

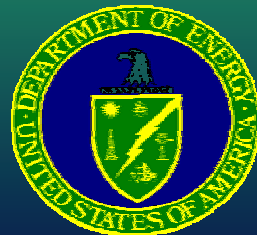


**U.S. Department of Energy  
Environmental Management**

***Driving Toward Excellence  
in Transportation &  
Logistics Operations &  
Safety***

***Waste  
Management  
Symposium  
2007***

**Dr. Dennis Ashworth  
Director, Office of Transportation**



# *Department of Energy's Office of Environmental Management*

❖ EM is the largest cleanup project in the world:

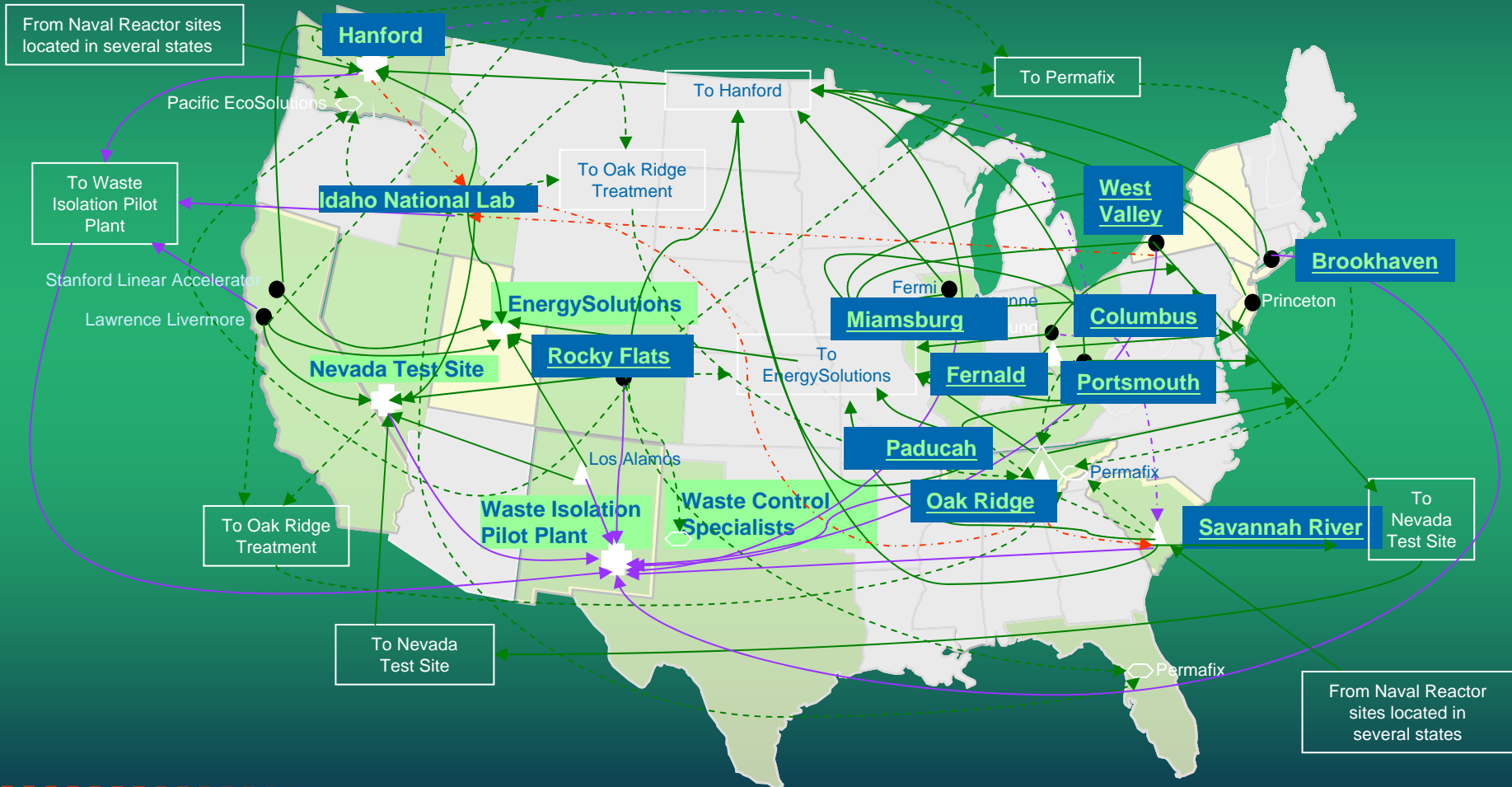
- ❖ 114 sites
- ❖ 31 states
- ❖ 2,000,000 acres

❖ EM scope includes remediation, processing and transportation of approximately:

- 25 tons of plutonium
- 108 tons of plutonium residues
- 88 million gallons of radioactive liquid waste
- 2,500 tons of spent nuclear fuel
- 137,000 cubic meters of transuranic waste
- 1.3 million cubic meters of low-level waste

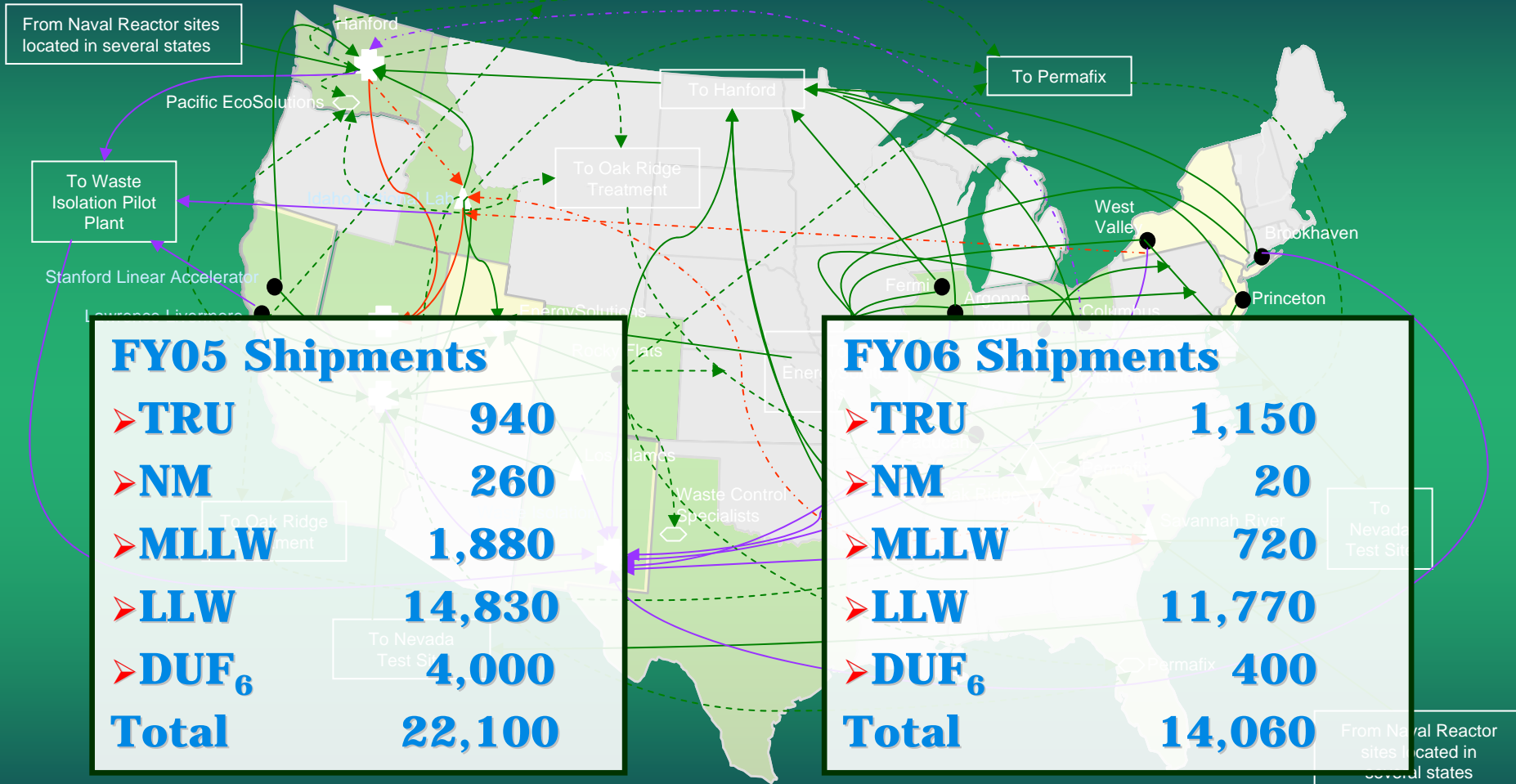


# EM Sites & Transportation Operations



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# EM is one of the Largest Hazmat Shippers in the Federal Government



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# Rocky Flats Status

---

- All shipments completed and Kaiser-Hill has declared physical completion at the site
- RF shipments continue from WCS to EnergySolutions
  - Expect completion in CY 2006



# Fernald Closure Project

- Fluor Fernald presented DOE with its declaration of physical completion on October 29, 2006.
- The 3,776th and final canister of treated Silos 1 and 2 byproduct was shipped off site May 26, 2006.
- The last of 5,100 cubic yards of waste from Silo 3 was shipped off site April 11, 2006.



# Mound/Miamisburg Status

- Physical completion July 2006
  - except for Operating Unit 1 which is outside of contract



# Battelle Columbus

- Physical completion declared June 2006



# Oak Ridge

- **DUF<sub>6</sub> (Depleted Uranium Hexafluoride)**
  - Destination: Portsmouth Ohio Gaseous Diffusion Plant
  - Material: Depleted Uranium Hexafluoride
  - ~6000 cylinders shipped
  - Passed Thru: TN, KY, OH
  - Completed shipping campaign: December, 2006





# ***DUF<sub>6</sub> Conversion Project Overview***

- Physical construction of the two conversion facilities is scheduled for completion in Fall 2007.
- Operations are expected to begin by June 2008
- First waste shipment anticipated in August 2008.



Portsmouth Conversion Facility, October 2006

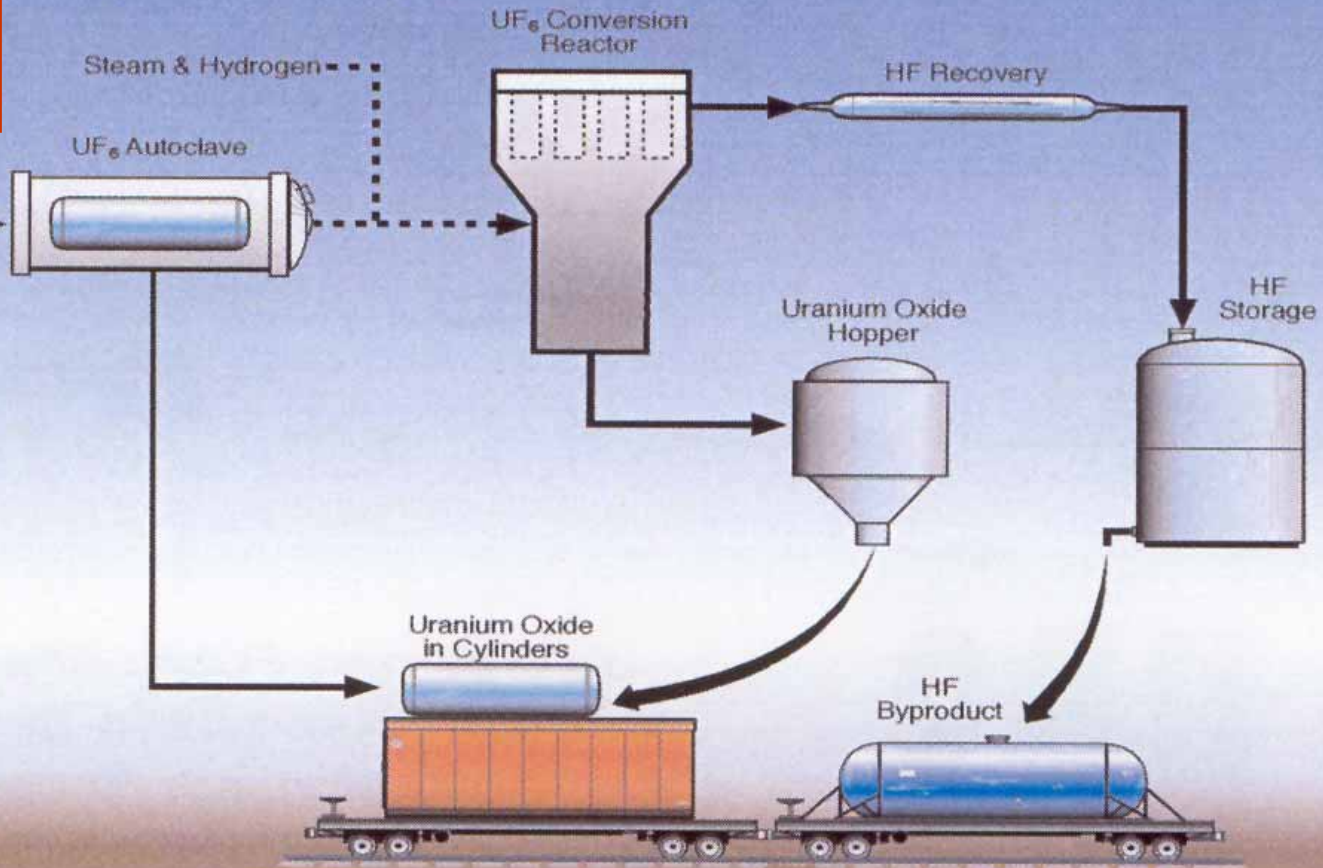


Paducah Conversion Facility, October 2006





# DUF<sub>6</sub> Conversion Process



0684.1-0101



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# *DUF<sub>6</sub> Conversion & Transport*

- Conversion process will fill approximately 3,000 cylinders containing uranium oxide per year:
  - 1,100 at the Portsmouth Facility (10,800 MTU oxide)
  - 1,900 at the Paducah Facility (14,300 MTU oxide)
  
- Cylinders currently used to store DUF<sub>6</sub> will be used to ship uranium oxide and are DOT compliant.
  
- Covered gondola railcars used to successfully transport waste from the Fernald Closure Project will be utilized to transport uranium oxide cylinders.



# Uranium Oxide Transportation Logistics

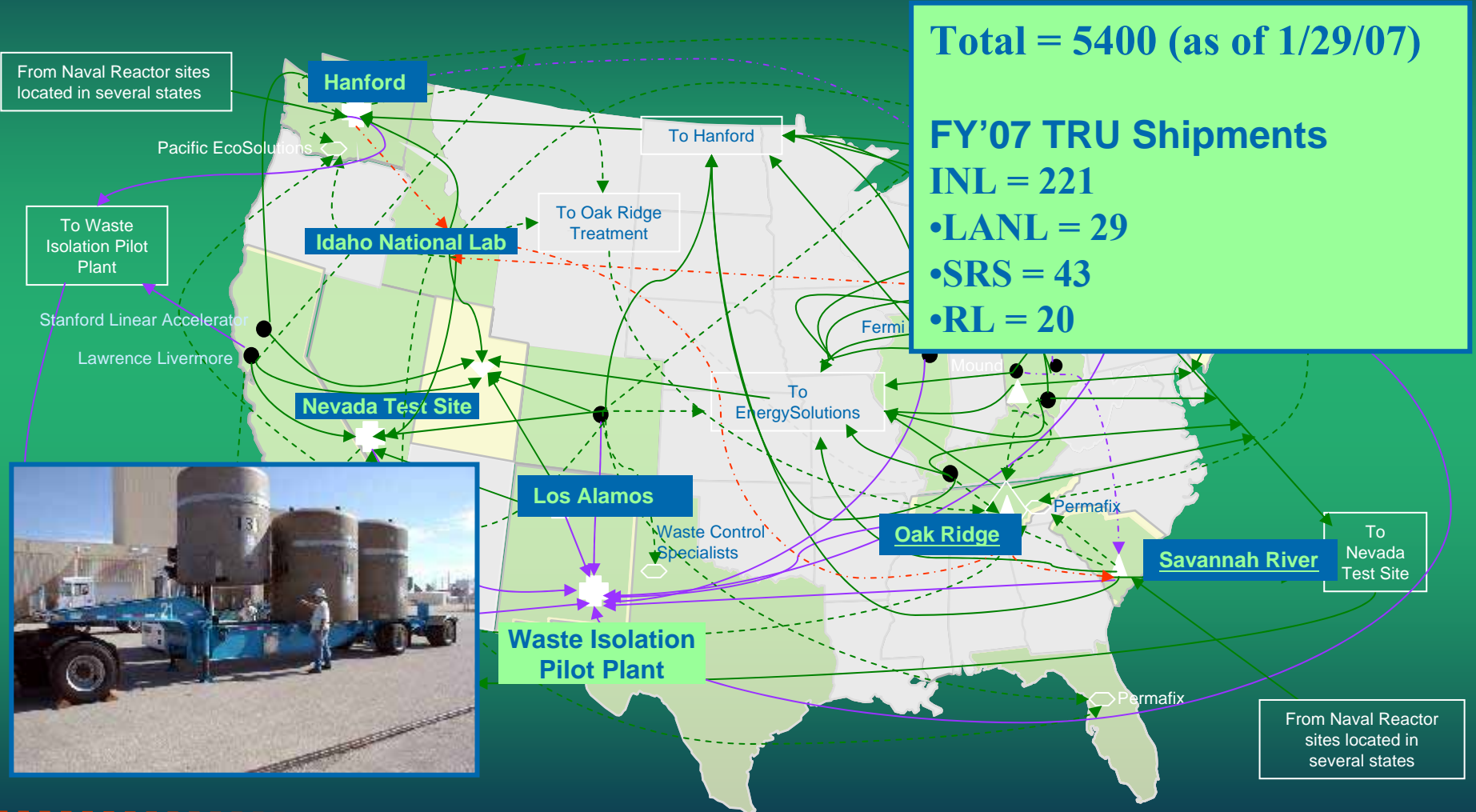
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- Each uranium oxide cylinder will weigh between 14 and 18 tons.
- 11 railcars are planned to be shipped from the DUF<sub>6</sub> Conversion facilities each week.
  - Group of 5 or 6 railcars will be shipped from each site on a weekly basis.
- Each gondola railcar will contain up to 6 cylinders
- Disposal options include Nevada Test Site (NTS) and EnergySolutions in Utah (formally Envirocare of Utah)
  - Shipments to NTS will require a transload facility.
- Standard commercial rail and truck shipment routes.



# EM Transuranic Waste Shipments

1/24/2007 WIPP receives first shipment of Remote-Handled Transuranic Waste



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# *DOE - Environmental Management Office of Transportation*

---

## **Our Vision -**

- **We'll be leaders in achieving transportation safety and operational excellence.**
- **We'll use best practices from government and industry to provide our internal and external customers with the highest value planning, compliance and operational expertise.**



# *EM Office of Transportation*

---

## **Our Measures of Success –**

- EM shipments are measurably safer;
- Our services are sought, and our practices emulated by other government programs and private industry;
- Federal, State, Tribal and local officials, affected parties, and the public actively support and participate in our work.



# How Do We Measure Our Performance?

- Key Performance Metric: Transportation Incidents/10,000 Shipments
- EM transportation incident criteria:
  - Any release of an EM material during transportation;
  - Any injury (either outpatient, first aid, minor injury, hospitalization, or fatality);
  - Any damage to the transport vehicle, package, or property;
  - Any fines; regulatory violations; or deviations from accepted protocols, orders, or procedures;
  - Any package damage or load securement problem;
  - Any route deviation (for Transcom monitored shipments); security breach; or activation of emergency personnel;
  - Any deviation that triggers a Level VI CVSA inspection;
  - Any road closure or public evacuation;
  - Any local or national media coverage.





# So How Are We Doing?

## FY 2004 Transportation Incidents:

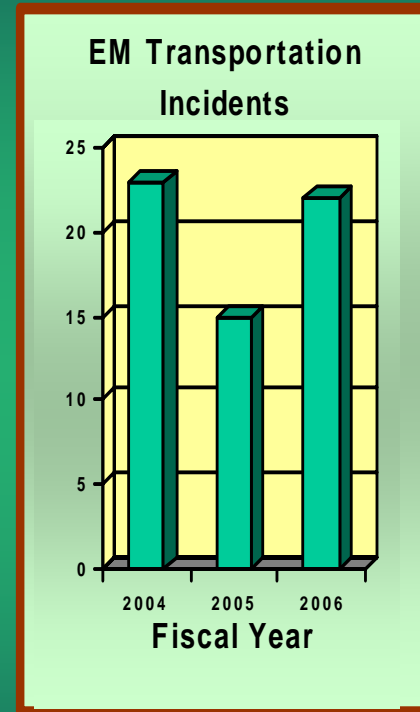
- In FY 2004, EM had 23 reported off-site incidents.
  - Most significant incident was the release of radioactive material onto road surfaces at Oak Ridge – DOT reportable
- FY '04 Incident Rate =  $23/2.0 = 11.5$  Incidents/10,000 Shipments

## FY 2005 Transportation Incidents:

- In FY'05, EM had 15 reported off-site incidents.
  - Most significant incident was rain water in BNL railcar
- FY'05 Incident Rate =  $15/2.2 = 6.8$  Incidents/10,000 Shipments
- No DOT HazMat Reportables

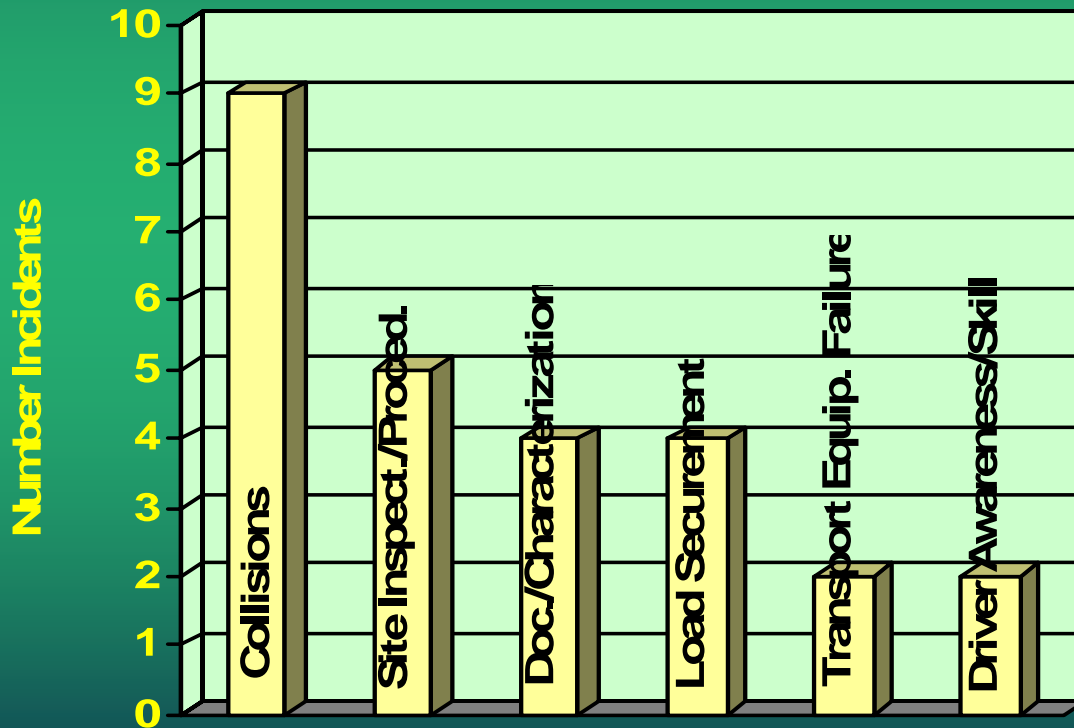
## FY2006 Transportation Incidents:

- In FY'06, EM had 27 transportation events (22 incidents).
- FY'06 Incident Rate =  $22/1.4 = 15.7$  Incidents/10,000 Shipments
- No DOT HazMat Reportables



# What Have We Learned?

## FY'06 EM Transportation Event Categories



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# ***DOE-EM Transportation Events***

## **FY'06 Truck Events:**

- 10/19/05 – DUF6 truck side-swiped by private vehicle, no injuries and minor damage to truck/trailer.
- 12/7/05 – Collision with Ford Truck at intersection in Los Alamos, NM.
- 12/27/05 - Truck pulling three empty TRUPACT-II packages left the road and trailer near Blackfoot, ID.
- 6/2/06 - Truck carrying TRUPACTs was rear-ended outside of Downey Idaho with minor damage to the trailer.
- 7/13/06 - While changing lanes to avoid object truck over corrected and left road. Minor damage and Level VI insp.
- 7/18/06 - Passenger car hit front bumper of TRU tractor while entering I-15. Minor damage, passenger driver cited.

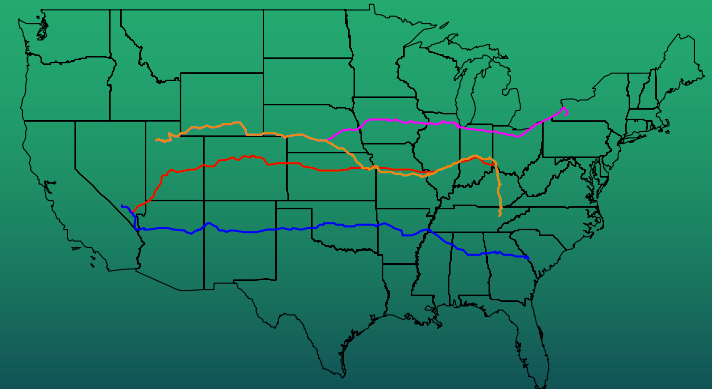


# Transportation Review Prioritization – allowing us to focus our efforts for the benefit of the public and environment

Shipping Site	Rec. Site	Waste	Mode	Forecast FY2005 Volume CuFT	Est. FY2005 Annual Ship'ts	Est. Avg. Route Mileage Per Trip	Est. Volume-Mile Per Year	Potential Pop. Exp. Per Trip	Potential Pop. Exp. Per Year	Vol. - Mile Rank	Pot. Pop. Exp. Rank	Move't Rank	Hazard Rank	Priority Rank
Site 1	Site A	LLW	Rail	4,641,000	442	2,117	9.82E+09	716,767	3.17E+08	4	4	16	9	144
Site 2	Site B	TRU	Truck	114,000	366	716	8.16E+07	185,646	6.79E+07	3	3	9	12	108
Site 3	Site C	MLLW	Truck	6,709	6	2,426	1.63E+07	816,948	4.90E+06	3	3	9	9	81
Site 4	Site A	MLLW	Truck	25,032	66	296	7.41E+06	102,480	6.76E+06	2	3	6	9	54
Site 1	Site D	LLW	Truck	22,905	22,905	6	1.37E+05	108	2.47E+06	2	3	6	9	54
Site 5	Site E	LLW	Truck	19,400	52	385	7.47E+06	674,357	3.51E+07	2	3	6	9	54

## Methodology based on:

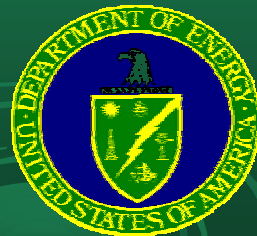
- Type of material to be transported
- Volume of Material to be Transported
- Number of Annual Shipments
- Trip Distance
- Population Along Route
- Prior Year Incidents



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# *Application of Technology to Enhance Motor Carrier Performance, Safety, and Emergency Preparedness*



# Background

## 2003 Police-Reported Motor Vehicle Traffic Crashes

Crash Type	Large Trucks	All Vehicles
Fatal	4,289 (11%)	38,252
Injury	85,000	1,925,000
Property Damage Only	347,000	4,365,000
<b>Total</b>	<b>436,000 (6.9%)</b>	<b>6,328,000</b>

## 2005 Major Types of Large Truck Crashes\*

Crash Type (Top 3)	Percent
Rear End	23.4%
Ran off Road/Out of Lane	17.7%
Side Swipe, Same Direction	10.6%

\* FMCSA Report to Congress on the Large Truck Causation Study



# Background

## FMCSA Large Truck Crash Causation Study

### *All Trucks by Critical Reason*

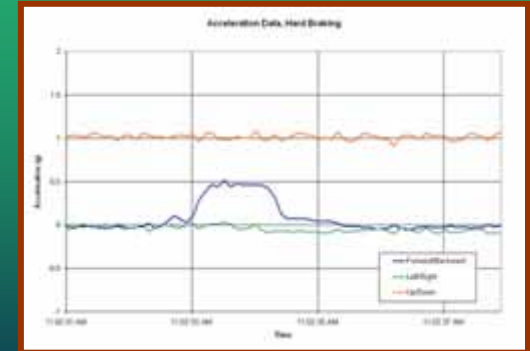
This table shows the estimated number of trucks involved in crashes nation-wide, in which the truck was assigned the critical reason for the crash. Counts of trucks are organized by critical reason.

Critical Reason	Number	Percentage
<b>Driver Decision Factor</b>	<b>30,000</b>	<b>38%</b>
Too fast for curve/turn	9,000	12%
<b>Driver Recognition Factor</b>	<b>22,000</b>	<b>29%</b>
Inadequate surveillance	9,000	12%
<b>Physical Driver Factor</b>	<b>9,000</b>	<b>12%</b>
Sleep, that is, actually asleep	5,000	7%
<b>Vehicle Related Factor</b>	<b>8,000</b>	<b>10%</b>
Cargo shifted	3,000	4%
<b>Driver Performance Factor</b>	<b>4,000</b>	<b>6%</b>
Overcompensation or poor directional control	4,000	6%
<b>Unknown Driver Error</b>	<b>3,000</b>	<b>4%</b>
<b>Environment – Highway</b>	<b>2,000</b>	<b>2%</b>



# DOE/UNLVRF Truck Technology Study

- Demonstrate technological capabilities for DOE to improve driver performance, shipment safety, and emergency response:
  - Safety-Related Data Mining and Analysis,
  - Critical Event Reporting,
  - Automated Hours of Service Logging,
  - Collision Warning,
  - Trailer Tracking,
  - Emergency Response Reporting,
  - Incident Management.
- Document, recommend best practices and “ideal standards”





# Study Participants

---

- University of Nevada Las Vegas Research Foundation
- UNLV College of Engineering
- QUALCOMM
- Operation Respond
- Visual Risk Technologies
- Tri-State Motor Transit
- Hittman Transport Services
- Commercial Vehicle Safety Alliance
- US Department of Energy



# Incident Prevention Technologies

Trailer Tracking

Panic Button

Critical Event Reporting

Performance Monitoring

Collision Avoidance

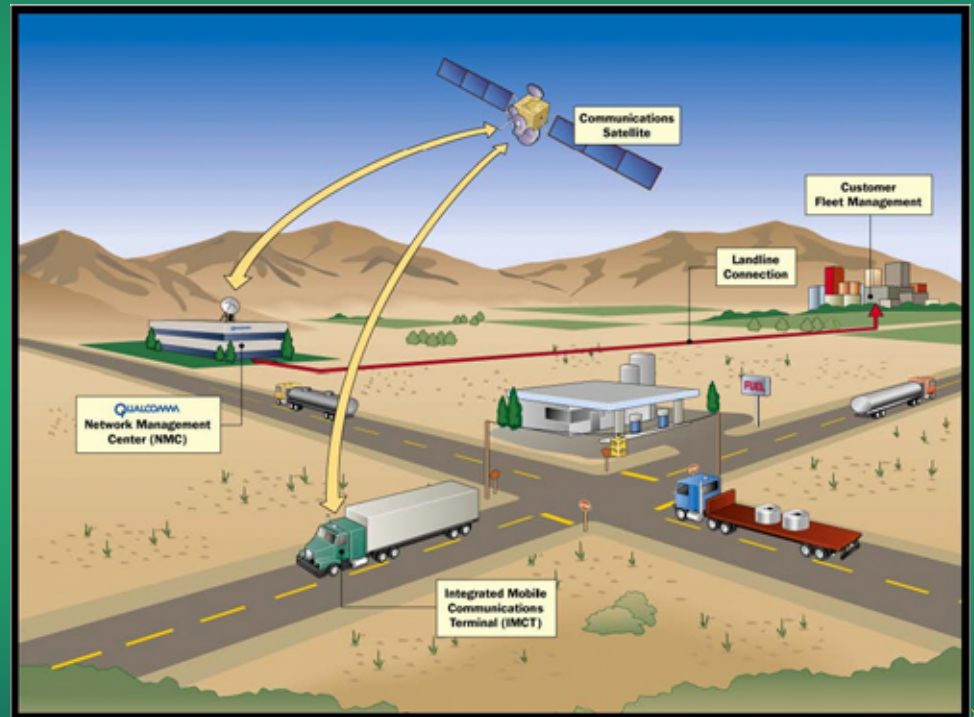


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# Satellite Communications



Mobile Communications Terminal



System Overview

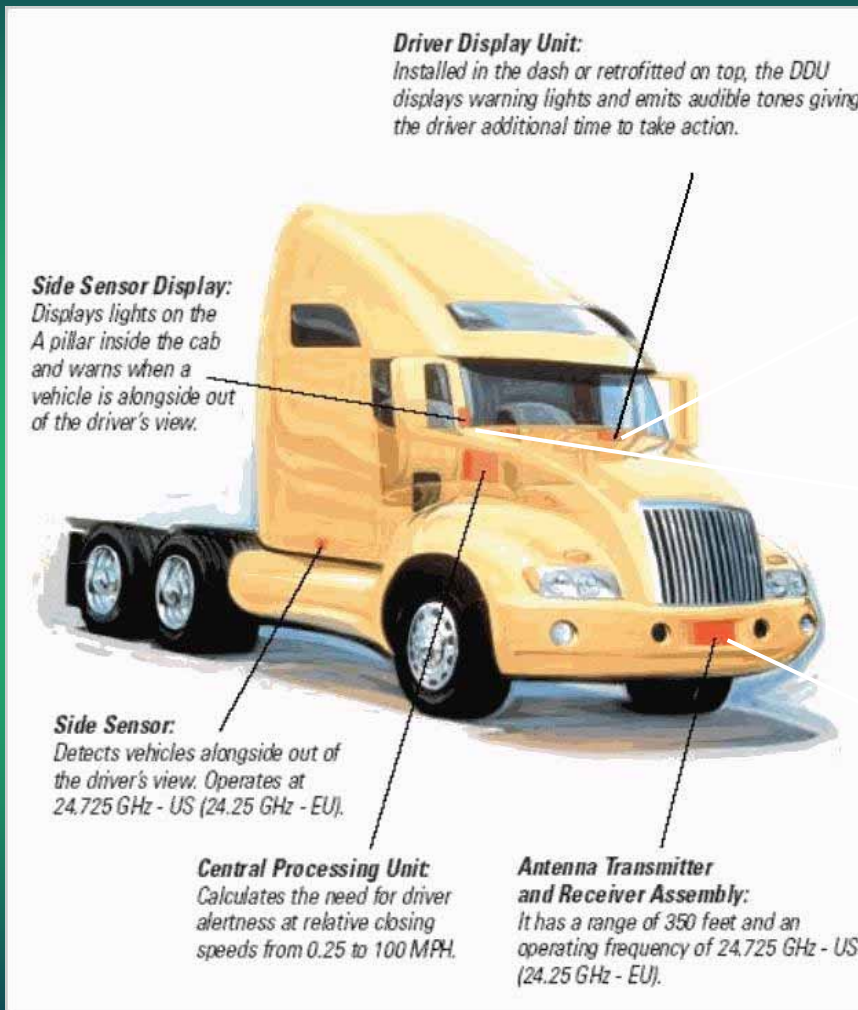


Operations Center



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# Collision Avoidance Technology



Photos from Hittman Demonstration Vehicle



# Trailer Tracking & Virtual Boundaries

## Position Details

The map displays a network of roads including Shop Rd, Atlas Rd, Pineview Rd, and Bluff Rd. A red square geofence is centered on a trailer icon labeled "HITT Q53134". The geofence is labeled "SC Demo Geofence". A scale bar indicates 1500 ft. The map includes a "Lake" and a "Pond". The bottom of the map shows copyright information: "© QUALCOMM 2006, TeleAtlas map. 2007-01-17".

Map navigation controls on the right include:

- Directional arrows (up, down, left, right) for panning.
- "Zoom Out" button.
- Zoom level indicator (horizontal bars).
- "Zoom In" button.
- Options: "Hide Current Geofence", "Zoom to Trailer", "Zoom to Geofence", "Zoom to Both".
- "Draw box to zoom an area" button with a red dashed box icon.
- Map style selector: "Map", "Satellite", "Hybrid".



# Critical Event Reporting

**QUALCOMM alert:** Driver 1415 on truck 477864 reported a critical event on 04-05-06 at 8:18 AM PDT, 7 miles SSE of Encinitas, CA.

## Incident

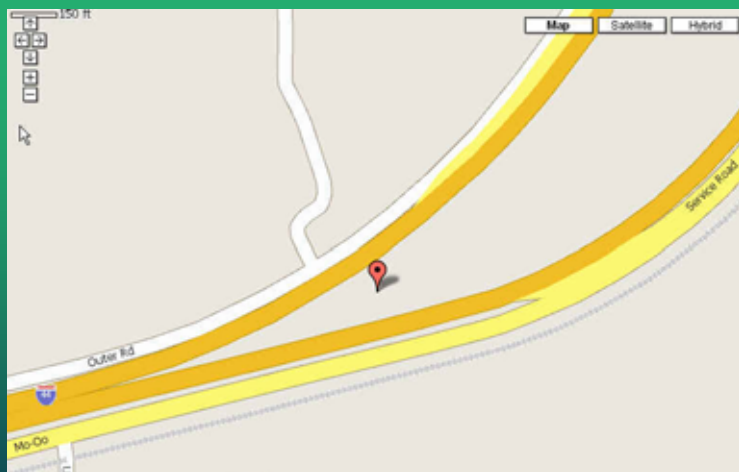
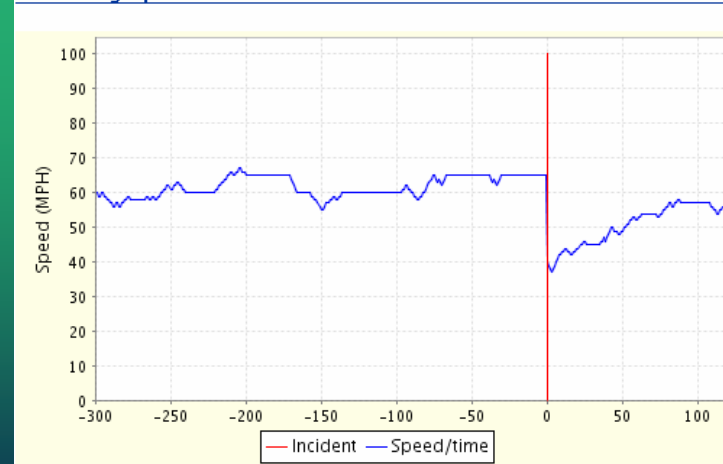
Time	4/5/06 8:31:56 AM PDT
Last known position	32.895, -117.194
Last known position time	4/5/06 8:31:55 AM PDT
Trigger event	Hard braking



## Raw incident data

Absolute time	Offset (min:sec)	Speed (MPH)
4/5/06 8:18:29 AM PDT	-00:09	57.0
4/5/06 8:18:30 AM PDT	-00:08	57.0
4/5/06 8:18:31 AM PDT	-00:07	58.0
4/5/06 8:18:32 AM PDT	-00:06	58.0
4/5/06 8:18:33 AM PDT	-00:05	57.0
4/5/06 8:18:34 AM PDT	-00:04	57.0
4/5/06 8:18:35 AM PDT	-00:03	58.0
4/5/06 8:18:36 AM PDT	-00:02	58.0
4/5/06 8:18:37 AM PDT	-00:01	58.0
4/5/06 8:18:38 AM PDT	00:00	45.0

## Incident graph



# Performance & Safety Analysis

---

- Analysis of 33 drivers performance over a 90 Day period
- Over 678,000 combined miles
- Over 12,000 hours
- Measures monitored included:
  - Hard braking events
  - Coasting out of gear time
  - Over RPM time
  - Excessive speed time (>75 MPH)
- Goal is to provide carriers with data to better understand driver behavior, and identify risks



# Performance & Safety Analysis

## Hard Braking Events

*Hard Braking: 7 mph or greater deceleration in 1 second*

- 27 of 33 vehicles did not report a hard braking event
- 3 vehicles reported one hard braking event
- 1 vehicle reported three hard braking events
- 1 vehicle reported seven hard braking events
- 1 vehicle reported eleven hard braking events. This vehicle was also the only one to report any “coast out of gear” time for the evaluation period





# Performance & Safety Analysis

## Time Spent in “Over RPM”

- 23 of 33 vehicles did not report any Over RPM time
- 3 vehicles reported less than 1 hour of Over RPM
- 2 vehicles reported 1-3 hours of Over RPM
- 4 vehicles reported 3-5 hours of Over RPM
- 1 vehicle reported 11 hours of Over RPM
- Of the 6 vehicles that reported hard braking events, 4 of them also reported Over RPM time.



# Performance & Safety Analysis

## Time Spent in Excess Speed

*Excess Speed: 75 MPH or greater*

- 11 of 33 vehicles did not report any time in excess speed
- 18 vehicles reported less than 30 minutes of excess speed
- 3 vehicles reported about 1 hour of excess speed (average of about 500 hours per vehicle). These vehicles did not have any hard braking events, or Over RPM time.
- 1 vehicle reported over 8 hours (out of 470 total hours) of excess speed. This vehicle did not have any hard braking events, and only 10 minutes of Over RPM time.



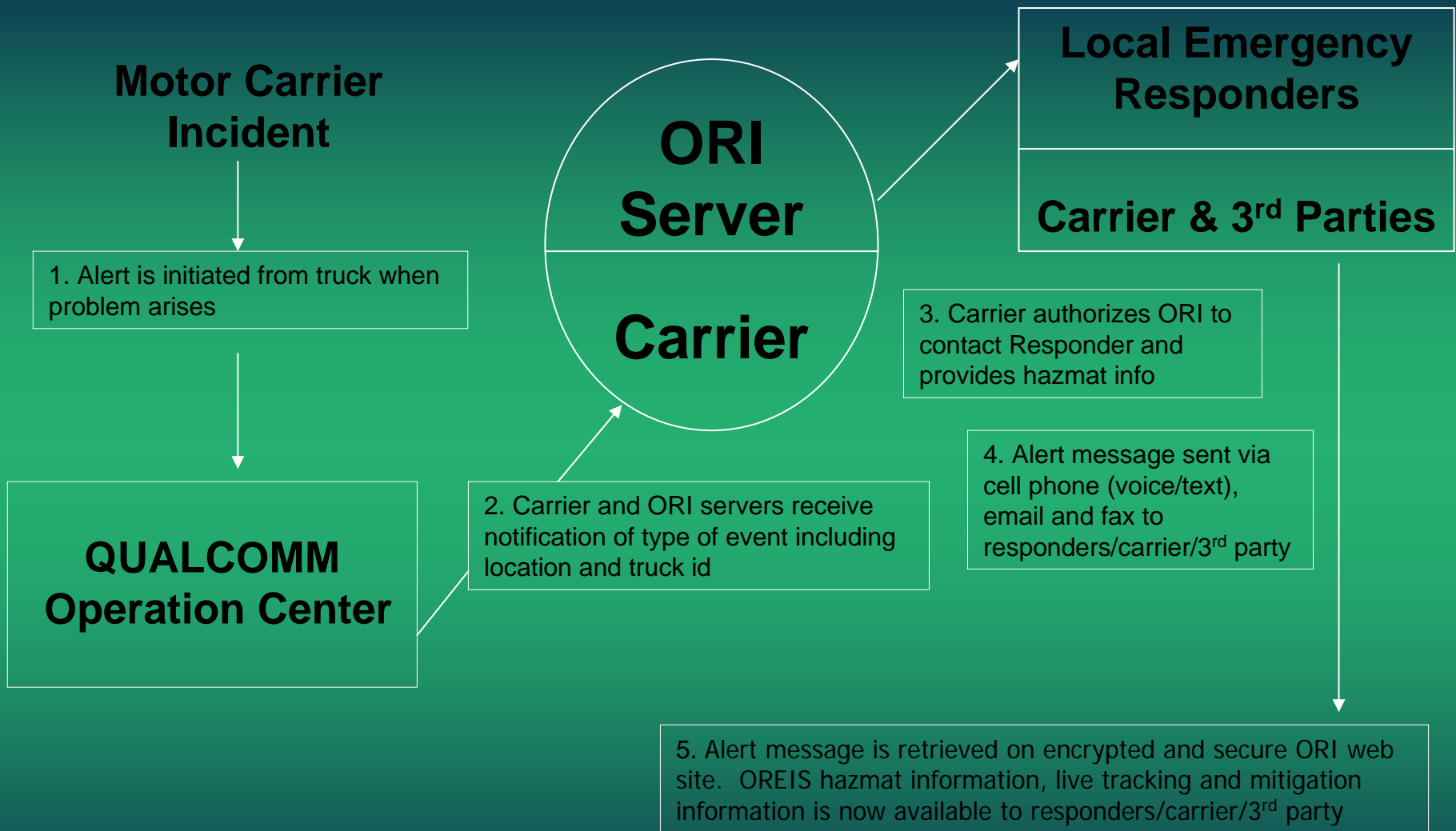
# Performance & Safety Analysis

## Conclusions

- **These reports are a great way for carriers to stay “in-touch” with their drivers behavior, vs. the old method of having to manually download information from each vehicle**
- **Risk Mitigation: the data is useful for exposing weaknesses in driver behavior, so they do not become bad habits that may lead to possible incidents in the future**



# Motor Carrier Tracking and Alert Data Flow



# Motor Carrier Incident Alert

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This is an emergency alert from Operation Respond. Go to <https://alert.oreis.org> on the web to view this alert.

- Sent to Responders, Carrier and Involved Third Parties
- Sent Via Cell Phone – Voice & Text
- Email
- Fax
- Use GPS Chip in Phone
- Text Message to NLETS & RISS
- Receipt Confirmed



# Notification List

## Richland County

<u>Agency</u>	<u>Person</u>	<u>Address</u>	<u>City</u>	<u>Phone</u>	<u>Fax</u>	<u>Pager</u>	<u>Mobile</u>	<u>Email</u>
<b>Fire Departments</b>								
Columbia-Richland Fire SVC	Al Axson	1800 Laurel Street	Columbia	8035453731				<a href="mailto:afdaxson@columbiasc.net">afdaxson@columbiasc.net</a>
<b>Law Enforcement</b>								
Columbia Police Department	Debbie Jordan	1 Justice Square	Columbia	8035453509				<a href="mailto:dcollum@columbiasc.net">dcollum@columbiasc.net</a>
<b>County Agency</b>								
Columbia Central Dispatch	Nathan Brown			8032558933				<a href="mailto:crcnbrown@columbiasc.net">crcnbrown@columbiasc.net</a>
Richland County Emergency Services	George Mick	1410 Laurens Street	Columbia	8037826182	8037485055	8033550300	8035185057	<a href="mailto:georgemick@richlandonline.com">georgemick@richlandonline.com</a>
<b>NLETS Users</b>								
Richland County Sheriff	*ORI SC040000	5623 Two Notch Road	Columbia	8035763000				
SC Emergency Management	*ORI SCEPD00MS	1100 Fish Hatchery	Columbia	8037378500				
SC Law Enforcement Division	*ORI SCLED0000	4400 Broad River Road	Columbia	8038967038				<a href="mailto:swndham@sled.sc.gov">swndham@sled.sc.gov</a>
SC Highway Patrol	*ORI SCSHP0100	10311 Wilson Blvd	Bythewood	8038968384				
<b>State Agencies</b>								
SC DHEC	Sandra Threatt	2600 Bull Street	Columbia	8032536488			8039204840	<a href="mailto:threatts@dhec.sc.gov">threatts@dhec.sc.gov</a>
SC DHEC	Micheal Moore	2600 Bull Street	Columbia	8038964181	8038964242			<a href="mailto:moores@dhec.sc.gov">moores@dhec.sc.gov</a>
SC DHEC								<a href="mailto:ert-froc@dhec.sc.gov">ert-froc@dhec.sc.gov</a>
SC Emergency Management Division	Ernie Moore	2779 Fish Hatchery Road	W. Columbia	8037378500			8033607046	<a href="mailto:emoore@emd.state.sc.us">emoore@emd.state.sc.us</a>
SC Emergency Management Division	Tim Murphy	2779 Fish Hatchery Road	W. Columbia	8037378582				<a href="mailto:tmurphy@emd.state.sc.us">tmurphy@emd.state.sc.us</a>
SC Emergency Management Division	Scot Freeman	2779 Fish Hatchery Road	W. Columbia	8037378500				<a href="mailto:sfreeman@emd.state.sc.us">sfreeman@emd.state.sc.us</a>
SC Department of Transportation	Dan Campbell	P.O Box 191	Columbia	8037372314				<a href="mailto:campbellda@scdot.org">campbellda@scdot.org</a>
SC Highway Patrol	Captain Jones Gamble	10311 Wilson Blvd	Bythewood	8038967920				<a href="mailto:mjgambale@schp.org">mjgambale@schp.org</a>
SC Emergency Response Task Force	Emory Johnson	141 Monticello Trail	Columbia	8038969836	8038969856		8036228315	<a href="mailto:johnsone@llr.sc.gov">johnsone@llr.sc.gov</a>
<b>Additional Agencies</b>								
SRS 911 Center-Washington Group	John Riley	SRS Building 703-A	Aiken	8037251911				<a href="mailto:john.riley@srs.gov">john.riley@srs.gov</a>
DOE TEPP	Cindy Brizes	SRS Building 730-B	Aiken				8035076227	<a href="mailto:cindy.brizes@srs.gov">cindy.brizes@srs.gov</a>
DOE National Watch Center*simulated	Ella McNeil	19901 Germantown Road	Germantown				2406766469	<a href="mailto:ella.mcneil@em.doe.gov">ella.mcneil@em.doe.gov</a>
Hittman Transport	Roger Betow	Dispatch Center	Barnwell	8006076199			8035077795	<a href="mailto:rbetow@energysolutions.com">rbetow@energysolutions.com</a>
Technical Resources Group (DOE)	Ken Keaton	125 Broughton Drive	Aiken	8034748000	2085288919			<a href="mailto:kek38@bellsouth.net">kek38@bellsouth.net</a>





**Responsible Shipper: DOE Savannah River Site**  
**Emergency Phone#: 803-725-1911**

**Responsible Carrier: Hittman Transportation Services**  
**24 Hour Emergency Phone#: 800-607-6199**

**LAST LOCATION/TIME:**

Location: 2 Mi NNW of Columbia, SC  
 Longitude: Latitude: Time:  
 -81.042778 34.031113 01/17/2007 11:52:31 (Eastern Time)

Enable Map Refresh

Disable Map Refresh



[Click for Mitigation Information](#)

Copyright Pending - Proprietary

**\*\*\* Driver activated the PANIC BUTTON \*\*\***

Shipping Paper: [Click to View](#)

UNID(s): 2912

UN ID #: 2912

Guide Ref.: 162

Content(s):

Radioactive material, low specific activity (LSA), n.o.s. /  
 Radioactive material, low specific activity (LSA-I)

Potential Hazards Public Safety Emergency Response  
 Initial Isolation & Protective Action Distances  
 Fire or Explosion Health Hazards

**Potential Hazards: Fire or Explosion**

Some of these materials may burn, but most do not ignite readily.  
 Uranium and Thorium metal cuttings may ignite spontaneously if exposed to air (see GUIDE 136).  
 Nitrates are oxidizers and may ignite other combustibles (see GUIDE 141).

**Vehicle Position History**

- 10) Time: 01/16/2007 17:02:43 (Eastern Time)  
 Location: 2 Mi NNW of Columbia, SC  
 Position: Lon=-81.041664 Lat=34.030834
- 9) Time: 01/16/2007 16:00:28 (Eastern Time)  
 Location: 2 Mi NNW of Columbia, SC  
 Position: Lon=-81.043053 Lat=34.031113
- 8) Time: 12/14/2006 14:31:28 (Eastern Time)  
 Location: 4 Mi NNE of Dutch Fork, SC  
 Position: Lon=-81.088333 Lat=34.105278
- 7) Time: 12/14/2006 14:16:30 (Eastern Time)

Done

Internet



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### VRT GIS Response Mitigation Information

Incident Location: Latitude: 34.031113 , Longitude: -81.042778  
Generating Map. Please Wait.

Latitude:

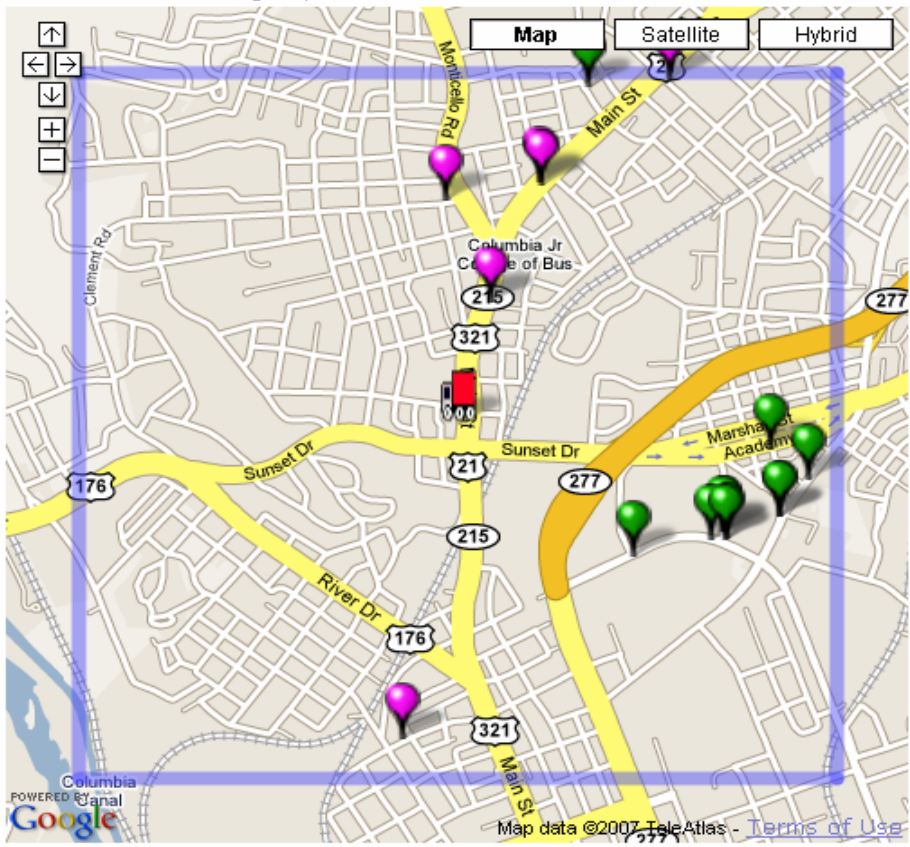
Longitude:

Show Business Types:

- Schools
- College/University
- Child Care
- Nursing Care
- Assisted Living
- Hospitals
- Public Venues
- Amusement Parks / Recreation Centers
- Zoo / Gardens / Parks / Museums
- Golf Course / Recreational Camps
- Gambling
- Fire
- Police

Radius for Search:

<input type="radio"/> 1/2 mile	<input checked="" type="radio"/> 1 mile
<input type="radio"/> 2 mile	<input type="radio"/> 3 mile
<input type="radio"/> 4 mile	<input type="radio"/> 10 mile



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VRT GIS Response Mitigation Information - Windows Internet Explorer

http://www.trustcomplete.com/nvmap.aspx?Lat=34.031113&Lon=-81.042778

### VRT GIS Response Mitigation Information

**Incident Location: Latitude: 34.031113 , Longitude: -81.042778**  
 Lat: 34.04327202221684, Lon: -81.04202270507812: center of map

**Latitude:**

**Longitude:**

**Show Business Types:**

- Schools
- College/University
- Child Care
- Nursing Care
- Assisted Living
- Hospitals
- Public Venues

Map | Satellite | Hybrid

Richland County of, Richland County Schools  
 Elementary and Secondary Schools  
 (803) 735-3421  
 4200 Main St (1)  
 Columbia SC 29203  
 Lat: 34.041262 Lon:-81.038865  
 (0.73572 miles from incident.)

VRT GIS Response Mitigation Information - Windows Internet Explorer

http://www.trustcomplete.com/nvmap.aspx?Mode=LocationsReport&Lat=34.031113&Lon=-81.042778

### VRT GIS Response Mitigation Information

**Incident Location: Latitude: 34.031113, Longitude: -81.042778**

Locations found in the region of 1 mile West to 1 mile East and 1 mile North to 1 mile South:

- All Other Outpatient Care Centers 5 found.
- Colleges, Universities, and Professional Schools 3 found.
- Elementary and Secondary Schools 3 found.
- General Medical and Surgical Hospitals 6 found.

**Colleges, Universities, and Professional Schools**

**South University**  
 (803) 799-9082  
 3810 Main St (1)  
 Columbia SC 29203  
 Lat: 34.036333 Lon:-81.041292  
 (0.37035 miles from incident.)

---

**Lutheran Theological Southern Seminary**  
 (803) 786-5150  
 4201 Main St (1)



Responsible Railroad: Norfolk Southern  
24 Hour Emergency Phone#: 800-453-2530

Locomotive ID: 21000

**LAST GPS LOCATION/TIME:**

Longitude: Latitude: Time:  
-79.55068 +37.34226 1/19/2007 11:59:16 AM (EST)

**Additional Information:**

1) Tank car ID: UTLX12345  
Mile Post: 111



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Done

\*\*\* Engineer activated the PANIC BUTTON \*\*\*

**HAZARDOUS MATERIAL CARGO:** (click STCC for detail)

STCC: 4908110

UN ID #: 1114

Guide Ref.: 130

Content(s):  
Benzene

Potential Hazards Public Safety Emergency Response

Initial Isolation & Protective Action Distances:

Fire or Explosion Health Hazards:

**Potential Hazards: Fire or Explosion**

HIGHLY FLAMMABLE: Will be easily ignited by heat, sparks or flames.  
Vapors may form explosive mixtures with air.  
Vapors may travel to source of ignition and flash back.  
Most vapors are heavier than air. They will spread along ground and collect in low or confined areas (sewers, basements, tanks).  
Vapor explosion hazard indoors, outdoors or in sewers.  
Those substances designated with a "P" may polymerize explosively when heated or involved in a fire.  
Runoff to sewer may create fire or explosion hazard.  
Containers may explode when heated.  
Many liquids are lighter than water.

**Vehicle Position History**

- 10) Time: 1/16/2007 2:23:46 PM (Eastern Time)  
Position: Lon= -71.26742 Lat=+42.38761  
Message Type: PANIC BUTTON
- 9) Time: 1/16/2007 1:59:44 PM (Eastern Time)  
Position: Lon= +0.00000 Lat=+0.00000  
Message Type: PANIC BUTTON
- 8) Time: 1/16/2007 1:55:08 PM (Eastern Time)  
Position: Lon= +0.00000 Lat=+0.00000  
Message Type: PANIC BUTTON
- 7) Time: 1/16/2007 1:50:39 PM (Eastern Time)

Internet



U.S. Department of Energy, Environmental Management, Office of Transportation  
Dedicated to Protecting the Public and the Environment in all our Transportation Operations

# DOE Load Securement Field Guide & Checklist

- Developed to ensure all shipments are secured prior to shipment

SECTION 4: SPECIFIC CONTAINER & MATERIAL TYPES	YES		N/A	
	SHIPPER	PEER REVIEW	SHIPPER	PEER REVIEW
REQUIREMENT				
<b>DRUMS</b>				
4.1.1 For all drums, verify/validate drums are placed and secured on vehicle ensuring that they do not shift and/or rub closure rings and/or locking bolts during normal transportation. 173.427(a)(6)(iii), 173.448(a), 177.834(a) & 177.842(b) NOTE: It is suggested the ring locking bolts be rotated 45 degrees to the perpendicular axis of trailer.				
4.1.2 When needed for loose drums, verify/validate use of load locks, load straps, and/or load bars (used to reduce sidewall flex and strengthen sidewall securement capacity) in combination throughout the length of the load to ensure that the drums do not shift or tip during transport.				
4.1.3 For drums on pallets, verify/validate drums are secured properly to and on the pallet to ensure they do not shift on pallet during normal transportation. 177.834(a) NOTE: It is suggested that ring locking bolts be rotated 45 degrees to the perpendicular axis of trailer.				
<b>BURRITO LINERS</b>				
4.2. Bed of trailer is free of protrusions that could tear, or that could impede offloading of the burrito liner.				



# Improved Tracking of our Performance

## ➤ Calculation of Incidents Rates/Million Miles:

### FY05 Incident Rates

- $15/22,103 =$   
**6.79/10,000 shipments**
- $15/17,939,000 =$   
**0.84/1,000,000 miles**

### FY06 Incident Rates

- $22/14,060 =$   
**15.65/10,000 shipments**
- $22/13,300,000 =$   
**2.03/1,000,000 miles**



# Transportation Emergency Preparedness & Outreach Support



- Transportation Emergency Preparedness Program (TEPP)
  - Planning, training, technical assistance
- Increased dedication to working closely with states and tribes to ensure open and honest dialogue, understanding, and cooperation
  - Commodity flow surveys, TransCAER workshops, and Regional state cooperative organizations



## Transportation Emergency Preparedness Program (TEPP)

### National Fire Protection Agency Standards

- NFPA 472: Standard for Professional Competence of Responders to Hazardous Materials Incidents
- NFPA 473: Standard for Competencies for EMS Personnel Responding to Hazardous Materials Incidents
  - Comment period closed 9/06
  - Goes for full committee approval in June 2007
  - Expected to be issued in late Summer 2007

### Decon Video

- Filmed in Idaho Falls (with support from ID Falls Fire Department) in 9/06
- Designed to complement existing TEPP videos  
Serve as a training aid

Made local news – for clip go to: Take a look at  
<http://www.localnews8.com/news/local/4240376.html>



## ➤ **TEPP Exercises**

- West Valley, NY
  - Conducted September 19
- Wyandotte County, KS
  - Conducted November 9
- Muscatatuck Urban Training Center, Indiana
  - Scheduled for February 2007

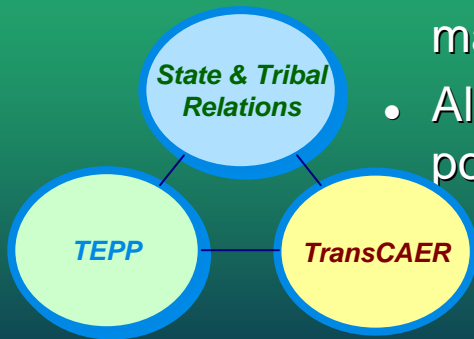


## ➤ **FY 2006 MERRTT**

- 1,487 trained

# EM Transportation Community Awareness & Emergency Response (TransCAER)

- EM Office of Transportation Official TransCAER Partner
- Commodity Flow Surveys
  - Conducted along EM Transportation Highway and Rail Routes
    - Provide local communities information on types, volumes, and frequencies of hazardous materials transported through counties/cities
    - Allow local fire, LEPCs, and police to better prepare for potential transportation incident response.





# ***EM Transportation Emergency Preparedness & Outreach Support***

## **Flagstaff Commodity Flow Survey**

- August 10-11, 2005, Interstate 40 at Parks Rest Area  
24-hours (9am 8/10 to 9am 8/11)
- Participants included Arizona DOT, Flagstaff Fire Department, and DOE
- 206 HazMat Vehicles were recorded during the Survey (133 Westbound and 73 Eastbound) carrying 362 Commodities

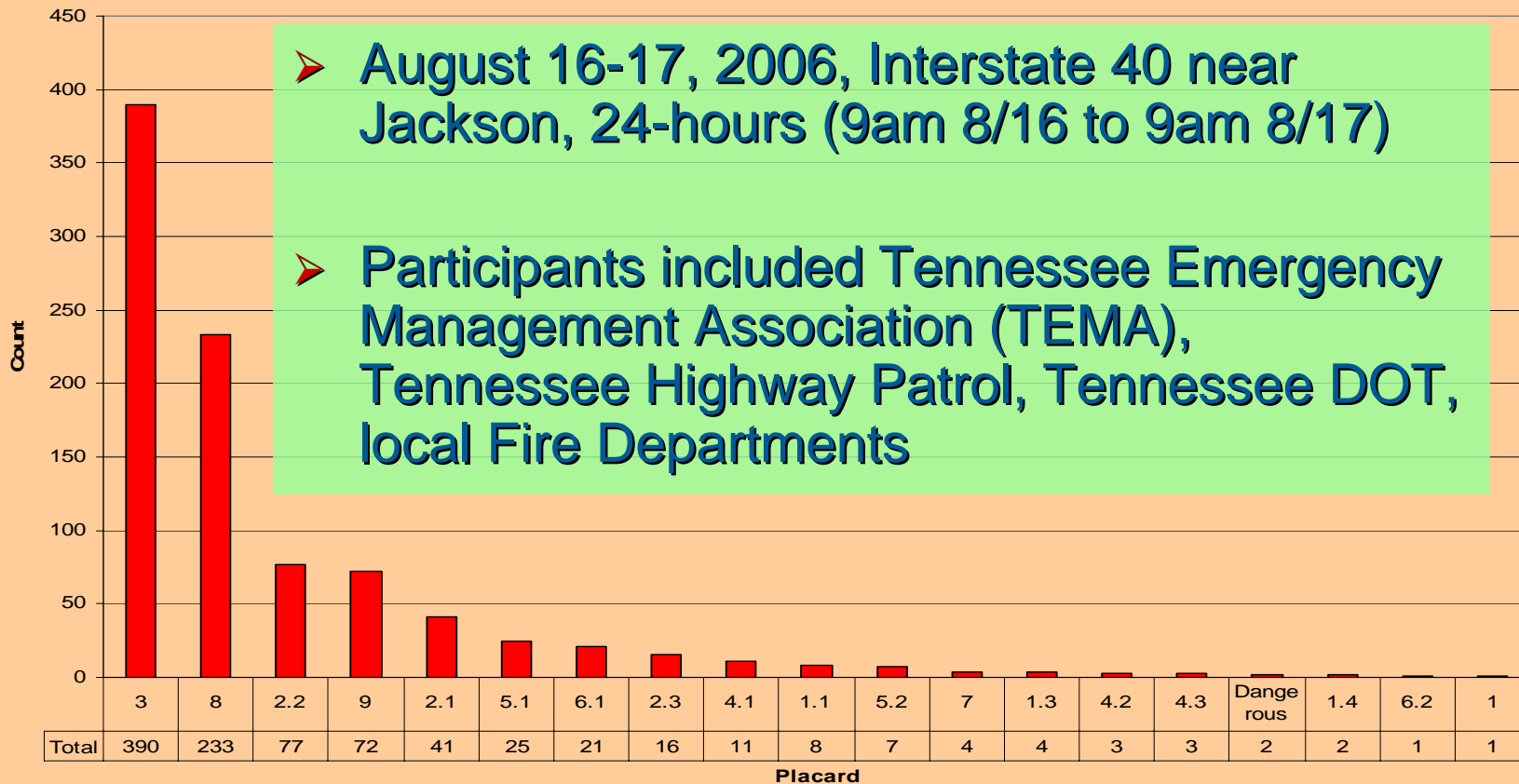


## **Texas/Louisiana Commodity Flow Survey**

- April 12-13, 2006, Interstate 20 (Texas/Louisiana Border),  
24-hours ( 9am 4/12 to 9am 4/13)
- Participants: Wascom TX and Greenwood LA Fire Departments,  
LA and TX DOT, Caddo Parish and Harrison County LEPCs
- 495 HazMat Vehicles (263 Eastbound and 232 Westbound)



# Tennessee Commodity Flow Survey



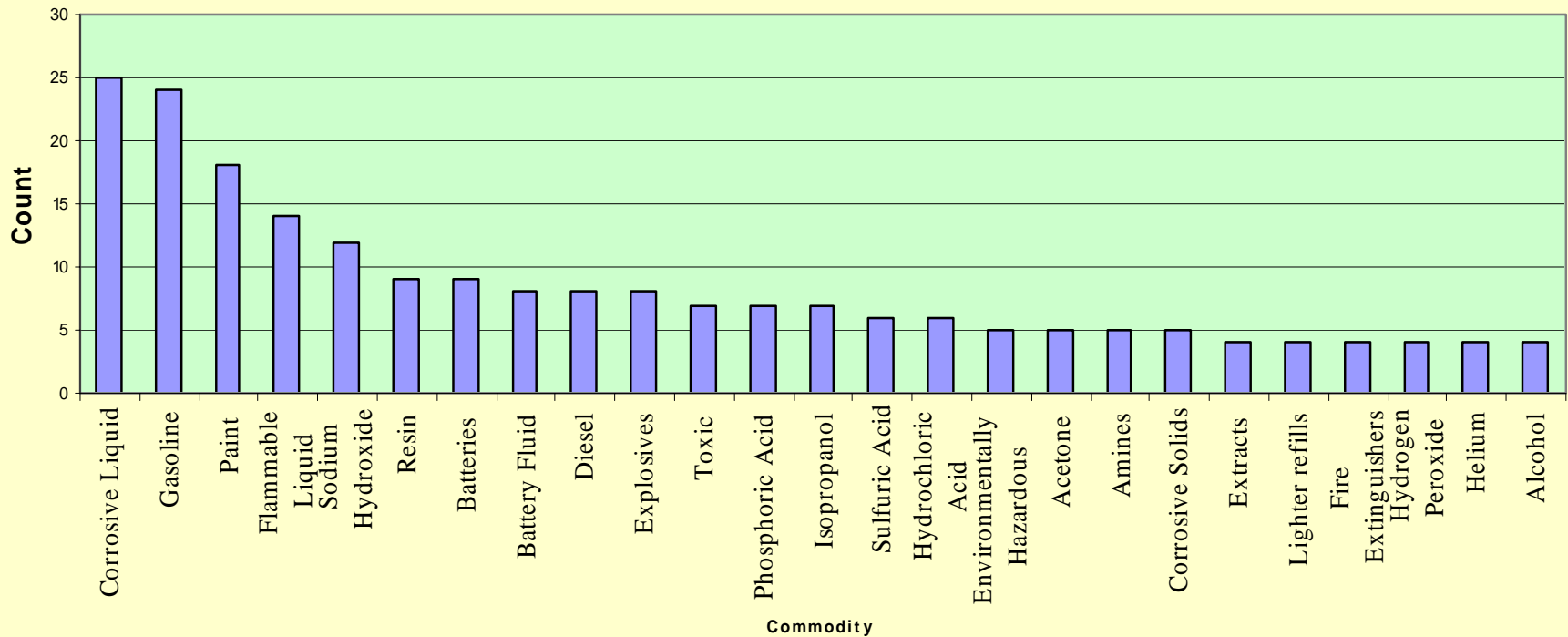
# Tennessee Commodity Flow Survey

- Location: Along Interstate 40 in Haywood County, Tennessee, at the State Tennessee Weigh Stations near I-40 Milepost 50
- Duration: 24-hours ( 9:00am August 16 to 9:00am August 17 )
- 598 HAZMAT Vehicles (288 Eastbound and 310 Westbound) of approximately 8200 commercial vehicles (7.3% Hazmat) were recorded during the 24-hr period
- Carrying 920 HAZMAT shipments, totaling 10.7 Million pounds.



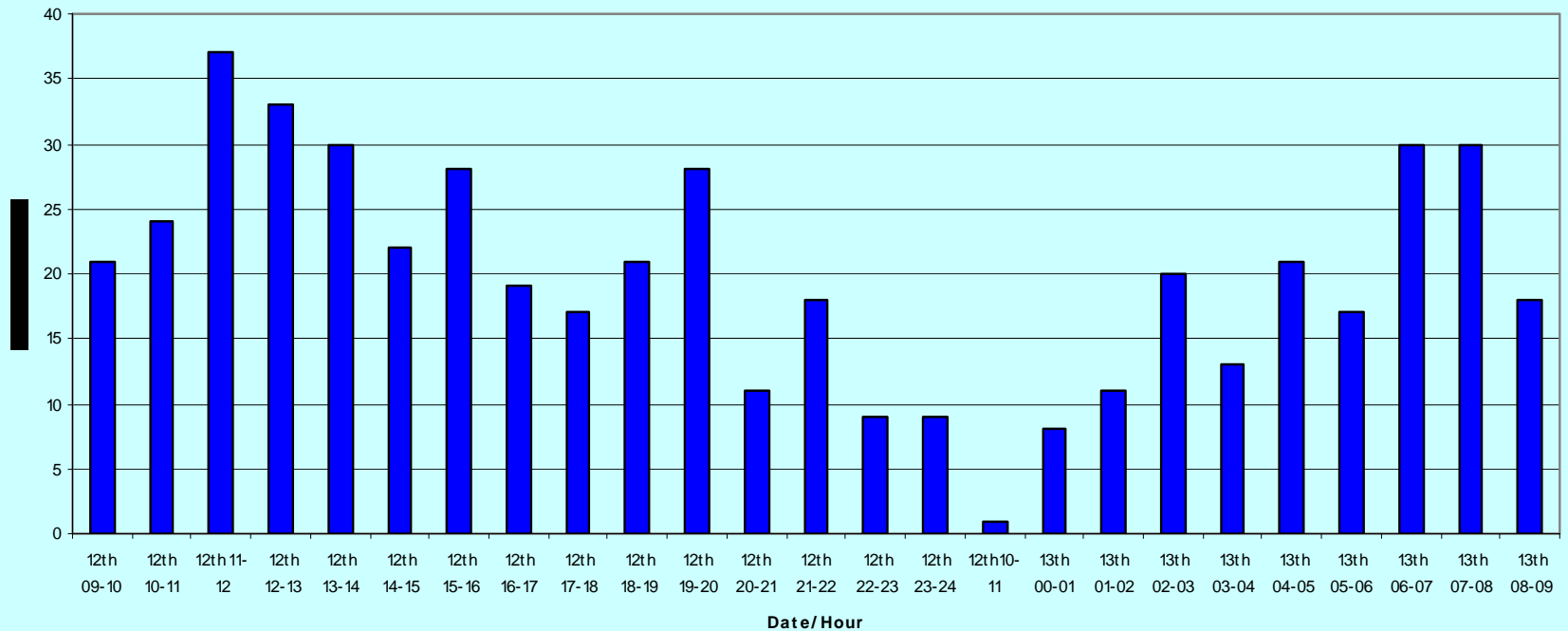
# Flagstaff Commodity Flow Survey

Top 25 Commodities by Count

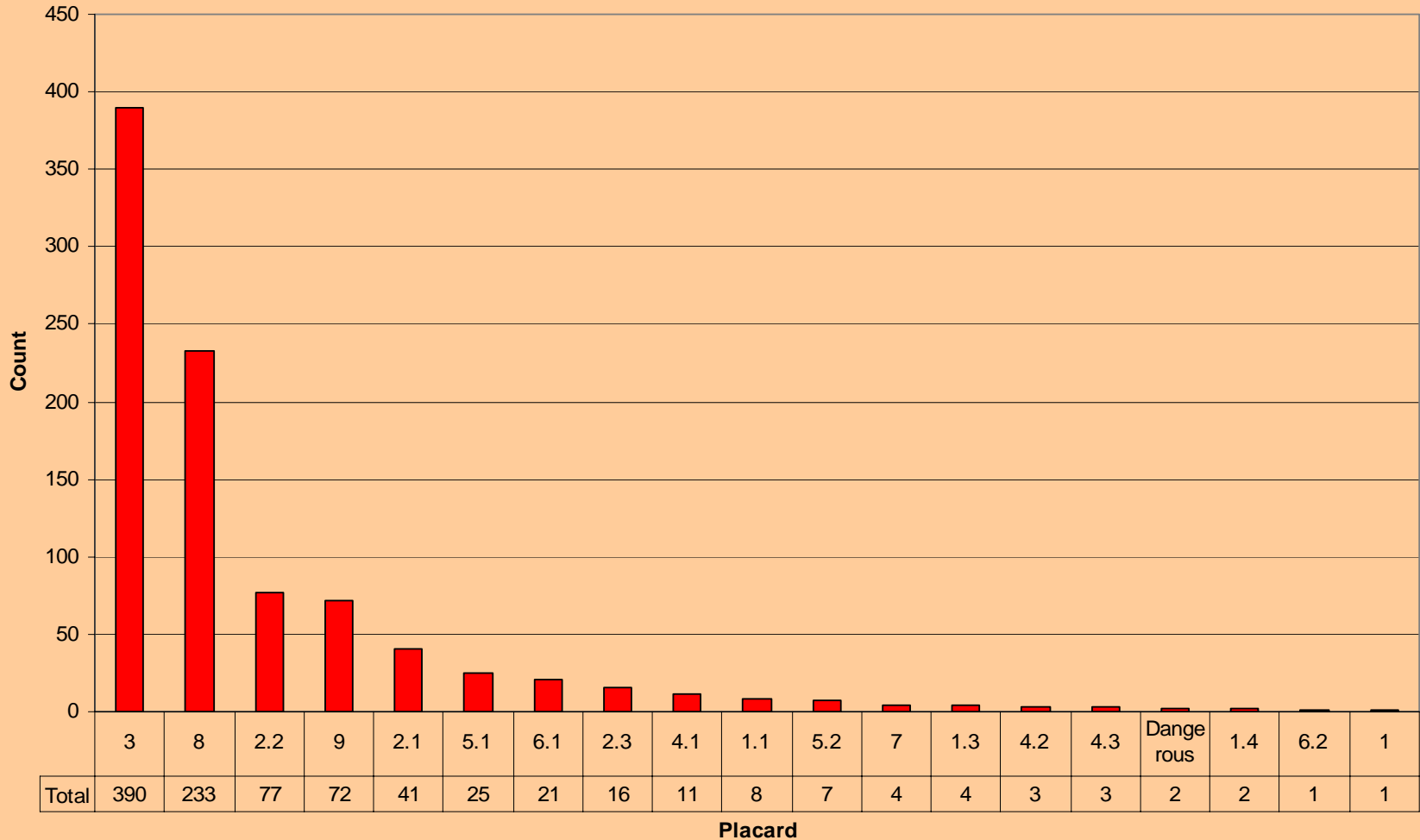


# Texas/Louisiana Commodity Flow Survey

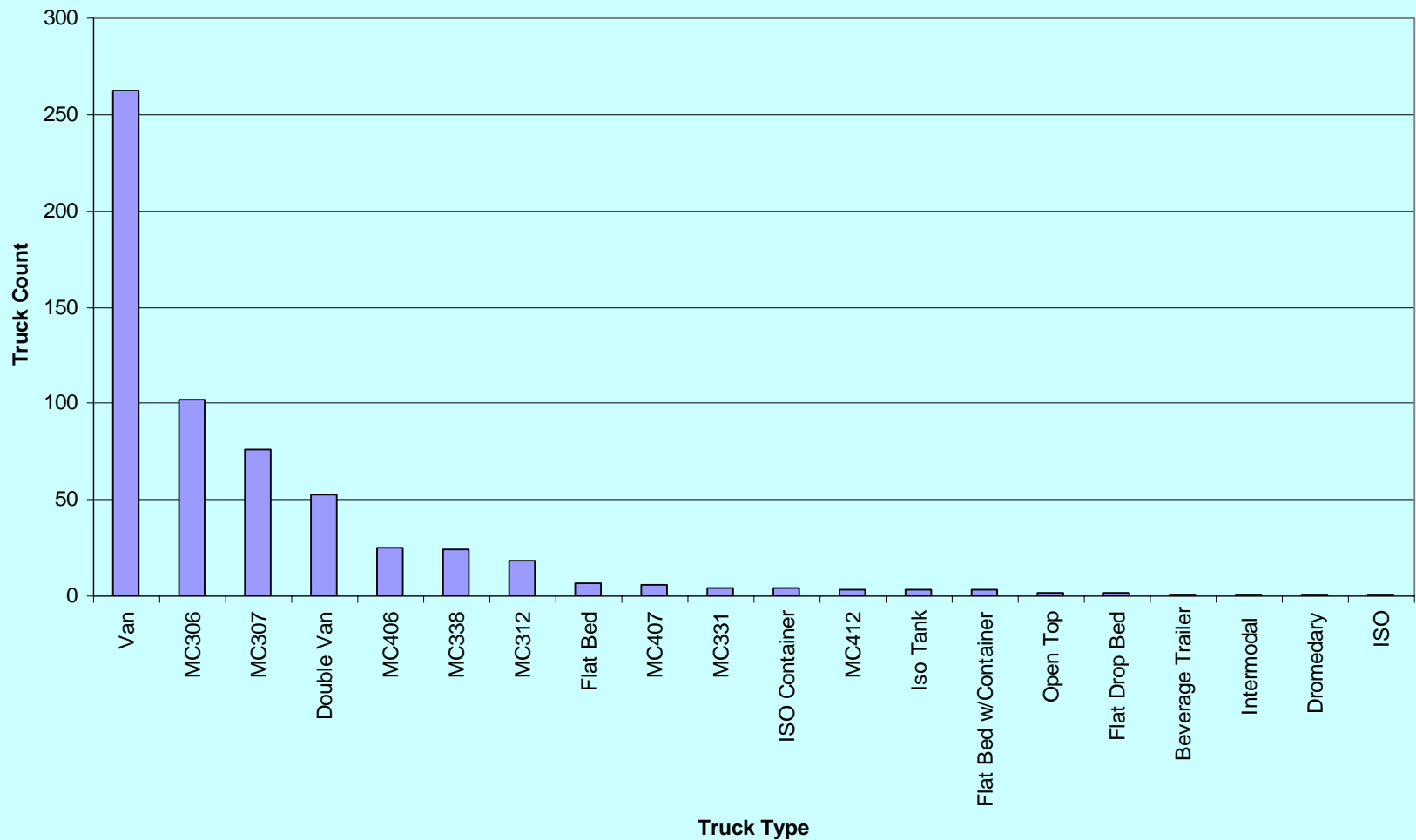
Truck Count by Hour (East and West)



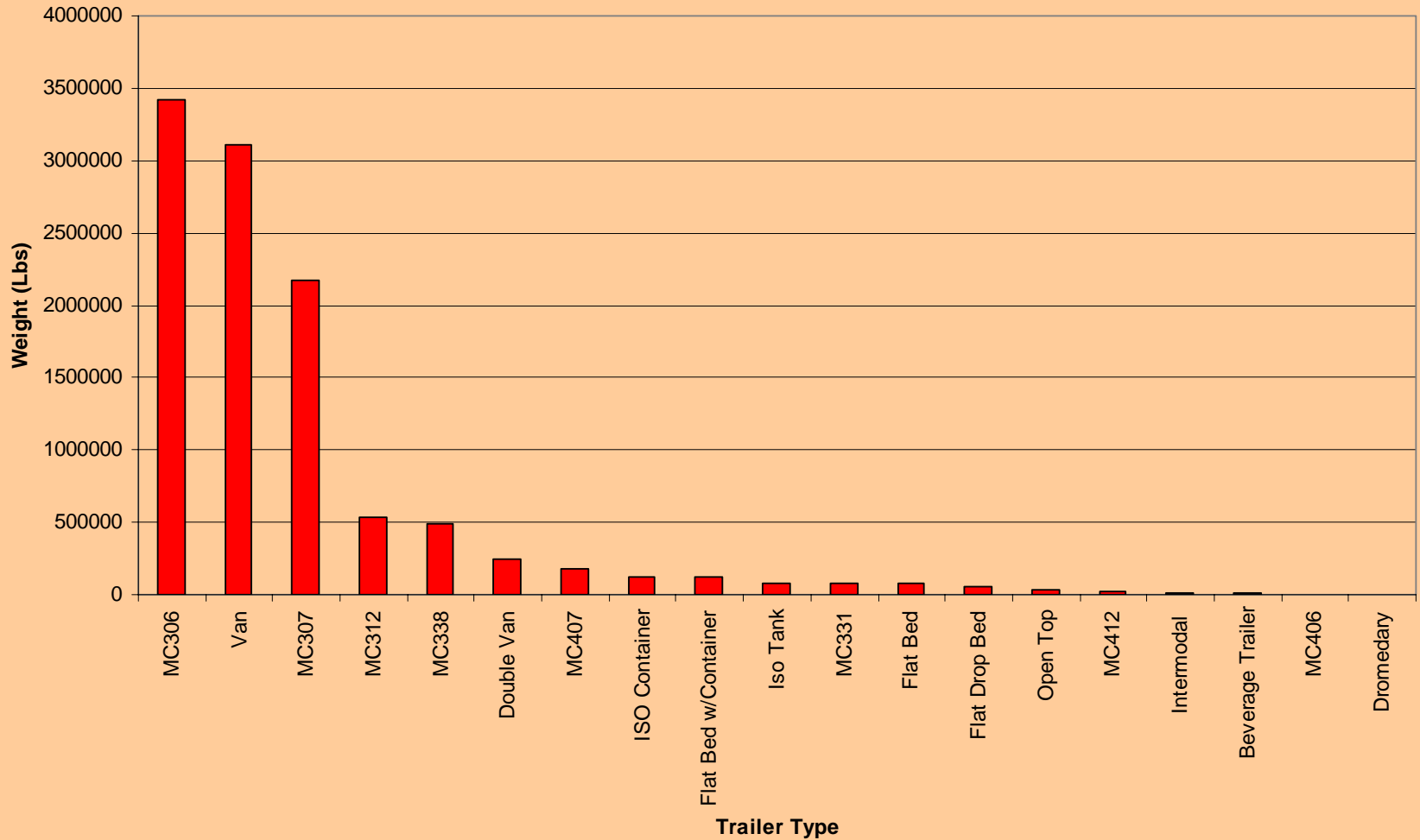
### Chart 4 - Placard ID Count



### Chart 6 - Count of Truck Types



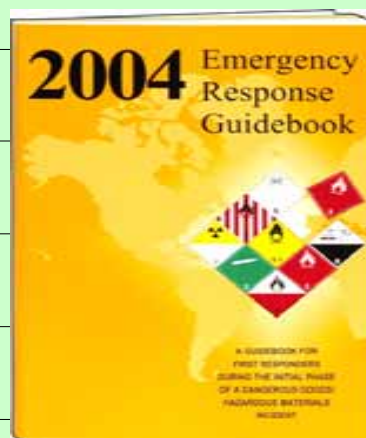
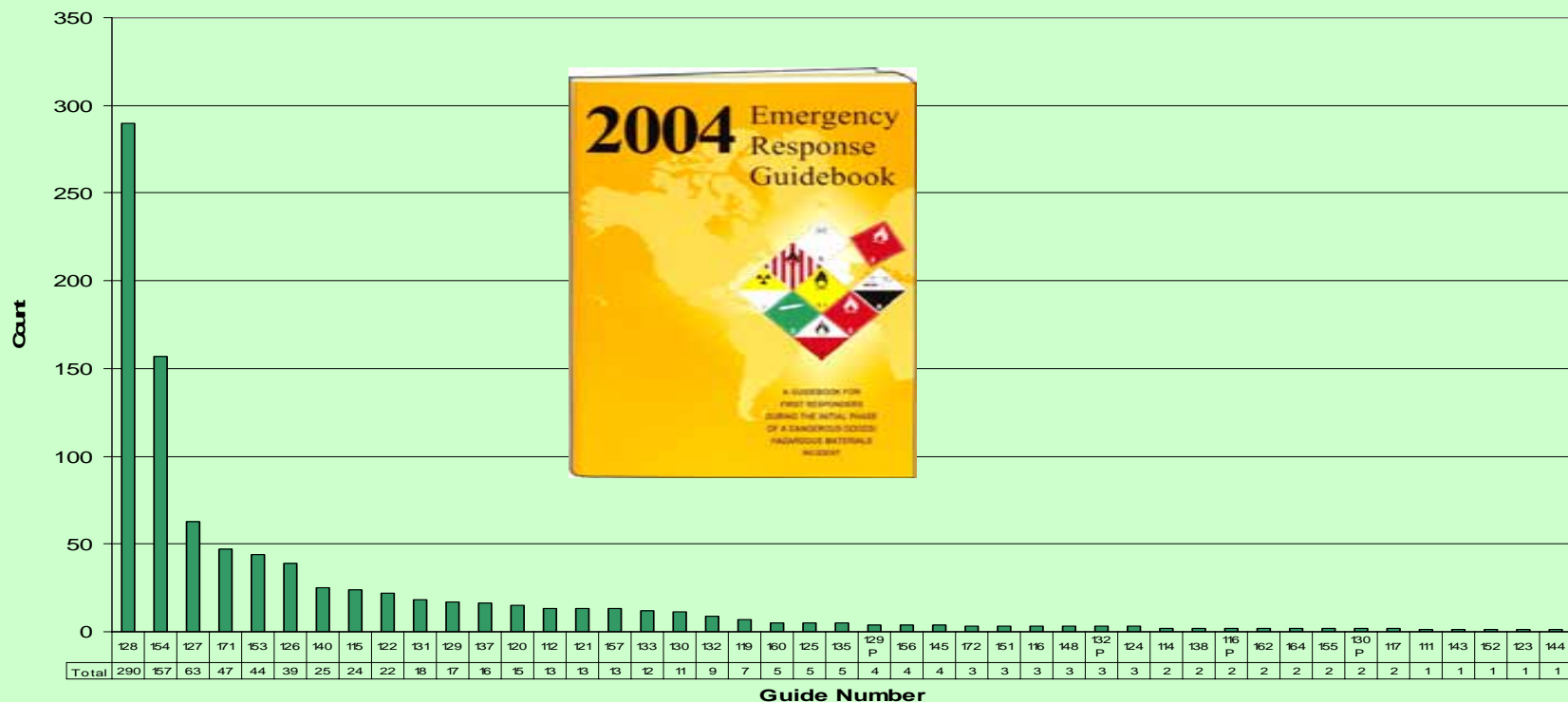
### Chart 7 - Freight Weight by Trailer Type





# Tennessee Commodity Flow Survey

**Chart12 - Emergency Response Guidebook (ERG) Numbers by Count**



# Commodity Flow Survey Data

Time	Trailer Type	Direction	Trailer Placard	Hazard Class	Material ID	Material PSN	ERG Guide Number	Quantity (lbs)
9:00	Van	East	9	Miscellaneous	3082	Environmentally Hazardous Substance	171	
9:10	MC306	West	3	Flammable Liquid	1863	Fuel, aviation, turbine engine	128	63,000
9:15	MC331	West	2.1	Flammable Gas	1075	Propane	115	41,200
9:25	MC306	West	3	Flammable Liquid	1203	Gasoline	128	54,000
9:30	Van	East	9	Miscellaneous	3077	Environmentally Hazardous Substance	171	
9:37	MC331	West	2.1	Flammable Gas	1075	Propane	115	41,200
9:40	MC306	West	3	Flammable Liquid	1863	Fuel, aviation, turbine engine	128	63,000
9:44	MC312	East	8	Corrosive	1791	Hypochlorite solution	154	45,850
9:45	MC306	East	3	Flammable Liquid	1203	Gasoline	128	54,000
9:50	Van	West	3	Flammable Liquid	1263	Paint (flammable)	128	2,300
9:55	Van	East	4.1	Flammable Solid	3175	Solids containing flammable liquid, NOS	133	
10:00	MC306	West	3	Flammable Liquid	1203	Gasoline	128	54,000
10:05	Van	West	8	Corrosive	2817	Ammonium hydrogendifluoride, solution	154	172
10:05	Van	West	6.1	Toxic	2810	Toxic Liquid, NOS	153	520
10:15	Van	West	8	Corrosive	3260	Corrosive, solid, acidic, inorganic, NOS	154	
10:30	MC406	East	3	Flammable Liquid	1203	Gasoline	128	54,000
10:35	Van	West	8	Corrosive	2794	Batteries, wet, filled with acid	154	3,570
10:35	Van	West	3	Flammable Liquid	1993	Flammable liquid, NOS	128	500
10:35	Van	West	9	Miscellaneous	3268	Air bag modules	171	51
10:45	Van	West	3	Flammable Liquid	1993	Flammable liquid, NOS	128	8,000
10:46	Van	West	8	Corrosive	3266	Corrosive liquid, basic, inorganic, NOS	154	



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