EFCOG Waste Management Working Group Packaging and Transportation Subgroup Initiatives

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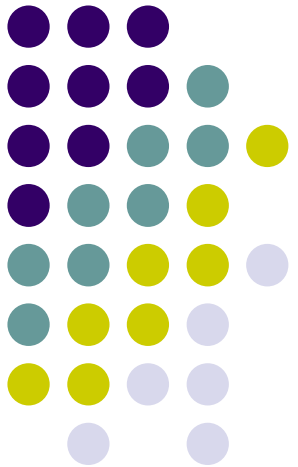
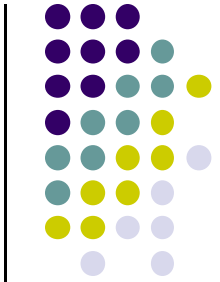


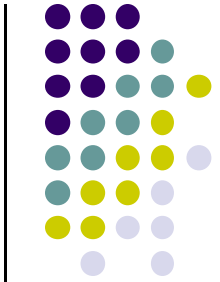
February 27, 2013
WM 2013 - Phoenix

P&T Formation of Teams



- DOE vs. U.S. Department of Transportation (DOT) surface contamination limits
  - Develop consistent application of appropriate regulation for release of commercial carrier equipment used for non-DOE or DOE contractor transportation of radioactive material to / from DOE Complex sites
- Trailer Contamination and Supersack Integrity Potential Issues

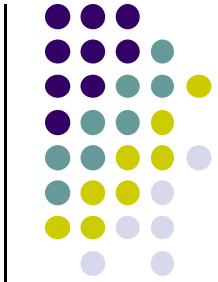
P&T Formation of Teams (cont'd)



- Packaging, Staging and Maintenance Center (PSMC) Concept
- Suspect / Counterfeit DOT strap tie down issue
- DOE IT Governance (ATMS and RadCalc)
- Freight Container Guide (PMC Product)
- Packaging Procurement (NQA-1 Implementation)

DOE vs. DOT Contamination Release Limits

Presented by Mike Waters – CHPRC / Hanford



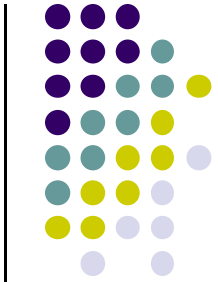
The Issue:

Consistent application of the appropriate regulation for release of commercial carrier equipment used for the non-DOE or DOE contractor transportation of radioactive material at DOE complex sites.

- For DOE – 10 CFR 835 is “THE LAW”
- For DOT – 49 CFR 173-178 is “THE LAW”

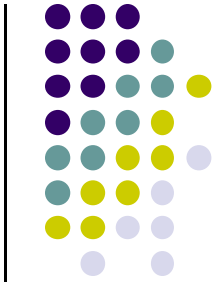
  i.e., 173.443

DOE vs. DOT



- DOE 10 CFR 835 is more conservative than the DOT 49 CFR 173 and can impact offsite / onsite operations significantly
  - Approximately 100 x for alpha
  - Approximately 22 x for beta-gamma
- No public or worker health and safety issues under DOT or DOE limits

DOE vs. DOT



- There are exclusions in 10 CFR 835
  - 10 CFR 835.1 (b) Exclusion. Except as provided in paragraph (c) of this section, the requirements in this part do not apply to:

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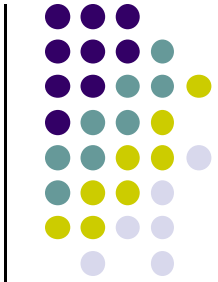
  - 10 CFR 835.1(b)(7) – Radioactive material transportation not performed by DOE or a DOE contractor

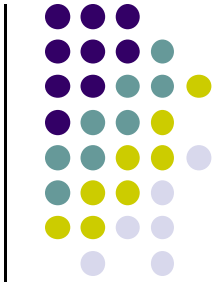
  - *This provision excludes certain types of radioactive material transportation from all of the provisions of 10 CFR 835*

DOE vs. DOT



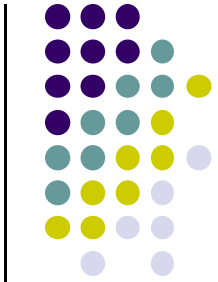
- Other DOE documents recognize the 10 CFR 835 exclusion
- DOE Standard – *Radiological Control*
  - DOE-STD-1098-2008 (October 2008)
  - Chapter 4, Part 2 – *Release and Transportation of Radioactive Material*
  - Article 423 – Transportation of Radioactive Material
    - 423.2…10 CFR 835.1(b)(7) excludes radioactive material transportation not performed by DOE or DOE contractors from compliance with 10 CFR 835…
    - 423.3 Table 2-2 removable contamination values are more limiting than 49 CFR requirements….However, when a shipment is received from an off-site destination, by a non-DOE conveyance, the 49 CFR 173 transportation contamination values should be applied to all subsequent on-site transfers to the ultimate on-site destination

DOE vs. DOT



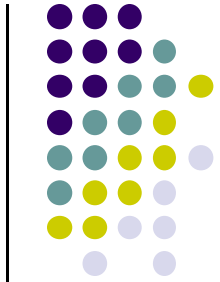
- Radiation Protection Programs Guide for Use with Title 10, Code of Federal Regulations, Part 835
  - DOE G 441.1-1C (07-08-11)
  - 3.2.4 Radioactive Material Transportation Exclusion
    - 10 CFR part 835 excludes radioactive material transportation not performed by DOE or a DOE contractor (10 CFR 835.1(b)(7)). The intent is to exclude from 10 CFR part 835 transportation by the ***U. S. Postal Service or a commercial carrier***, ***such as FedEx or UPS***, which transport radioactive material as part of their normal operations. A company or subsidiary of a corporation that operates a DOE facility would not be considered a commercial carrier - even if such an organization transports radioactive material as part of its contractual agreement with DOE.
  - FedEx or UPS are examples of commercial common carriers
  - Other DOE Contractor Site specific documents recognize the 10 CFR 835 exclusion;
  - For example, at Hanford, the CHPRC Radiological Control Manual

DOE vs. DOT



- **A 10 question survey was sent out requesting information about site practices on this issue.**
- **Survey results summary:**
  - 12 respondents to the survey
  - As expected, the responses varied widely
  - From no incoming surveys performed unless visible package damage to very detailed surveys
  - Surveys for release of equipment also varied
    - A common factor was visible damage to packages upon receipt
  - The majority (66%) use 10 CFR 835 limits for equipment release criteria
  - Some incorporated exclusions allowed per 10 CFR 835, others did not
    - Some incorporated only 1 of the exclusions, generally 835.1(d) while others incorporated all 3
  - NNSS WAC requires 10 CFR 835 limits always
  - Draft report will include a detailed analysis of the survey responses

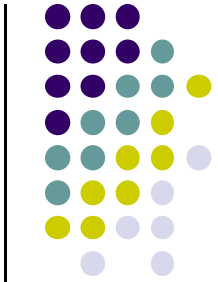
DOE vs. DOT



- Proposed Path Forward:
- With EFCOG team members from across the complex, recommend to the DOE-HQ on consistent application of the appropriate regulation for release of commercial carrier equipment used for the non-DOE or DOE contractor transportation of radioactive material at DOE complex wide sites
- Establish the rationale for utilizing the exclusions of 10 CFR 835 in establishing a complex wide policy for the release of commercial carrier equipment
- Draft report was submitted in conjunction with the Waste Management 2013 meeting.

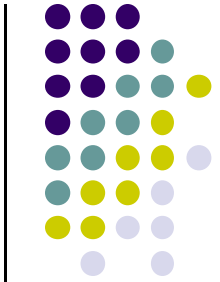
Trailer Contamination and SuperSack Inquiry

Presented by – Syd Gordon, NSTec



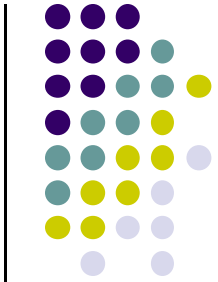
- NNSS Acceptance and Release Requirements
- Evaluation of trailer / package non-conformances
- Review generator corrective actions and causal factors
- Identify potential soft-sided packaging issues
- Provide report & recommendations to EM-30 Associate Deputy Assistant Secretary
- Follow-up technical assistance to support free-release limits inquiry, develop guidance for soft-sided packaging and identify radiological survey performance standards

Team Review and Discussion



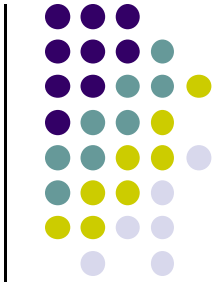
- Three team meetings held (WM-Phoenix, NNSS-Vegas, CTMA-Reno)
- Team review of incidents, causal factors and generator corrective actions implemented
- Vendor input on soft-sided packaging performance
- Team review of draft report and conclusions
- DOE sponsor review and comment
- Final report to EM-30 in October 2012

Summary of Team Review Conclusions



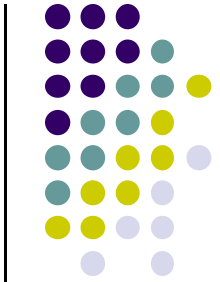
- Many trailer contamination incidents resulted from application of stricter DOE free-release limits (10 CFR 835, Appendix D)
- Resolution of conflict (DOE vs. DOT limits) will reduce equipment holds and decontamination costs (commercial transporters)
- Consistent radiological surveys will identify legacy and on-site contamination risks in advance and prevent non-conformances
- Soft-sided packaging proven viable for LLW management during 15-year period (DOE and commercial applications)
- Proper design, selection, use, storage and closure of soft-sided packaging will ensure integrity and preclude contamination release

Summary of Team Recommendations



- Implement and monitor consistent site performance standards for pre- and post-use radiological surveys
  - Develop and implement performance standards for radiological surveys on radioactive material packaging & transport equipment when entering or leaving a DOE site (including waste generator surveys on empty transport equipment prior to loading waste packages)
- Establish consistent limits for free-release of packages and transport equipment (objective for other team review)
- Develop and distribute best practice guidance for radiological surveys and soft-sided packaging
- Establish reliable and consistent standards for contractor oversight on radiological surveys and use of soft-sided packaging

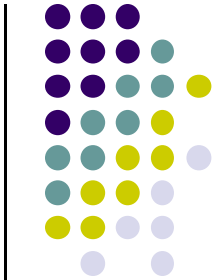
Ongoing Future Support



- DEVELOP RAD SURVEY PERFORMANCE STANDARD – follow basic guidance in ANSI N14.36
  - Develop and implement performance standards for radiological surveys on packaging & transporter equipment when entering or leaving a DOE site
- DEVELOP RELEVANT INPUT for use in CONTRACTOR REQUIREMENTS DOCUMENT – to ensure proper oversight
- PREPARE GUIDANCE DOCUMENT for PROPER USE of SOFT-SIDED PACKAGING
- DEVEOP CHECKLIST for OVERSIGHT of RAD SURVEY & PACKAGING FUNCTIONS

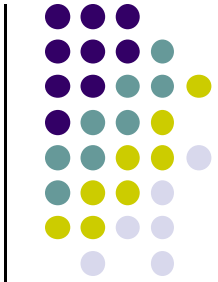
DOE Packaging, Staging & Maintenance Center (PSMC) Concept

Presented by – Jeff England, SRNL and Syd Gordon, NSTec



- Packaging, Staging and Maintenance Center (PSMC) Concept
  - Eastern and Western U.S. Hub Scenario
  - Savannah River National Laboratory (SRNL) to provide overall design authority and update and maintain packaging documentation (Enterprise SRS Initiative)
  - NNSS and SRS to provide container staging, inspection and maintenance (in conjunction with Regional Disposal at NNSS and Pu/SNF missions at SRS)
  - Currently drafting business plan (concept validation & implementation)
  - Comprehensive inventory of Complex packaging and costs

DOE Packaging, Staging & Maintenance Center (PSMC) Concept

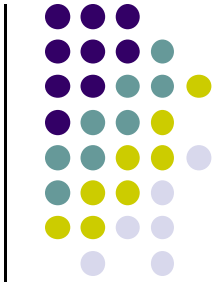


- Provide centralized support center for packaging needs:
  - Design, procurement and leasing of packaging
  - Regulatory, technical and user service support
  - Central administration, planning, integration
  - Records and documentation maintenance
  - Facilities for staging, inspecting and maintaining inventory
- Establish expanded DOE capability to meet current and future packaging needs
  - Capability of existing fleet to meet future packaging requirements
  - Build foundation for meeting future Complex needs efficiently
- Maximize use of complex and industry resources

Background

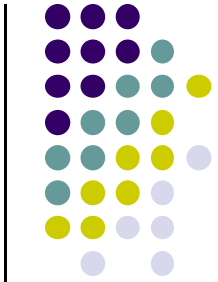
- Currently, DOE administers a wide
- range of certified shipping packages
- Transport:
  - Hazardous Materials
  - Special Nuclear Materials
  - Radioactive materials
  - Sealed sources
  - Radioactive Wastes
- Over 7000 packages
- Many sites perform their own Design, Procurement, Maintenance and Disposition of Packages

PSMC Facilities



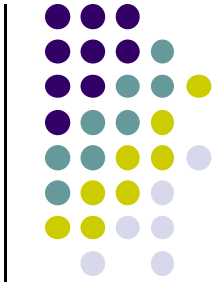
- Proposed East and West Coast facilities (hubs)
  - Savannah River Site (SRS) and Nevada (NNSS)
- Build on existing facilities and capabilities
  - SRS Packaging Technology & Pressurized Systems Group (EM)
  - NNSS Fissile Material Handlers (NNSA)
  - NNSS Radioactive Waste Disposal Operations (Complex-wide)
- SRS
  - Packaging specification, design, certification, testing documents
- NNSS and SRS
  - Packaging receipt, staging and testing, maintenance

Goals and Objectives



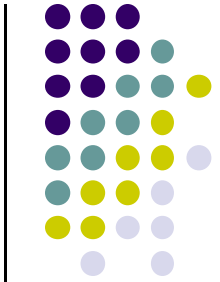
- Establish SRS as Eastern PSMC
- Work with Nevada National Security Site (NNSS) as Western PSMC
- Lower Unit Costs
  - Design, Maintenance, Refurbishment, Testing, Certification Staging, & Disposition
- Partner with Commercial Packaging Companies
  - Staging services
- Eliminate Inherent Inefficiencies from
  - Duplication of Effort
  - Lack of Leveraged Purchasing
  - Package retirement
- Ensure
  - Adequate numbers of packages
  - Maintained – available for use
  - Certified for current needs

PSMC Responsibilities - SRS



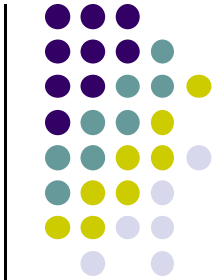
- SRS / SRNL Support Functions
  - Packaging maintenance and recertification (high pressure and fabrication labs, leak testing)
  - Packaging documentation and design authority
  - Training for DOE Complex personnel, as needed
  - Maintain Contaminants of Concerns and Safety Analysis Reports for Packaging for “orphan” packaging
  - Serve as Eastern center for storage, inspection, staging and maintenance of authorized packaging

PSMC Responsibilities - NNSS



- NNSS Support Functions:
  - Authorized Regional Disposal Site for low-level and mixed wastes
  - Storage, inspection, staging and maintenance for authorized packaging
  - Temporary staging for packaging received from sites
  - Provide special packaging for short-term use by sites
  - Serve as Western staging location for storage, inspection, staging and maintenance of packaging

Conclusions



- Establishes Two Primary Locations for Cradle-to-Grave Packaging and Disposition Capabilities
- Cost Effective Support by Highly Experienced and Proficient Packaging and Disposition Professionals
- Centralized Testing and Recertification of DOE Packages
- Direct Oversight by Qualified Design Authority Engineer
- Maintain Wide Range of Packages for Ready Use
- Maintain Sufficient Spare Parts Inventory

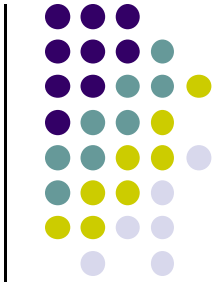
Path Forward

- Prepare Business Plan to validate concept and efficiencies
- Conduct comprehensive Complex inventory of in-use and standby packaging and site programmatic costs
- Work through EFCOG to collect data & estimate savings
- Designate suitable transport vehicle entry and container staging areas at SRS and NNSS
- Develop memorandum of understanding / agreement terms for providing services to site users
- Implement program under EM-33 and NA-174 oversight
- Collect and analyze performance & cost information

Ratchet Strap Suspect / Counterfeit Issue Working Group Status

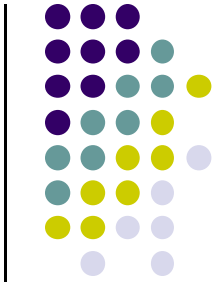
Presented by: James Portsmouth,
CH2M Hill / Hanford

Problem with Suspect Counterfeit Components on DOT Approved Ratchet Type Straps



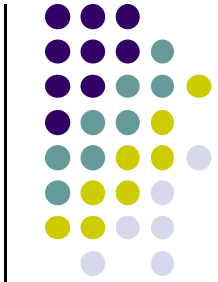
- DOE HSS sent out an Alert No, 09-03 on February 29th, 2012. The primary purpose of the HSS Alert was to advise users that numerous ratchets were found to have bolts that contained bolt grade identification markings and these bolts failed to have the essential manufacturer identification markings that are required for all graded bolts.
- DOE HSS sent out Rev. #2 to Alert 09-03 on June 12, 2012 to correct some minor errors in the initial alert.
- Ratchet Strap Materials Requirements: The tie down industry standards do not prescribe the use of graded fasteners / bolts. The requirements for all materials used in ratchet construction, including the fasteners / bolts, are based on the proof test and strength test performance requirements. (ref WSTDA T1 Standard for Synthetic Web Tie downs.)

Problem with Suspect Counterfeit Components on DOT Approved Ratchet Type Straps



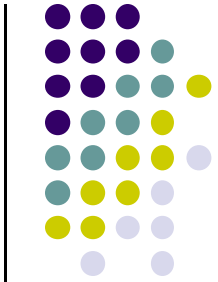
- Per DOT Regulations 49 CFR 393.108, straps are testing to their “breaking point.” Almost all of the time, it is the webbing that fails and not the ratchet device.
- There has been no “documented” evidence by DOT of any failure of a ratchet mechanism (e.g. bolts breaking) that has caused a load to shift or come off a transport conveyance. When strap tie down devices fail, it is normally the webbing that has failed NOT the ratchet device.
- Conversations with a major supplier of ratchet webbing straps stated that less than one percent of customers specify fasteners / bolts types and sizes in their procurements.

EFCOG Packaging and Transportation Subgroup



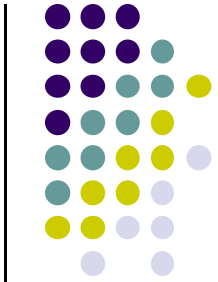
- Tie Down Straps Working Group
  - Had three conference calls since the last EFCOG meeting at CTMA in June to discuss options and path forward
  - Evaluated past and current non-conformance issues at various site locations
  - Had a meeting with the EFCOG QA and Supply Chain Group Leads to discuss the suspect counterfeit bolt issue and a path forward to a resolution of the issue
  - Reviewed several site procurement specifications for the procurement of straps

EFCOG Packaging and Transportation Subgroup



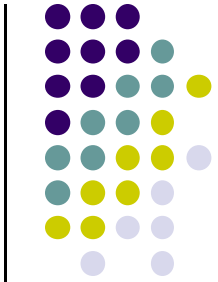
- The EFCOG QA Group Chairman suggested that procurement specifications be generated that do not call out or specify the size or grade of bolts to be utilized in the tie down ratchet mechanism and instead specify only the “breaking strength” of the straps which is the only DOT regulatory requirement
- If grade of bolts / fasteners are specified in procurement specifications and bolts / fasteners are greater than grade 5, the fasteners must be marked with the appropriate “HASH” marks and manufacturers symbol.

Recommendations/Path Forward



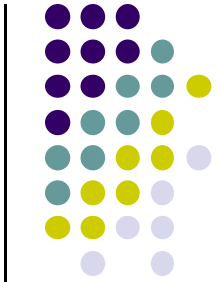
- Use trailers with either fixed or moveable winches installed on the sides.
- Specify the “breaking strength of the straps per the DOT regulations in procurement specifications and have the straps clearly marked/stenciled with the breaking strength.
- Specify the grade of the fasteners/bolts to be used in the ratchet device and that the bolts if grade 5 or higher be marked on the head.

Recommendations/Path Forward



- Qualify vendors of the straps and have them added to an Approved Vendor List (AVL).
- Have all newly procured DOT straps go through a receipt inspection prior to being sent to the field.
- Include in the procurement specification that the tiedown ratchet devices be American made.

EFCOG Packaging & Transportation Subgroup Tie Down Strap Working Group



- Path forward has been developed to hopefully resolve the problem
- A draft report has been completed and reviewed by the team.
- Draft report was submitted in conjunction with the Waste Management 2013 meeting.
- Draft report will be submitted to P&T Chair and DOE Sponsor by March 15th, 2013.
- Final report to be completed and submitted to the DOE Sponsor by the end of April 2013.