



Working to Ensure the Safety and Security of Hazardous Materials Shipments

Ashok Kapoor
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EM Environmental Management

safety ❖ performance ❖ cleanup ❖ closure

Today's Agenda is About Improving Shipment Safety Performance

- Frequency and Nature of EM Transportation Events – A Measure of Transportation Safety Performance
- Transportation Best Practices and Issues – An Overview of the Transportation Compliance Assurance Program (TCAP)
- New Packaging Quality Assurance Program
- Enhanced Motor Carrier Evaluation Program

What is Transportation Event?

- Definition
 - Any event that results in, or has the potential to result in, harm to the worker, public, or environment
- Source
 - Occurrence Reporting and Processing System (ORPS)
 - Non-ORPS Sources

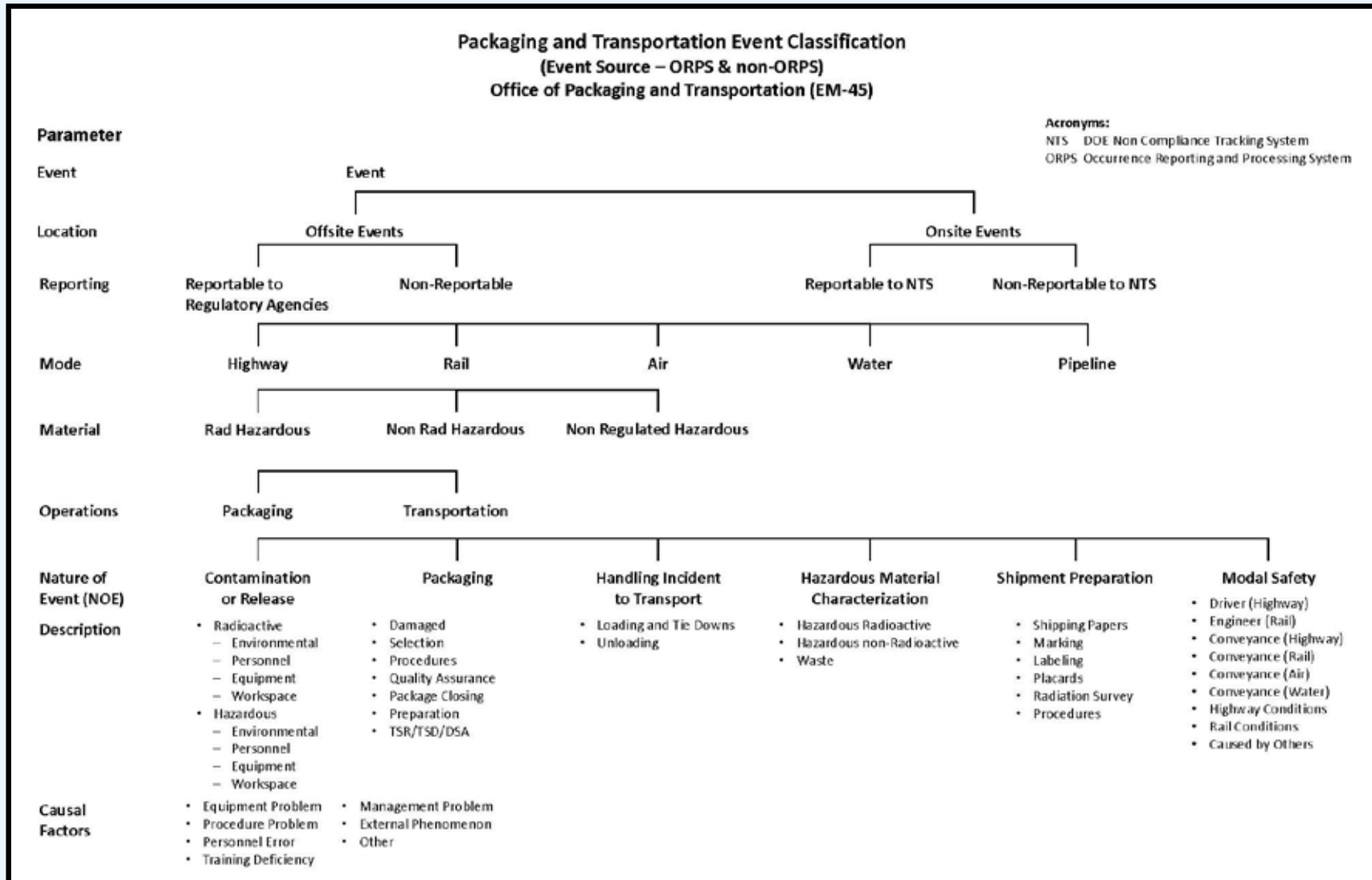
Events Classification

- Looking back on FY 2009 events in detail
 - ORPS reports
 - Other reporting sources
- Examining 25 reported events to:
 - Identify issues and trends
 - Find ways to provide assistance

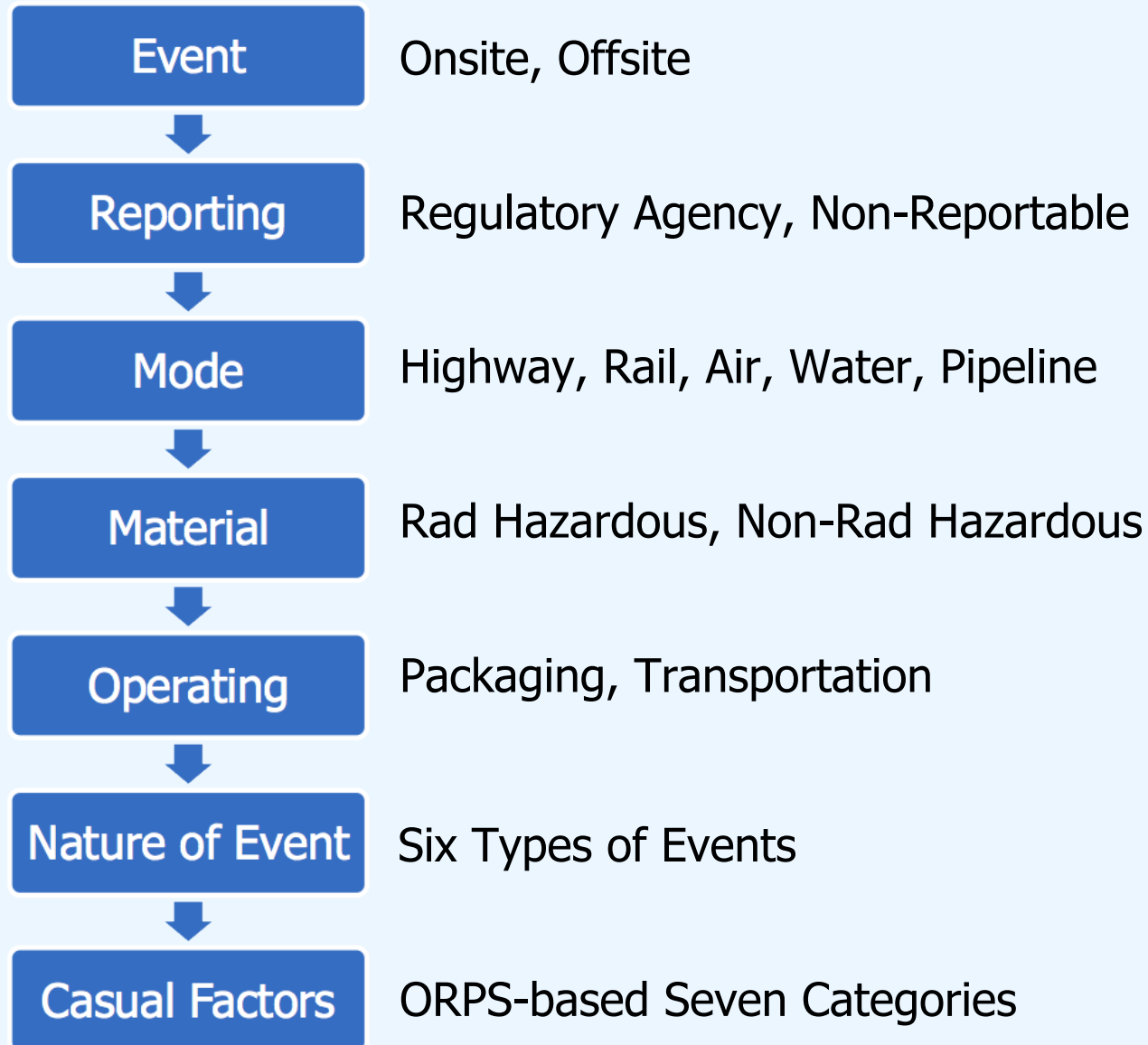
Approach Has Four Key Elements

1. Event classification structure
2. Events database & spreadsheet
3. Data dictionary
4. Event analyses

Classification Structure is an Eye Test



Classification is a Drill Down Approach



Nature of Event (NOE)

- Contamination or Release
- Packaging Related
- Handling Incident to Transport
- Hazardous Material Characterization
- Shipment Preparation
- Modal Safety

Each NOE is Further Dissected

A Final Step is Establishing Casual Factors

- Basis is *Occurrence Reporting Casual Analysis Guide* (DOE G 231.1-2)
- One or more of seven factors are assigned:
 1. Equipment Problem
 2. Procedure Problem
 3. Personnel Error
 4. Training Deficiency
 5. Management Problem
 6. External Phenomenon
 7. Other

Events Database and Spreadsheet is Another Eye Test

FY 2008 Transportation Events														
No.	Site	Shipper	Receptor	Date	Release & Work	Details	Reg. Closure by CER (PL 106)	Reg. Closure by CER (SIS 15)	Reg. Closure by CER (71.99) (SIS)	Other Reg. (DOP) (SIS)	Transp. (SIS)	ORPS Reg. (SIS)	ORPS (SIS)	Presented to CER (SIS)
000001	000001	000001	000001	000001	000001	000001								
000002	000002	000002	000002	000002	000002	000002								
000003	000003	000003	000003	000003	000003	000003								
000004	000004	000004	000004	000004	000004	000004								
000005	000005	000005	000005	000005	000005	000005								
000006	000006	000006	000006	000006	000006	000006								
000007	000007	000007	000007	000007	000007	000007								
000008	000008	000008	000008	000008	000008	000008								
000009	000009	000009	000009	000009	000009	000009								
000010	000010	000010	000010	000010	000010	000010								

FY 2008 Transportation Events																							
No.	Mode				Material		Operations		Nature of Event				Causal Factors										
	Highway	Rail	Air	Water	Rail (Class 7)	Non-Rail (HAZMAT)	Non-Separated	Packaging	Transport	Contamination or Release	Packaging	Handling Incident in Transport	Hazardous Material Characterization	Shipment Preparation	Modal Safety	Equipment Problem	Procedure Problem	Personnel Error	Training Deficiency	Management Problem	External Phenomenon	Other	
000001						X																	
000002						X																	
000003						X																	
000004						X																	
000005						X																	
000006						X																	
000007						X																	
000008						X																	
000009						X																	
000010						X																	

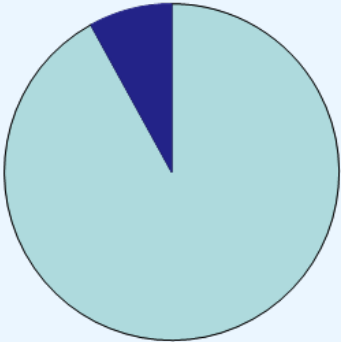
- Captures events classification structure
- Summarizes ORPS (or other) report information
- Provides a visual picture of a year's events

A Data Dictionary Provides Clarity

- Defines each element in the event structure
- Uses examples to promote common understanding
- Will be refined with experience

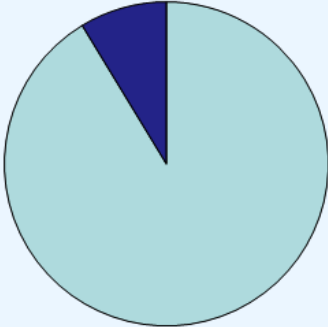
Results Are Not Surprising

Onsite - Offsite



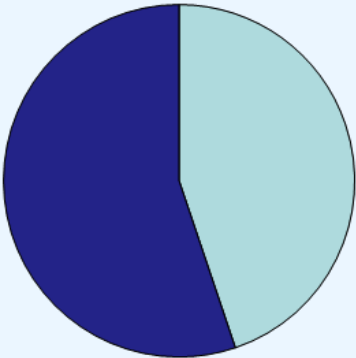
■ 23 Offsite
■ 2 Onsite

Highway - Rail



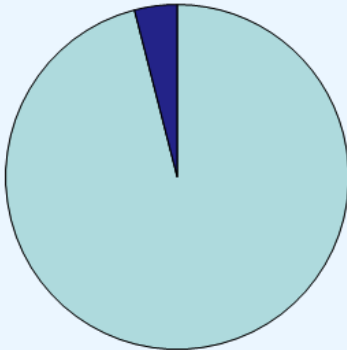
■ 21 Highway
■ 2 Rail

Packaging - Transportation



■ 13 Packaging
■ 16 Transportation

Rad - Other

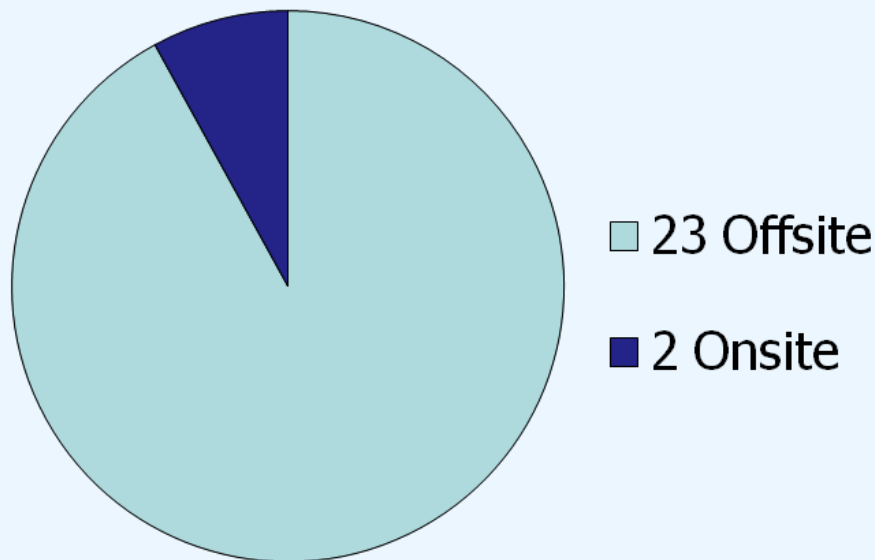


■ 24 Rad
■ 1 Other

Please do **not** add up the numbers

Offsite Events Predominate

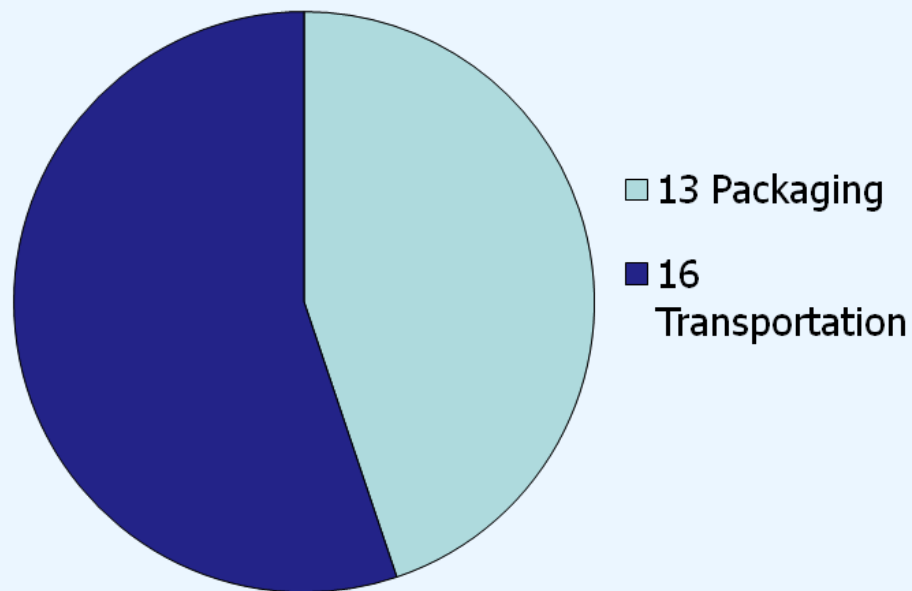
Onsite - Offsite



- Most problems discovered after departure
 - Mischaracterized materials
 - Incorrect shipping papers
 - Excess free liquids
 - Missing placards
 - Wrong labels
 - Leak or contamination
- In-transit events mostly fender benders

Packaging Versus Transportation Events Almost an Even Split

Packaging - Transportation



- Packaging events mostly faulty preparation
 - Mischaracterized contents
 - Inadequate preparation
 - Packaging Quality Assurance
- Transportation events
 - Waste characterization
 - Shipment preparation
 - Caused by others
- Some events both packaging and transportation

Transportation and Safety Operations Compliance Program (TCAP)

- Revised program approach approved in March 2009
- Defines nine performance objectives
- Each performance objective evaluated
 1. Best business practices
 2. Findings (with three levels)
 3. Observations
 4. Recommendation/assistance

Transportation and Safety Operations Compliance Program (TCAP)

- TCAP Assessments since December 2006:
 - Argonne National Laboratory (Joint EM/SC) - 2
 - Brookhaven National Laboratory (Joint EM/SC) - 2
 - Hanford - 1
 - Idaho National Laboratory - 1
 - Oak Ridge - 1
 - Paducah - 2
 - Portsmouth - 1
 - Princeton Laboratory (Joint EM/SC) - 1
 - Savannah River - 2
 - SPRU - 1
 - West Valley Demonstration Project - 1

Best Practices

Performance Objective*	Items
5.1 General Management of Transportation Programs	2
5.2 Hazardous and Radioactive Materials Packaging	8
5.3 Hazardous and Radioactive Materials Shipper	11
5.4 Traffic Management Operations	7
5.5 Motor Carrier	1
5.6 Railroad Operations	1
5.7 Transportation Emergency Response	9
5.8 Hazardous Materials (HAZMAT) Employee Training	4
5.9 Transportation Security Plan	1

**From TCAP Management Plan Section 5.0*

Best Practices

5.2 Hazardous and Radioactive Materials Packaging

- Organizational independence between generators and shippers
- Extensive supplier evaluation program
- Process in place that effectively communicates requirements to programs regarding packaging uses

5.3 Hazardous and Radioactive Materials Shipper

- Transportation coordinators linking generators to shippers
- Calculation spreadsheet for DOT shipping determination
- Peer verification program for offsite shipments is a reliable process to ensure regulatory compliance

Best Practices

5.4 Traffic Management Operations

- Shipping instructions in all purchase requisitions
- Freight claim tracking for carrier trends
- Cost avoidance with locally-negotiated freight rates

5.7 Transportation Emergency Response

- Web-based tracking for en-route shipments
- Practice of holding announced and unannounced drills
- Daily logs of all calls to include caller, time, issue, and action taken
- Recorded conversations of all

Findings

Performance Objective*	Items
5.1 General Management of Transportation Programs	15
5.2 Hazardous and Radioactive materials packaging	5
5.3 Hazardous and Radioactive Materials Shipper	12
5.4 Traffic Management Operations	11
5.5 Motor Carrier	5
5.6 Railroad Operations	2
5.7 Transportation Emergency Response	8
5.8 Hazardous Materials (HAZMAT) Employee Training	10
5.9 Transportation Security Plan	1

**From TCAP Management Plan Section 5.0*

Findings

5.1 General Management of Transportation Programs

- Lack of approved QA programs
- Failure to comply with DOE Order safety and quality requirements
- Failure to implement non-conformance procedures
- Non-compliance with site safety manual
- Outdated and unreviewed procedures

5.3 Hazardous and Radioactive Materials Shipper

- Serious error in hazardous waste shipping description
- Systemic deficiency in hazmat shipping employees
- Procedures with errors and omissions

5.4 Traffic Management Operations

- Undocumented freight bill audit and verification process resulting in overpayment
- Weak prepayment audit system
- Undocumented use of other than low-cost carriers

Findings

5.7 Transportation Emergency Response

- Inability to provide shipment details to first responder
- Multiple problems with emergency contact numbers
- Unapproved transportation compliance manual

5.8 Hazardous Materials Employee Training

- Systemic deficiency with hazmat employees training
- Failure to meet multiple 49 CFR 172 requirements
- Required “in-depth security training” not performed for hazmat employees

Packaging Quality Assurance Program

- Work-in-progress: Assure full implementation of Quality Assurance requirements of DOE Order, “Packaging and Transportation Safety”
 - Certified two federal NQA-1 lead auditors
 - Enhance current packaging QA training program
 - Increase coordination with EFCOG QA Group
 - Update QA protocols and procedures

Assessments Ensure QA is Properly Implemented

QA program evaluations since December 2008:

1. 9975 Fabrication (RL-KCP-ABW)-12/2008
2. 9975 Use (PFP- CH2M Hill) – 03-04/2009
3. HUFP Fabrication (Columbiana) – 04/2009
4. 9516 Welding of CV (NE/RPS-INL) – 08/2009
5. 55-Gallon Drum (Myers) – 02-03/2010
6. NAC-LWT (NAC- ANL Shipment) – 04/2010
7. 9975 Fabrication (AMPCO) – 06/2010

Thank You

Questions ?