

Lessons Learned – Keeping the Trailers Clean

Nevada National Security Site
Spring 2012 Generator Workshop
Stuart Gerard / Travis Myers

April 25, 2011



The INL 500

- ◆ Getting to work
- ◆ Idaho WCO's



History and Background

- ◆ **Idaho National Laboratory**
 - Established in 1949 as the National Reactor Testing Station
 - Approximately 40 miles west of Idaho Falls in southeastern Idaho
 - 890 mi²
 - Over the years 52 “first-of-a-kind” reactors were constructed
- ◆ **Currently executes two distinct missions**
 - Nuclear and energy research, science, and national defense programs directed by the U.S. DOE Office of Nuclear Energy
 - Cleanup programs directed by U.S. DOE Office of Environmental Management



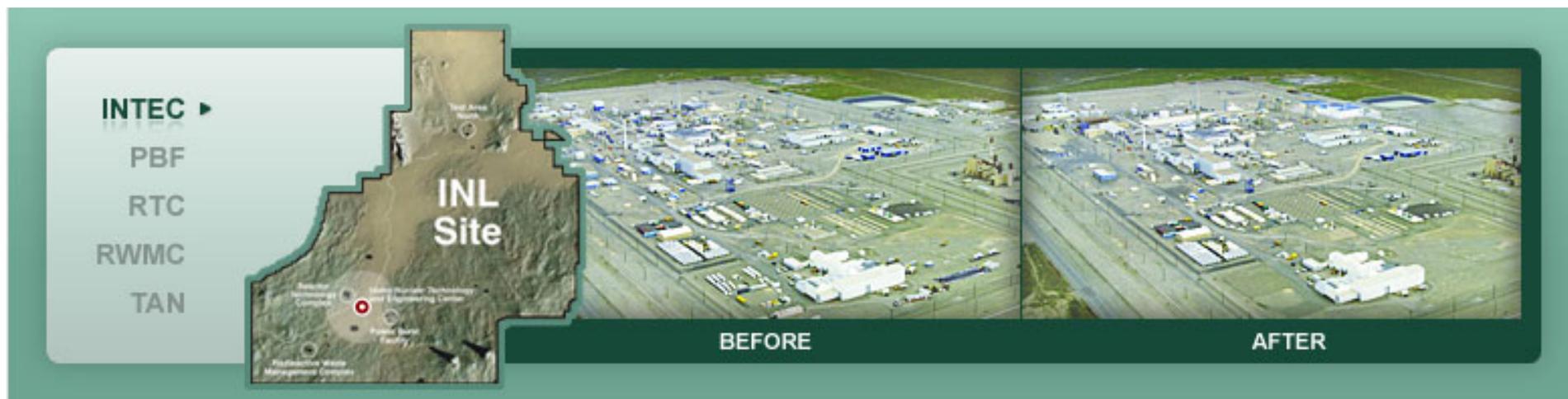
History and Background cont'd

- ◆ **Three major programs operate at the site**
 - INL managed by Battelle Energy Alliance (BEA)
 - Idaho Cleanup Project managed by CH2M*WG Idaho (CWI)
 - Advanced Mixed Waste Treatment Project managed by Idaho Treatment Group (ITG)
- ◆ **Each contractor currently maintains their own Waste Certification Program**
 - Our Waste Cert Program was the first on site developed in the late 1990's in anticipation of the our own disposal site closing



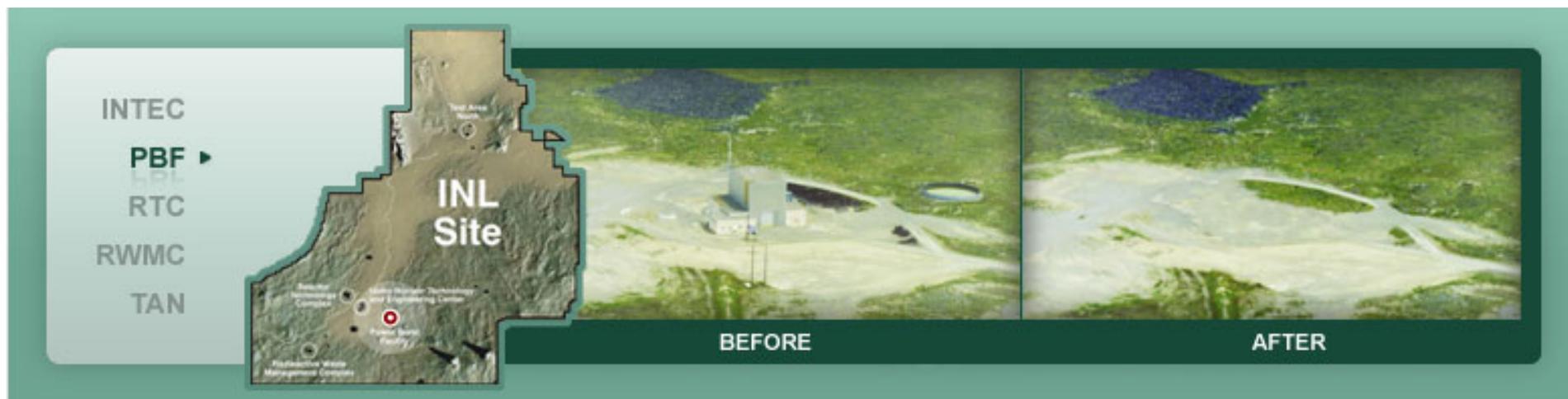
History and Background cont'd

- ◆ Idaho Nuclear Technology Center (INTEC)
 - Established in the 1950s to recover usable uranium in spent nuclear fuel from government reactors and to store spent fuel



History and Background cont'd

- ◆ Power Burst Facility (PBF)
 - Used to conduct experiments at the facility to help determine safe operating limits for the commercial nuclear industry



History and Background cont'd

- ◆ Reactor Technology Complex (RTC)
 - Served as the focal point in delivering the laboratory's energy research mission, housing three major test reactors that have operated at the facility: the Materials Test Reactor, the Engineering Test Reactor, and the Advanced Test Reactor



History and Background cont'd

- ◆ Hot Cell shipped to ICDF
- ◆ Hot cell weighing more than one million pounds transported on a Goldhofer trailer with 225 tires to the Idaho CERCLA Disposal Facility



History and Background cont'd

- ◆ Radioactive Waste Management Complex (RWMC)
 - Used since the 1950s to manage, store, and dispose of waste contaminated with radioactive elements generated in national defense and energy programs



History and Background cont'd

- ◆ Test Area North (TAN)
 - Supported numerous research efforts to advance the country's nuclear industry, from the development of nuclear powered jet engines to operation of reactors that simulated the loss of coolant



Contaminated Trailer Incident 2006

- ◆ Macroencapsulated MLLW treated at Perma-Fix Northwest (formerly PEcoS) – Waste Certification is accomplished under our (CWI) program
- ◆ Incoming receipt and inspection conducted by PEcoS Rad Con and Packaging and Transportation personnel on the transport trailer
- ◆ Due to inclement weather a full 100% radiological survey was not completed
- ◆ A spot survey of 10% was done on trailer prior to loading
- ◆ 100% container six-sided survey completed – no detectable contamination
- ◆ Shipment was released

Contaminated Trailer Incident 2006

- ◆ Contamination identified by NTS on one container skid and corresponding location on the transport trailer
- ◆ Root/Contributing Causes included:
 - Survey did not catch existing contamination
 - Multi-agency requirements (DOT/DOE)
 - RAD survey compliant but less-than-adequate
 - Wet conditions
 - Possible contaminated container storage

Contaminated Trailer Incident 2006

◆ Corrective Actions to Preclude Recurrence

- Use of dedicated trailers
- Return of PFNW treated MLLW to INL will be reviewed on a case-by-case basis prior to shipment to NTS
- CWI will survey the dedicated trailer at the rate of 100% for alpha, beta, and gamma radiation prior to any loading activities
- PFNW will survey the empty dedicated trailer at 100% for alpha, beta, and gamma radiation prior to any loading activity
 - This will be done to DOE criteria noted in 10 CFR 835, Appendix D. This will be done for each evolution and will not be affected by prevailing weather conditions

Lessons Learned – Since 2006

- ◆ No contamination issues since
- ◆ Several years ago the use of the dedicated trailer was relaxed (RWAP Approval)
- ◆ What have we done since then?
- ◆ Recent contamination events and NNSS WCO conference call warrant a refocus and evaluation
- ◆ Management support, RadCon support
- ◆ Travis Myers (Packaging & Transportation Manager for CWI)

April 2011 Close Call

- ◆ NNSSS notified ICP about a trailer that was releasable- but...
 - A single fixed spot was detected that was 13,000 dpm / 100 cm² beta gamma

 - 10 CFR 835, Appendix D, Note 3 (5000 x 3= 15,000)

³The levels may be averaged over one square meter provided the maximum surface activity in any area of 100 cm² is less than three times the value specified. For purposes of averaging, any square meter of surface shall be considered to be above the surface contamination value if: (1) From measurements of a representative number of sections it is determined that the average contamination level exceeds the applicable value; or (2) it is determined that the sum of the activity of all isolated spots or particles in any 100 cm² area exceeds three times the applicable value.

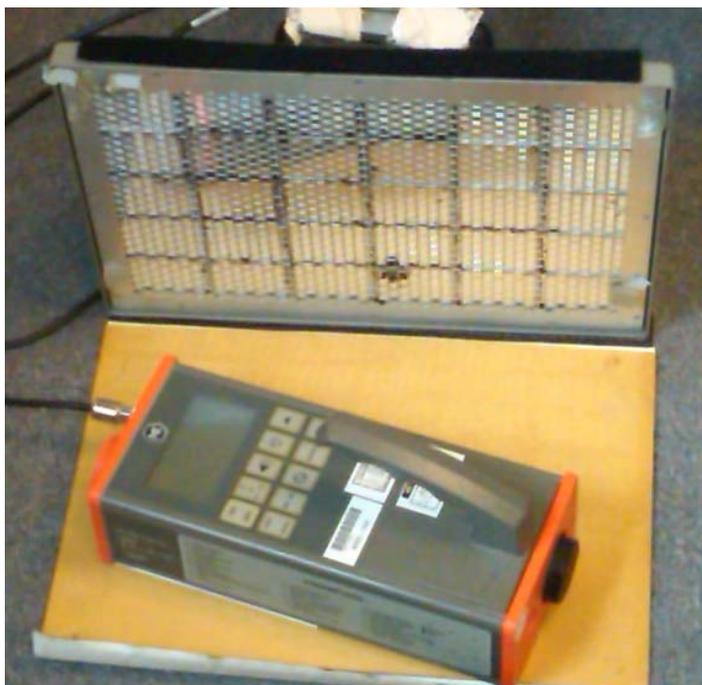
April 2011 Close Call cont'd

- ◆ To close for comfort!

- ◆ An Issue Communication and Resolution Environment (ICARE) was created (#105738)
 - Assigned an action to WM RadCon Manager (#58525)
 - Evaluate the viability of using Large Area Detectors (LADs) to supplement required surveys

Large Area Detectors

A program for LADs to supplement required surveys was implemented...

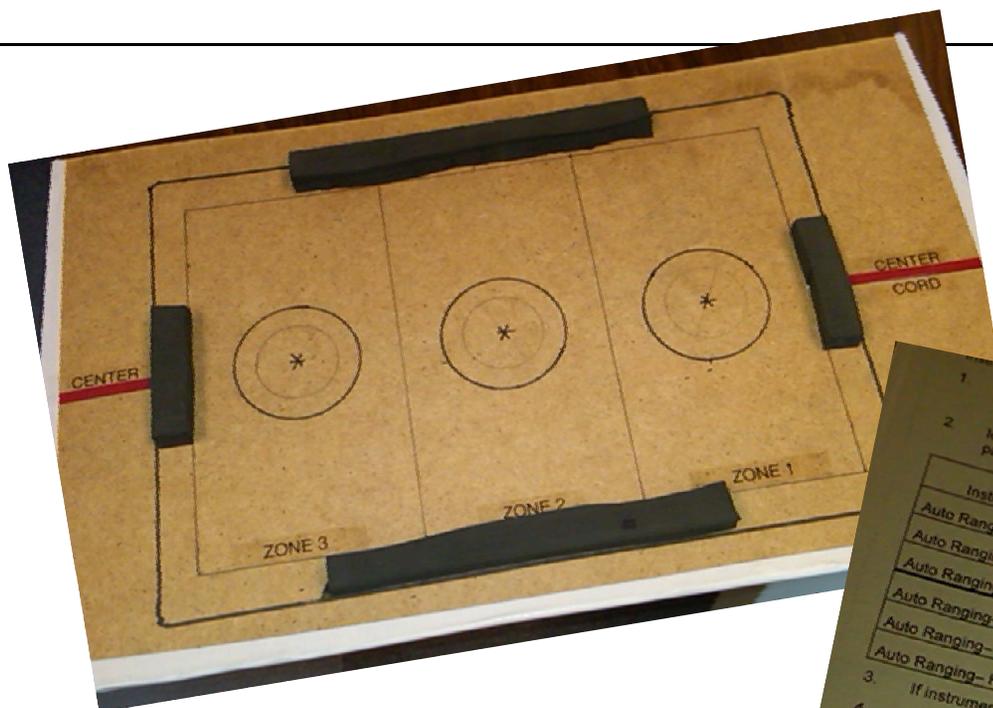


Large Area Detectors cont'd

- ◆ RadCon Technicians (RCTs) trained to use Electra / LADs
- ◆ RCTs reviewed lessons learned for contaminated trailers and past corrective actions
- ◆ Packaging & Transportation (P&T) and operations support staging of trailers in low background areas

Large Area Detectors cont'd

Source Checks for LAD



Instrument Type: Electra with LAD Serial No: 851327 Calibration Due Date: 05-08-2012

1. The Electra PLUS with GP17B probe and the Delta 5 with FL43B probe must be allowed to integrate for 1 minute to get an average background. Then use the background subtraction feature prior to exposing the Sr-90 source(s).

2. Identify the specified source and position listed below and determine if the instrument responds within the specified parameters for the scale being tested.

Instrument Scale	Reference Value	Value for ± 20% Instrument Reading	Source ID # and Position
Auto Ranging- Low Activity	1773 cpm	1418 - 2128 cpm	981075 - Position 1
Auto Ranging- Low Activity	2080 cpm	1664 - 2496 cpm	981075 - Position 2
Auto Ranging- High Activity	1872 cpm	1498 - 2246 cpm	981075 - Position 3
Auto Ranging- High Activity	22,500 cpm	18,000 - 27,000 cpm	981210 - Position 1
Auto Ranging- High Activity	25,500 cpm	20,400 - 30,600 cpm	981210 - Position 2
Auto Ranging- High Activity	24,600 cpm	19,680 - 29,520 cpm	981210 - Position 3

3. If instrument passes the response check, place a check mark in the "PASS" column. **note the reason for the instrument failure** in the comments, complete and attach a malfunction tag to the instrument, and place the instrument in the holding box for return to the HPIL.

DATE	RCT SIGNATURE	PASS	FAIL	COMMENTS
11-14-11				
11-22-11	A Wiebe	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
12/3/11	R Christensen	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
12/10/11	M Thompson	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
1/11/12	Tom [unclear]	<input checked="" type="checkbox"/>	<input type="checkbox"/>	set response values

Check low and high responses

Continuously Improving- Avoid C Issues

- ◆ October 2011 Conference Call to all WCOs

- ◆ ICP Site Meeting- Review Barriers
 - Directors and Managers participated with the WCO

 - Additional improvements were developed and actions assigned

Clarify Checklist and Procedure

- ◆ What does 100% survey mean?
- ◆ To meet NNSW WAC and 10 CFR 835, Appendix D...
 - smears, wipes, scans... Surveys are statistical samples!
 - Clarify Scan Requirements for Trailers

NNSW Shipment # [REDACTED]			Waste Package & Transport Criteria	
Yes	No	N/A		
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.	Prior to loading, the trailer used to transport this waste has been surveyed for alpha, beta, and gamma radiation - including 100% direct scans on load bearing surfaces; and surveys are documented on a survey map. (RPT-181)

Dedicated Trailers

- ◆ Adding grid lines on deck...



Dedicated Trailers cont'd



Tarping System-

Weather

Clean and dry

Control

Dedicated Trailers cont'd



Questions?

Experimental
Test Reactor
(ETR)
to
Idaho
CERCLA
Disposal
Facility
(ICDF)

