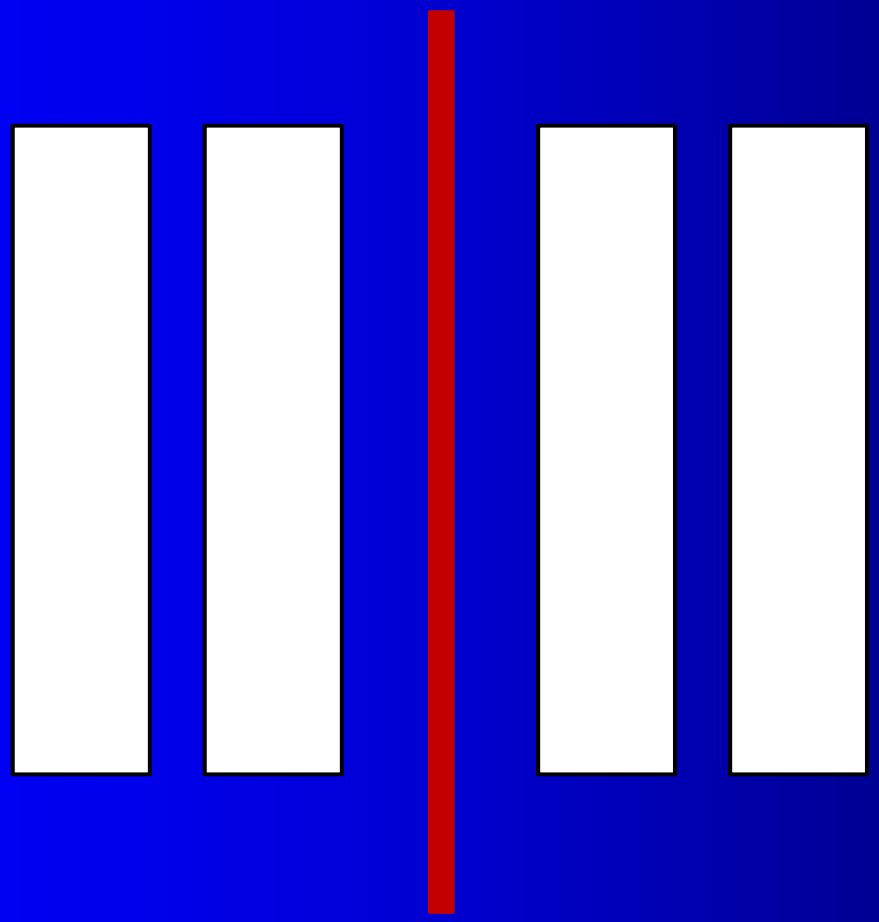
- Requirements: (Processing parameters)
  - Product dimensions (real ones !)
  - Product weight
  - Monthly volume (peak)
  - Annual volume
  - Minimum dose
  - Maximum dose
  - Dose uniformity
  - Special product handling

Irradiator Configurations



Overlapping Product

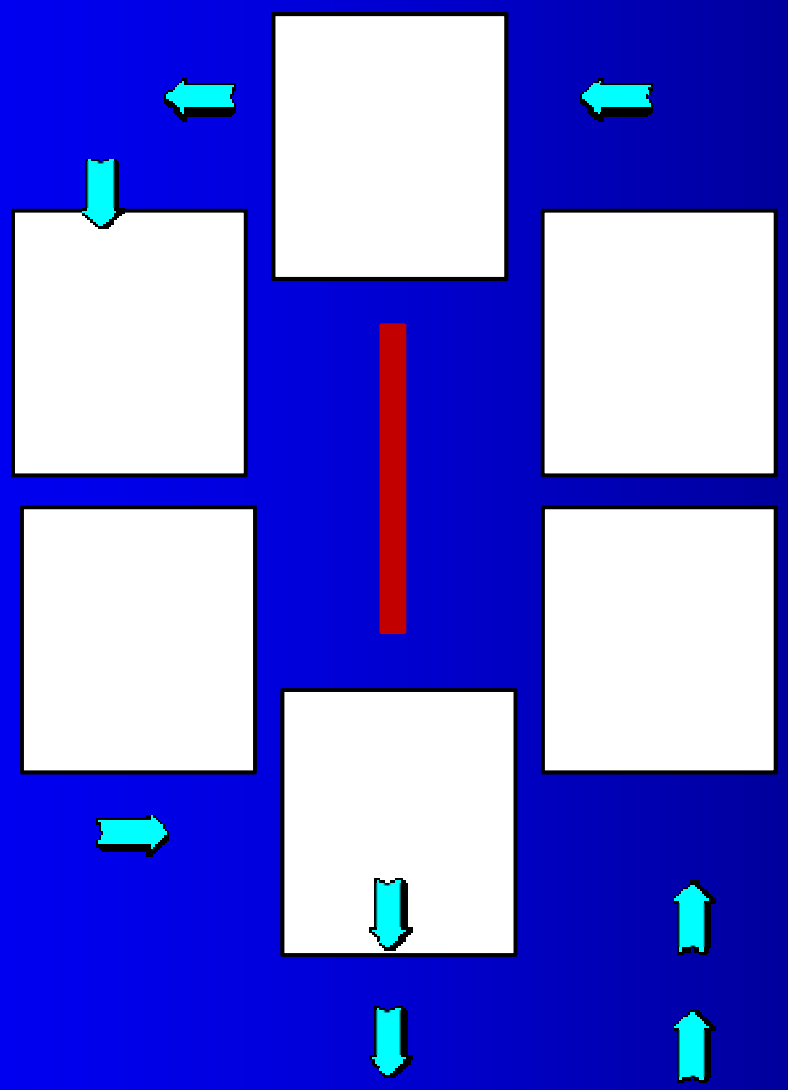
Irradiator Configurations



Overlapping Source

Irradiator Configurations

Product Flow example (4 side Irradiation)

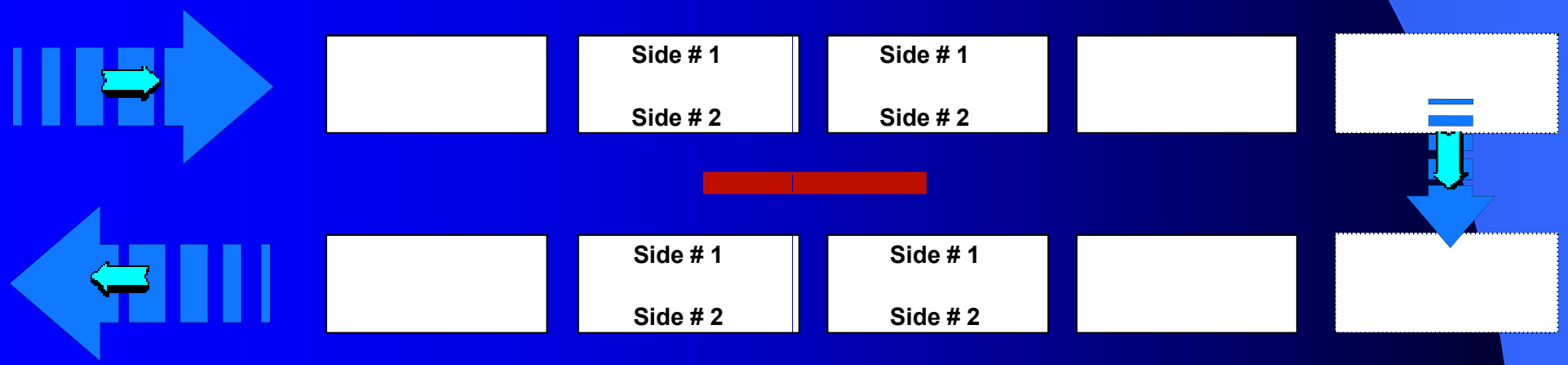


Top View

Irradiator Configurations

Flow & Cycle Time

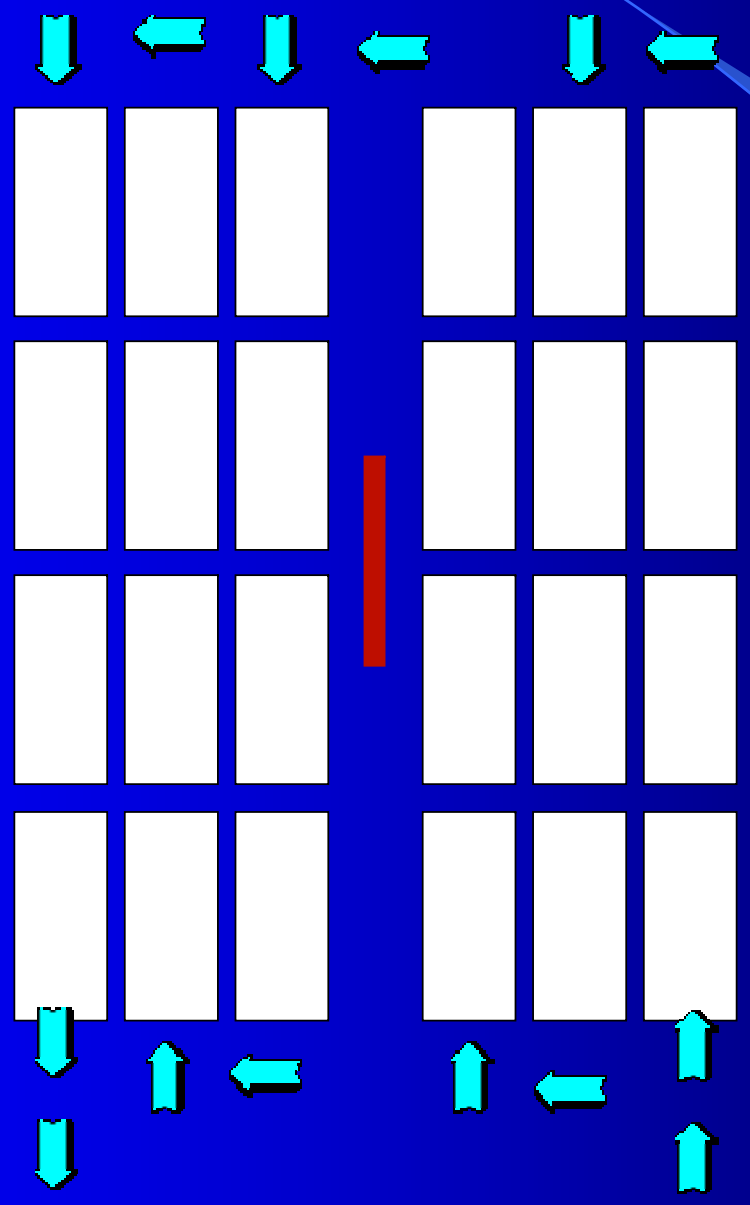
Cycle time = Shuffle + dwell time



Top View

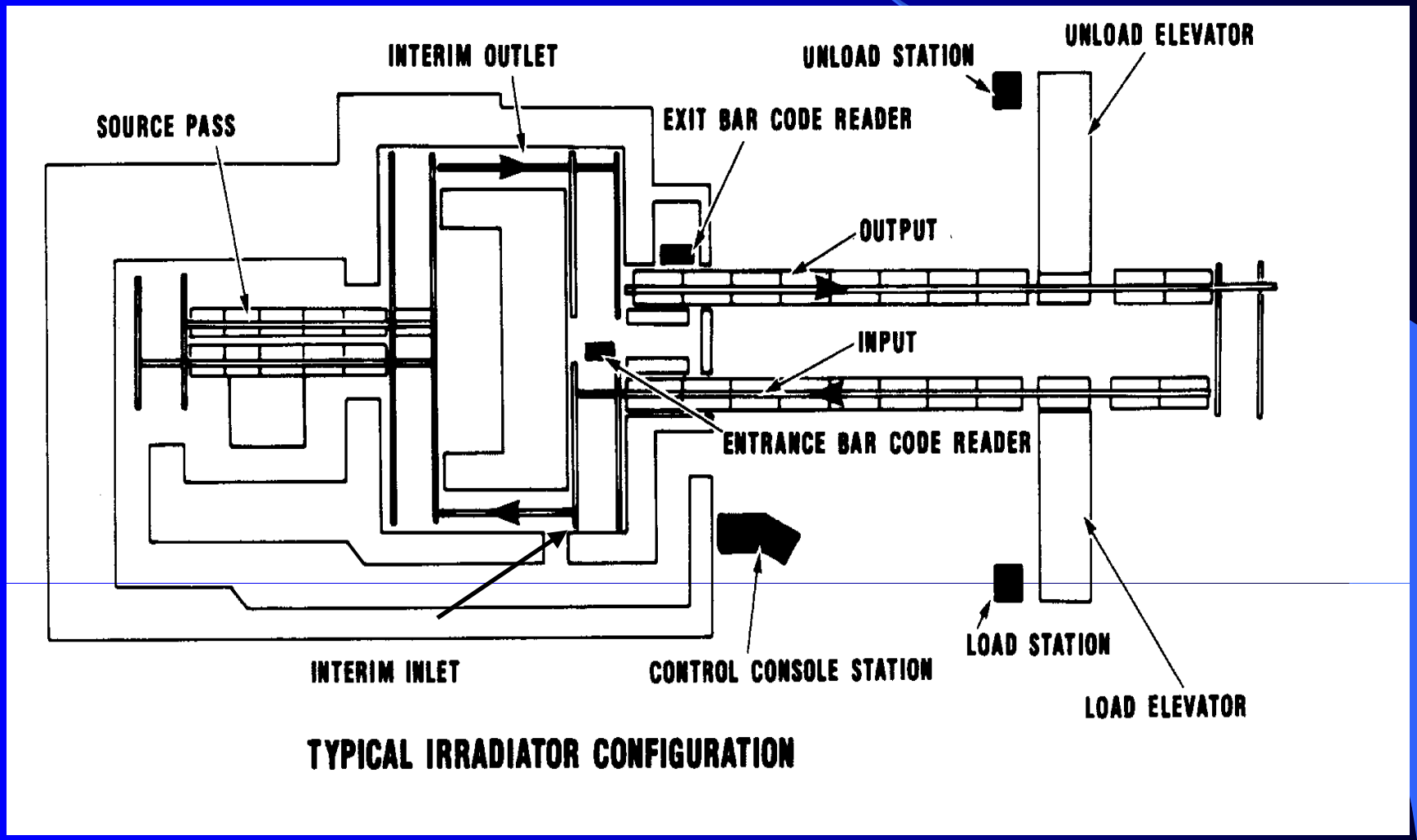
Irradiator Configurations

Product Flow Example



Top View

Irradiator Sections or Areas

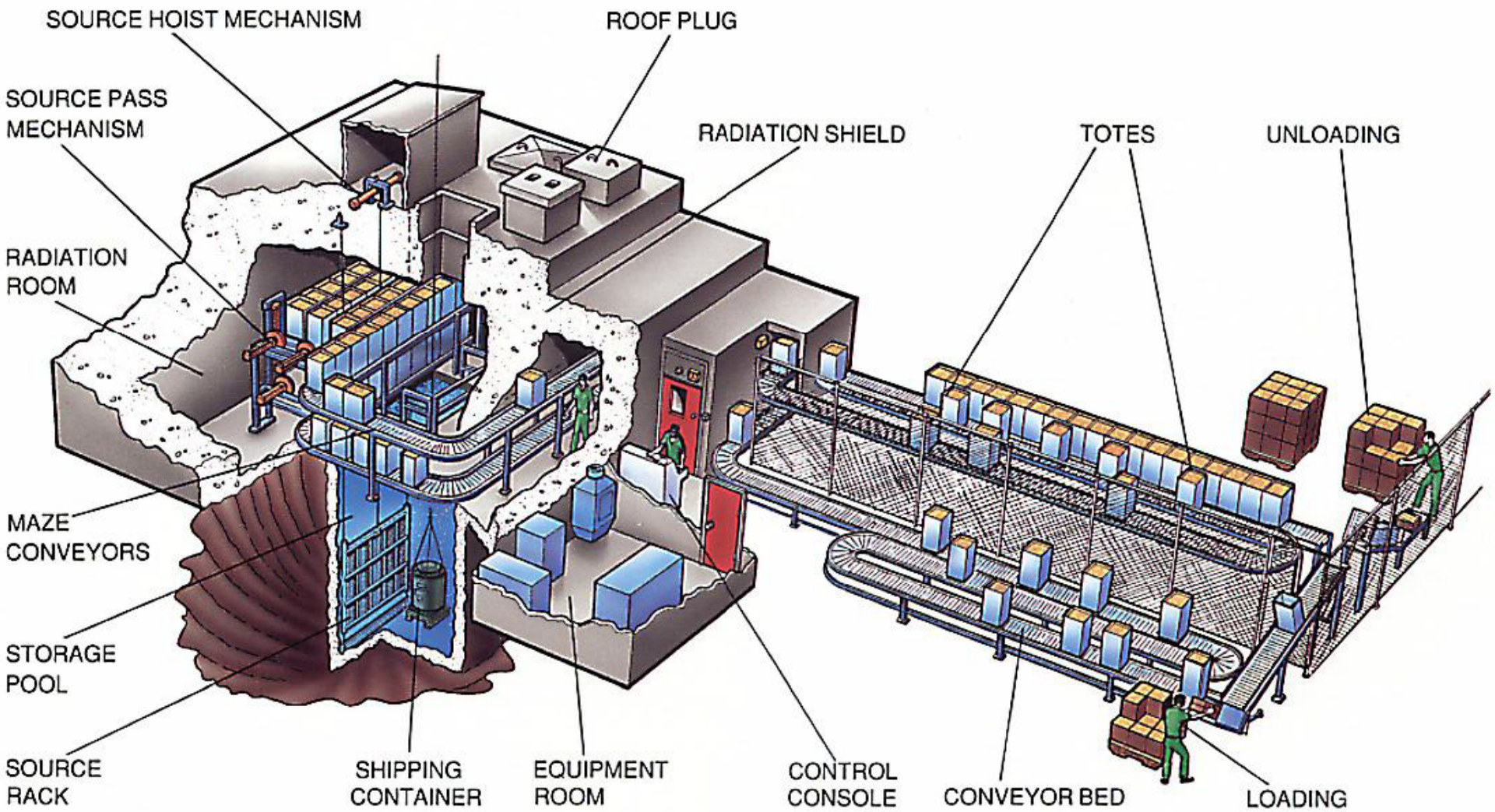


Source Pass Cylinders # P1-P99, Interim # P100-P199, Warehouse, P200-P299

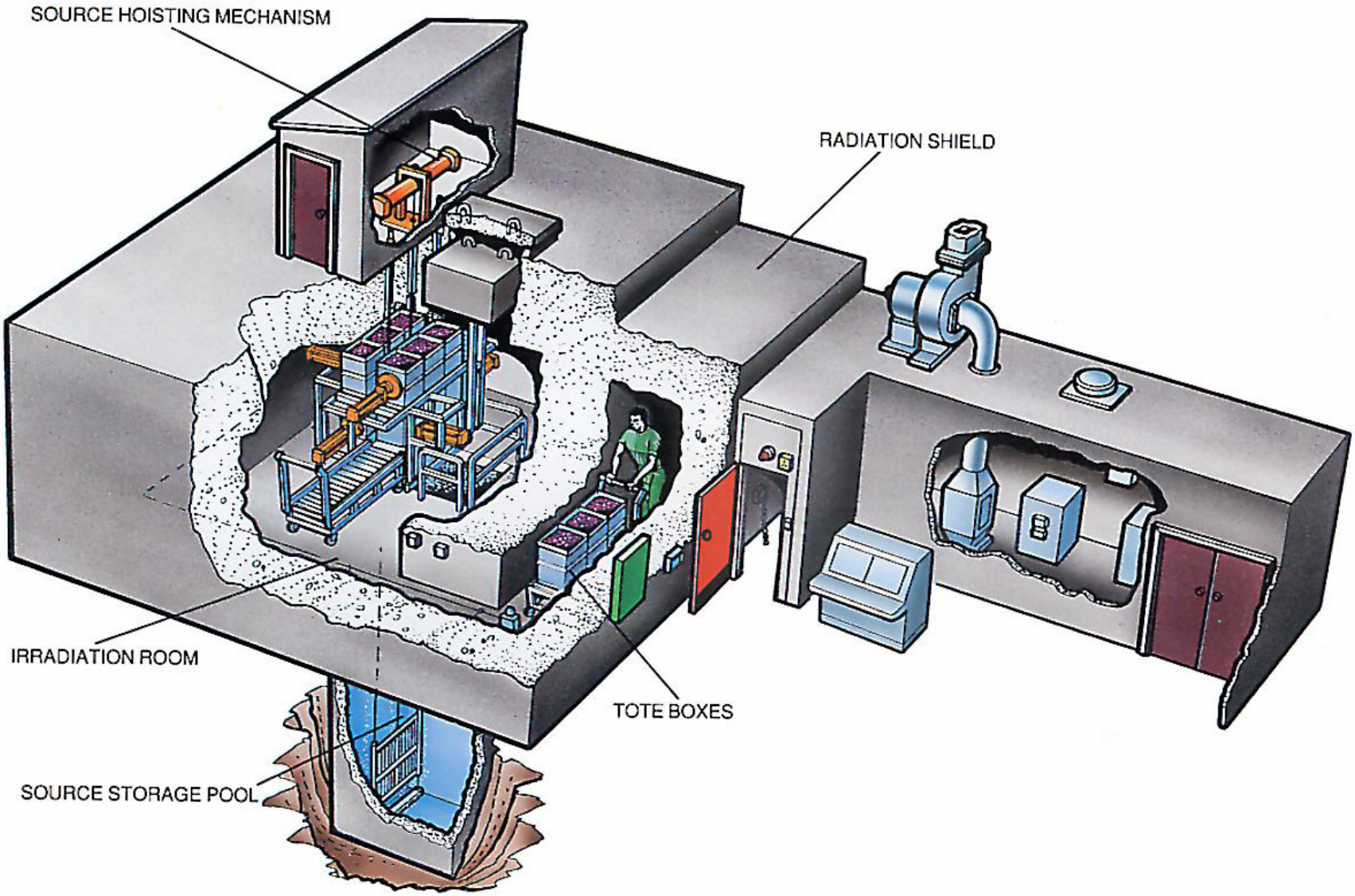
Irradiator Types

- Industrial
  - Tote Box
  - Pallet
  - Carrier
  - Bulk

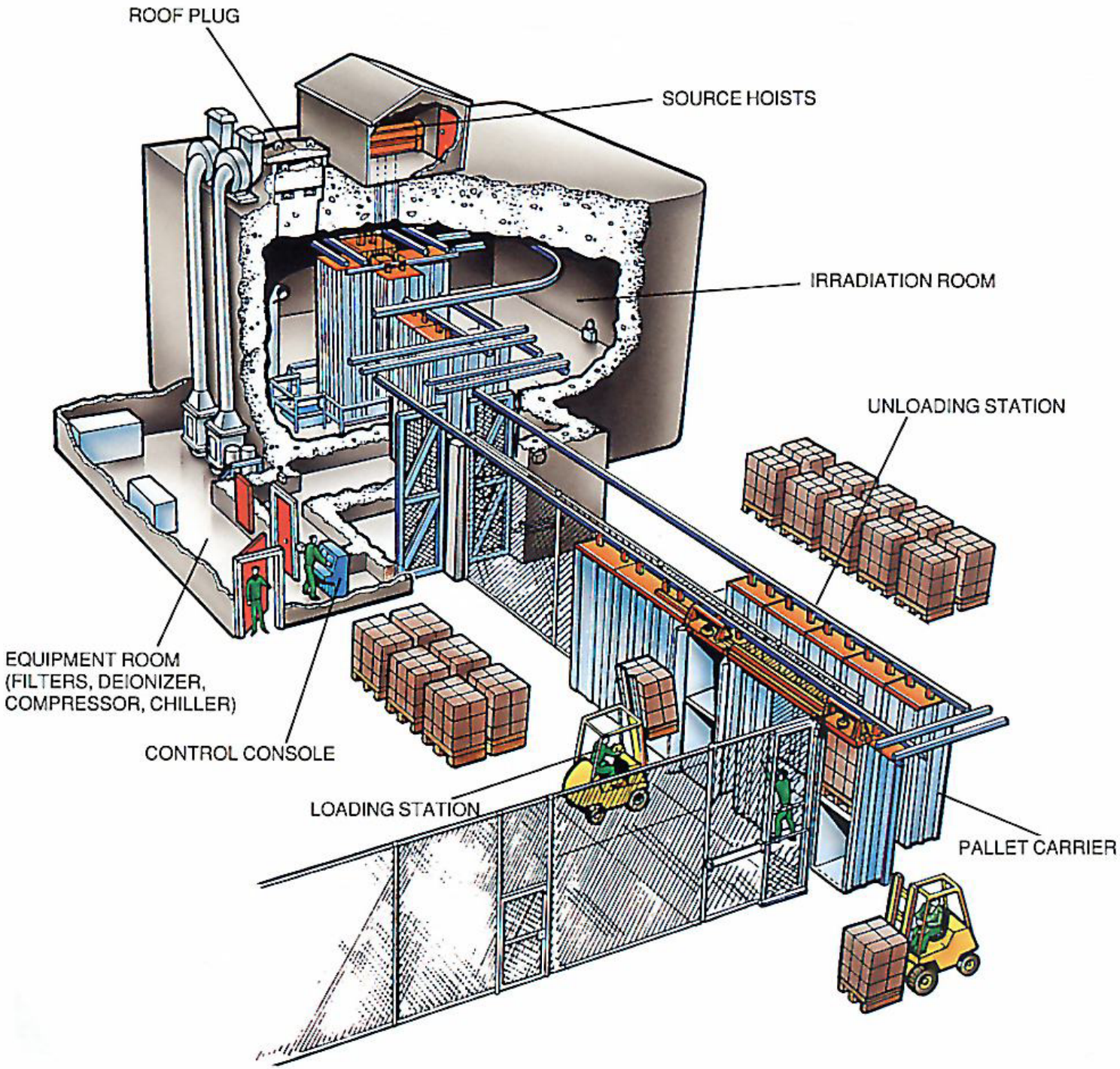
TOTE BOX IRRADIATOR - AUTOMATIC



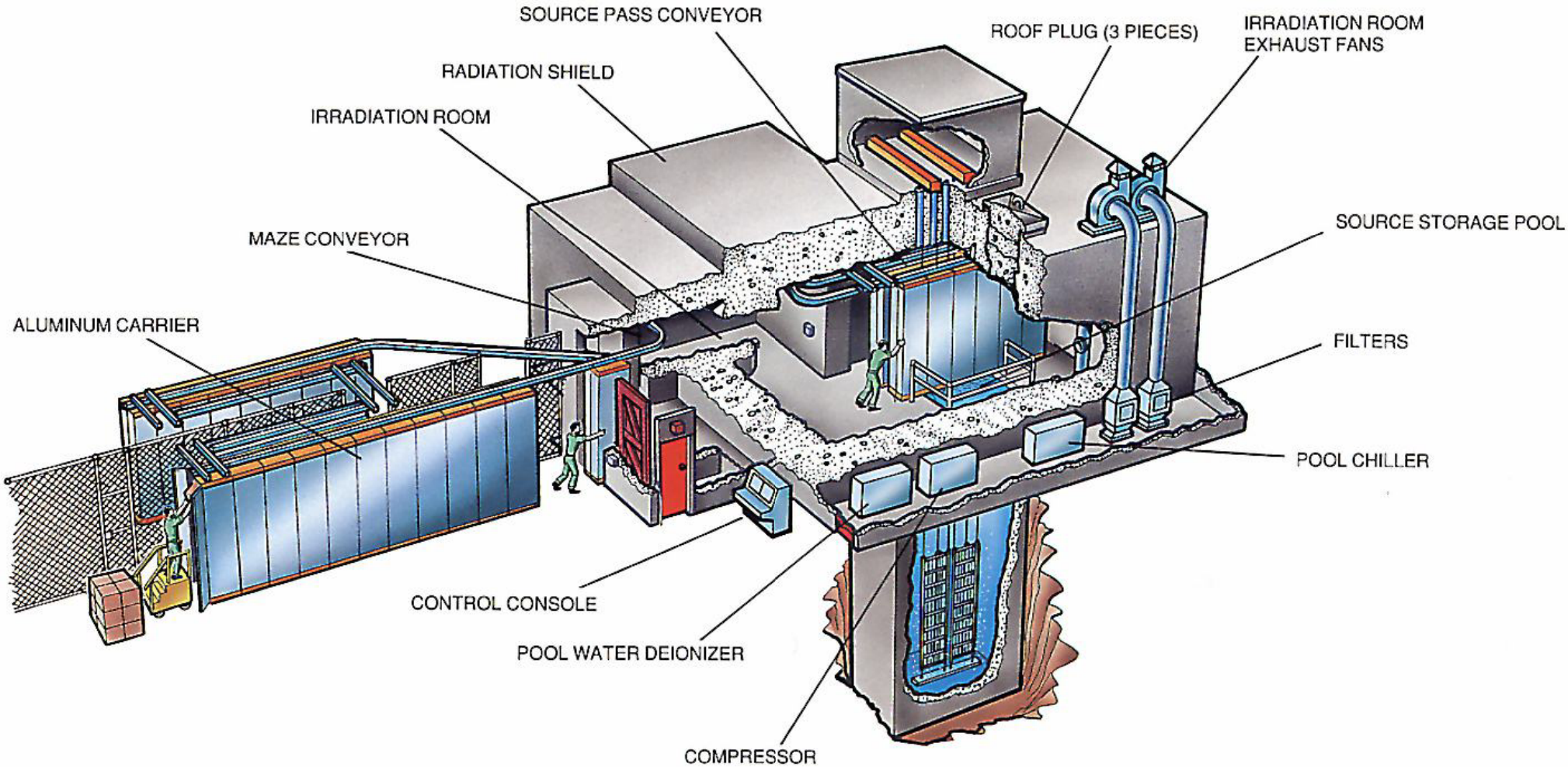
TOTE BOX IRRADIATOR - MANUAL BATCH LOADING



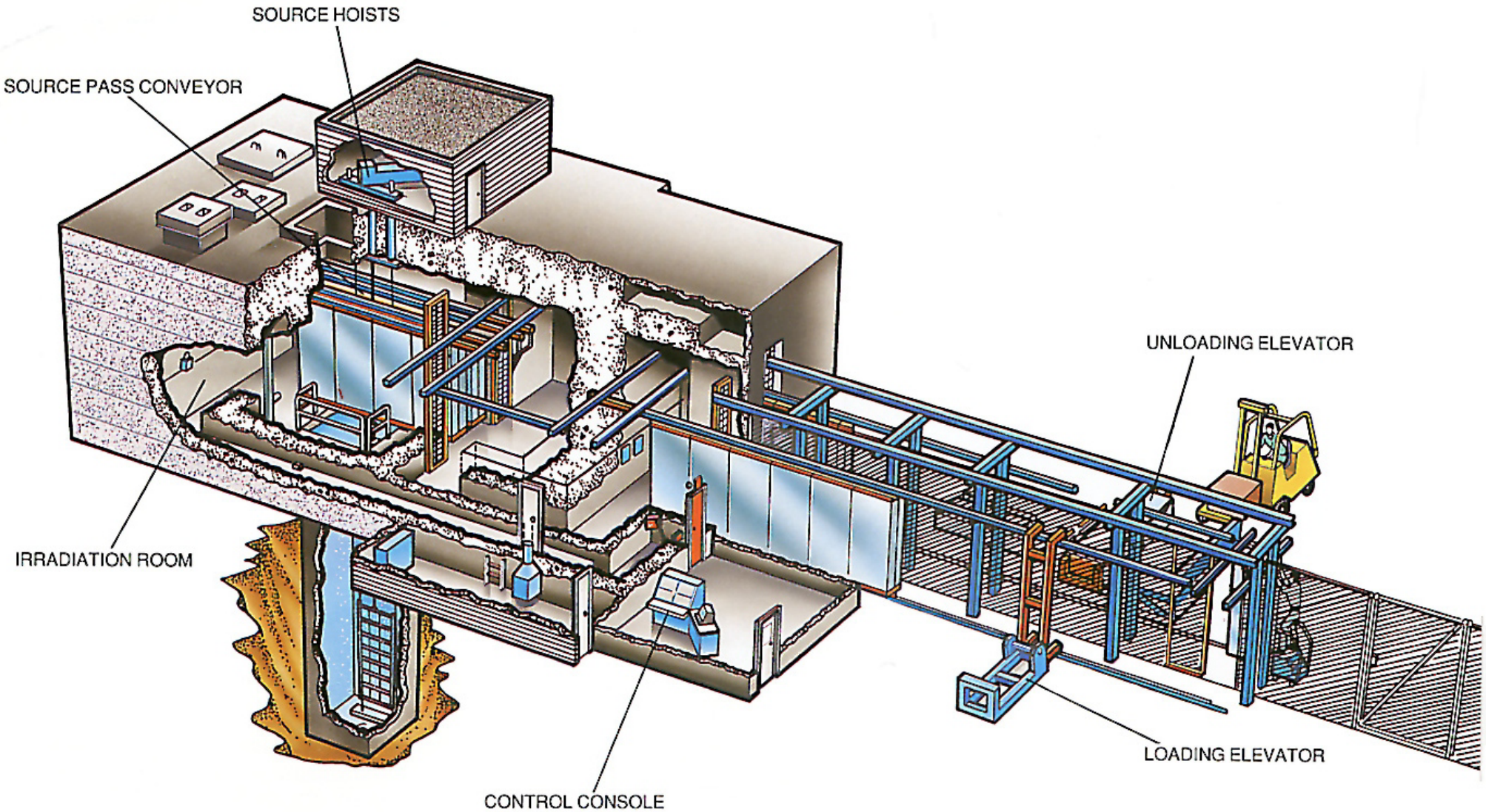
PALLET IRRADIATOR - AUTOMATIC

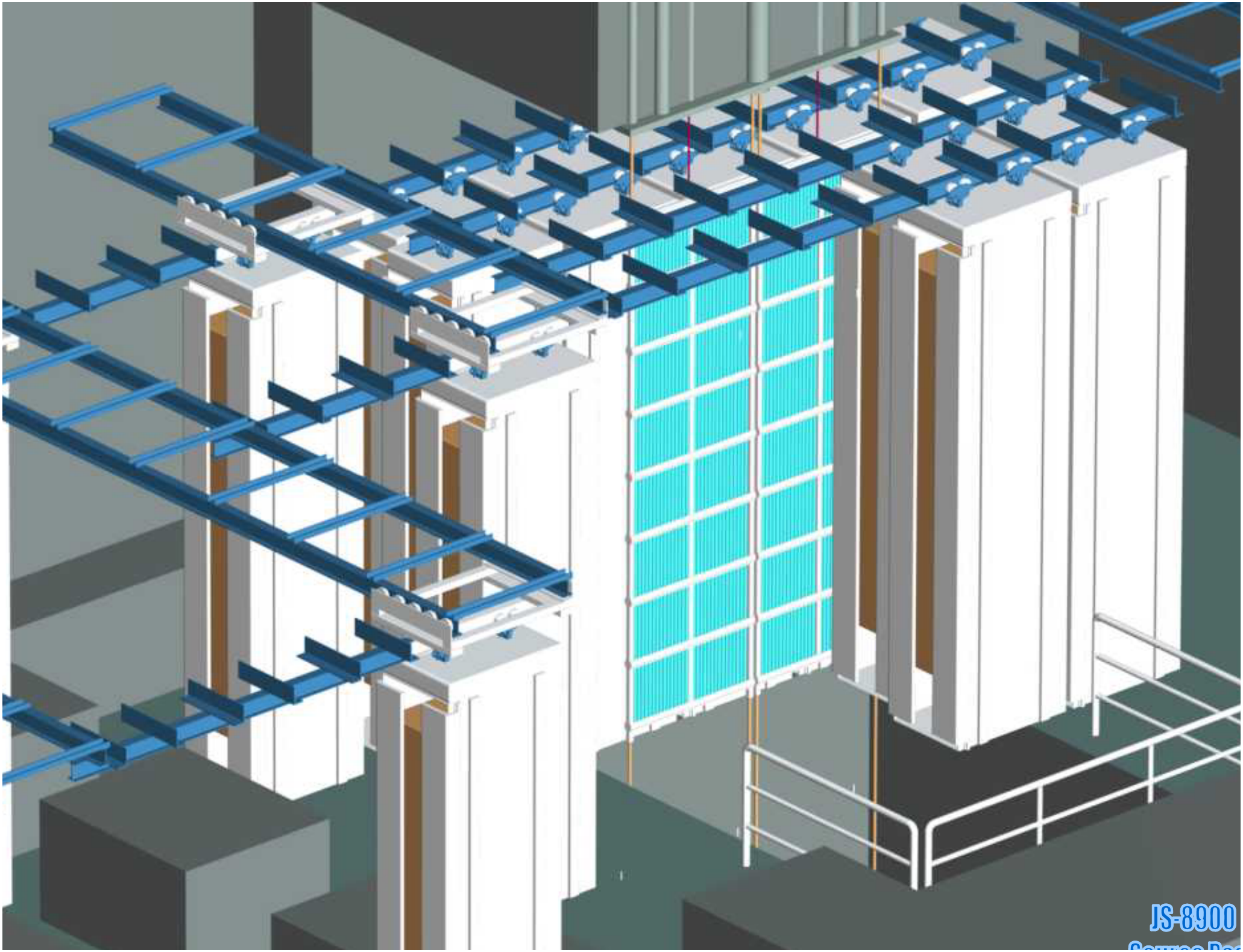


CARRIER IRRADIATOR - MANUAL BATCH LOADING

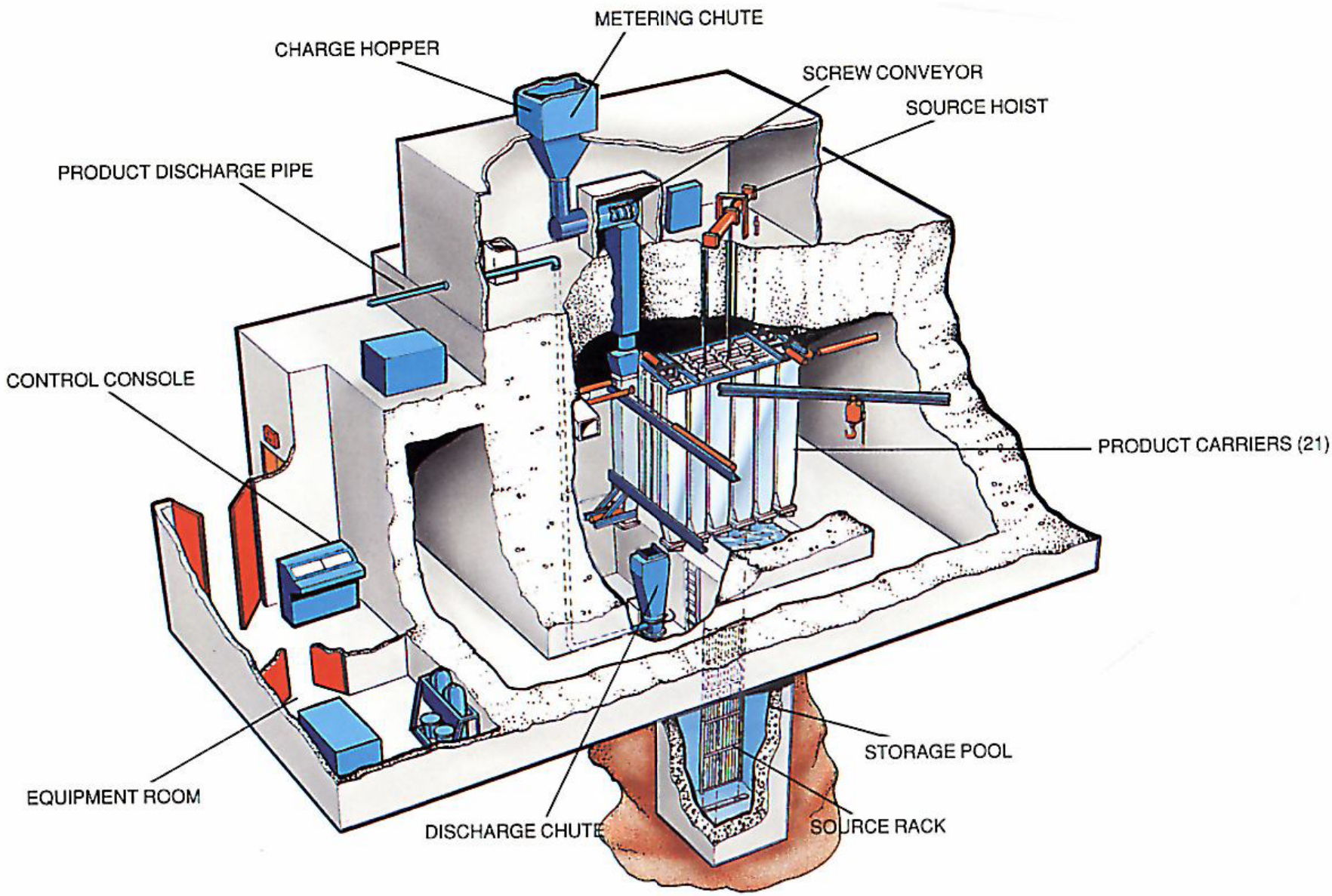


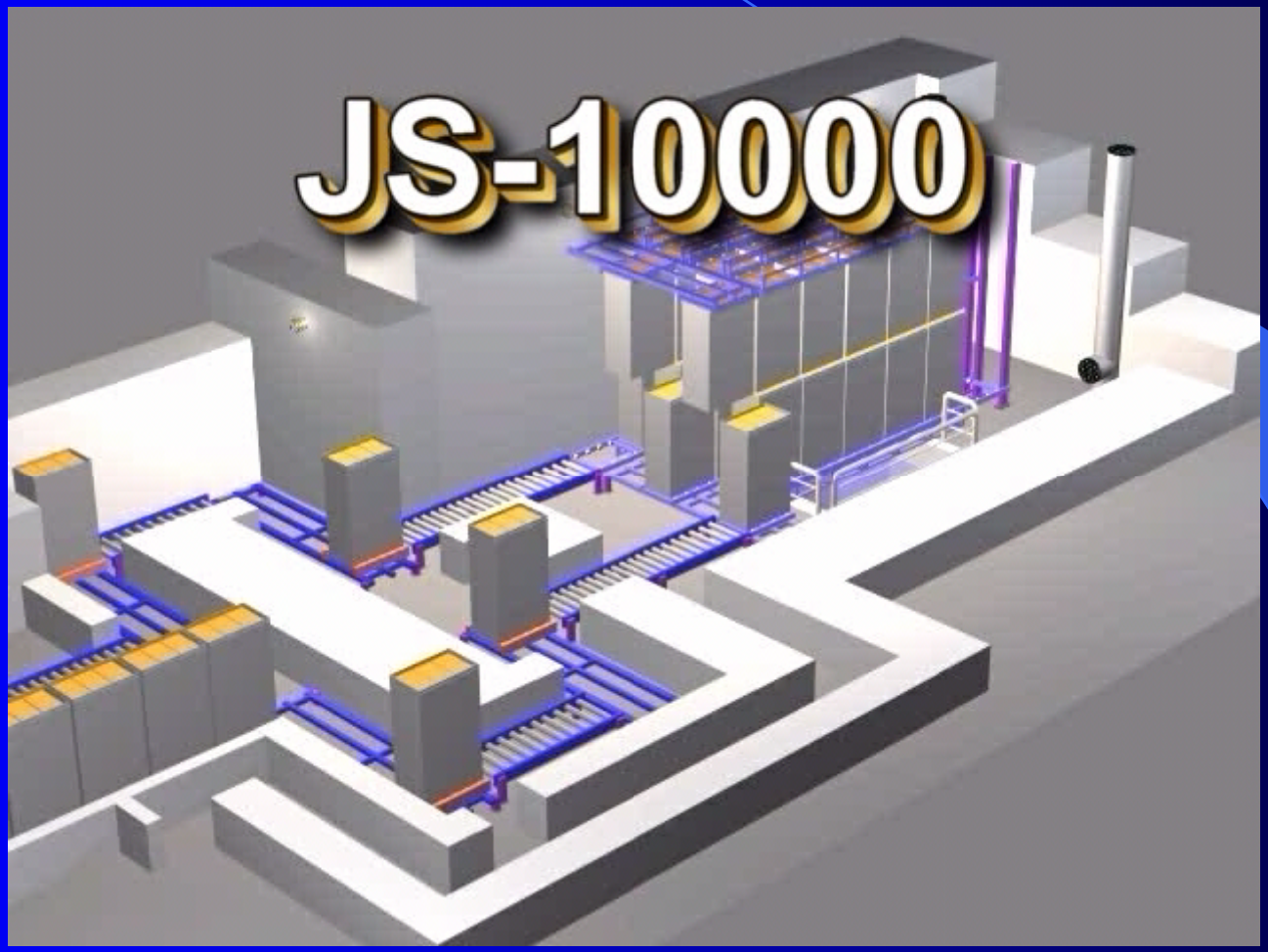
CARRIER IRRADIATOR - AUTOMATIC




JS-8900

BULK PRODUCT IRRADIATOR

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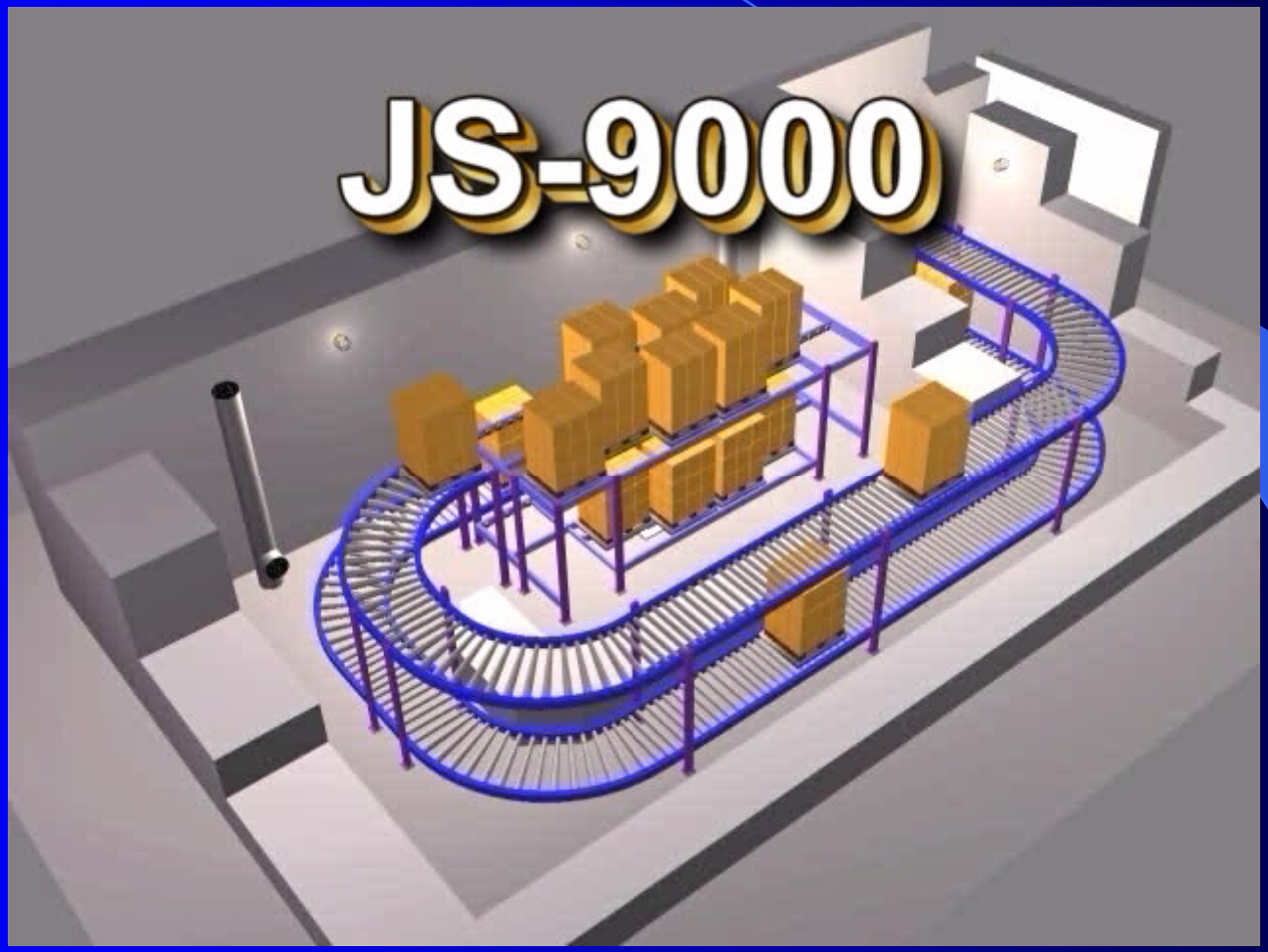
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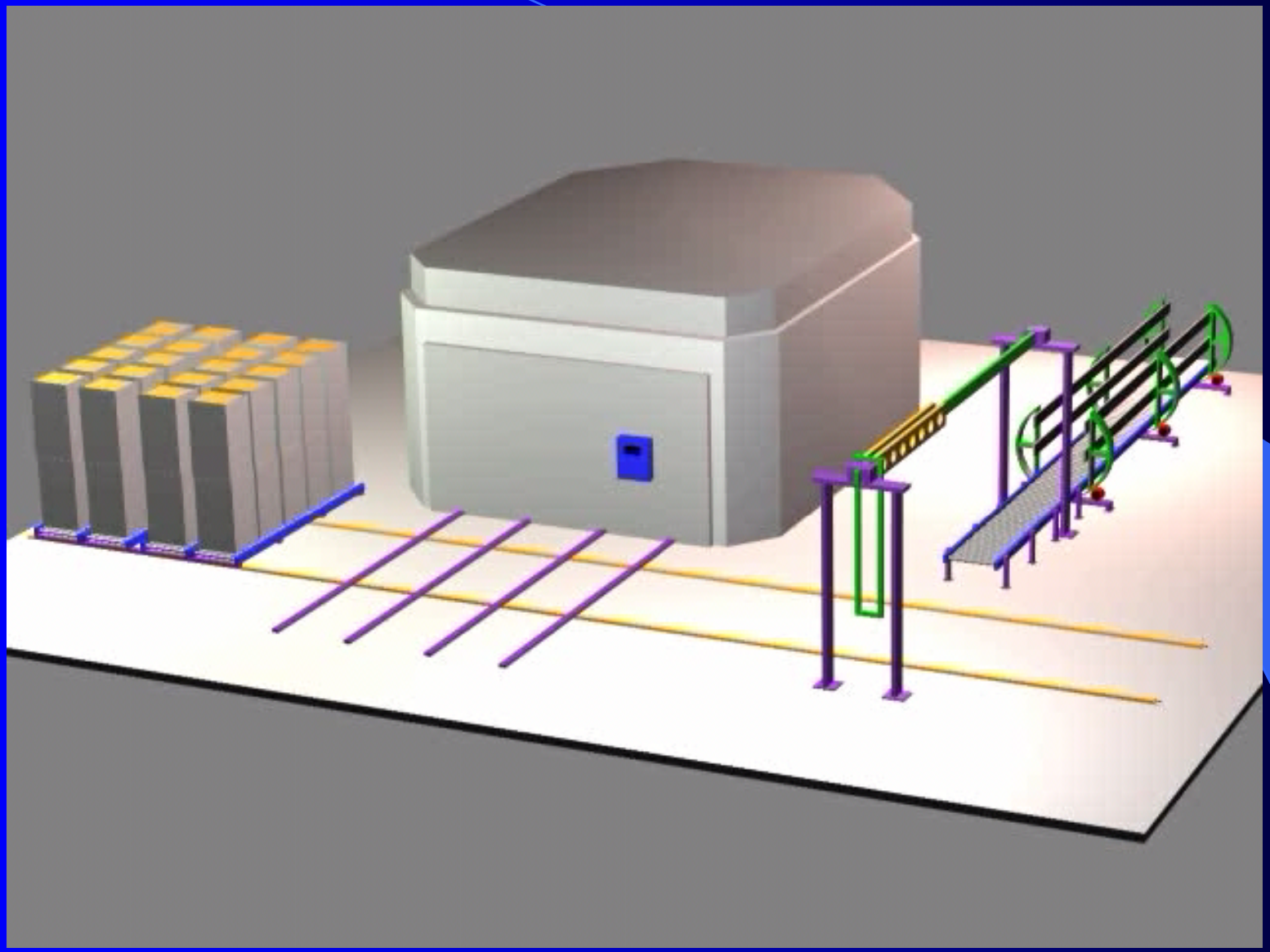
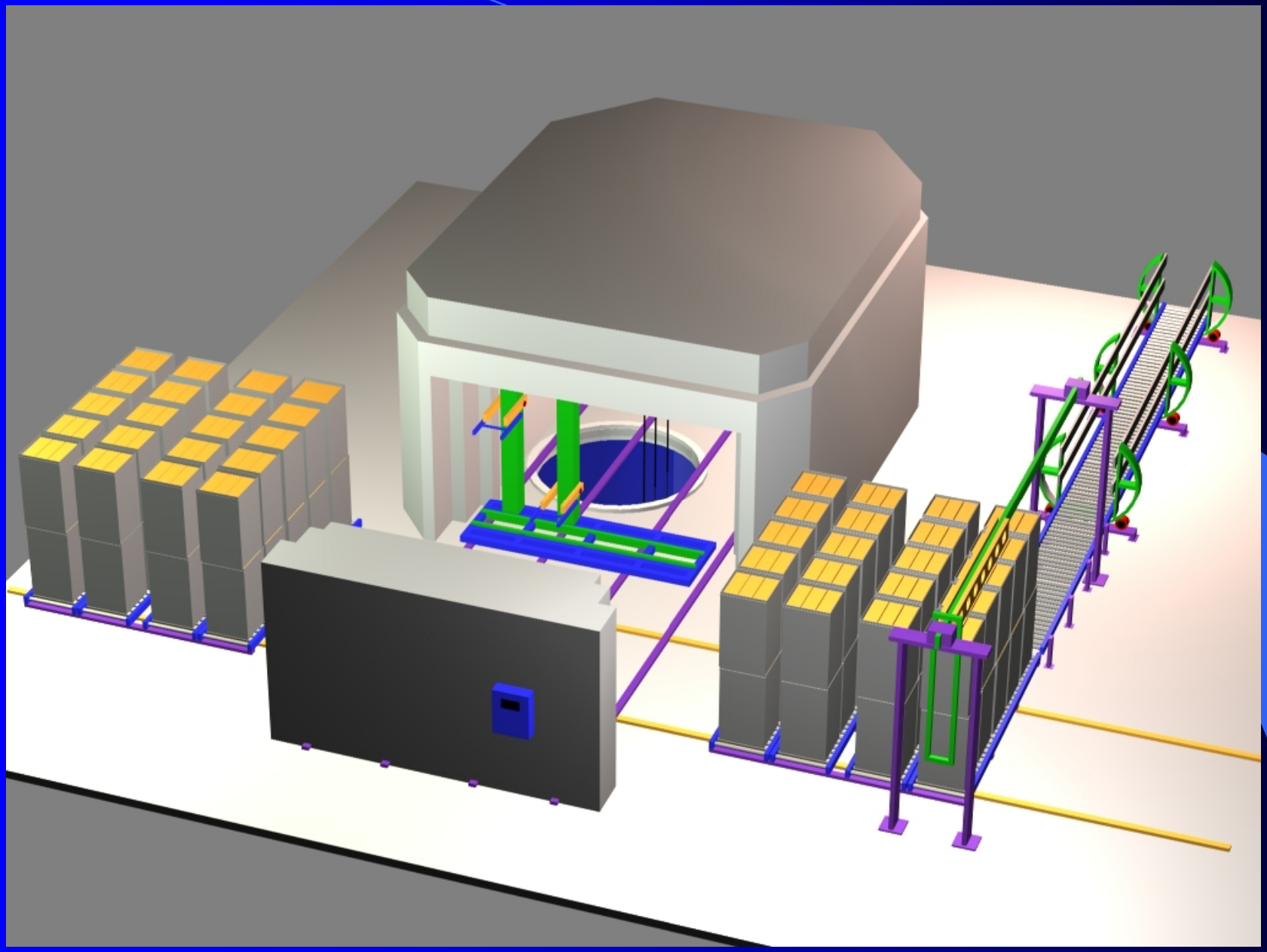
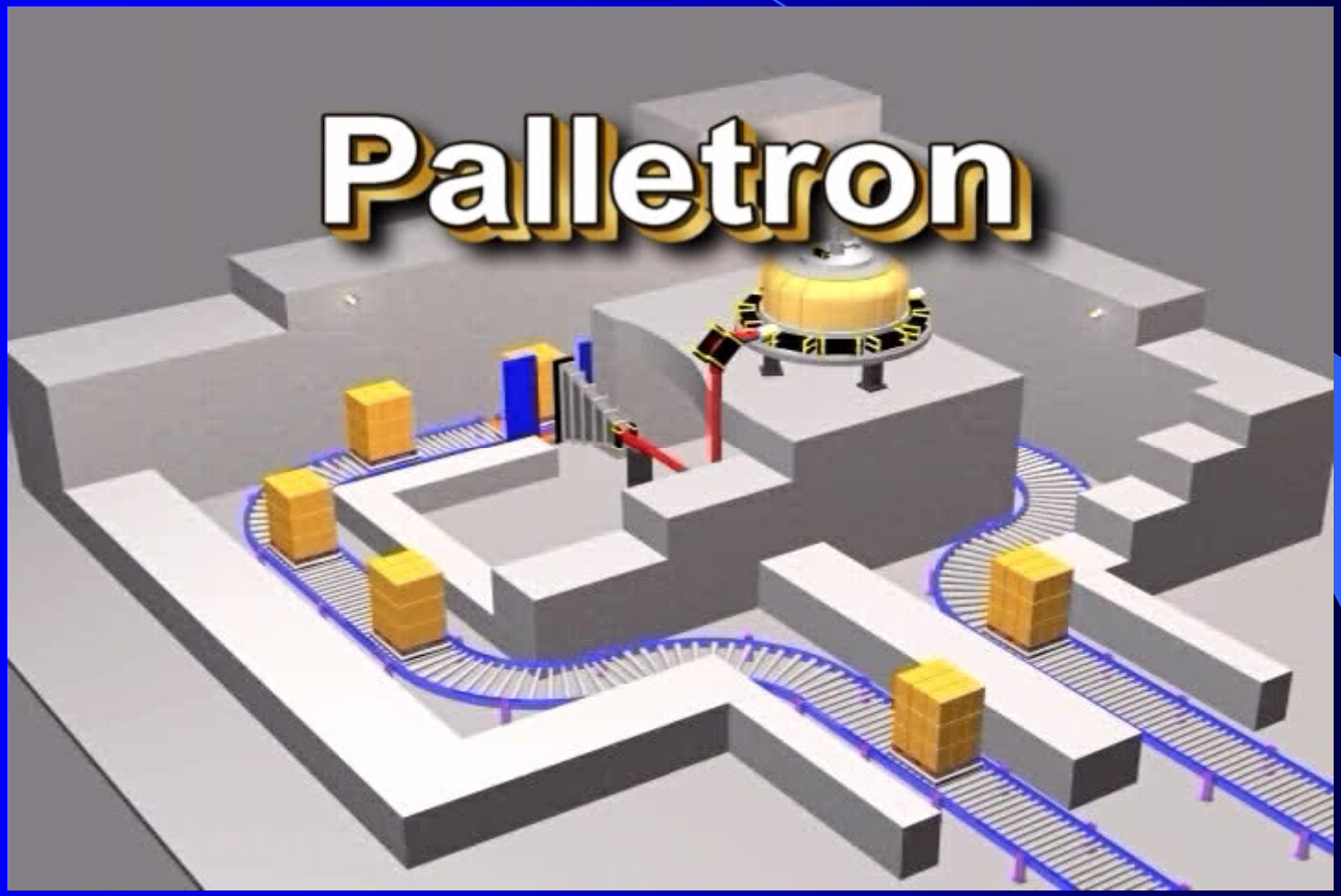
The Brevion

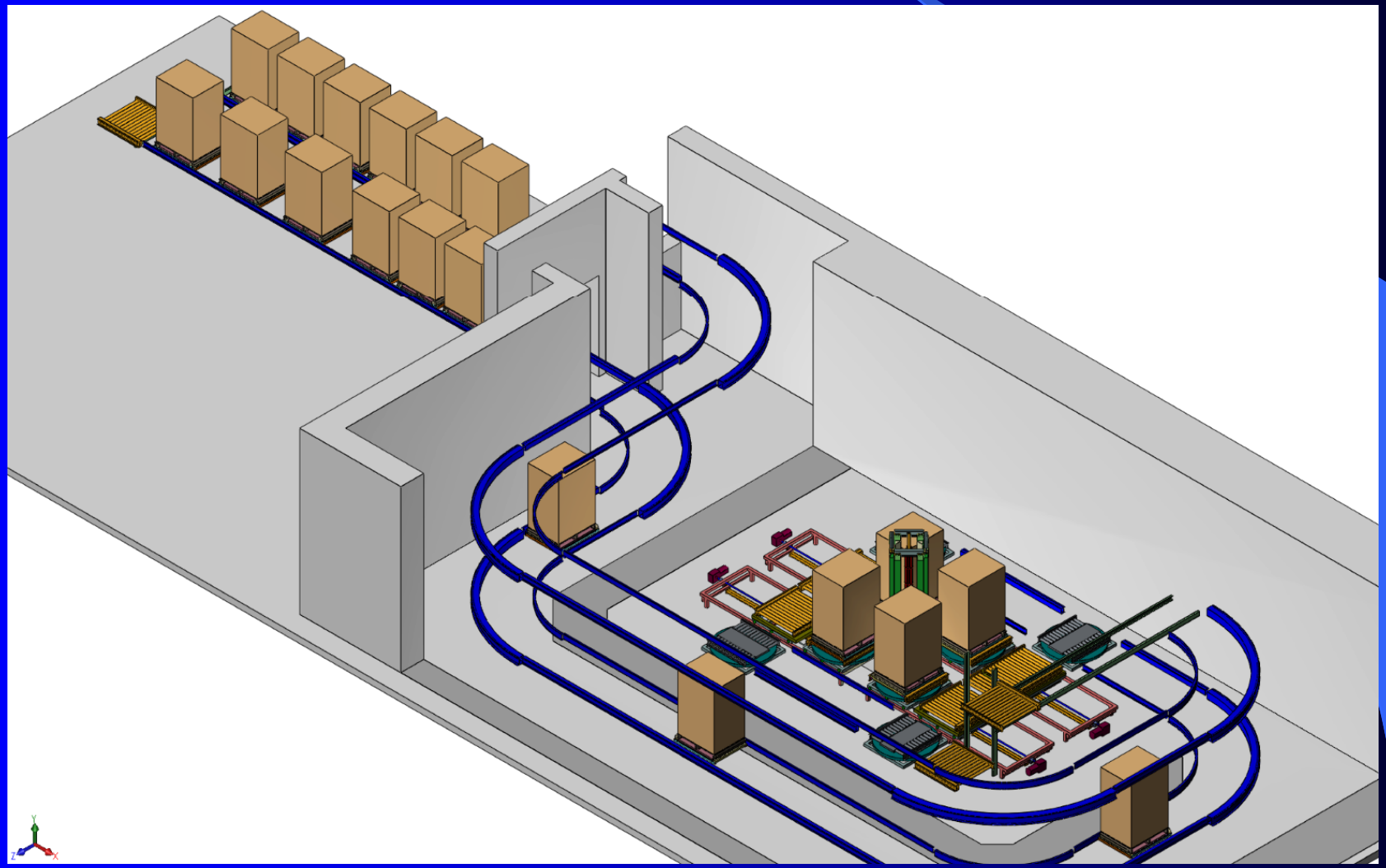


The Brevion




Palletron

Quadura



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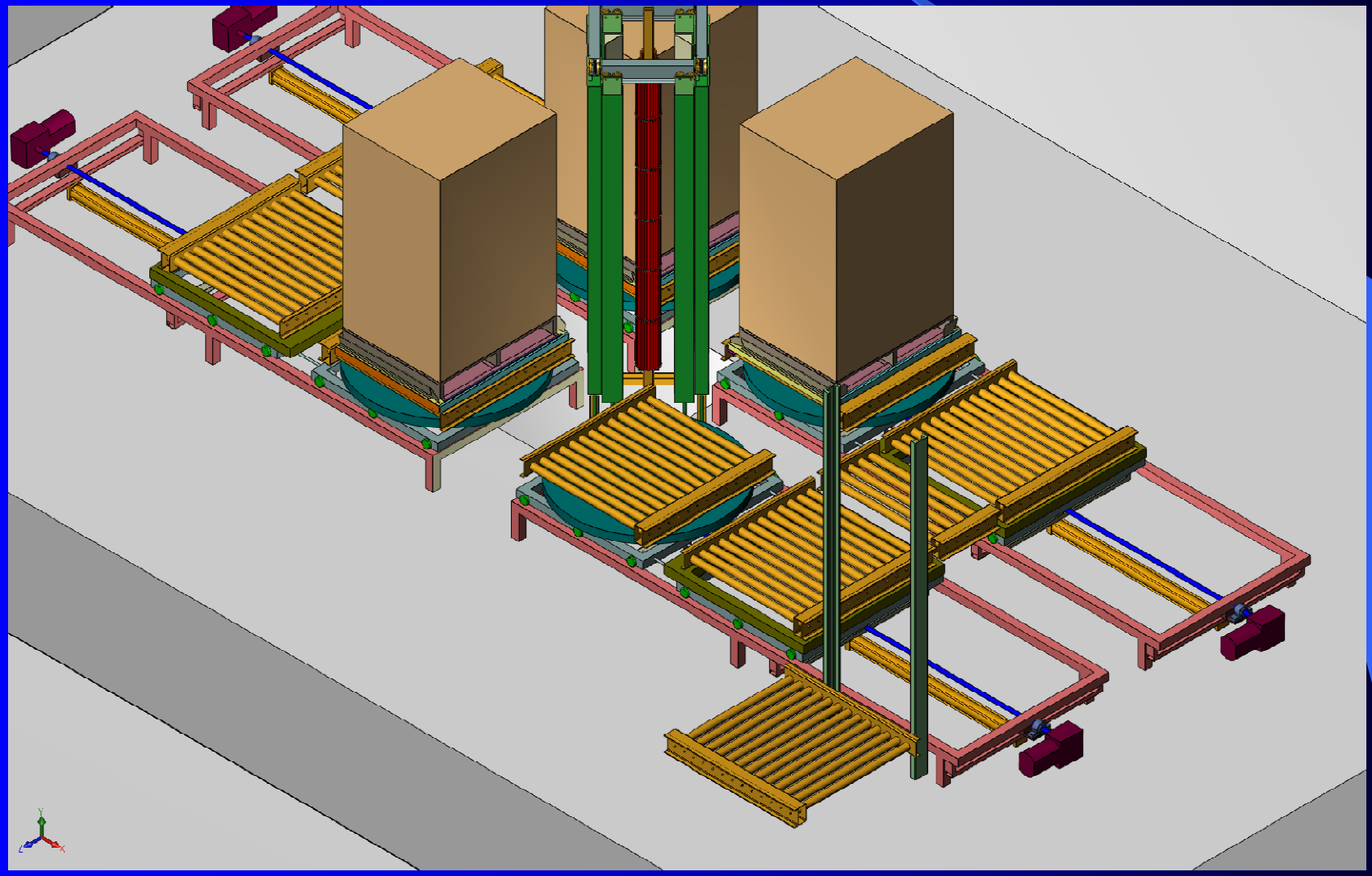
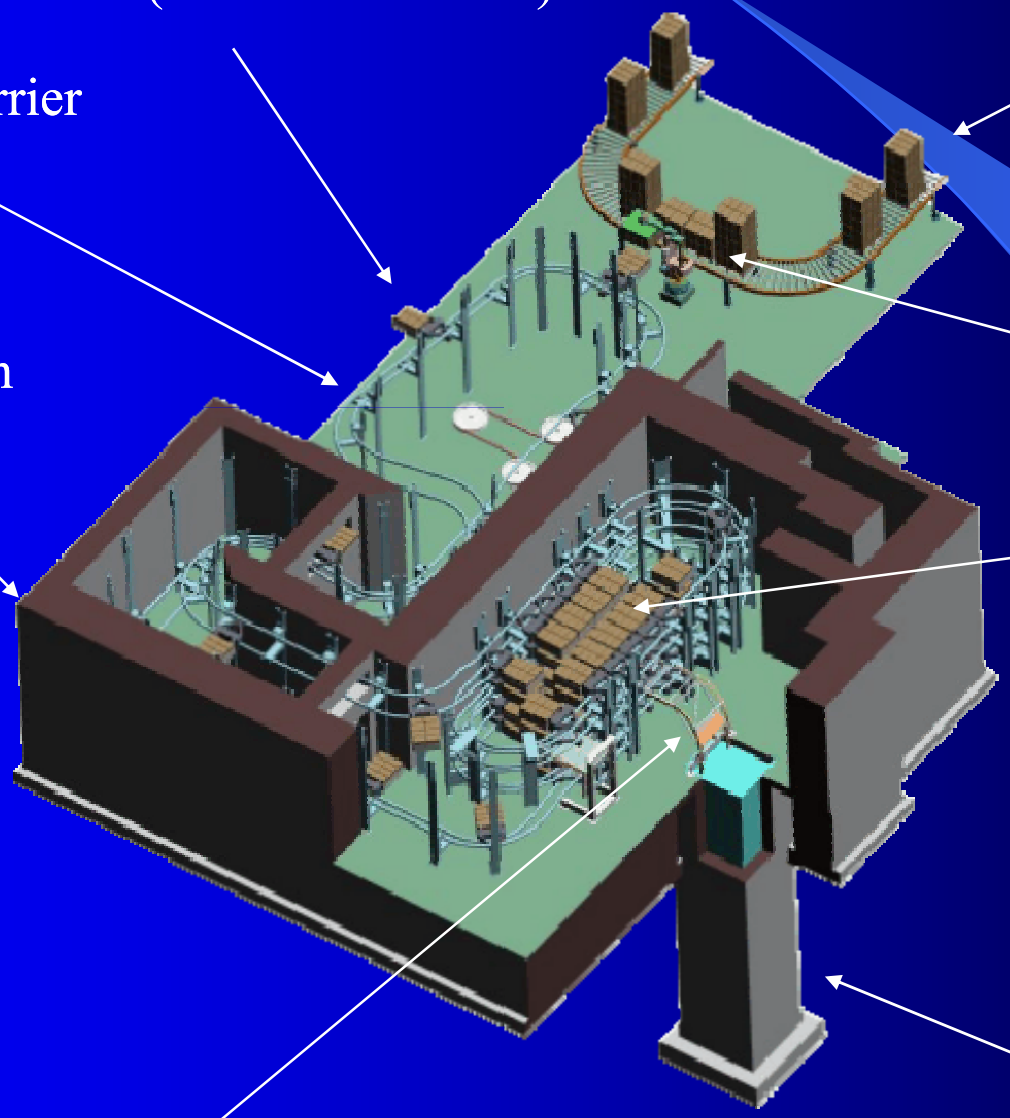
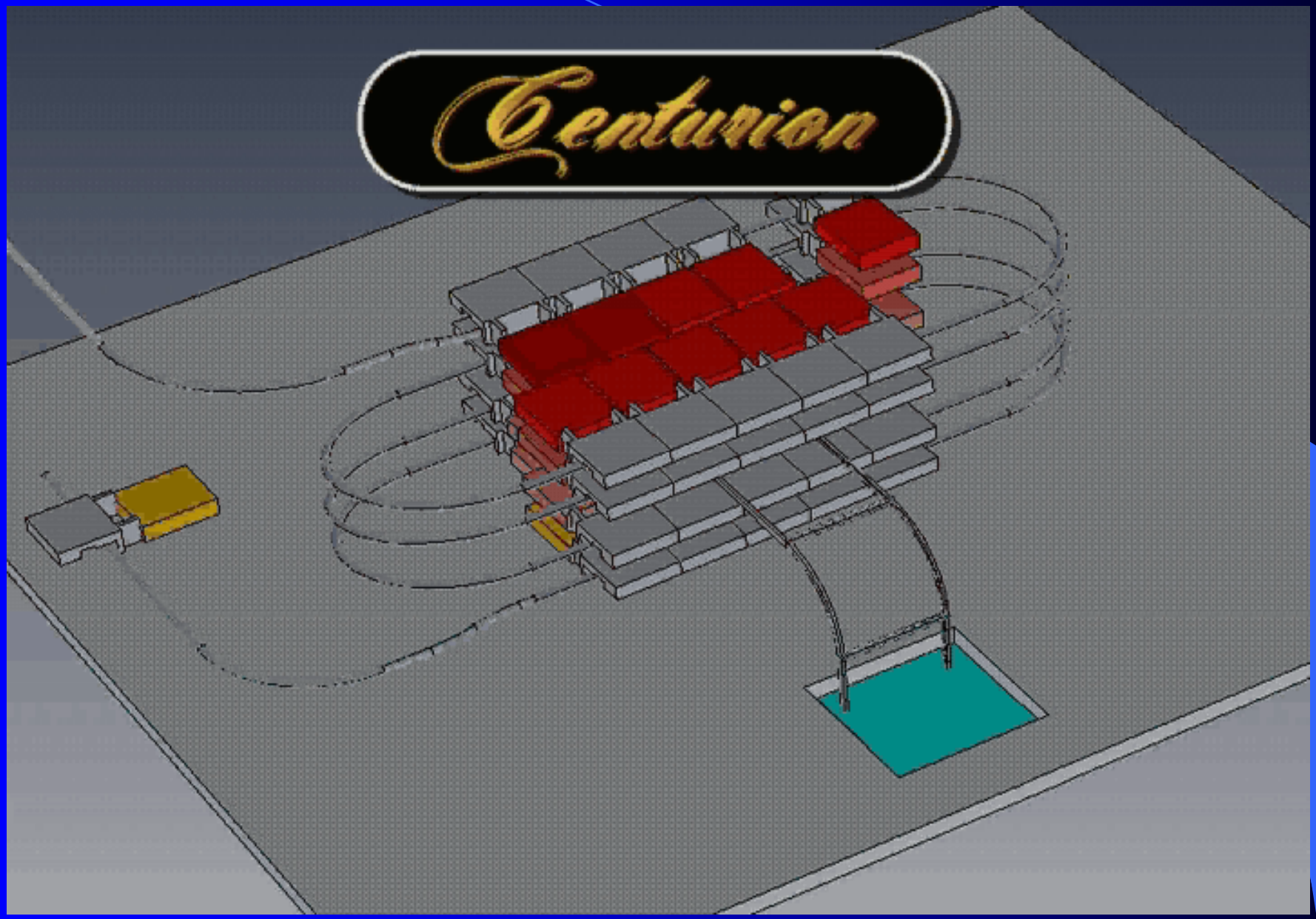


Epsilon

CENTURION

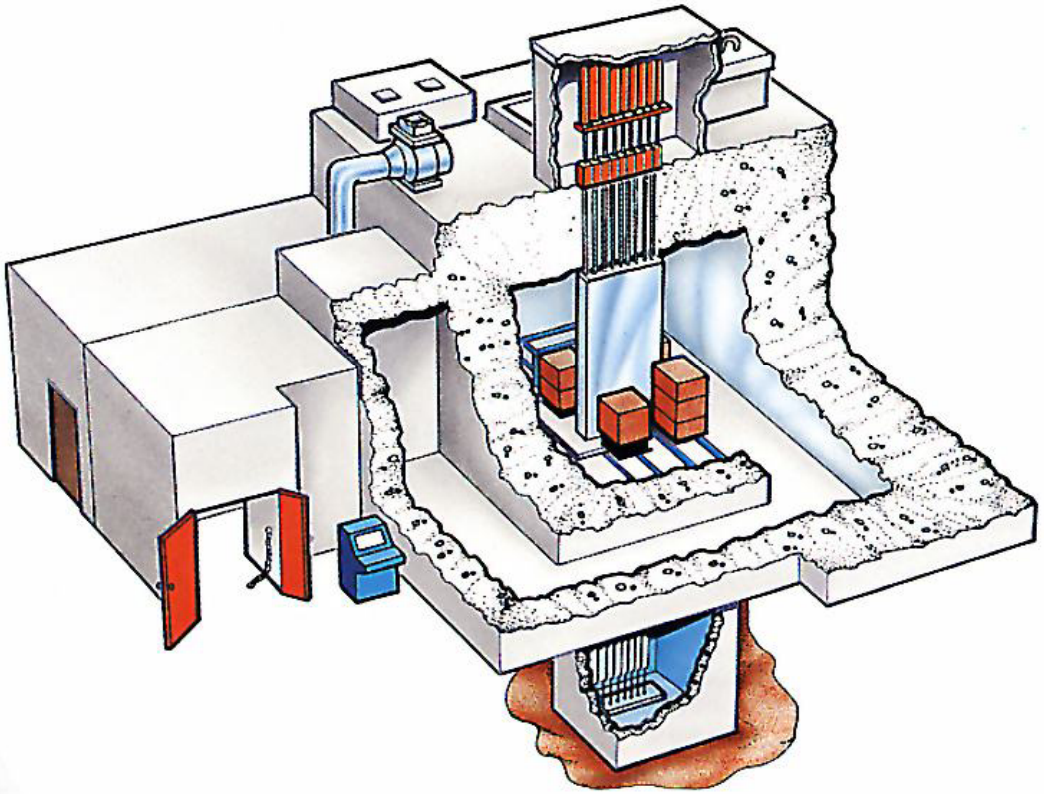

Product carrier
(with food cartons)
Palletised
Food products
Product Carrier
Tracks
Robotic
De-palletizer
Concrete Radiation
Shield (cut-away
view)
Product
Carriers
Source assembly
track (vertical to horizontal)
Cobalt60

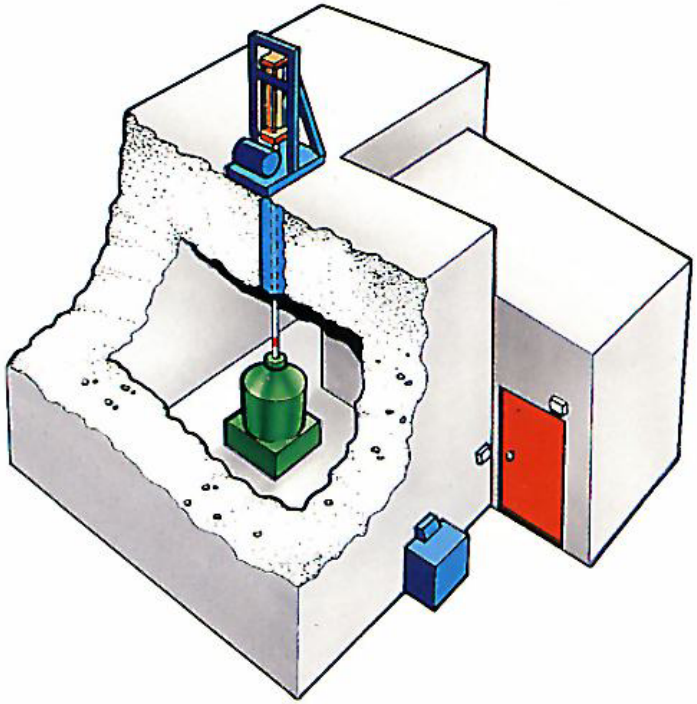

Centurion

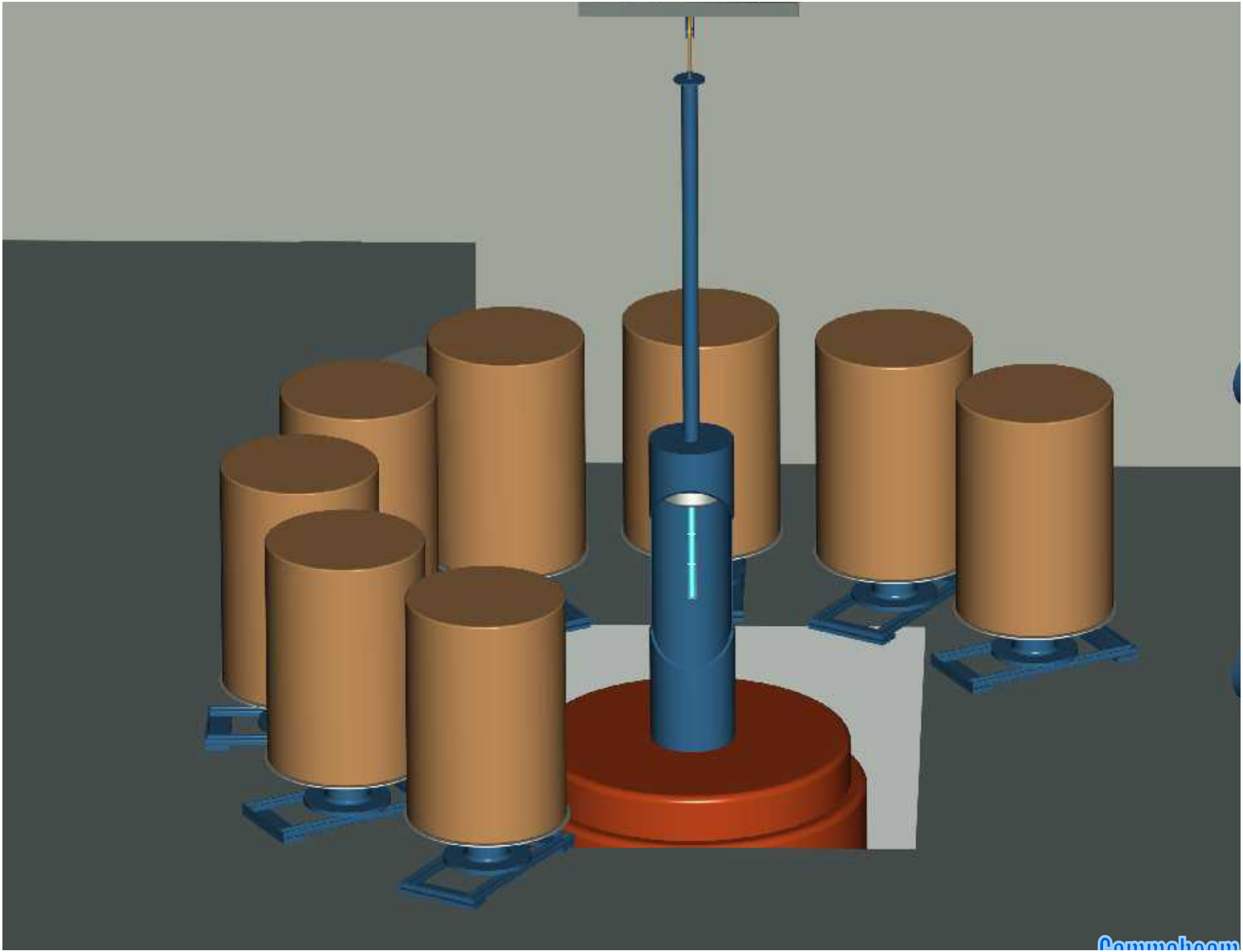
Irradiator Types

- Research
  - Gammacells
  - Gammabeams

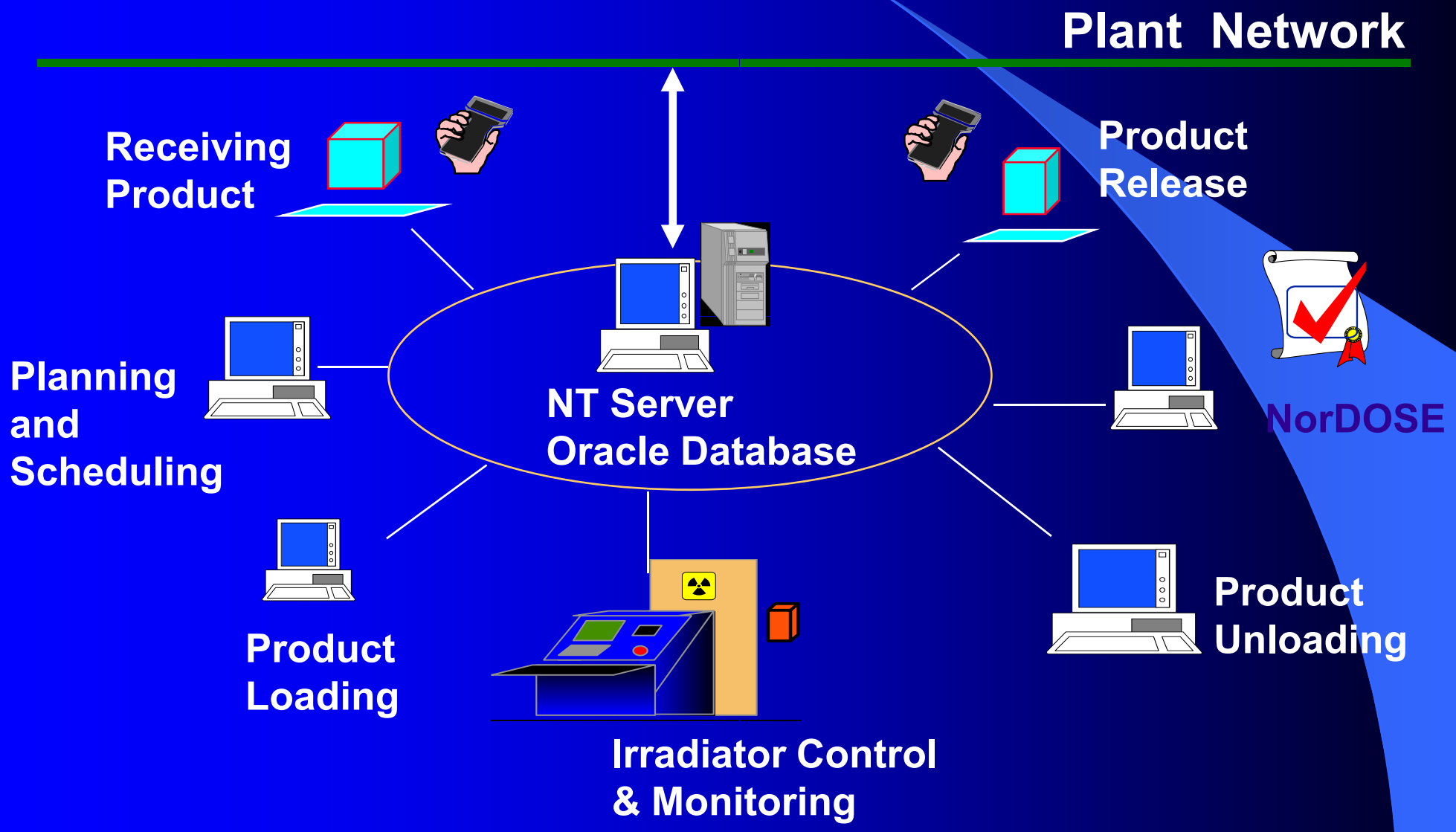
Research Irradiators THE GAMMABEAMS






Commcboom

NorTRACK's Network of Functions in the Irradiation Process



Benefits of NorTRACK™

- Higher productivity
- Real time proof of process control
- Automated records for audit trail
- Enhanced dosimetric release
- Improved decision-making
- Faster product turnaround
- Better inventory control
- FDA GMP Validation

TOUCHTIME

PROGRAMMABLE TIMER

- EASY TO PROGRAM
  - User-friendly, self-guiding instructions
  - No keyboard or mouse required
  - Backlit 10” screen, displays all timer and counter settings

TOUCHTIME

PROGRAMMABLE TIMER

- **FLEXIBLE, EFFICIENT FUNCTIONALITY**
  - Battery-backed memory
  - Timing functions comply with AAMI ST32-1991

Benefits of Irradiation

- Low Dose (<1 kGy): (Food only)
  - Insect disinfectations
  - Sprout inhibition
  - Maturation Delay
  - Extend shelf life

Benefits of Irradiation

- Medium Dose (1-10 kGy): (Food , Pet Food ,Spices & Natural Health Food Supplements, Pet Chew …see picture next slide!!!)
  - Reduction of bacteria causing food born diseases
  - Reduction of spoilage microorganisms\

Benefits of Irradiation

- High Doses (10-50 kGy): (Food, medical devices, pharmaceuticals, implants…
  - Sterilization
- Food Irradiation Labeling:

Benefits of Irradiation

- The Big Advantage:

- Radiation Sterilization is the only "cold sterilization method" that can get to sealed places within the exposed medical device or anything else for that matter