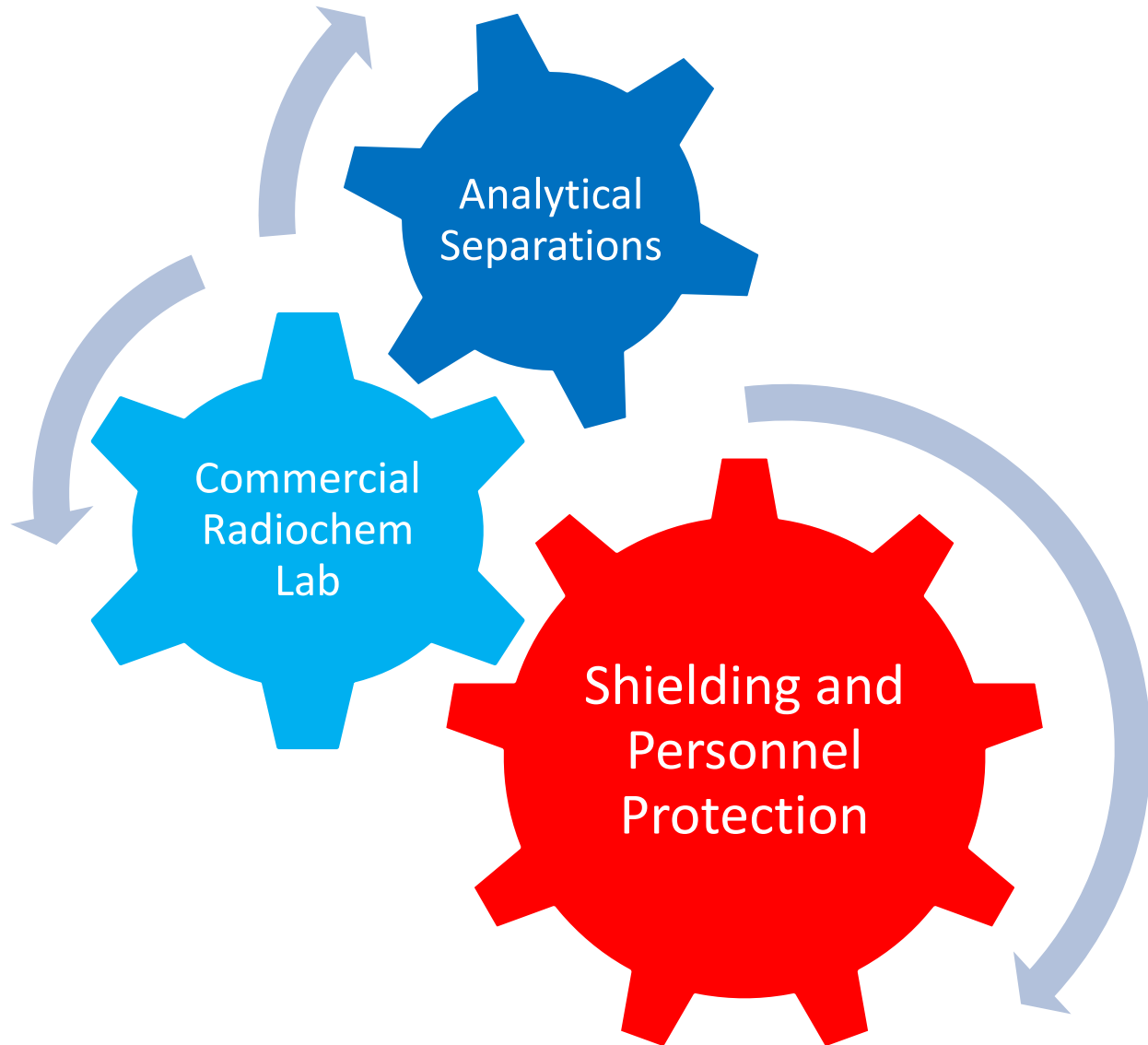


...collaborating with the nuclear industry to protect people and the environment.

NUCLEAR POWER OUTFITTERS
a subsidiary of eichrom

NPO

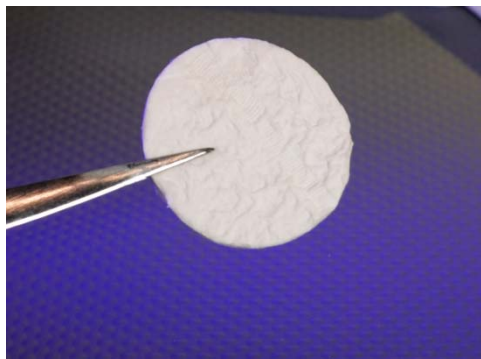
Eichrom/ Nuclear Power Outfitters



Inside our facility



Eichrom Products



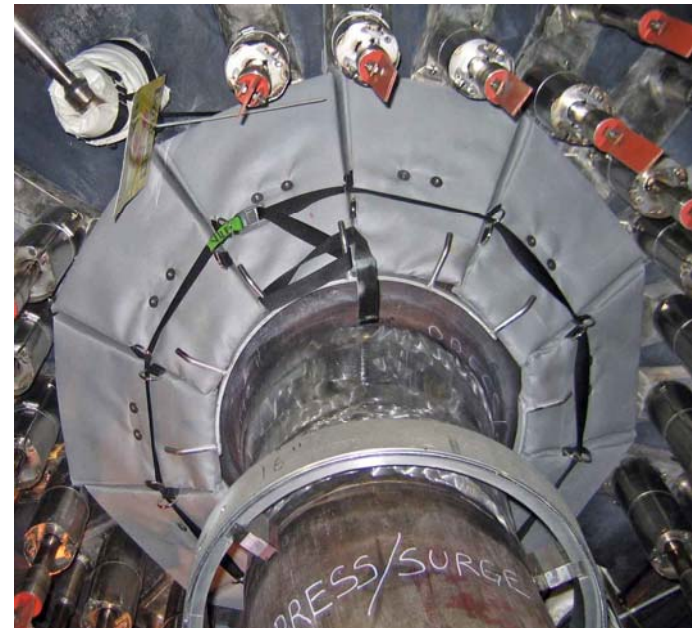
The image features three overlapping globes against a dark blue background. The top globe shows Asia and is labeled 'Nuclear Power Outfitters' in red. The bottom-left globe shows Europe and is labeled 'Eichrom Europe' in purple. The bottom-right globe shows North America and is labeled 'Nuclear Power Outfitters' in red. All globes have a blue glow around their edges.

**Nuclear Power
Outfitters**

**Eichrom
Europe**

**Nuclear Power
Outfitters**

NPO Products



ALARA SOLUTIONS FROM NPO

OUR MISSION:

DESIGN, FABRICATE AND IMPLEMENT
EFFECTIVE ALARA, SPECIFICALLY
SHIELDING, SOLUTIONS FOR OUR
CUSTOMERS

www.alarasolutions.com



Installation time/cost :: dose
reduction :: lifecycle cost

- Shielding Materials of Construction
 - Lead
 - Tungsten
 - Steel
 - Water
 - Composites/ Laminates
 - High Temperature

Relative Thickness (approx.) of Gamma Shielding Materials (centimeter)

“Rule-of-Thumb”

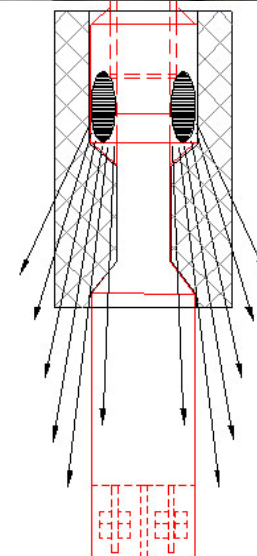
% Gamma Transmission
Impact from shielding/typical ave. shut down Gamma Energy of 0.9 MeV

<u>Water</u>	<u>Steel</u>	<u>Tungsten (solid)</u>	<u>NPO’s “T-Flex”</u>	<u>Lead (solid)</u>	<u>Lead Blanket Layers (15#)</u>	
8 cm	1.3 cm	0.5 cm	1.0 cm	0.6 cm	1 (0.73kg/100cm ²)	55% to 60%
10 cm	1.6 cm	0.6 cm	1.3 cm	0.9 cm	1 - 1/2	45% to 50%
14 cm	2 cm	0.8 cm	1.6 cm	1.1 cm	2	35% to 40%
18 cm	2.7 cm	1.1 cm	2.2 cm	1.5 cm	2 - 1/2	25% to 30%
30 cm	4.5 cm	1.8 cm	3.5 cm	2.5 cm	4	10% to 15%
35 cm	5.1 cm	2.1 cm	4.2 cm	3 cm	5	< 10%

Shielding Considerations

- Shielding Placement in line with maximum source term (molded to fit specific components)
- Installation and removal time critical
- Weight of individual shields sized to not exceed worker lifting capacity (integral hooks, cinch straps)
- Use of rack systems designed for shielding
- Use of Lattice Swivel Hook Systems for multi-tiered lead blankets
- Water tight storage containers for placement inside containment
- Track systems developed for easy transport of shielding when and where needed

Effectiveness::Positioning



Installation Time :: Dose

Integral
End-caps



One 2 Meter Long Blanket = Two 1 Meter Blankets Unless you are carrying them!

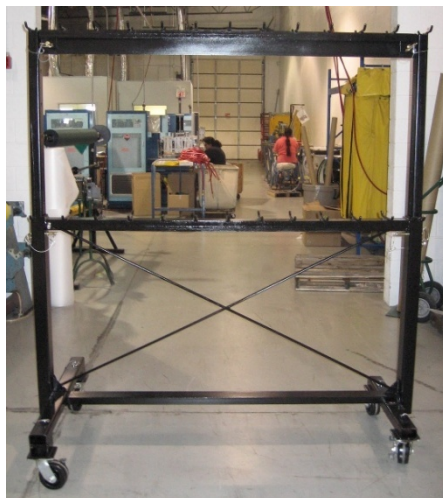
Integral Hook system for end-to-end connection of lead blankets.



Flexible Designs :: Optimum Shielding Placement

LINKABLE MOBILE RACKS, INCLUDING TELESCOPING

- SINGLE AND DOUBLE TIERED, LENGTHS 3', 4' AND 6'
- ALL CONSTRUCTED FOR THREE LAYERS OF BLANKETS PER SIDE
- DIFFERING LEG HEIGHTS PERMITS "L" SHAPED SHIELD WALLS
- ALL LEGS INCLUDE PROVISIONS FOR OUTRIGGERS (OPTIONAL)
- TELESCOPING SINGLE AND MULTI-TIERED MOBILE RACKS ARE AVAILABLE

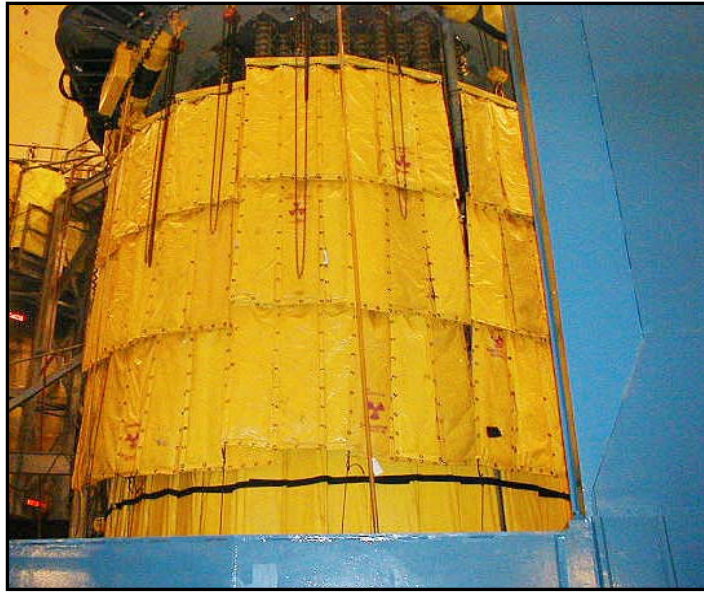
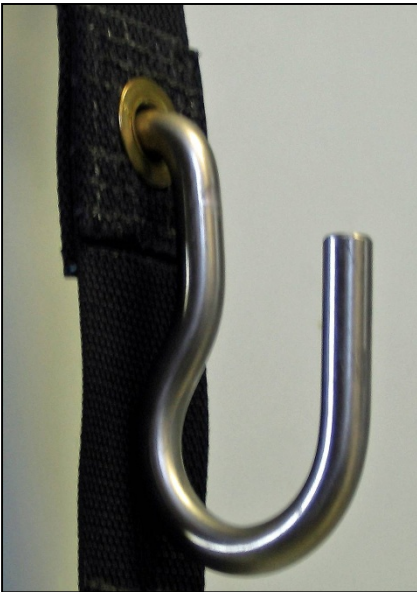


No Floor :: No Problem

Lattice Swivel Hook Systems

Create multi-tiered lead blanket support.

Will be self supporting on vertical piping (bare pipe 8" and larger)



CONTAINERS OF ALL TYPES

SPECIFICALLY DESIGNED FOR THE APPLICATION



FABRICATED FROM EPOXY COATED STEEL OR ALL STAINLESS STEEL. AS SHOWN ABOVE. TYPICAL CAPACITIES OF 7,000+ POUNDS AND STACKABLE TO THREE HIGH. DESIGN PERMITS SECURING OF CONTAINER TO EXISTING STRUCTURE FOR IN CON-TAINMENT APPLICATIONS. OPTIONAL LIGHT WEIGHT ALUMINUM COVER (ABOVE).

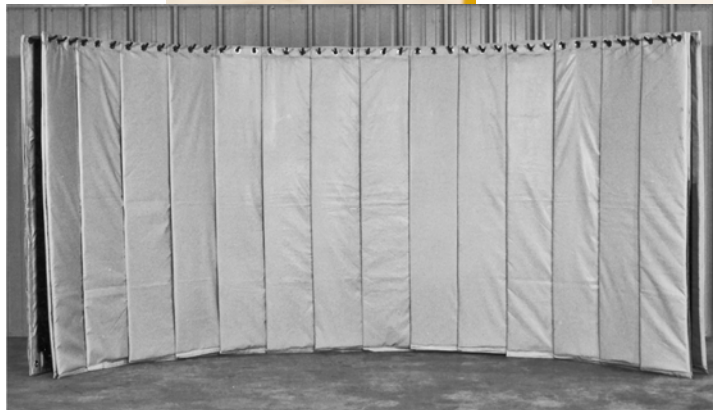
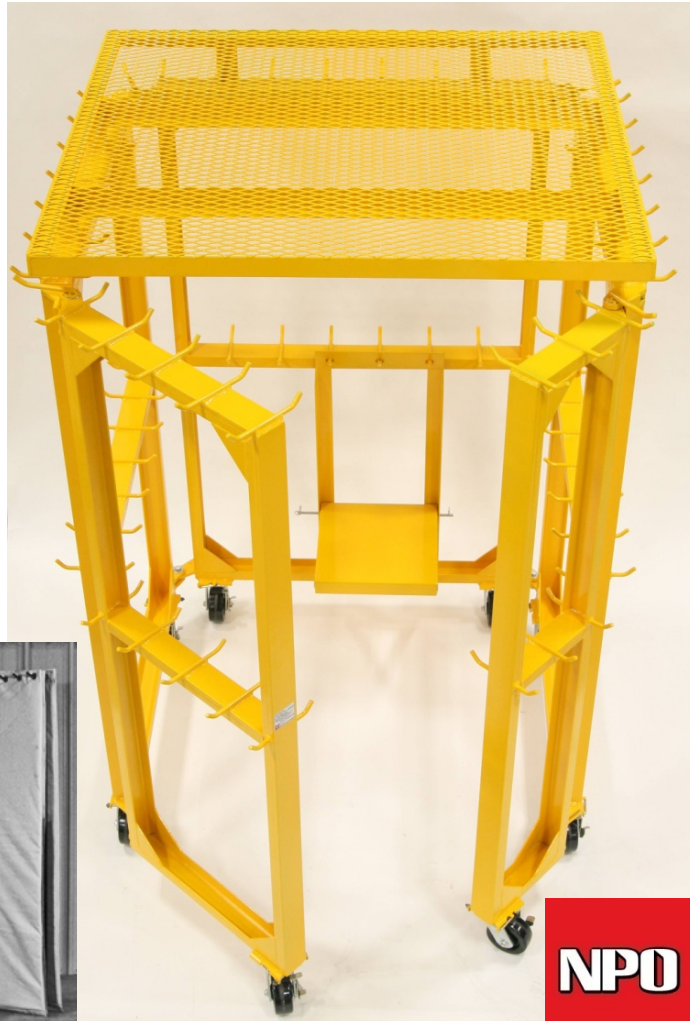


REMOVABLE SIDE PANELS

- PANELS SLIDE IN AND DOWN OVER FASTENERS THROUGH KEY HOLE SLOTS.
- ALL ENDS AND COVER ARE REMOVABLE
- FASTENERS ARE CAPTURED.

Utilizing our lead blankets better!

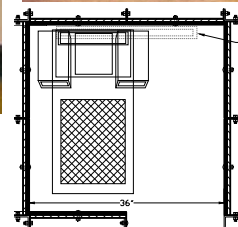
NPO's Mobile Frisker/Low Dose
Waiting/Rest Area Booth System



NPO

Specialized Shielding Systems

Frisker Booths, PCM Booths and
Hand and Foot Monitor Booths

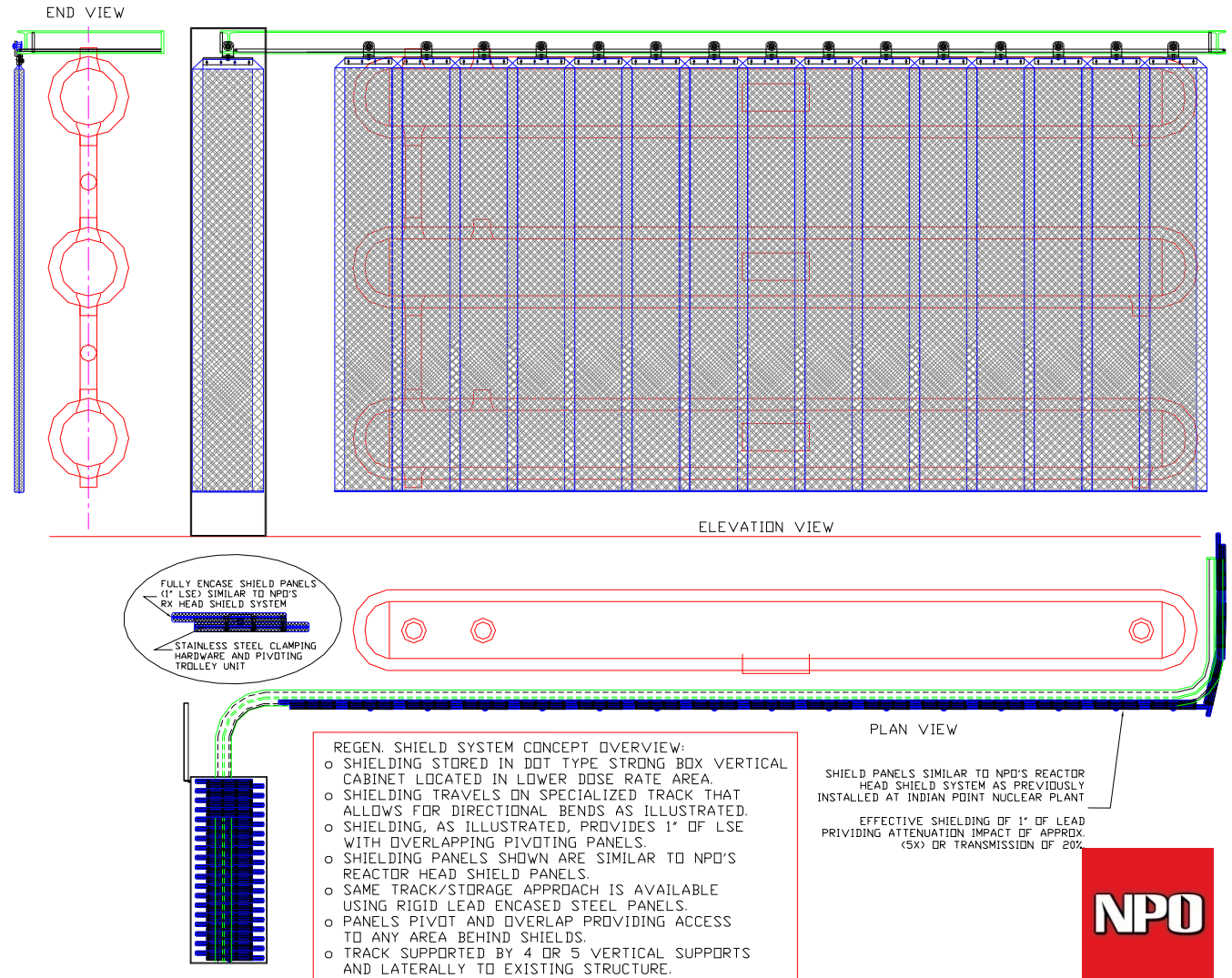


NPO's low profile and flexible track system

Application of Track Systems for Reduced installation time and dose. Permanent Storage of conventional shielding materials in containment.

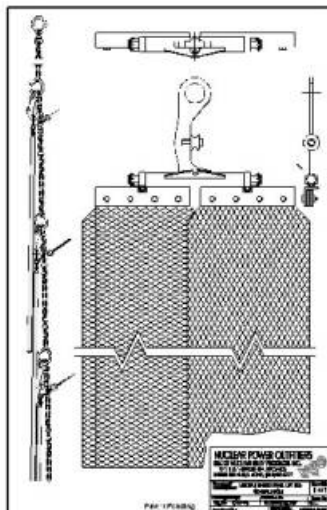
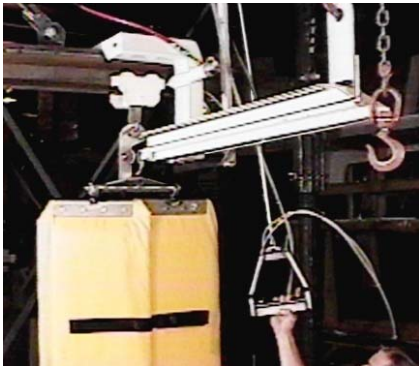


NPO's low profile and flexible track system, Regen. HX Application



Specialized Shielding Systems

NPO's Reactor Head Shield System for PWRs



Summary

- Recognized Worldwide, Eichrom and NPO deliver solutions tailored to your specific applications
- Solutions built from a combined 50 years of nuclear experience in collaboration with you
- We invite you to participate in the next era of successful ALARA solutions