



Washington Division



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## Lessons Learned from an Injury During Waste Characterization

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**Waste Isolation Pilot Plant**

# The Waste Isolation Pilot Plant

USA's underground geological repository for safe disposal of defense transuranic and transuranic mixed wastes

## Transportation



> 6750 shipments  
(As of July 1, 2008)

## Disposal

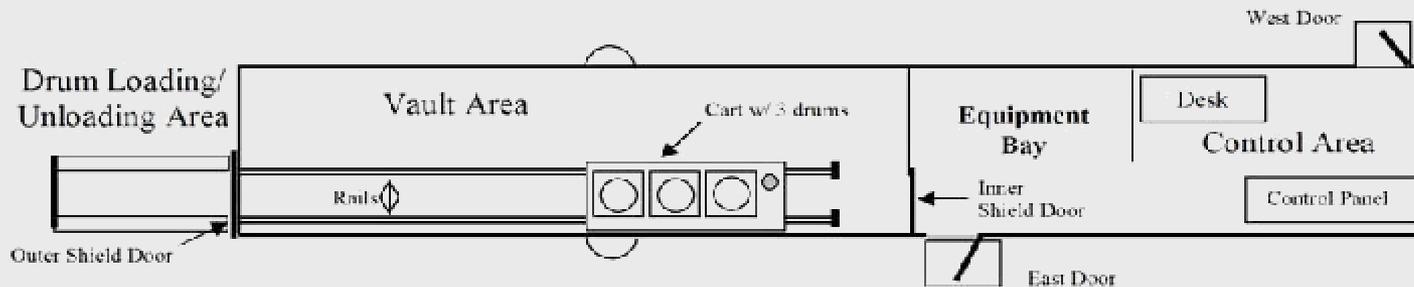


>55,580 m<sup>3</sup> TRU Waste

# The Waste Isolation Pilot Plant

**TRU & TRU Mixed Waste is Characterized  
and Certified for Shipment by WTS'  
Central Characterization Project (CCP) at Host Sites**

# TRU & TRU Mixed Waste Characterization Includes Real Time Radiography



# The Waste Isolation Pilot Plant

- The accident occurred on October 8, 2007 at one of the waste generator host sites
- A WTS subcontractor's left foot was rolled on by the wheel of the RTR drum/turntable cart loaded with three transuranic (TRU) waste drums
- Injuries to the toes on the left foot.
- The wheels were not guarded



# The Waste Isolation Pilot Plant

**WTS Sprang Into Action With Immediate Corrective  
Actions and Investigation**

# ISMS Issues from Investigation

- Define the work – well defined
- Analyze the hazards - was less than adequate
  - No hazards analysis of RTR trailer
  - No one noticed wheels not guarded
  - No identification of hazard associated with entering vault with potential for cart movement
  - Procedures did not address hazards of moving cart
  - Leaders rarely entered RTR trailer
  - Some leaders did not believe they had safety or procedural compliance responsibilities
  - Trainee not protected by qualified operators present at time of event

# ISMS Issues from Investigation

- Develop and Implement Controls
  - Engineering and administrative controls missing (barriers, warning signs, safety training, no safety shoe requirement in RTR area)
  - Comprehensive set of hazard controls was not in the job hazard analysis
- Perform Work Safely – could have been achieved if leaders had followed Conduct of Operations Procedure
- A serious accident always has many less severe incidents occurring prior to the more serious accident (safety triangle)
- Complex interfaces challenge management team and supervisors

# Lessons Learned

- Those people most passionate about safety are those who have sustained an injury and know the affects it has on themselves and their families
- Managers must foster learning from other people's accidents
- Managers should ask, and teach their colleagues to ask, "Would I want my son/daughter/spouse to perform this work in the way that I am performing it?"
- We can predict what might go wrong with practice, knowledge and questioning the operation and function of the equipment/procedures
- We need to help our workers to resist peer pressure for taking short cuts and for becoming distracted?
- Each of us "space out" occasionally, so we need to look after each other
- We need to care enough to go the extra mile to ensure worker safety and our ability to perform the job well.

# Those with authority must:

- Set clear and consistent safe performance expectations
- Be an example for performing work safely
- Follow procedures and enforce following procedures
- Support subordinates' concerns for safety
- Build good working relationships with all players
- Recognize that people will make mistakes
- Recognize that people need breaks
- Recognize that good working relationships take time and effort to develop

# The key lesson is LEADERSHIP

- Those in authority must:
  - Treat all colleagues with respect
  - Help and encourage employees to rise above peer pressure
  - Align themselves with other members of the management team
  - Recognize the team, not the company for whom each player works
  - Recognize that people generally want to do a good job
  - Recognize that you make or break the safety culture by what you reward and by what you punish
  - Share lessons learned from other accidents and similar operations
  - Oversight the operations; be present in the field
  - Degree of your concern for safety determines your outcome

## It's all about People

If the leadership is concerned, clear, safe, aligned, listens, is present, supportive, coaches, solicits input, shares information, encourages questioning, follows conduct of operations, is fair and respectful, the workers will get the job done safely.

That's Integrated Safety Management in Action!