



## **Full Board Meeting May 6, 2009**

### **In this folder you will find:**

- 1) 07-08-09 Draft Agenda (gray)
- 2) 03-11-09 Full Board Meeting Minutes – for your files (buff)
- 3) Attendance/Response Spreadsheets (white)
- 4) CAB Roadshow (yellow)
- 5) Presentation –Transportation Study (white)
- 6) DOE's Response Letter – Budget Prioritization FY2011 (gray)
- 7) CAB's Recommendation Letter – Environmental Management Website (blue)
- 8) DOE's Response Letter – CAB Website (blue)
- 9) EM SSAB Chairs Meeting Handouts (gold)
- 10) EM SSAB Chairs Metals Recycling Recommendation Letter (lavender)
- 11) Resignation letters – William Lindsey, Stacy Standley (aqua)
- 12) EM's Monthly Report to the CAB – April & May 2009 (orange)
- 13) FFAO - Public Notifications of Corrective Actions – April & May 2009 (pink)



## AGENDA

### CAB FULL BOARD MEETING

Ruud Community Center  
150 North Highway 160, Pahrump, NV 89060

**May 6, 2009 - 6:00 p.m.**

1. **Open Meeting / Agenda Review** **Denise Rupp**, Facilitator
2. **Chair's Opening Remarks:** **Dave Hermann**, Board Chair
  - Agenda Approval
3. **CAB Roadshow Presentation** **Hal Sullivan**, Outreach Committee Chair
4. **Public Comment** **Denise Rupp**, Facilitator
5. **Presentation:** **Dr. Ruth Weiner**, Sandia National Laboratory
  - **Transportation Study**
6. **Committee Updates:** **Jackson Ramsey**, Committee Chair
  - **Budget Committee** **Walt Wegst**, Committee Chair
    - DOE Response re FY2011 Budget Prioritization
  - **Environmental Management Public Information Review Effort (EMPIRE)** **Hal Sullivan**, Committee Chair
    - Committee's Recommendation Letter re EM website for Board Approval
    - DOE Response re CAB website
  - **Outreach** **Ted Oom**, Committee Chair
    - Next meeting date TBD
  - **Transportation / Waste** **Bob Gatliff**, Committee Chair
    - Next meeting date TBD
  - **Underground Test Area (UGTA)** **Kelly Snyder**, DOE DDFO
    - Next meeting scheduled June 10, 2009
7. **DOE Update:** **Walt Wegst**, Board Vice-Chair
  - Environmental Management (EM) Monthly Report (April and May 2009)
8. **Other CAB Business:** **Dave Hermann**, Chair
  - EM Site Specific Advisory Board Chairs Meeting Recap Savannah River Site – March 16-17, 2009 **Dave Hermann**, Chair
  - EM SSAB Metal Recycling Recommendation Letter **Dave Hermann**, Chair
  - July 2009 Full Board Meeting **Dave Hermann**, Chair
    - 5:00 p.m. July 8, 2009, Atomic Testing Museum, Las Vegas, NV
  - Resignations - William Lindsey, Stacy Standley **Jackson Ramsey**, Committee Chair
  - Reconvene Membership Committee
8. **April and May State of Nevada Notifications** **Kelly Snyder**, DOE DDFO
9. **Meeting Wrap-Up / Assessment** **Denise Rupp**, Facilitator



## Full Board Meeting Minutes

March 11, 2009

Atomic Testing Museum, Frank Rogers Auditorium  
755 E. Flamingo Road, Las Vegas, Nevada 89119

Members Present:	Dave Hermann (Chair), Walt Wegst (Vice-Chair), Kathy Bienenstein, Bob Gatliff, Robert Johnson, John McGrail, Vernell McNeal, Ted Oom, Jackson Ramsey, Ted Schweitzer (call-in), Herb Spiegel, Hal Sullivan
Members Absent:	Bill Lindsey, Stacy Standley, Jim Weeks
Liaisons Present:	Bob Gamble, Nye County; Genne Nelson, NPS; Tim Murphy, NDEP
Technical Support Staff Present:	Dr. Helen Neill, CAB Technical Advisor, UNLV
U.S. Dept. of Energy (DOE):	Kelly Snyder, DDFO Linda Cohn, NNSA/NV
Facilitator:	Denise Rupp, Navarro Research & Engineering, Inc.
Public Present:	Dr. Colleen Beck (Desert Research Institute), Richard Arnold (Chairman, Pahrump Paiute Tribe), Phil Klevorick (Clark County), Christy, Madison and McKenna Zalesny (Las Vegas)

### Approval of Agenda

Dave Hermann asked that an additional bullet be added to Item #7 – Executive Committee Update. Kathy Bienenstein moved to approve the minutes with this addition. Motion was seconded and passed unanimously.

### Public Comment

No public comment.

### Presentation: Cultural Resources at the NTS, Linda Cohn

- National Nuclear Security Administration (NNSA) Nevada Site Office (NSO) American Indian Consultation Program
- American Indian Program Drivers
- American Indians at the Nevada Test Site
  - Ceremonial and residential sites
  - Rock shelters
  - Raw material sources
  - Rock features
  - Rock art and artifacts
- Traditional Cultural Properties
- Site Monitoring
- Major Program Accomplishments
- The Future of the NTS American Indian Consultation Program

In response to questions from the Board, Ms. Cohn addressed the following items:

- There are more than 2,000 areas at the NSO that have been reviewed. Those of American Indian and/or historic value total approximately 1,300. However, not all sites have been surveyed.
- Prior to any new work activities, all locations at the NTS require a cultural resource survey. A report is prepared and contact is made with the State of Nevada.
- Any artifact removal requires American Indian review.

### **Committee Updates:**

#### **Budget Committee, Jackson Ramsey, Chair**

A budget committee meeting was held February 25 with updates from each of the EM Federal Sub-Project Directors. Recommendations were formulated to prioritize Underground Test Area (UGTA), Low-Level and Mixed Low-Level Waste, Industrial Sites and Soils sub-projects. After reading of the CAB's recommendation letter to the DOE, Hal Sullivan moved the letter be approved. Motion was seconded by Jackson Ramsey and approved unanimously.

#### **Environmental Management Public Information Review Effort (EMPIRE) Committee, Walt Wegst, Chair**

The committee completed their review of the Environmental Management (EM) web site at their March 10 meeting. A recommendation letter will be presented to the Full Board at the May 6, 2009 meeting. This will complete the EMPIRE Committee's work and it will be removed from active status and formally merge with the Outreach Committee upon approval of the recommendation letter.

#### **Outreach Committee, Hal Sullivan, Chair**

The Committee is working on experiments/models and possible lesson plans for use in conjunction with *Operation Clean Desert*. The next meeting will address selection of experiment/model and discussion of possible CAB and/or EM internet interface for questions and answers. Mr. Sullivan also expressed appreciation for the Public Involvement inclusion in the EM Monthly Report to the CAB.

#### **Transportation/Waste Committee, Ted Oom, Chair**

The April 15, 2009 Committee Meeting will be cancelled. A meeting will be scheduled after the Transportation Study Update to be given by Dr. Ruth Weiner at the May 6, 2009 Full Board Meeting in Pahrump.

#### **Underground Test Area (UGTA) Committee, Bob Gatliff, Chair**

- **CAB Well**
  - The UGTA Committee will receive a briefing from a member of the drilling team regarding the drilling log/process for the CAB well project to begin in May
  - Bill Wilborn, Sub-Project Director, has been asked to include more drilling information in the EM's Monthly Report to the CAB to more easily follow the project's progress
  - A tour of the well site is being organized for some time in May or June, all CAB members will be advised once it is scheduled
  - A USGS-type map has been requested of the Pahute Mesa area to include the CAB-recommended wells, actual program wells and monitoring wells
  - The UGTA Committee's goal for the remainder of the FY will be to monitor the progress of the CAB well

- **Groundwater Open House**

- The Groundwater Open House in Beatty on February 18 was well received; some citizens expressed a preference for a more formal presentation
- Jim Weeks and Genne Nelson manned the CAB poster and spoke to a number of the 40 members of the public in attendance
- Also in attendance were representatives of the Pahrump Valley Times and Pahrump Mirror as well as a number of representatives from Nye County

**DOE Update, Kelly Snyder**

- Ms. Snyder encouraged CAB members to read the February and March 2009 EM Monthly Updates and advise if there were any questions.
- The President signed legislation today (March 13) and EM will be funded for FY 2009.
- A letter was sent from the DOE to the CAB regarding funding under the American Recovery and Reinvestment Act of 2009. The referenced \$6 billion dollars is for EM across the country. DOE is in the process of finalizing where the money will be distributed. Nevada proposed work scope for the funds includes characterizing contaminated soil and close seven historic above ground nuclear testing locations, installing two groundwater wells to improve characterization data, and demolishing three major facilities and two ancillary structures. Information regarding the stimulus funds will be communicated to the CAB via email.
- There have been problems receiving emails by Ms. Snyder and the NTSCAB email address. Ms. Snyder is working with EM's Information Services to resolve these issues. Both Ms. Snyder and Denise Rupp make every attempt to respond to emails within two business days. If no response is received within two days there is a strong possibility the email was not received. The CAB was asked to call either Ms. Snyder or Ms. Rupp if they discover this problem.

**Other CAB Business**

- EM Site Specific Advisory Board (SSAB) Chairs Meeting is scheduled for March 17 – 19, 2009 in Augusta, Georgia, hosted by the Savannah River CAB. Neither Mr. Hermann nor Bill Lindsey will be able to attend. Vernell McNeal volunteered to attend, schedule permitting.
- Executive Committee Update
  - CAB member response to emails regarding meeting attendance and document approvals is quite low. Mr. Hermann stressed the importance of a timely response
  - Work Plans outline each committee's goals. To monitor progress and assist with keeping committee's focused on these goals; a copy of each committee's Work Plan will be included with the committee meeting agenda
  - Committee recommendation letters will be emailed to all CAB members prior to the Full Board meeting. In the event this is not possible, the letter will be read during the Full Board meeting Committee Update prior to voting on approval
  - The EM SSAB is in the process of revising their Standard Operating Procedures (SOP) and Ms. Rupp is reviewing the CAB's SOP to identify any errors or discrepancies; upon completion of this process, the Executive Committee will review any changes and they will be presented to the Full Board for approval
- The next Full Board meeting will take place at 6:00 p.m. Wednesday, May 6, 2009 at the Rudd Community Center in Pahrump, Nevada
  - Ted Oom will contact the Pahrump Valley Times and the Pahrump Mirror regarding publicizing the meeting
  - Bob Gamble will distribute information regarding the meeting to Nye County and town governments
  - Ms. Snyder will provide Mr. Oom and Mr. Gamble with press release information
  - A map will be included with the meeting reminder
  - Due to the logistics of out-of-town meetings, refreshments will not be available
- The CAB office will be closed the week of March 16 due to staff attendance at the EM SSAB Chairs meeting

**February and March State of Nevada Notifications, Kelly Snyder**

Ms. Snyder reviewed the February and March notifications (copies contained in agenda packet). Ms. Snyder advised the CAB the Corrective Action Unit documents outlined in the notifications are in the purview of the CAB and comments are welcome. Copies of the documents can be requested from Ms. Rupp.

With all CAB business concluded, the meeting was adjourned by the Chair.

**Meeting adjourned at 7:00 p.m.**

## CAB MEETING ATTENDANCE

### Bi-Monthly Full Board Meetings

January 2009 through December 2009

Name	1/28/09	3/11/09	5/6/09	7/8/09	9/9/09	11/14/09	Maximum Terms Limit
Kathleen Bienenstein	E	➤➤					May 21, 2014
Bob Gatliff	➤➤	➤➤					August 10, 2010
David Hermann	➤➤	➤➤					August 10, 2010
Robert Johnson	➤➤	➤➤					June 1, 2012
Bill Lindsey	➤➤	E	RS	RS	RS	RS	Resigned 4-09
John McGrail	➤➤	➤➤					May 21, 2014
Vernell McNeal	➤➤	➤➤					June 1, 2012
Ted Oom	➤➤	➤➤					June 1, 2012
Jack Ramsey	➤➤	➤➤					August 10, 2010
Ron Salzano	RM	RM	RM	RM	RM	RM	Removed
Ted Schweitzer	➤➤	➤➤ (via phone)					May 21, 2014
Herb Spiegel	➤➤	➤➤					May 21, 2014
Stacy Standley	➤➤	E	RS	RS	RS	RS	Resigned 4-09
Hal Sullivan	➤➤	➤➤					June 1, 2012
Jim Weeks	E	E					June 1, 2012
Walt Wegst	➤➤	➤➤					June 1, 2012
<b>Key:</b>							
√ = Present							
Blue Cell = Absent → E = Excused U = Unexcused							
N/A = Attendance Requirements Not Applicable - New Recruit							
RM = Removed							
RS = Resigned							

**CAB MEMBER RESPONSE  
TO MEETING/REVIEW REQUESTS  
April 2009 through December 2009**

<b>REQUEST</b>	<b>NON-RESPONDING MEMBERS</b>					
<b>MARCH</b>						
17 UGTA Committee Minutes						
10 Outreach/EMPIRE Meeting Attendance						
30 Outreach/EMPIRE Minutes						
30 Executive Committee Minutes						
<b>APRIL</b>						
7 Full Board Minutes						
1 UGTA Committee Attendance						
9 UGTA Committee Date Change						
15 Outreach/EMPIRE recommendation letter						

*Not Applicable*

*Not Applicable*

*Everyone responded to all of the requests since the last meeting - thank you so much!*



**The Community Advisory Board (CAB)  
for  
Nevada Test Site  
Environmental Management Programs**





## What is the CAB?

- Group of 15-20 volunteer members from Southern Nevada
- Federally chartered to provide recommendations on environmental management activities at the Nevada Test Site (NTS)
- Represent Nevada stakeholders with a broad array of perspectives



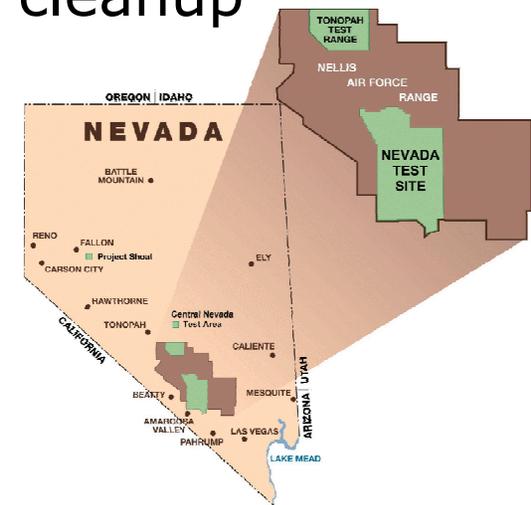
## Background

- CAB formed in 1994:  
Currently 1 of 8 boards  
that make up the Site  
Specific Advisory Board



### • Why the NTS?

- Historical nuclear testing activities
- Waste management
- Site cleanup





# Historical Nuclear Testing Site



828 subsurface detonations occurred between 1951-1992 at the Nevada Test Site



## **CAB Mission Statement**

The CAB will review Nevada Test Site environmental management plans and provide citizen recommendations and advice for environmental restoration and waste management in all the areas of responsibility covered by the U.S. Department of Energy Nevada Site Office Environmental Management program within the state of Nevada.



## How does the CAB work?

- Studies / discusses Environmental Management issues
- Meets with NTS representatives and state regulators; identifies issues for review, discussion and feedback
- Develops work plans
- Organizes technical committees
- Provides feedback on the Environmental Management program





# Environmental Management Activities Within the CAB's Purview

- Underground Test Area (UGTA)
- Soils
- Industrial Sites
- Waste Management



# **What is the CAB's Current Focus?**





# UGTA Committee: Groundwater



- DOE asked the CAB to provide recommendation on the location of a groundwater well
- The CAB recommended three well locations
- DOE to drill one CAB well in May 2009



# Transportation / Waste Management Committee

- Low-level radioactive waste disposal
- Waste transportation
- Transuranic waste
- Emergency preparedness and response





## Outreach Committee

- Review EM public involvement activities
- Provide recommendation on how to enhance *Operation Clean Desert*
- Review EM outreach publications (i.e., fact sheets, videos, etc.)



## Other ways the CAB gets involved...



### **National Site-Specific Advisory Board Workshops**





## To learn more. . . . .

- Attend bi-monthly public meetings
- Participate in committee meetings
- Visit our website: [www.ntscab.com](http://www.ntscab.com)
- Sign up for the CAB News electronic distribution list
- Apply for membership – members are recruited on an as-needed basis through public advertising



## Who can I contact for more information?

- **CAB Office**  
Denise Rupp, Administrator  
232 Energy Way, M/S 505  
North Las Vegas, NV 89030  
(702) 657-9088 / Email: [ntscab@nv.doe.gov](mailto:ntscab@nv.doe.gov)



**[www.ntscab.com](http://www.ntscab.com)**



# **Risks Of Transportation Along Various Routes To The Nevada Test Site**

**SAND2009-2028 P**

**Ruth F. Weiner**

**May 6, 2009  
Las Vegas, NV**



Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company,  
for the United States Department of Energy's National Nuclear Security Administration  
under contract DE-AC04-94AL85000.





## Some Definitions

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- **Units of source strength**

Becquerel (Bq): one disintegration/sec

Curie (Ci):  $3.7 \times 10^{10}$  disintegrations /sec

- **Units of absorbed energy**

Gray (Gy): 1 joule/kg or absorber

Rad: 1 erg/gram of absorber

- **Units of dose**

Rem: the amount of biological damage done  
by 1 rad of gamma or x-ray

Sievert (Sv): 100 rem



## Some Data for Context

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- Average annual Nevada background : 400 mrem (4 mSv)
- Average annual U.S. cosmic ray dose: 27 mrem (0.27 mSv)
- Dental x-ray dose per exam: 9 mrem (0.09 mSv)
- Whole body CT scan: 111 mrem (1.11 mSv)
- Annual lung dose to a pack-a-day smoker: 16000 mrem (160 mSv)
- Smallest dose at which effect in a humans is documented: 600 mrem (6 mSv)
- LCF risk/rem = 0.0006

Shleien, Slaback, Birky. 1996. *Handbook of Health Physics and Radiological Health*



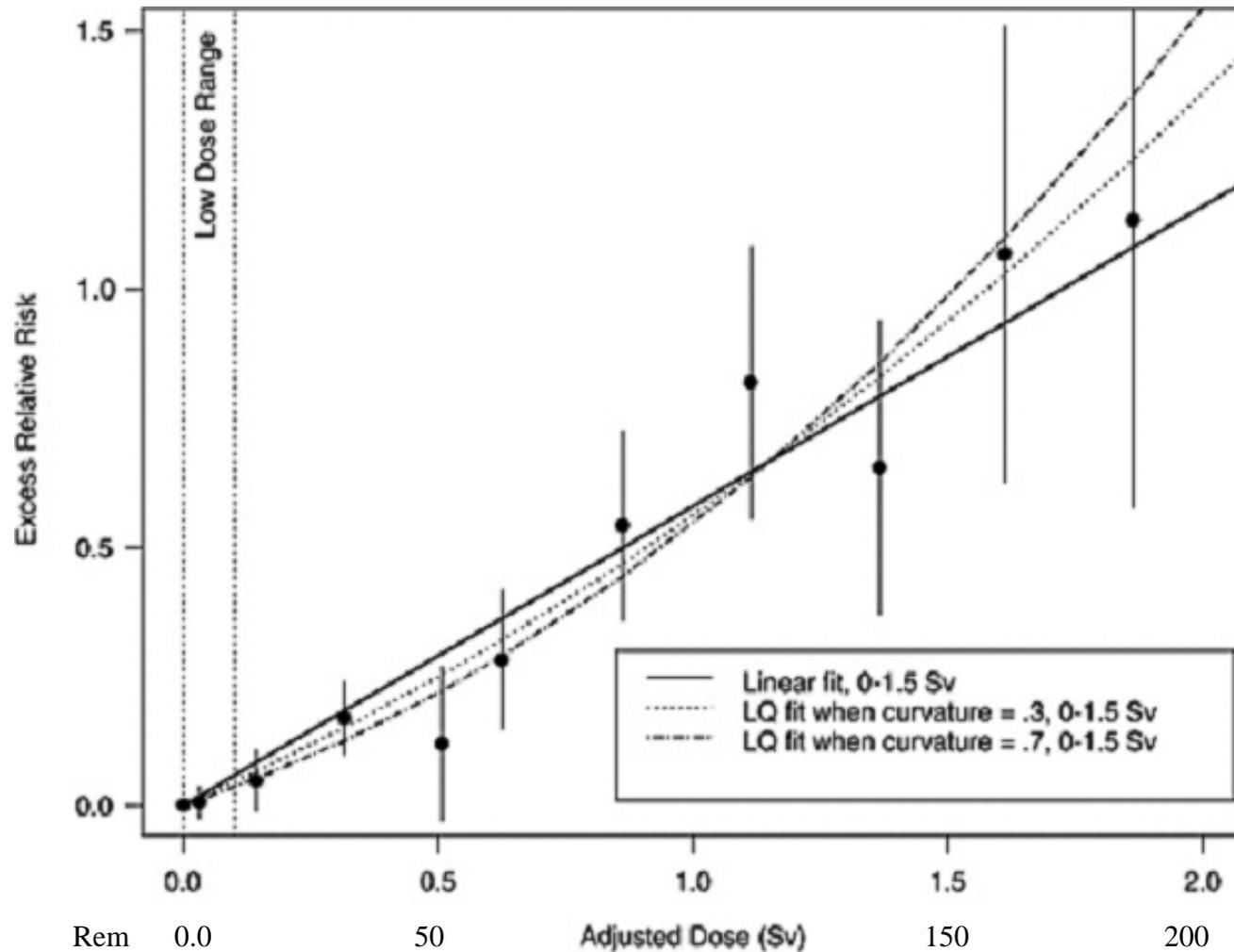
and Sun. 2009. "Po-210 in Cigarettes" *Health Physics News*

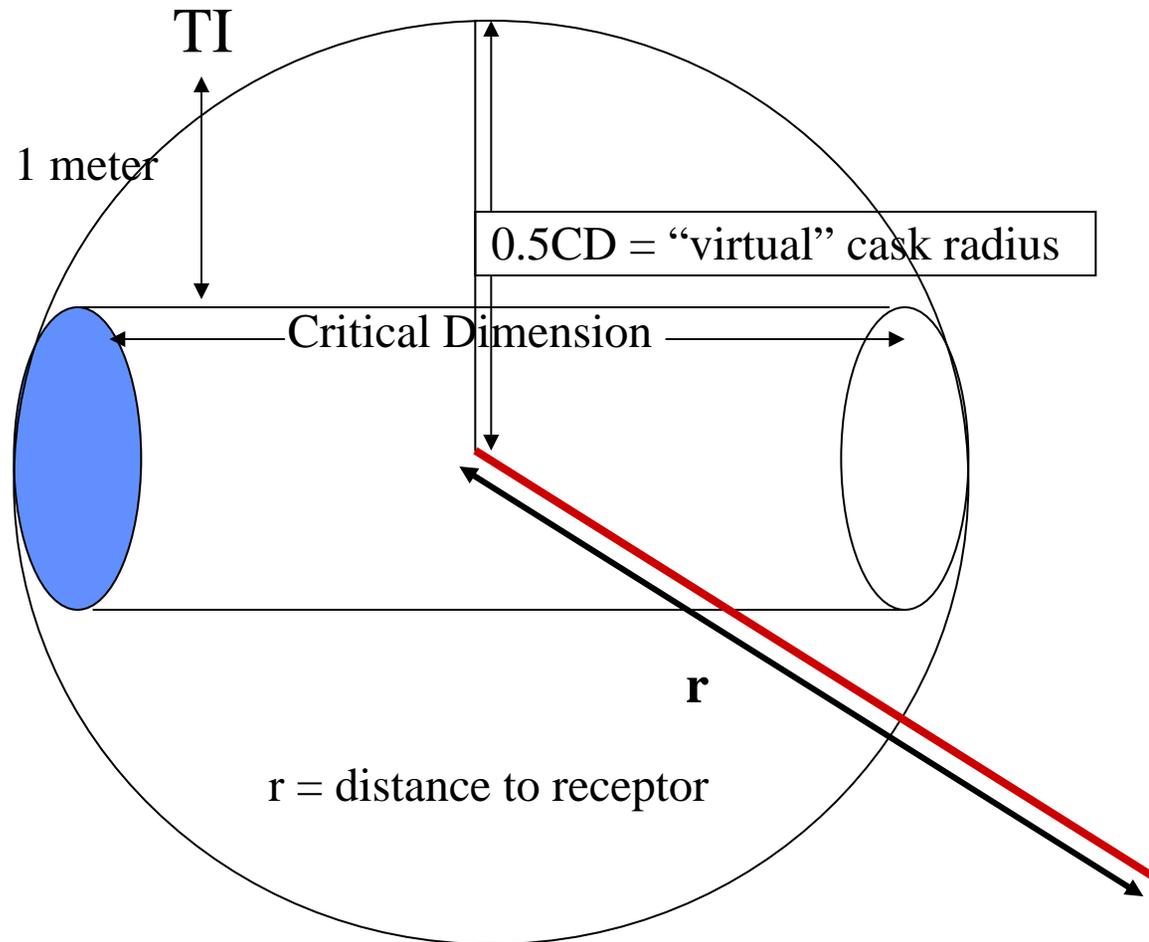




# Comparison of Linear and Linear-Quadratic Extrapolations With Observations

BEIR VII, Figure 10-2

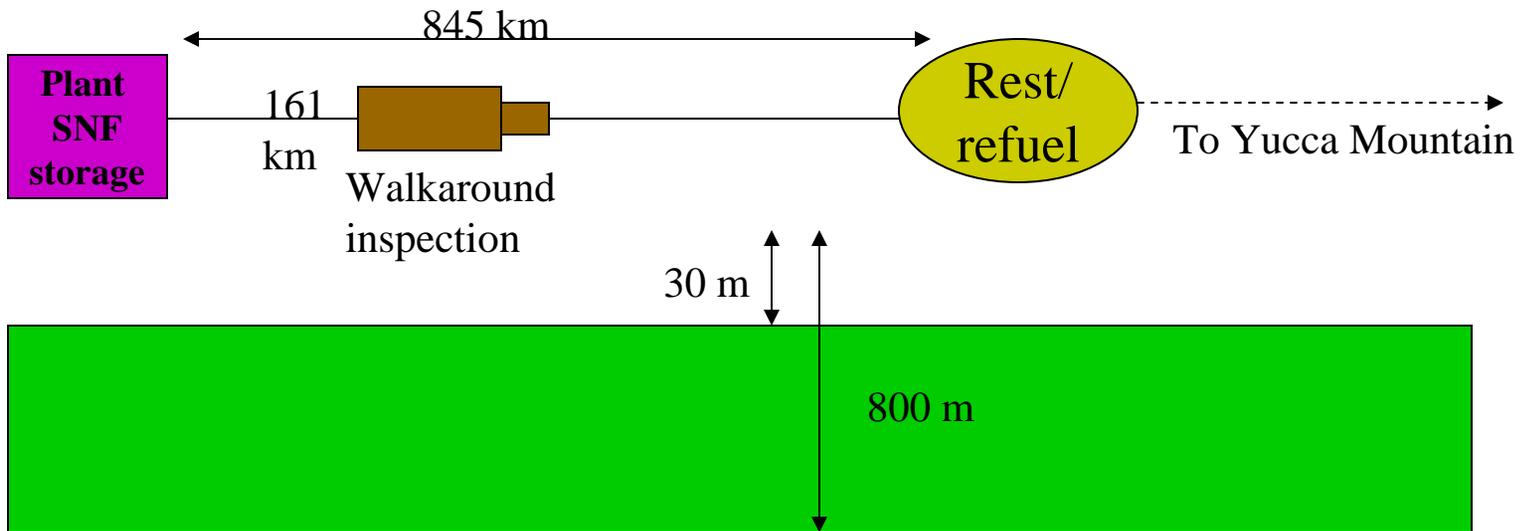






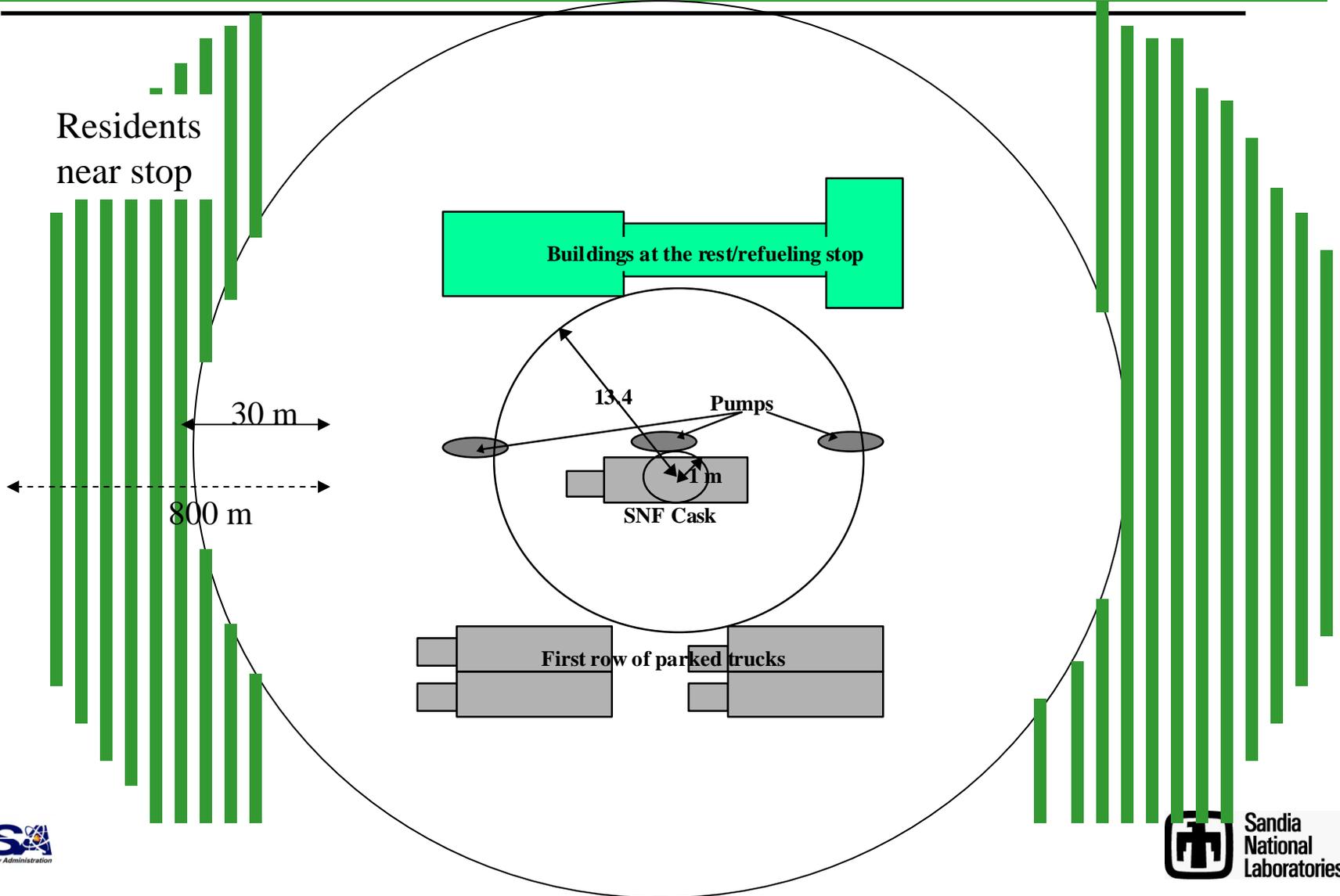
# Truck Routes and Stops

Residents near route and stops





# Incident-Free Transportation : Legal-weight truck stops





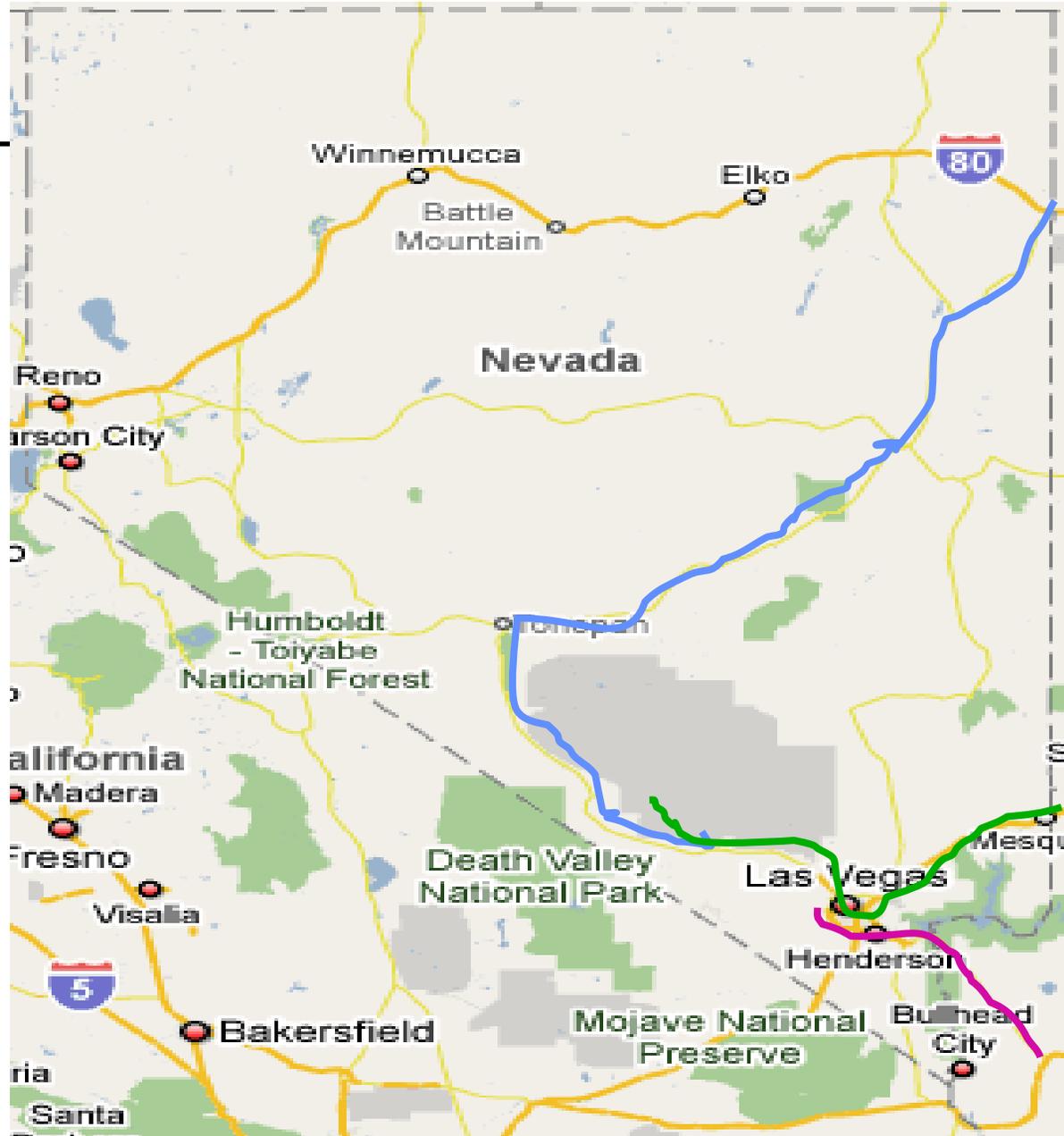
# Package Parameters for Incident-Free Dose

Shipment ID	Material	Length	Crew View <sup>a</sup>	TI (mrem/hr)
INL08001	Unknown	8.41	3.66	0.001
INL08002	Unknown	6.06	3.14	0.50
INL08003	Unknown	6.06	3.14	0.01
NFL08041	Caustic	8.41	3.66	0.01
NFL08042	Caustic	8.41	3.66	1.00
NFL08043	Raffinate	8.41	3.66	0.01
POL08131	scrap metal	8.41	3.66	0.01
POL08132	scrap metal	8.41	3.66	0.10
POL08133	scrap metal	8.41	3.66	0.01
POL08134	scrap metal	8.41	3.66	0.01
PORTLP0001002	wet solid ,HEPA filters	6.10	3.14	0.10
NFS1000000003 02	stabilized caustic	6.10	3.56	2.80
NFS1000000002 01	stabilized raffinate	6.10	3.56	10.00



## Other Parameters for Incident-Free Dose

Parameter	Value
Number of crew	2
Distance from source to crew	3.1 m
Rural, suburban truck speed	113 km/hr
Urban truck speed	105 km/hr; 97 km/ hr in Clark Co.
Occupants of vehicles sharing the route	2
Distances to exposed resident population along the route	30 to 800 m.
Percent of energy transmitted to residents	
Rural	100%
Suburban	87%
Urban	1.8%





## One-way Traffic Count

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- **Clark Co. Rural; 3640**
- **Clark Co. Suburban:1230**
- **Clark Co. Urban:3160**
- **Other Nevada Rural: 148**
- **Other Nevada Suburban: 311**
- **Other Nevada Urban: 2010**



# Study Region in Nevada

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# Corrected Population Densities

	Corrected Persons/sq. km		Corrected persons/sq. km
SOUTHERN R	10.01	NORTHERN S WHITE PINE	584.19
SOUTHERN SOUTHERN U	422.03 3951.30	NORTHERN U WHITE PINE	2346.80
SOUTHERN R NYE	6.85	NORTHERN R NYE	0.89
SOUTHERN S NYE	330.59	CA127 AMARGOSA R (NYE)	2.54
SOUTHERN U NYE	3264.83	CA 127 PAHRUMP R (NYE)	3.83
NORTHERN R ELKO	3.22	CA 127 PAHRUMP S (NYE)	380.05
NORTHERN NORTHERN R	115.57	SR160 R (CLARK)	9.63
WHITE PINE	4.11	SR160 S (CLARK)	333.09
		SR160 U (CLARK)	2774.13



## Specific Scenarios

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Scenario	Scenario Description	Distance from Source	Exposure time
1	Truck travels slowly past an individual on the sidewalk	1.0 m	15 sec.
2	Individual parked next to a LLW truck at a stoplight	1.0 m	1 min.
3	Individual next to a refueling LLW truck	1.0 m	0.5 hour
4	Individual next to a window looking out on a curb where a LLW truck is parked	1.0 m	1 hour
5	Individual parked next to a LLW truck overnight	1.0 m	8 hours



## Dose to an Individual from Inhalation of Dispersed Materials

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$$D_{inh} = \sum_m^{\text{materials}} \sum_p^{\text{radionuclides}} \sum_o^{\text{all organs}} (C_{i_p} \cdot PPS_L \cdot RF_{p,j} \cdot AER_{p,j} \cdot RESP_{p,j} \cdot RPC_{p,o} \cdot CHI_n \cdot BR)$$

$D_{inh}$  = Individual inhalation dose (rem)

$C_{i_p}$  = Number of curies of isotope p in package (Ci)

$PPS_L$  = Number of packages on link L

$RF_{p,j}$  = Fraction of package contents released in accident of severity j

$AER_{p,j}$  = Fraction of released material that is aerosol in accident of severity j

$RESP_{p,j}$  = Fraction of aerosolized material that is respirable in accident of severity j

$RPC_{p,o}$  = Dose conversion factor of p<sup>th</sup> isotope and o<sup>th</sup> organ (rem/Ci)

$CHI_n$  = dilution factor in nth isopleth area (Ci-sec/m<sup>3</sup>/Ci-released)

$BR$  = Breathing rate (m<sup>3</sup>/sec)



# Integrated Population Dose from Inhalation of Dispersed Materials

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$$D_{inh}^{pop} = Q_7 \cdot Ci_p \cdot PPS_L \cdot RF_{p,j} \cdot AER_{p,j} \cdot RESP_{p,j} \cdot RPC_p \cdot IF \cdot BR \cdot PD_L \cdot A_n$$

$D_{inh}$  = Population inhalation dose (rem)

$Q_7$  = Conversion factor

$Ci_p$  = Number of curies of isotope p in package (Ci)

$PPS_L$  = Number of packages on link L

$RF_{p,j}$  = Fraction of radionuclide p released in accident of severity j

$AER_{p,j}$  = Fraction of released radionuclide p that is aerosol in accident of severity j

$RESP_{p,j}$  = Fraction of aerosolized radionuclide p that is respirable in accident of severity j

$RPC_p$  = Dose conversion factor of p<sup>th</sup> isotope (rem/Ci)

IF = Integral of time-integrated atmospheric dilution factors over downwind areas

BR = Breathing rate (m<sup>3</sup>/sec)

$PD_L$  = Population density on link L (persons/km<sup>2</sup>)

$A_n$  = Area of n<sup>th</sup> isopleth (m<sup>2</sup>)



# Conditional Probabilities and Release Fractions

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Conditional probability	Fraction of contents released
0.9	0
0.05	0.05
0.03	0.1
0.02	0.2

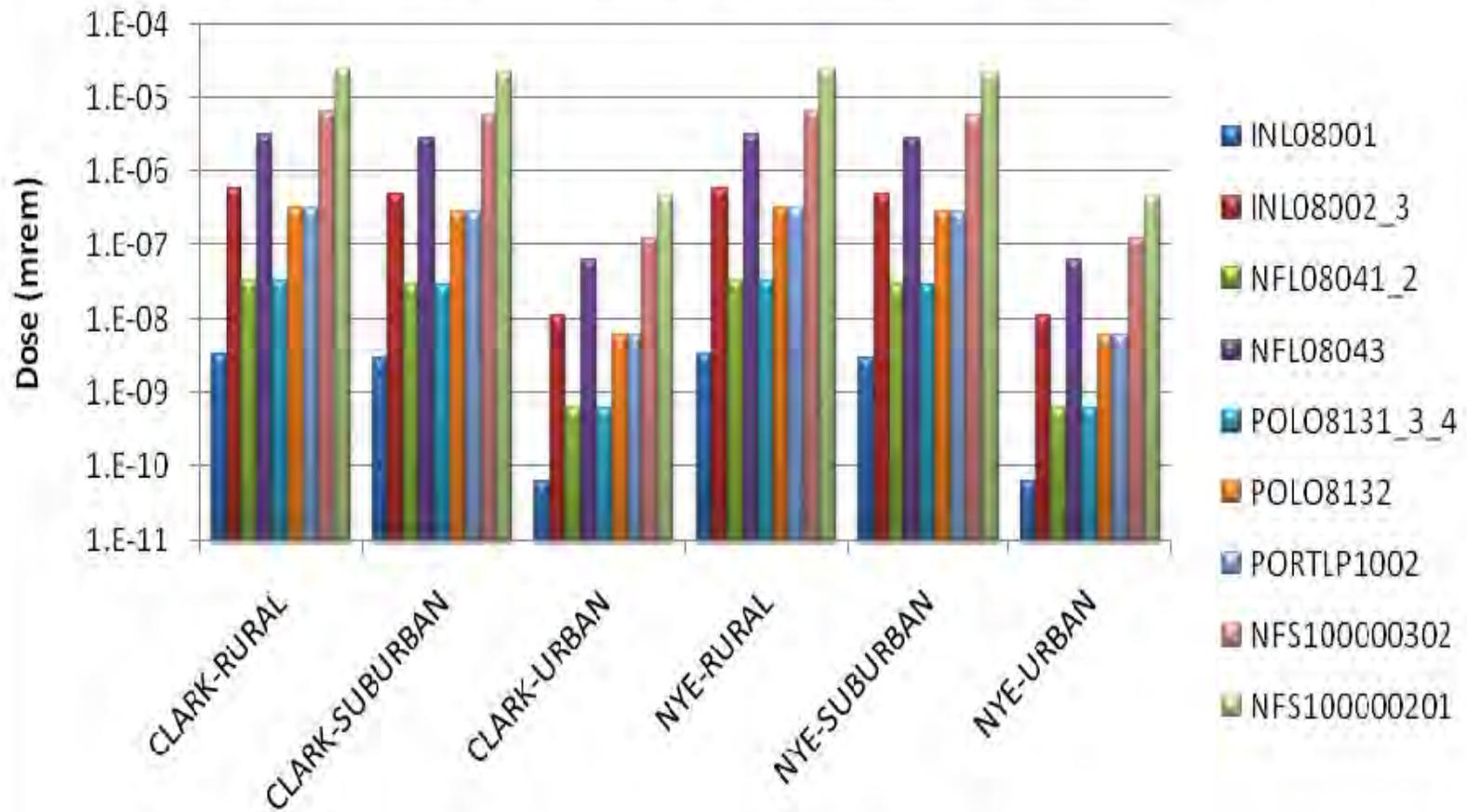


# Parameters for Accident Dose and Dose Risk

Parameter	Value
Package type	Type A
Physical chemical group	Particulate
Deposition velocity	0.01 m/sec
Traffic accident rate	$3.6 \times 10^{-6}$ /vehicle-km
Traffic fatality rate	$1.27 \times 10^{-8}$ /vehicle-km
Aerosolized fraction	1.0
Respirable fraction	0.05
Average dispersibility	National average weather
No-release accident exposure time	8 hours
No-release accident distance to population	30 m. to 800 m



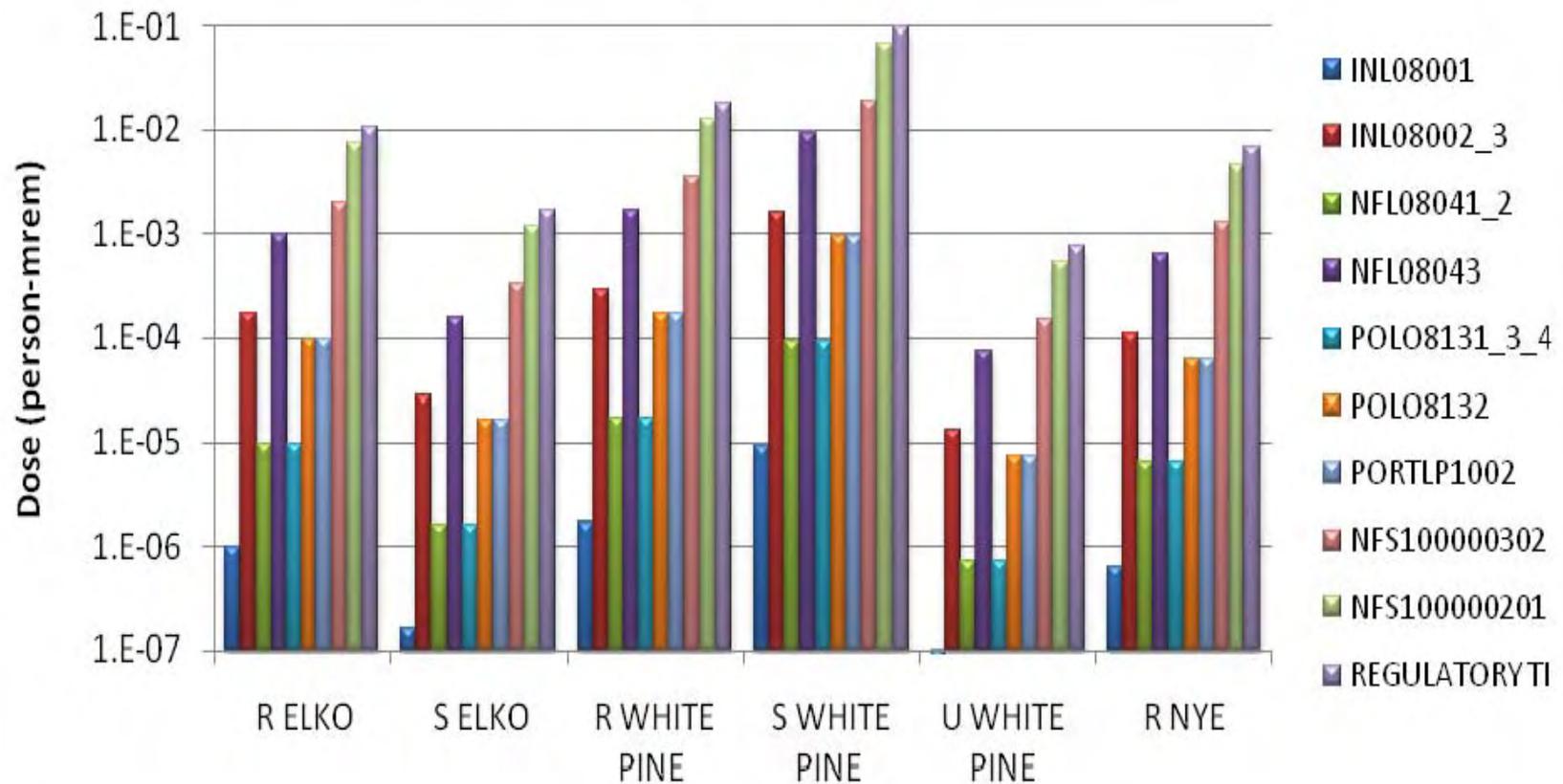
## Average Individual Dose, Routine Transportation





# Northern Route

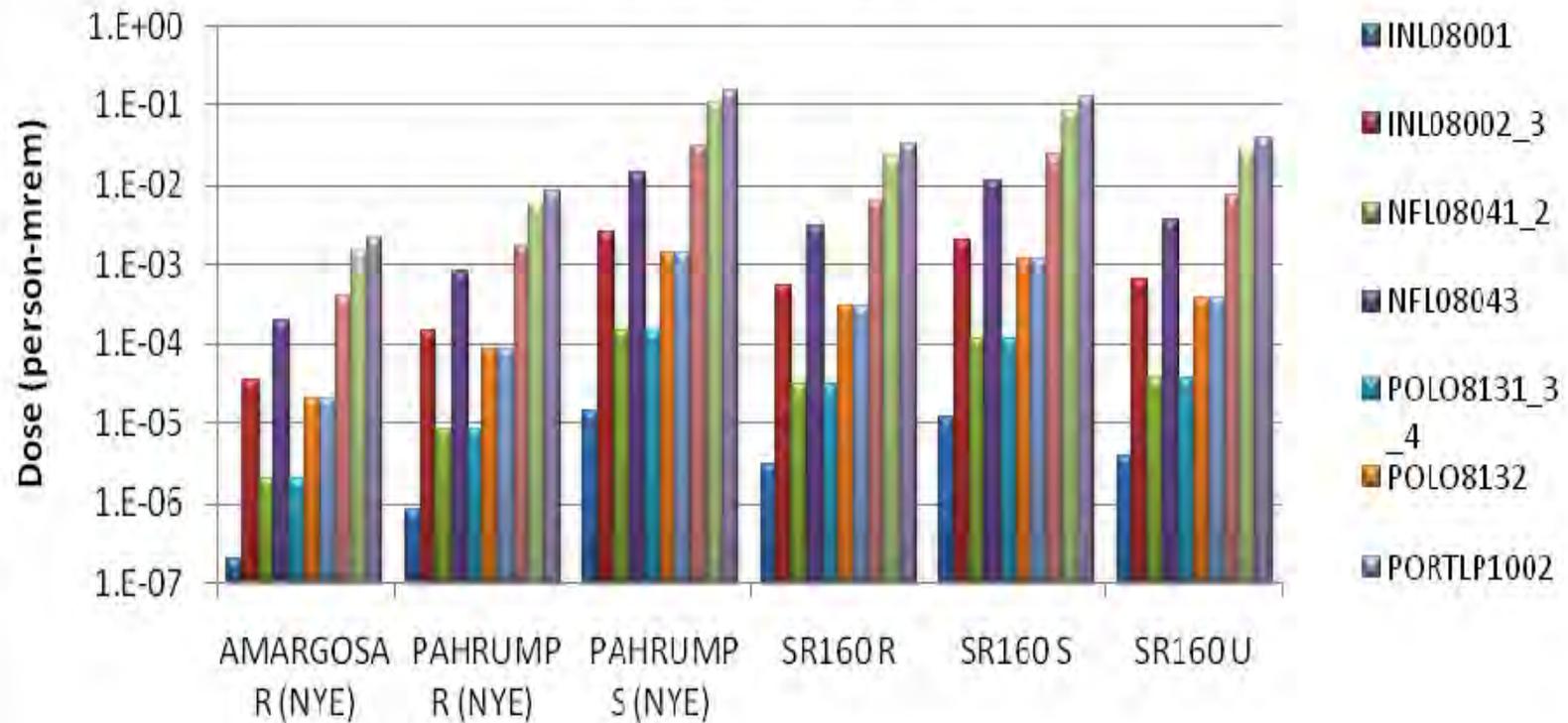
## Dose to Residents Along the Route, Routine Transportation





# CA-127 and SR-160 Routes

## Dose to Residents Along Route, Routine Transportation

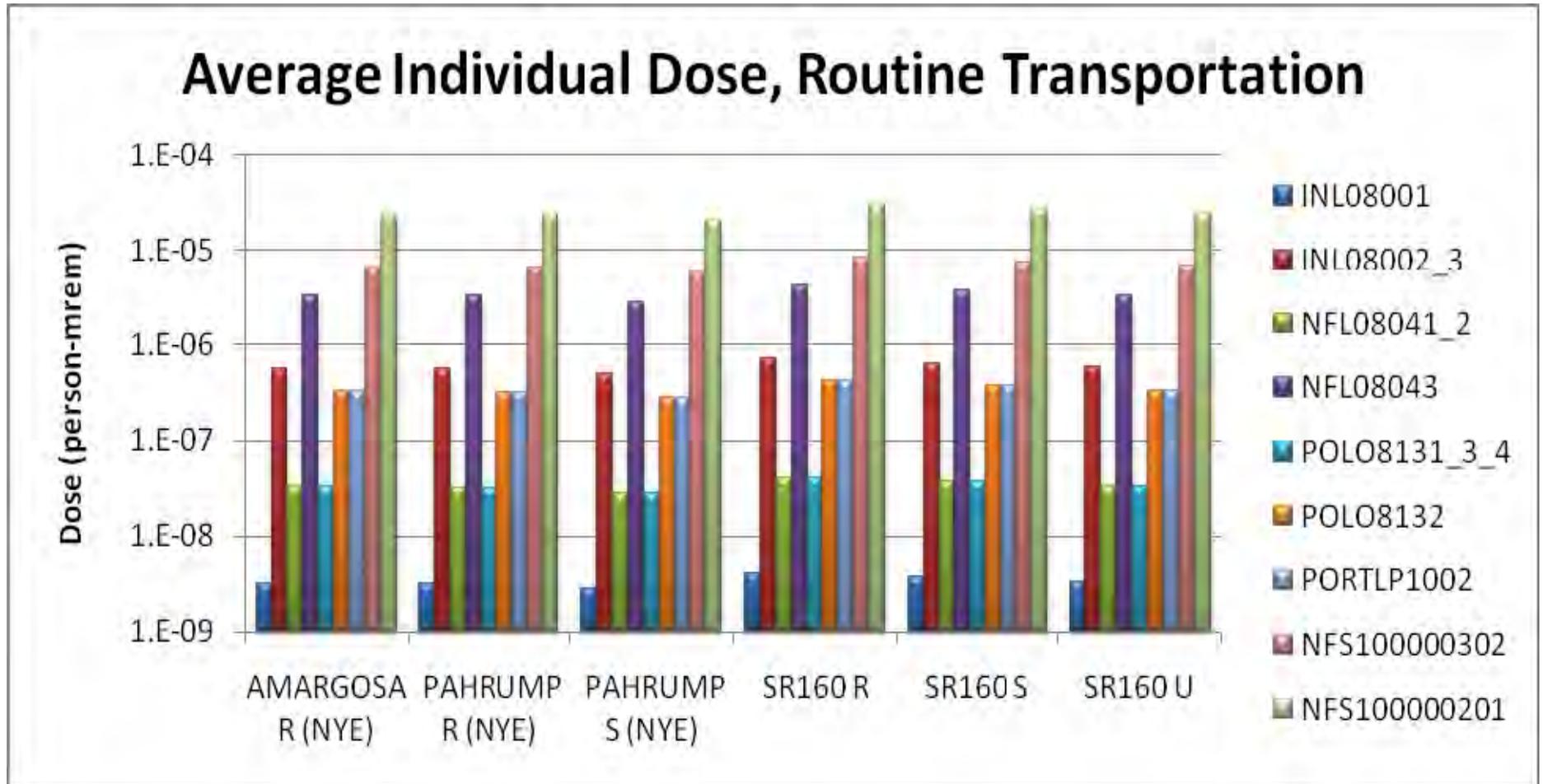


# Collective Dose along CA-127 and SR-160 Routes

	CA127			SR160		
	AMARGOSA R (NYE)	PAHRUMP R (NYE)	PAHRUMP S (NYE)	SR160 R	SR160 S	SR160 U
INL08001	1.98E-07	8.20E-07	1.42E-05	3.01E-06	1.16E-05	3.66E-06
INL08002_3	3.49E-05	1.44E-04	2.49E-03	5.29E-04	2.04E-03	6.43E-04
NFL08041_2	1.98E-06	8.20E-06	1.42E-04	3.01E-05	1.16E-04	3.66E-05
NFL08043	1.98E-04	8.20E-04	1.42E-02	3.01E-03	1.16E-02	3.66E-03
POLO8131_3_4	1.98E-06	8.20E-06	1.42E-04	3.01E-05	1.16E-04	3.66E-05
POLO8132	1.98E-05	8.20E-05	1.42E-03	3.01E-04	1.16E-03	3.66E-04
PORTLP1002	1.98E-05	8.20E-05	1.42E-03	3.01E-04	1.16E-03	3.66E-04
NFS1000003 02	4.09E-04	1.69E-03	2.91E-02	6.22E-03	2.39E-02	7.56E-03
NFS1000002 01	1.46E-03	6.04E-03	1.04E-01	2.22E-02	8.53E-02	2.70E-02
REGULATOR V TI	2.10E-03	8.70E-03	1.50E-01	3.20E-02	1.23E-01	3.89E-02

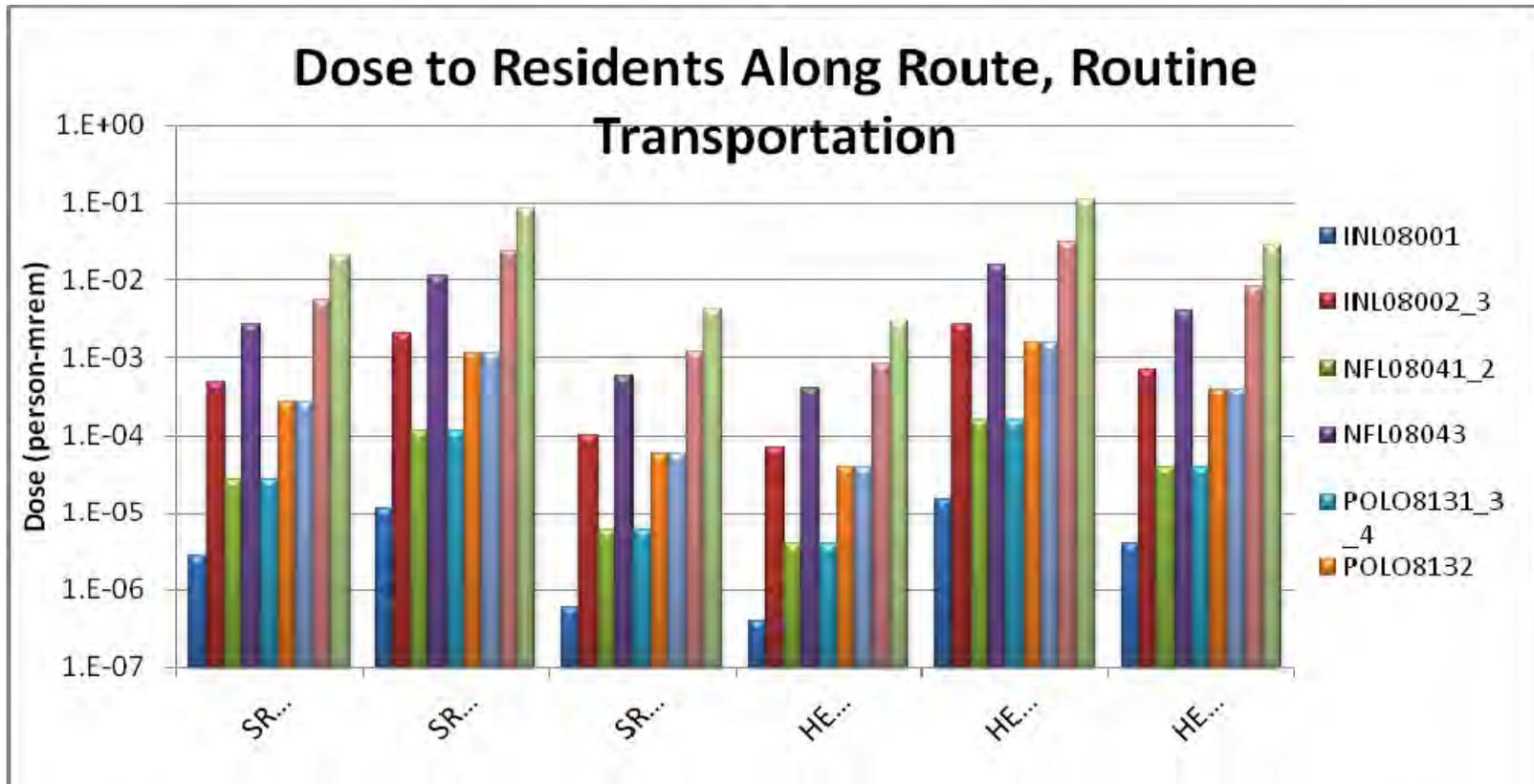


## CA-127 and SR-160 Routes



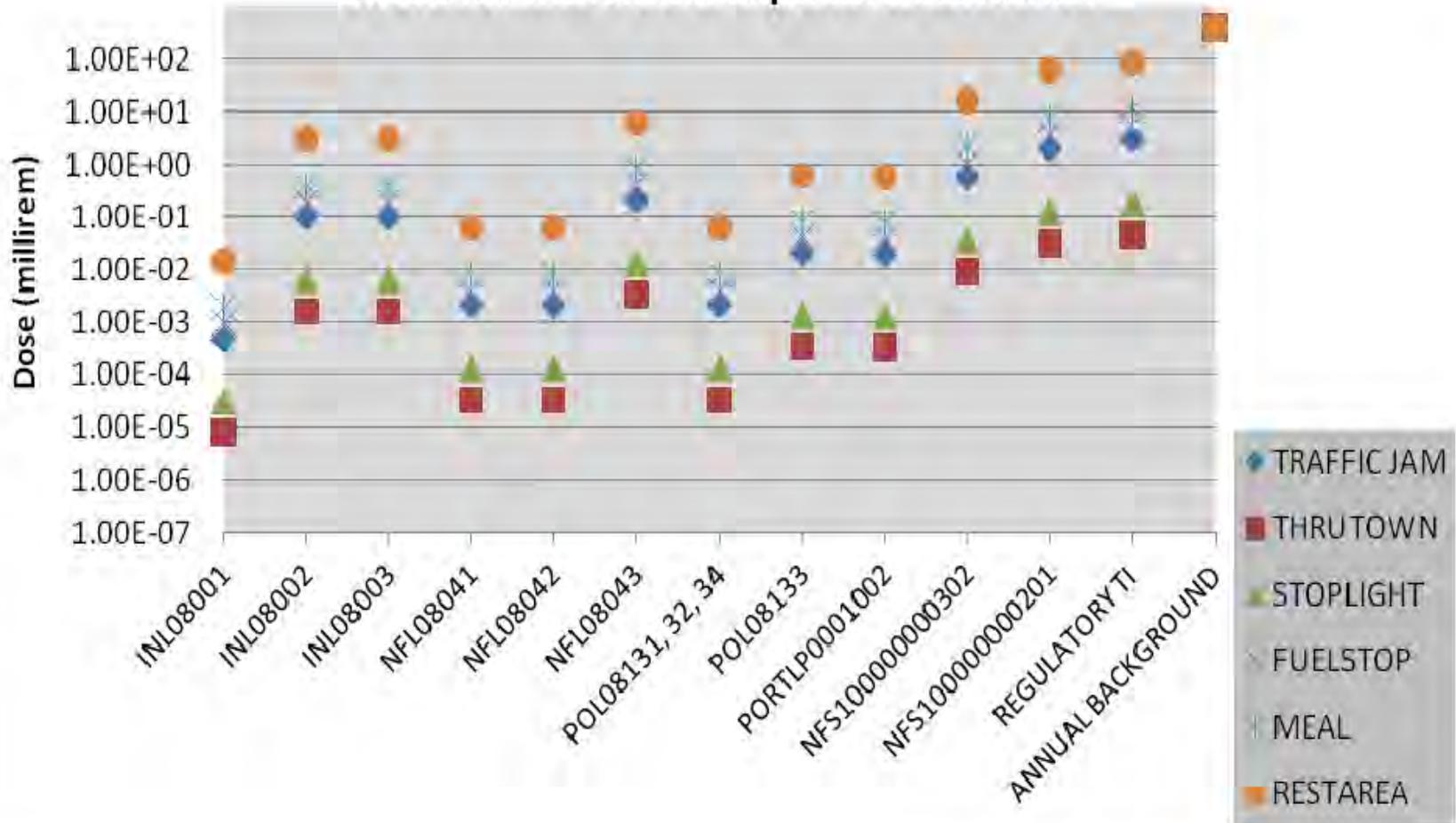


# Dose to Residents From Routine Transportation Along the S93 Route from Laughlin, NV and SR95



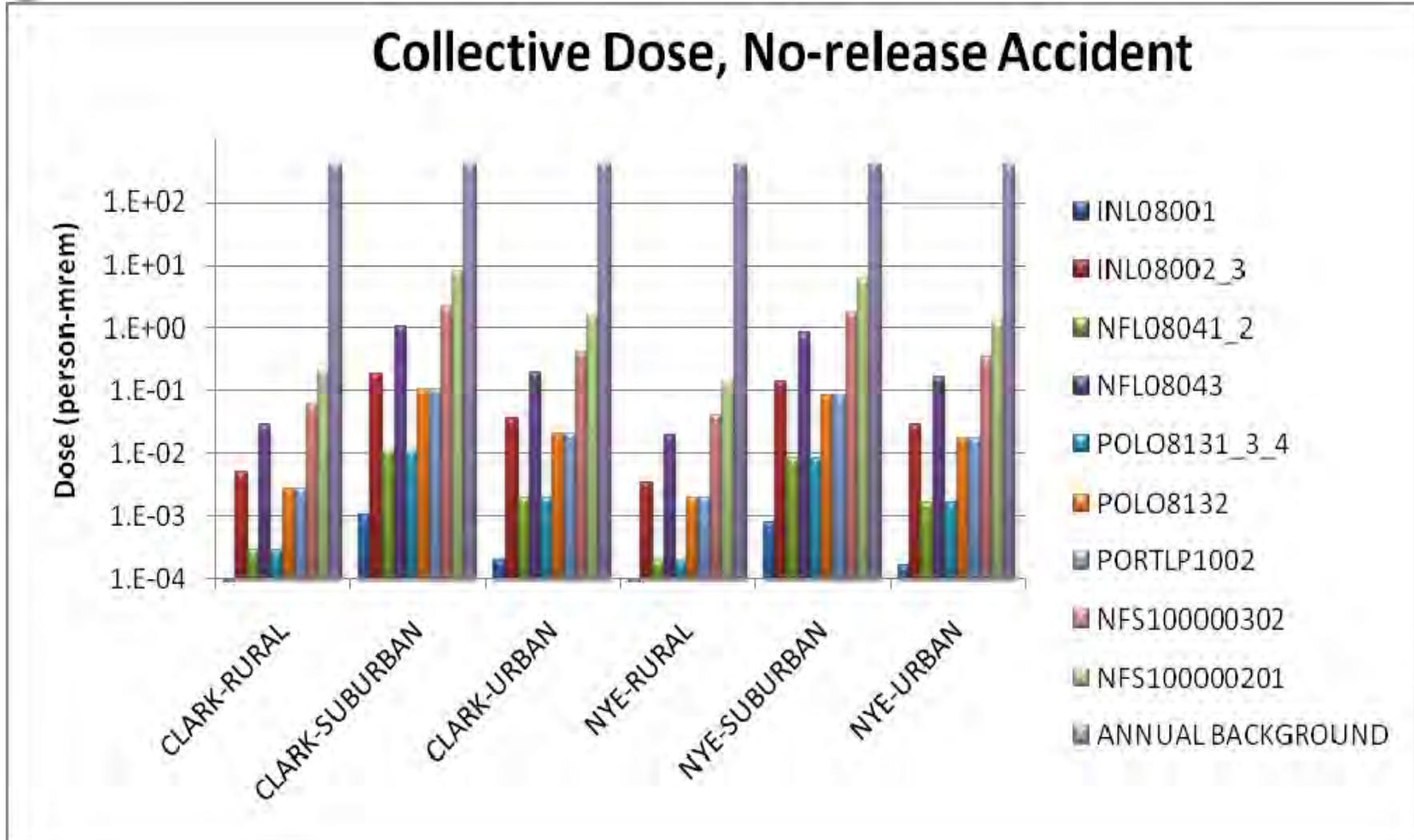


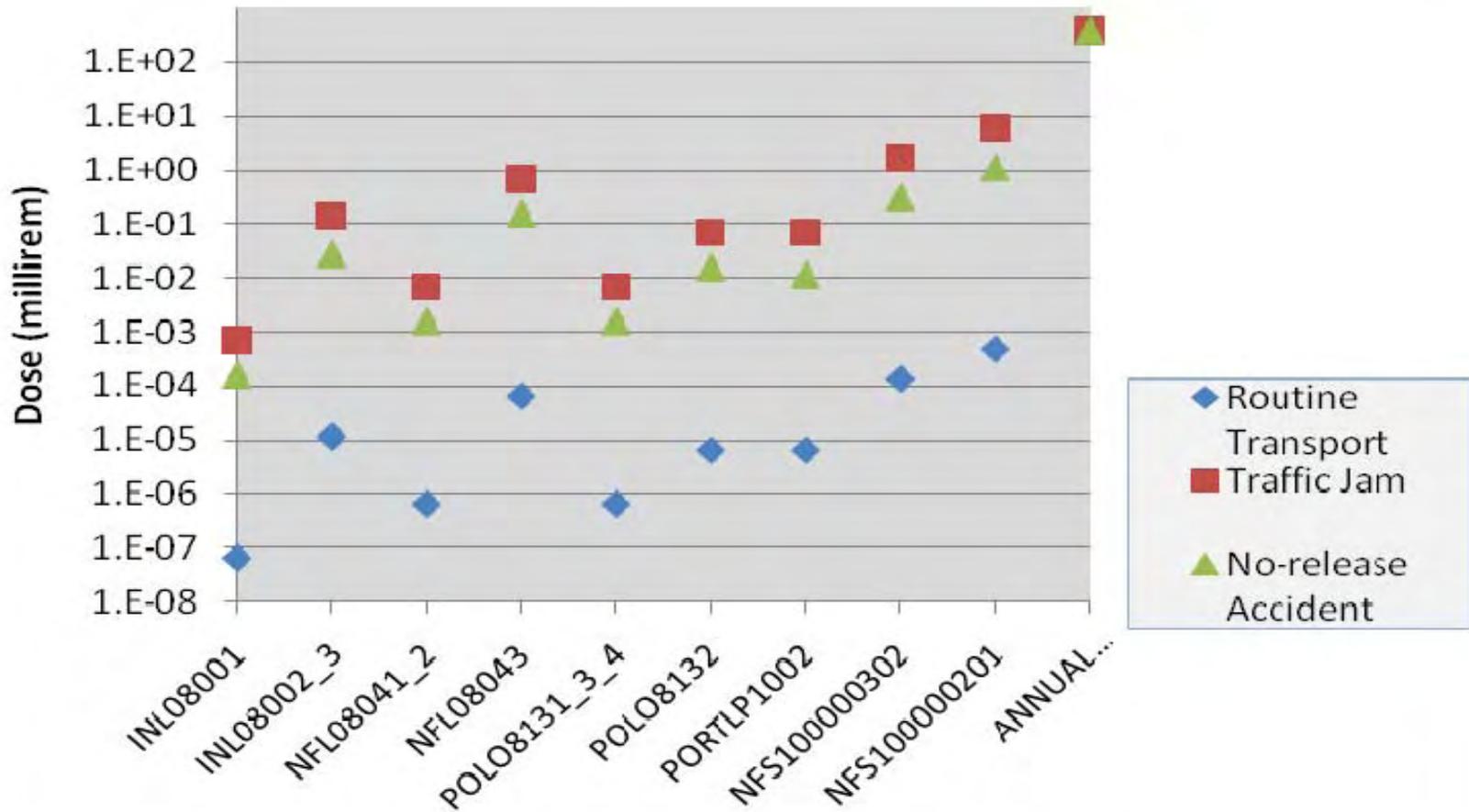
## Doses for Individual Exposure Scenarios





# Southern Route

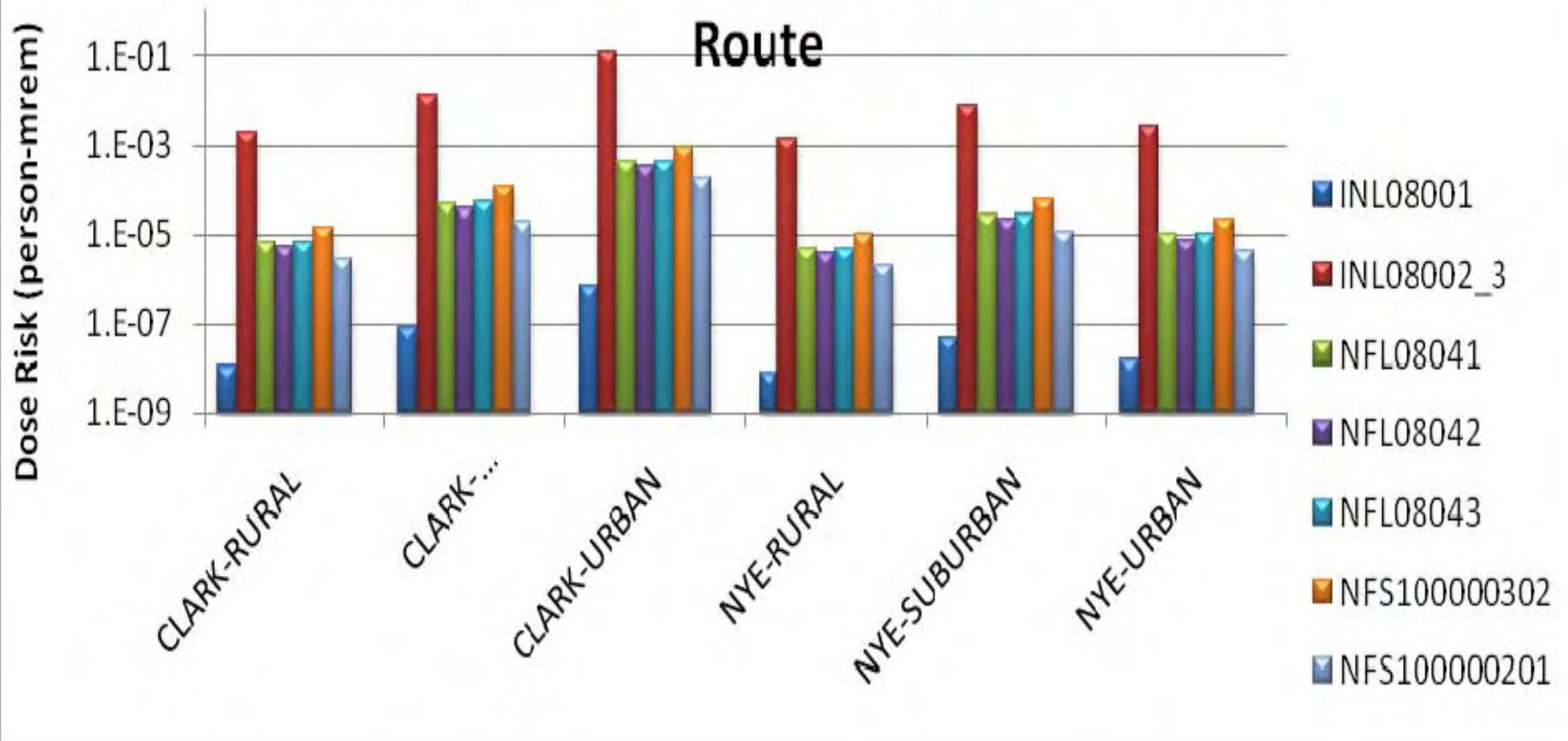


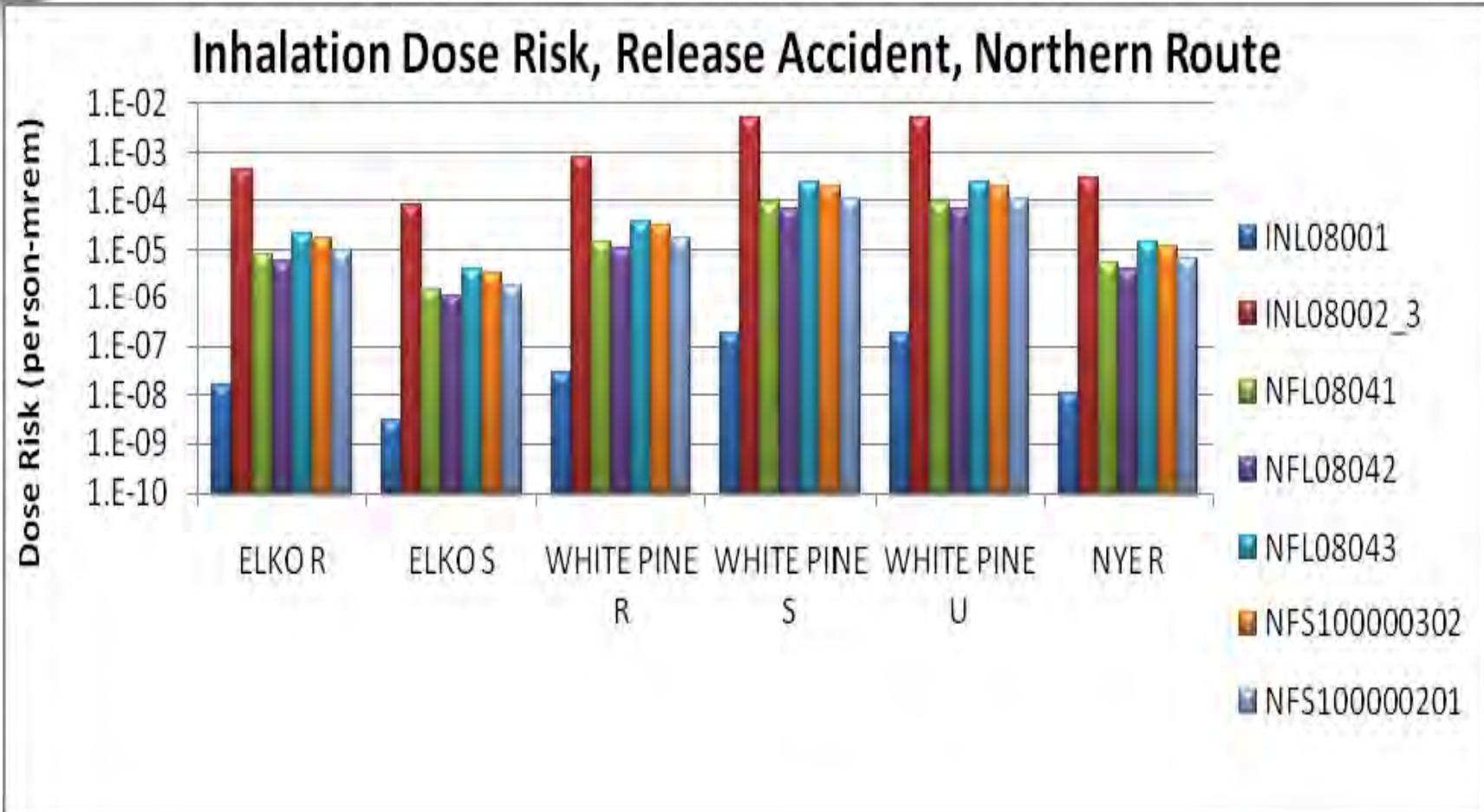


Maximum Individual Doses -- All Routes



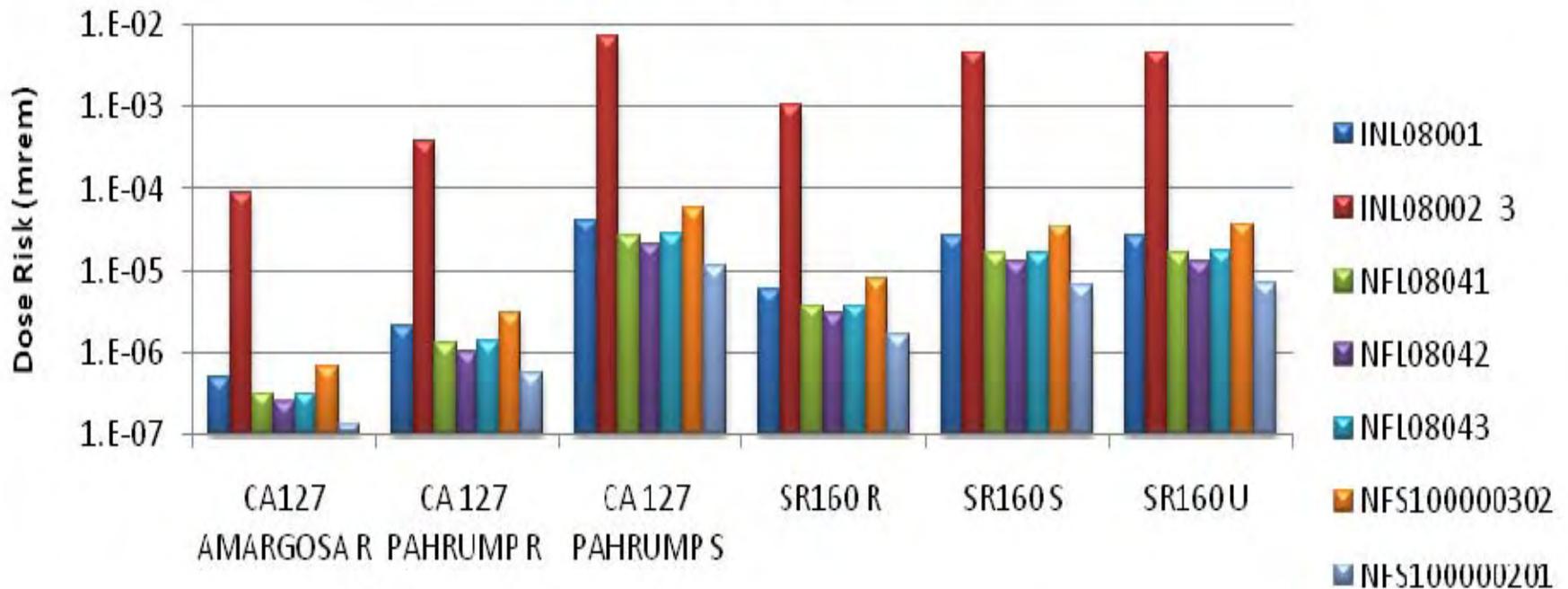
## Groudshine Dose Risk, Release Accident, Southern





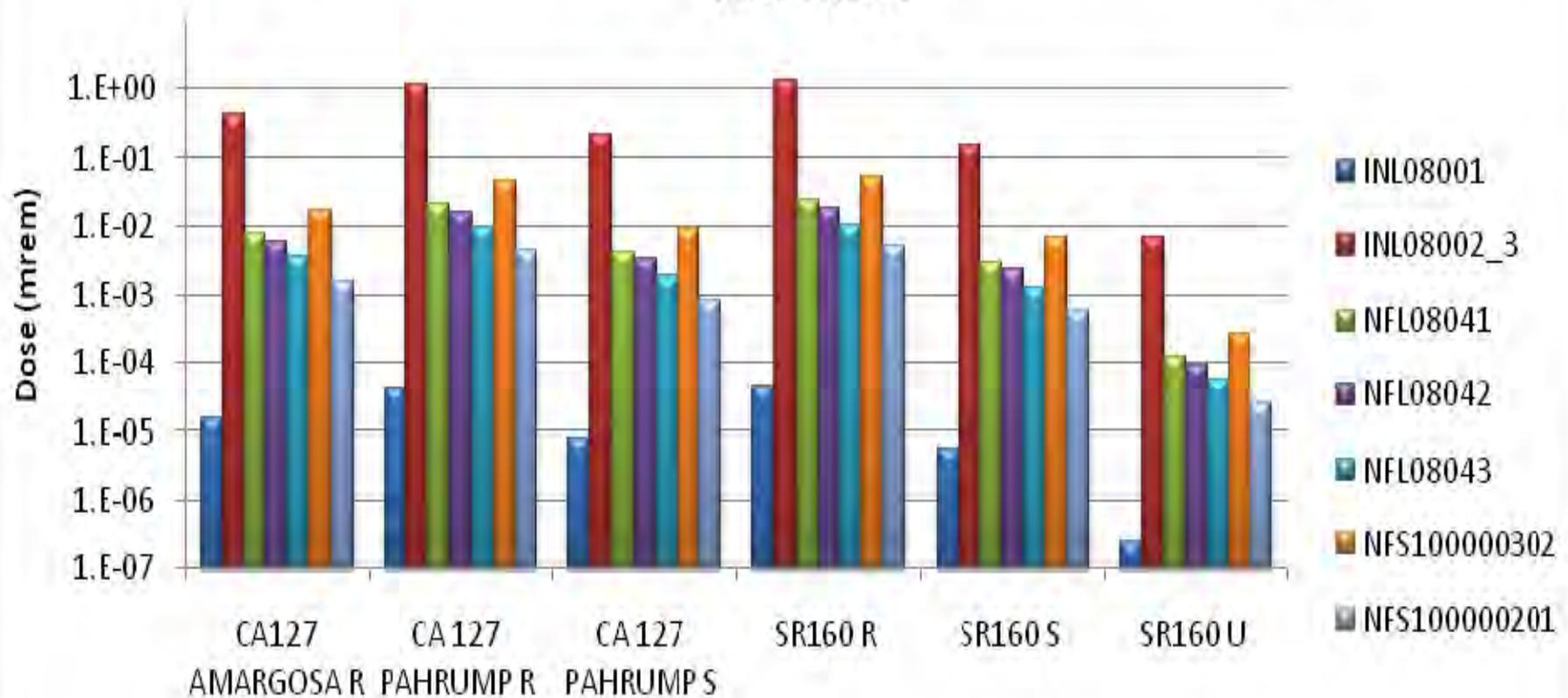


## Maximum Individual Dose Risk, Release Accident, CA127 and SR 160



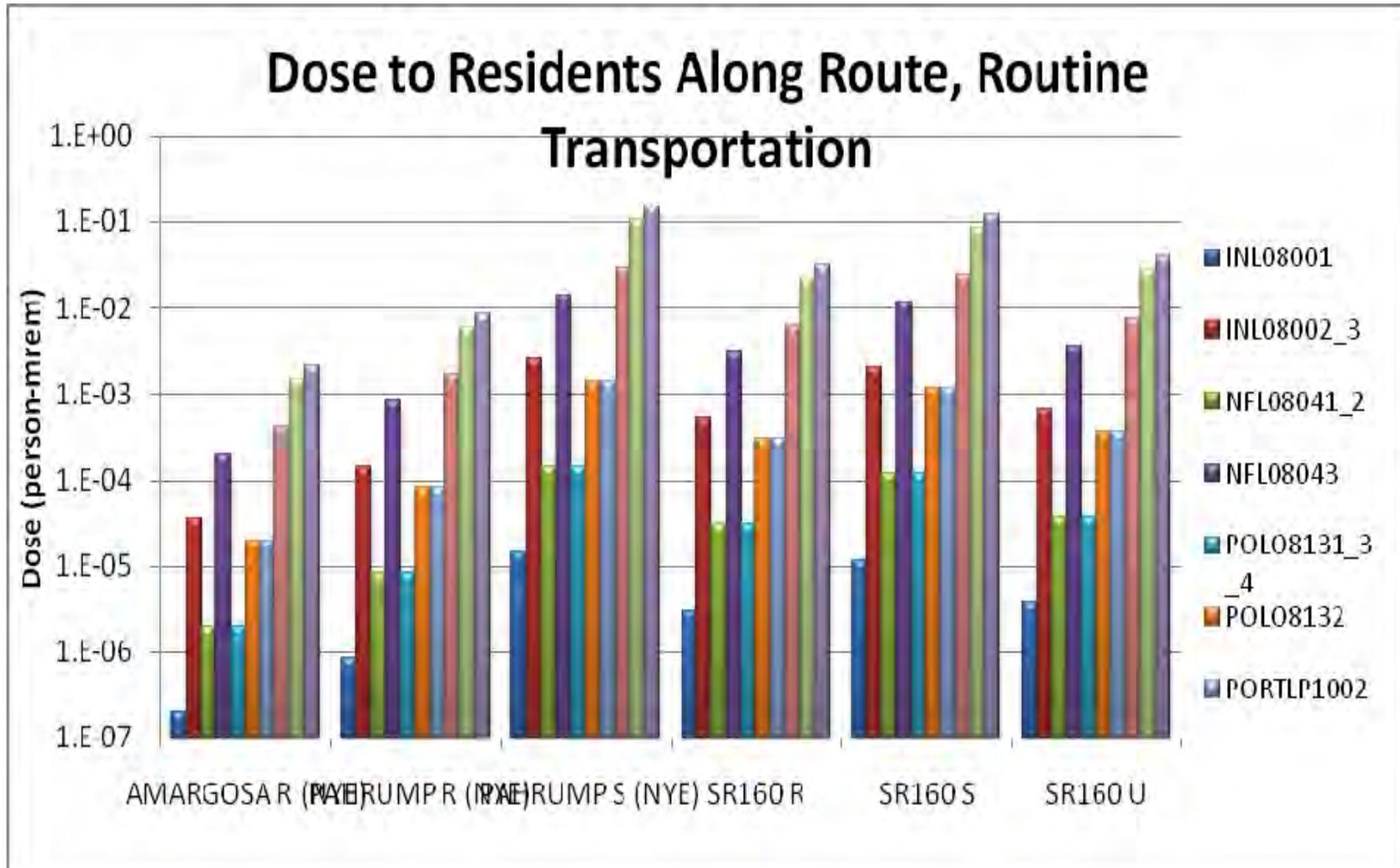


## Maximum Individual Consequence, Release Accident, CA127 and SR160





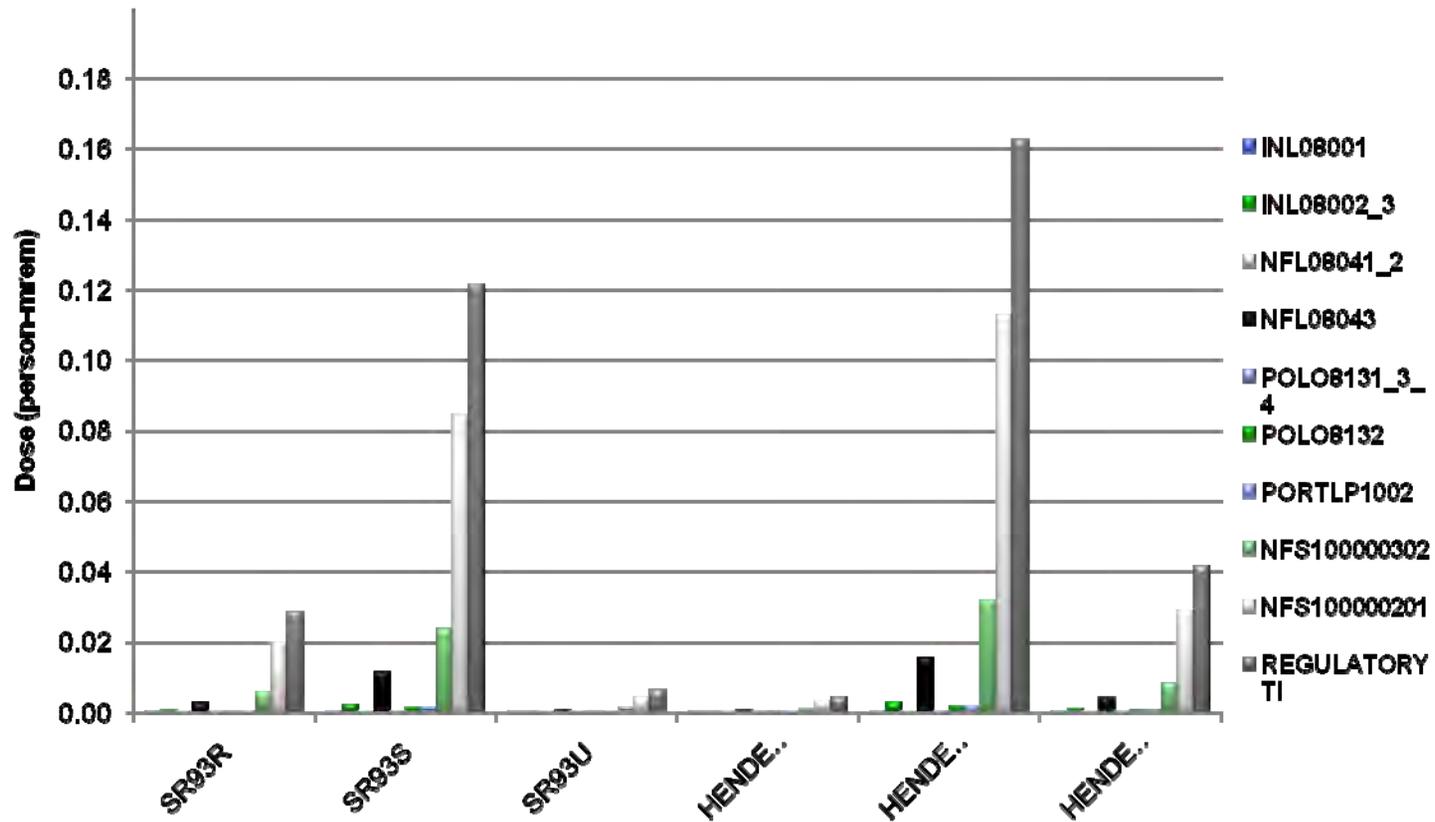
## SR 93 Route





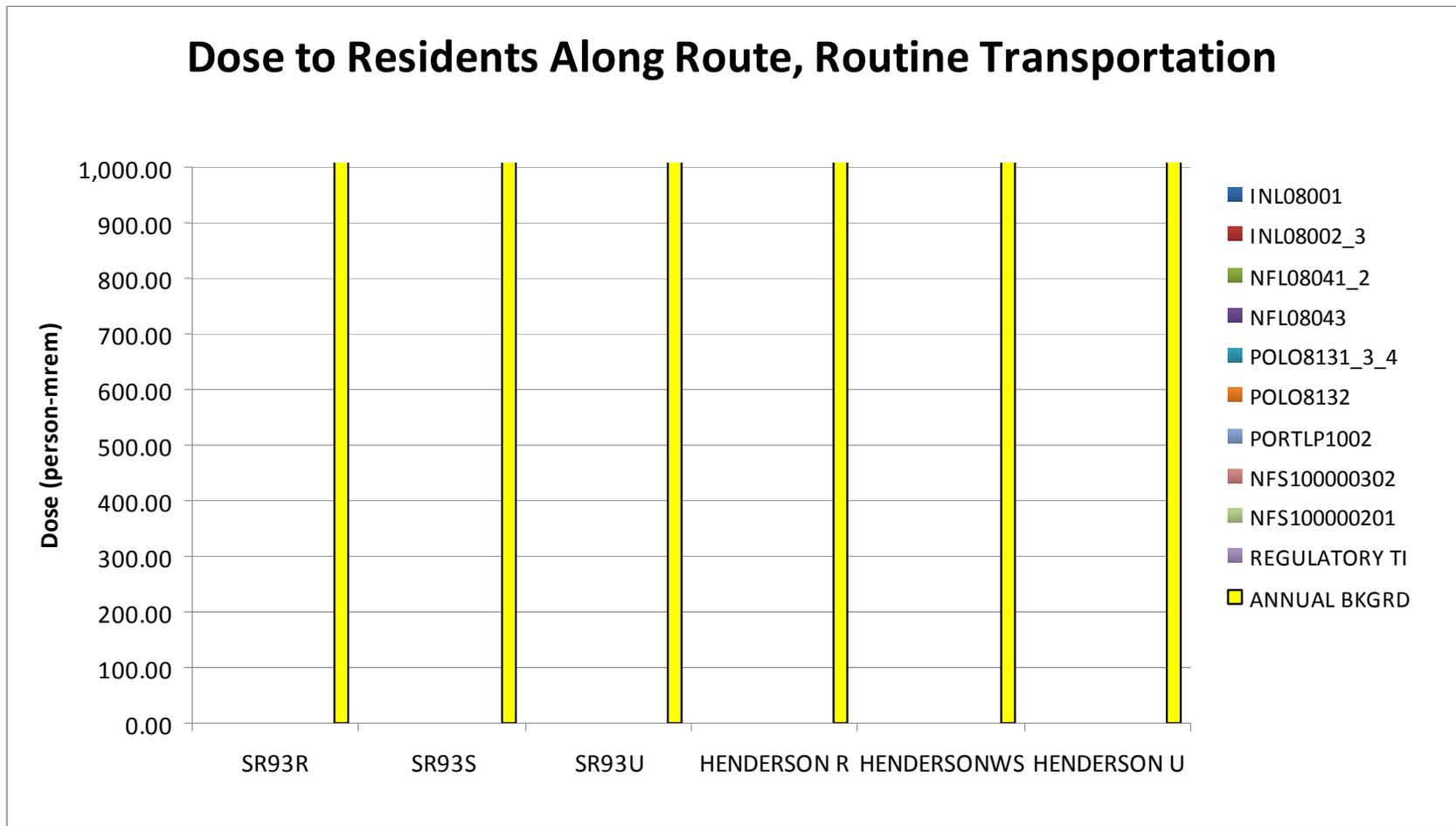
# SR 93 Route

## Dose to Residents Along Route, Routine Transportation



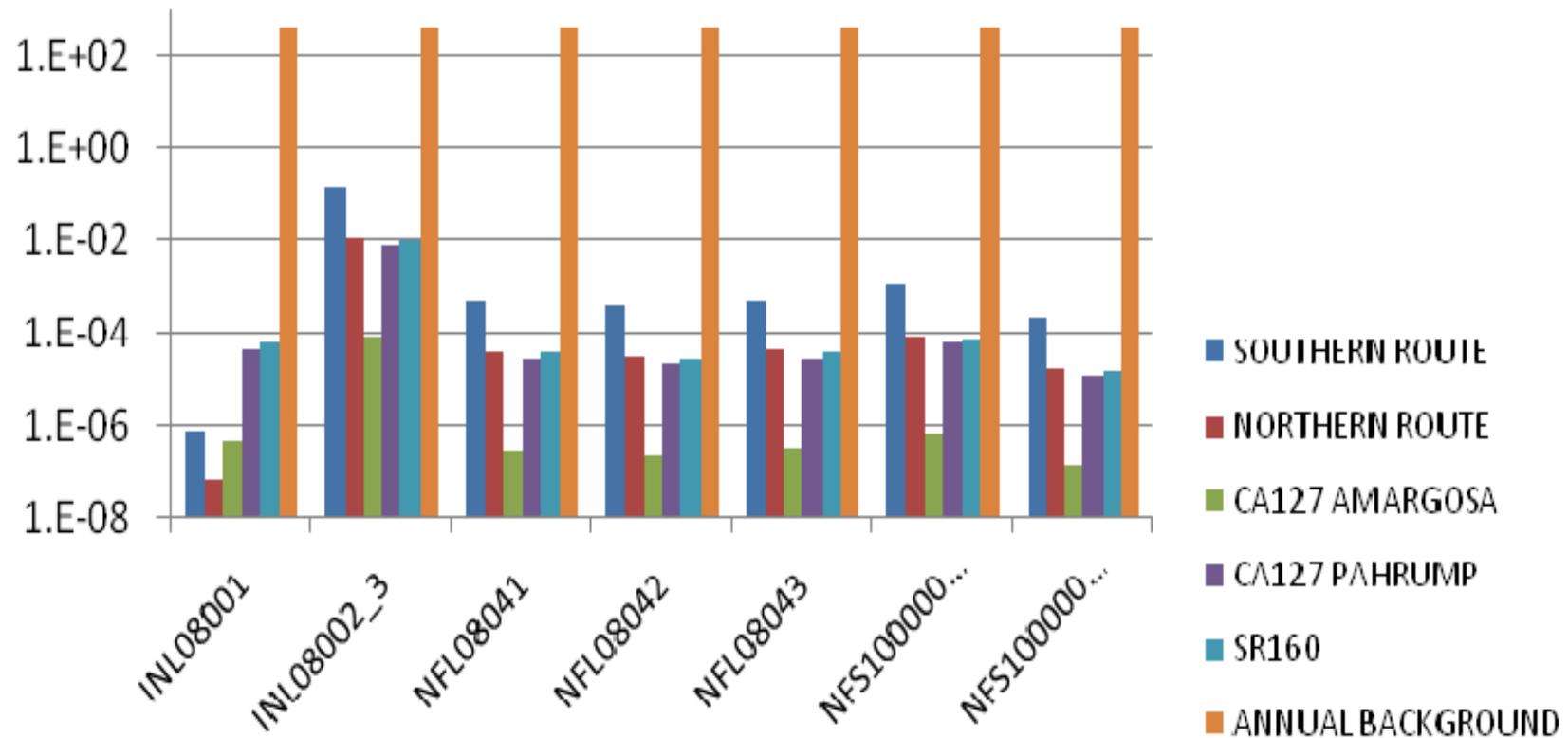


# SR93 Route



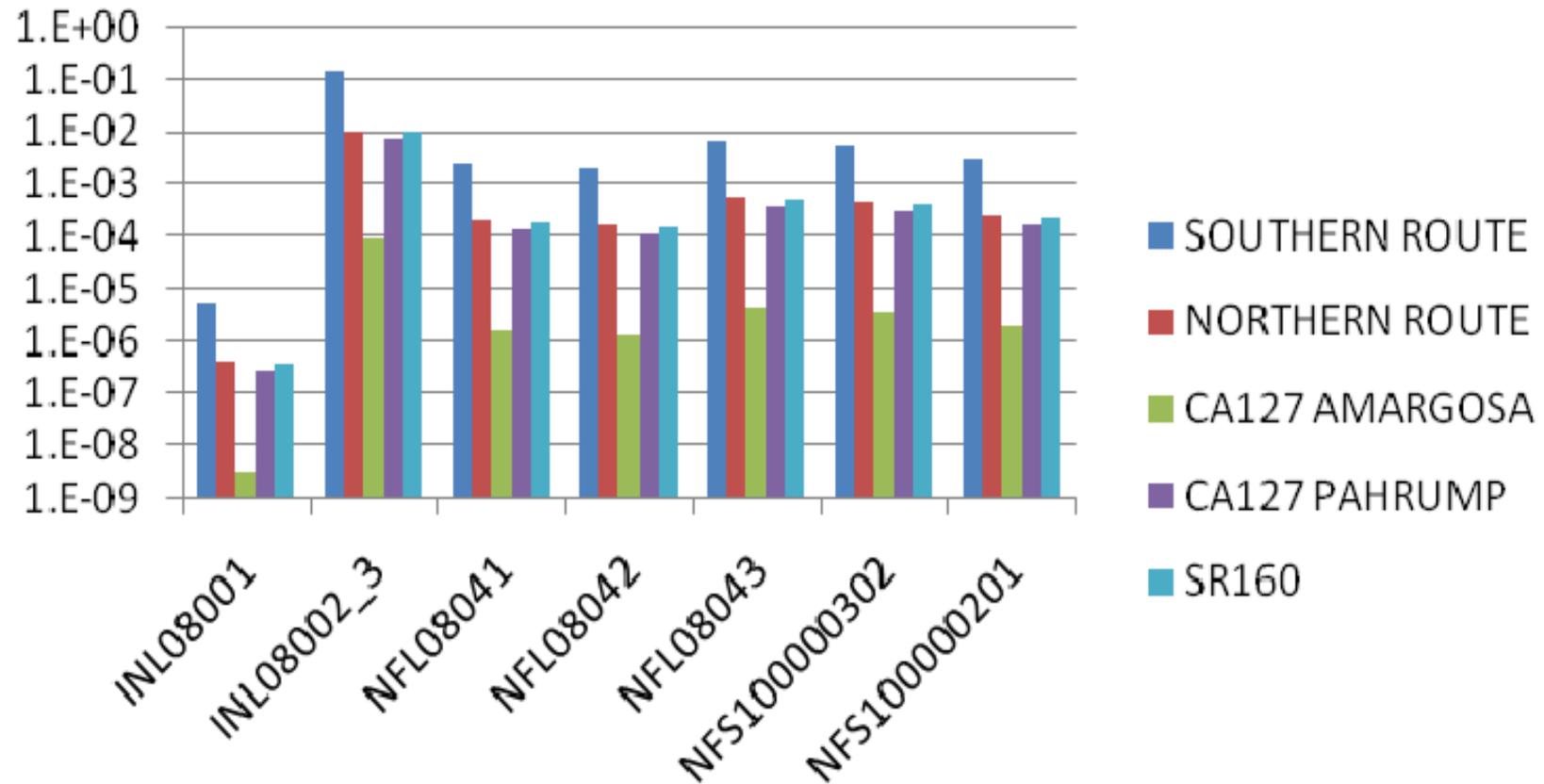


## Total Groundshine Dose Risk





## Total Inhalation Dose Risk





## Comparison of Traffic Accidents and Fatalities With LCF Risk

	SOUTHERN	NORTHERN	CA127-A	CA127-P	SR160	SR 93
<b>ACCIDENTS</b>	<b>1.12E-03</b>	<b>1.63E-03</b>	<b>8.79E-05</b>	<b>2.89E-04</b>	<b>3.09E-04</b>	<b>4.61E-04</b>
<b>FATALITIES</b>	<b>3.96E-06</b>	<b>5.77E-06</b>	<b>3.10E-07</b>	<b>1.02E-06</b>	<b>1.09E-06</b>	<b>1.63E-06</b>
<b>LCF: INL08001</b>	<b>3.61E-09</b>	<b>2.84E-10</b>	<b>3.03E-10</b>	<b>2.61E-08</b>	<b>3.48E-08</b>	<b>1.20E-07</b>
<b>LCF:INL08002_3</b>	<b>1.69E-04</b>	<b>1.33E-05</b>	<b>1.06E-07</b>	<b>9.11E-06</b>	<b>1.21E-05</b>	<b>3.51E-04</b>
<b>LCF:NFL08041</b>	<b>1.90E-06</b>	<b>1.50E-07</b>	<b>1.19E-09</b>	<b>1.02E-07</b>	<b>1.36E-07</b>	<b>3.94E-06</b>
<b>LCF:NFL08042</b>	<b>1.45E-06</b>	<b>1.15E-07</b>	<b>9.11E-10</b>	<b>7.82E-08</b>	<b>1.04E-07</b>	<b>3.01E-06</b>
<b>LCF:NFL08043</b>	<b>4.42E-06</b>	<b>3.50E-07</b>	<b>2.76E-09</b>	<b>2.39E-07</b>	<b>3.18E-07</b>	<b>1.70E-05</b>
<b>LCF:NFS100000302</b>	<b>4.18E-06</b>	<b>3.30E-07</b>	<b>2.61E-09</b>	<b>2.25E-07</b>	<b>3.00E-07</b>	<b>8.67E-06</b>
<b>LCF:NFS100000201</b>	<b>2.02E-06</b>	<b>1.59E-07</b>	<b>1.26E-09</b>	<b>1.09E-07</b>	<b>1.45E-07</b>	<b>4.18E-06</b>
<b>LCF:8-HR BACKGROUND</b>	<b>4.59E-01</b>	<b>3.39E-01</b>	<b>2.82E-04</b>	<b>4.27E-02</b>	<b>3.46E-01</b>	<b>3.65E-01</b>



## Summary

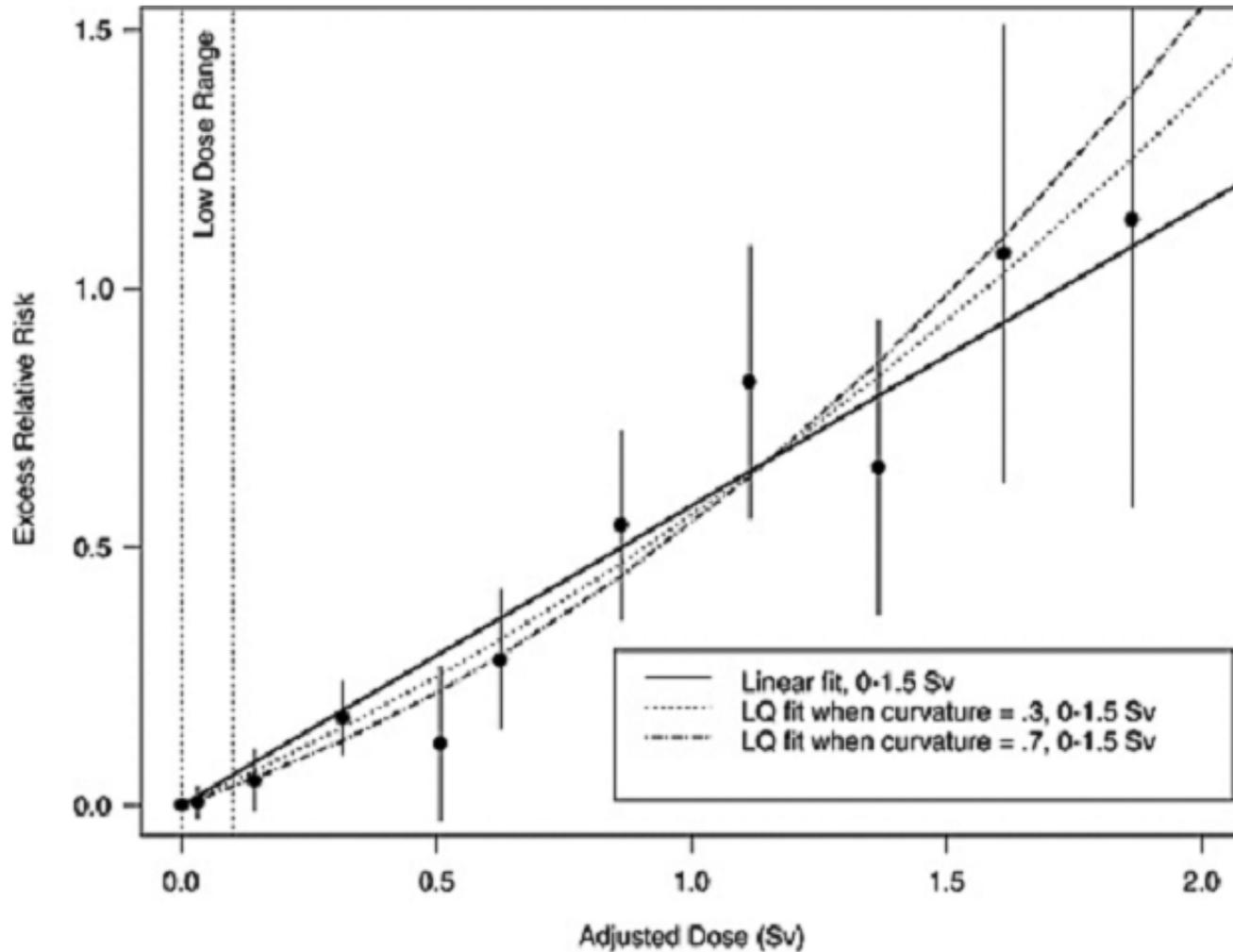
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- The doses of ionizing radiation from the shipments considered are exceedingly small.
- Collective doses to residents along the routes and to occupants of vehicles sharing the route are of the order of one person-millirem or less – usually less.
- The average individual dose to a resident along the route varies from about five billionths ( $5 \times 10^{-9}$ ) of a millirem to about 5/100,000 of a millirem.
- The largest dose to a member of the public along the route from routine transportation is a little less than one millionth of a millirem ( $6.65 \times 10^{-7}$  mrem).
- The maximum individual dose from an accident is about 4 mrem.



# Comparison of Linear and Linear-Quadratic Extrapolations With Observations

BEIR VII, Figure 10-2





## Some Data for Context

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- Average annual Nevada background : 400 mrem (4 mSv)
- Average annual U.S. cosmic ray dose: 27 mrem (0.27 mSv)
- Dental x-ray dose per exam: 9 mrem (0.09 mSv)
- Whole body CT scan: 111 mrem (1.11 mSv)
- Annual lung dose to a pack-a-day smoker: 16000 mrem (160 mSv)
- Smallest dose at which effect in a humans is documented: 600 mrem (6 mSv)
- LCF risk/rem = 0.0006

Shleien, Slaback, Birky. 1996. *Handbook of Health Physics and Radiological Health*



and Sun. 2009. "Po-210 in Cigarettes" *Health Physics News*





**Department of Energy**  
 National Nuclear Security Administration  
 Nevada Site Office  
 P.O. Box 98518  
 Las Vegas, NV 89193-8518



**APR 29 2009**

Dave Hermann, Chair  
 Community Advisory Board  
 for Nevada Test Site Programs  
 232 Energy Way  
 Las Vegas, NV 89030

**RESPONSE TO THE COMMUNITY ADVISORY BOARD (CAB) FOR NEVADA TEST SITE PROGRAMS FISCAL YEAR (FY) 2011 SUB-PROJECT PRIORITIZATION**

Each year the CAB Budget Committee meets with Nevada Site Office Environmental Management (EM) staff to discuss the baseline activities for the out-years. This year the CAB Budget Committee focused on the FY 2011 sub-project prioritizations.

After receiving the CAB's letter, dated April 12, 2009, I met with EM staff and conducted a similar ranking system. The chart below illustrates both the CAB's ranking and EM's ranking.

<b>FY 2011</b>		
<b>Sub-Project</b>	<b>CAB Ranking</b>	<b>NSO EM Ranking</b>
Underground Test Area	1	1
Low-Level Waste	2	2
Industrial Sites	3	3
Soils	4	4

The EM Program at the Nevada Site Office and the CAB have ranked the FY 2011 sub-projects in the same order. I believe this is a good example of how the Nevada Site Office incorporates the public's recommendations and advice into its activities.

I would like to extend my gratitude to the CAB Budget Committee for taking the time to meet with EM staff and evaluating the sub-projects. The CAB's sub-project prioritization recommendation is a vital factor for EM when determining where funding should be focused.

Dave Hermann, Chair

-2-

APR 29 2009

If you have questions regarding EM's ranking please contact Kelly Snyder, of my staff, at (702) 295-2836.



Janet L. Appenzeller-Wing  
Acting Assistant Manager  
for Environmental Management

PSG:5157.KKS

cc via e-mail:

Melissa Nielson, DOE/HQ (EM-13)

FORS

Catherine Brennan, DOE/HQ (EM-13)

FORS

K. K. Snyder, PSG, NNSA/NSO,

Las Vegas, NV

C. G. Lockwood, AD/AMEM, NNSA/NSO,

Las Vegas, NV



# Community Advisory Board for Nevada Test Site Programs

## Members

David Hermann, *CAB Chair*  
Walter Wegst, *Ph.D., CAB Vice-Chair*  
*Chair, EMPIRE Committee*

Kathleen Bienenstein  
Robert Gatliff, *Chair*  
*Underground Test Area (UGTA) Committee*  
Robert Johnson  
John McGrail  
Vernell McNeal  
Theodore Oom, *Chair*  
*Transportation/Waste Committee*  
Jackson Ramsey, *Ph.D., Chair*  
*Budget Committee*  
*Membership Committee*  
Ted Schweitzer  
Herbert Spiegel  
Stacy Standley  
Harold Sullivan, *Chair*  
*Outreach Committee*  
James Weeks

## Liaisons

Janet Appenzeller-Wing  
*U.S. Department of Energy,*  
*Nevada Site Office*  
Robert Gamble  
*Nye County*  
Tim Murphy, *Chief*  
*Bureau of Federal Facilities,*  
*State of Nevada Division of*  
*Environmental Protection*  
Genne Nelson  
*U.S. National Park Service*

## Administration

Denise Rupp, *Administrator*  
*Navarro Research & Engineering, Inc.*  
Kelly Snyder, *DDFO*  
*U.S. Department of Energy,*  
*Nevada Site Office*

May 7, 2009

Ms. Kelly Snyder, *DDFO*  
U.S. Department of Energy, *Nevada Site Office*  
P. O. Box 98518  
Las Vegas, NV 89193-8518

**SUBJECT:** Community Advisory Board for Nevada Test Site Programs  
(CAB) Recommendations for Revisions to the Environmental  
Management Website  
[www.nv.doe.gov/emprograms/environment](http://www.nv.doe.gov/emprograms/environment)

Dear Ms. Snyder,

Attached are specific suggestions for revisions to the website referenced in  
the subject of this letter.

We appreciate the opportunity to review and comment on changes, revisions  
and updates of the website and will continue working to help improve  
Environmental Management's efforts to effectively communicate with the  
public.

Sincerely,

David Hermann, *Chair*  
Community Advisory Board  
for Nevada Test Site Programs

Attachment

cc: C. Lockwood, *NNSA/NSO*  
D. Rupp, *NREI, CAB Administrator*  
M. Nielson, *DOE/HQ (EM-13) FORS*  
C. Brennan, *DOE/HQ (EM-13) FORS*  
CAB Members and Liaisons  
NSO EM Records

**Community Advisory Board for Nevada Test Site Programs (CAB)  
Recommendations for Revisions to the Environmental Website  
[www.nv.doe.gov/emprograms/environment](http://www.nv.doe.gov/emprograms/environment)**

***Environmental Restoration***

Paragraph 1  
Sentence 1                      Replace “The U.S. Department of Energy National Nuclear Security Administration Nevada Site Office Environmental Restoration Project” with “The Environmental Restoration project, operated by the Department of Energy’s Environmental Management Program,”

***Underground Test Area (UGTA) Sub-Project***

Paragraph 1  
Sentence 1                      Replace “Aub-Project” with “Sub-Project”

***Industrial Sites Sub-Project***

Paragraph 1  
Sentence 1                      After “The Industrial Sites Sub-Project characterizes” insert “(the process of identifying the components of hazardous or radioactive waste)”

Paragraph 2                      Replace “More than 1,850 of these historic areas, or industrial sites, were identified, verified, and inventoried for characterization, closure, and/or restoration. Of these, more than 1,650 sites are formally closed with State of Nevada approval.” with “More than 1,850 historic areas, or industrial sites have been identified, verified and inventoried for characterization, closure and/or restoration. As of January 2009 more than (*insert correct #*) are formally closed with State of Nevada approval.”

***Soils Sub-Project***

Paragraph 2  
Sentence 3                      Replace “National Nuclear Security Administration Nevada Site Office” with “Environmental Management Program”

***Waste Management***

Paragraph 1  
Sentence 4                      Clarify “management of transportation”

***Low-Level Radioactive Waste***

Paragraph 1  
Sentence 2                      Replace “only received” with “received only”

***Mixed Low-Level Radioactive Waste***

Paragraph 1  
Sentence 1                      Remove duplicate “The” and replace “disposed” with “disposes”

Sentence 2                      Replace “RCRA” with “Resource Conservation and Recovery Act (RCRA)”

Sentence 4                      Replace “Resource Conservation and Recovery Act (RCRA)” with “RCRA”

Paragraph 2  
Sentence 1                      Replace “on-site generated mixed low-level waste” with “mixed low-level waste generated on-site”

### **Low-Level Waste Grant Assistance Program**

- Paragraph 1  
Sentence 1 Remove “travel” from end of sentence
- Paragraph 2  
Sentence 1 Replace “needs based” with “needs-based”
- Sentence 2 Replace “Nearly” with “As of (*insert date*), nearly”

### **Transuranic / Mixed Transuranic Waste**

- Paragraph 1  
Sentence 2 Replace “NTS” with “Nevada Test Site (NTS)”
- Sentence 3 Replace “Nevada Test Site.” with “NTS.”
- Paragraph 3  
Sentence 3 Replace “size reduce the waste” with “reduce the size of individual packages and the volume of waste”
- Sentence 4 Replace “the end of fiscal year 2008.” with “April 2009.”

### **Radioactive Waste Acceptance Program (RWAP)**

- Paragraph 1  
Sentence 1 Replace “The” with “The mission of the”  
Replace “Program mission is” with “Program is”
- Paragraph 2  
Sentence 1 Replace “demonstrates,” with “demonstrate”

### **Public Involvement**

- Paragraph 1  
Sentence 3 Replace “Not only are interested stakeholders informed about Environmental Management activities at the Nevada Test Site, they are also invited to provide useful, independent ideas.” with “Interested stakeholders are informed about Environmental Management activities at the Nevada Test Site and are invited to provide independent ideas.”

### **Community Advisory Board**

- Paragraph 1  
Sentence 3 Replace “Members bring scientific and technical expertise to the Board including rural interests, environmental concerns, or local government viewpoints.” with “Members communicate local government viewpoints, interests and concerns of rural communities around the NTS and overall environmental concerns.”
- Sentence 4 Replace “members also represent” with “members and liaisons represent”



**Department of Energy**  
National Nuclear Security Administration  
Nevada Site Office  
P.O. Box 98518  
Las Vegas, NV 89193-8518



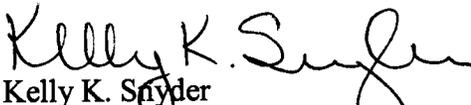
APR 27 2009

Dave Hermann, Chair  
Community Advisory Board  
for Nevada Test Site Programs  
232 Energy Way  
Las Vegas, NV 89030

**RESPONSE TO COMMUNITY ADVISORY BOARD (CAB) FOR NEVADA TEST SITE PROGRAMS RECOMMENDATION FOR REVISING THE CAB WEBSITE**

The CAB's website (located at [www.ntscab.com](http://www.ntscab.com)) is a useful tool for communicating CAB activities to its members and the public. All recommendations listed in the CAB's January 28, 2009 letter have been incorporated. The Nevada Site Office will continue to update information on the website as it becomes available.

Thank you for reviewing the website and providing recommendations on how it could be enhanced. The CAB's recommendations on Nevada's Environmental Management program and its communication tools are appreciated.

  
Kelly K. Snyder  
Deputy Designated Federal Officer

PSG:5150.KKS

cc via e-mail:

Melissa Nielson, DOE/HQ (EM-13)

FORS

Catherine Brennan, DOE/HQ (EM-13)

FORS

C.G. Lockwood, AD/AMEM, NNSA/NSO,

Las Vegas, NV

March 21, 2009

Dr. Inez Triay  
Assistant Secretary  
Department of Energy  
Washington, D. C.

**SUBJECT: Green Initiative for Recyclable Metals within the DOE Complex**

On January 12, 2000, the Department of Energy (DOE) placed a moratorium on the free release of volumetrically contaminated metals pending a decision by the Nuclear Regulatory Commission (NRC) on establishment of national standards. The NRC continues to review this issue, and the moratorium remains in effect. On July 13, 2000, DOE further restricted the release of all scrap metals with radiation levels above the detectable background. Improved data collection and records management, public access to the data, public participation in the release decision process, and certification that all requirements are met were specified prior to release. This moratorium seeks to prevent public exposure to radiation above background resulting from recycling/reuse of contaminated DOE material in consumer products. However, the moratorium allows reuse for specific purposes by DOE-authorized nuclear facilities, the commercial nuclear industry and NRC licensees authorized to possess the material.

Restricted reuse of the reclaimed scrap metals by DOE-authorized nuclear facilities, the commercial nuclear industry, or NRC licensees authorized to possess the material is the only viable near-term option for disposition of the ingots beyond a landfill. Section V.4.c of DOE 5400.5, *Radiation Protection of the Public and Environment*, states that:

Scrap metal that does not meet the requirements of Paragraphs V.4.a and V.4.b may be –

- (3) released for restricted recycling with a designated use (e.g., waste containers) if the material meets DOE approved Authorized Limits for the designated use and there is reasonable assurance that the property will not be recycled into general commerce.

DOE possesses vast quantities of valuable and precious metals at the various facilities throughout the DOE complex. For example, DOE owns approximately 15,600 tons of high-purity nickel with a potential value in the hundreds of millions of dollars. However, annual costs to store and secure this national asset are approximately \$1M. These maintenance costs would be reduced or eliminated by reprocessing the nickel into products useable within the framework of the moratorium. While the existing nickel represents a significant valuable resource, the eventual decontamination and decommissioning (D&D) of excess buildings could generate volumes of recoverable and recyclable materials. The amount of materials identified for recycling and reclamation at all DOE sites will directly affect the amount of contaminated material that must be sent to on- or off-site disposal sites, the reduction of which would also impact costs.

Recycling, reclamation, and reuse are widely recognized and practiced methods for achieving waste reduction and cost efficient waste management. Generally, the practice of recycling, reclamation, and reuse requires a commitment of some level of resources, both managerial and physical. As a key component of an effective recycling program, DOE should identify an individual/department at each local site with specific responsibilities to identify/quantify/maximize the practice of recycling, reclamation, and reuse.

With nuclear renaissance comes an increased demand for precious metals in the nuclear industry. Increased market price, and advances in metals reprocessing capabilities make this an opportune time to proceed with recycling. It has been advocated that recycling and reprocessing scrap metals is the right approach not only from a waste management perspective, but asset reclamation is also the environmentally responsible path forward.

Recycling of the scrap metals could provide positive economic effects and employment opportunities to the DOE communities retrieving this “waste” during D&D activities across the DOE Complex.

The EM SSAB recommends that DOE-EM identify new opportunities to recycle and reuse excess metals and other materials to support waste minimization. This will result in cost savings or cost recovery. By practicing responsible stewardship of government resources, recycling, reclamation, and reuse will also help preserve the precious natural resources of this Nation.

**NOTE:** Additional verbiage requested by other Chairs, which has been included:

1. Indicating it is a Draft - *done*
2. Economic effects and job opportunities - *done*
3. Reducing Maintenance costs of \$1M - *done*
4. Provide example of nickel at sites, but not exclusive - *done*
5. Values statement - *done*

**NOTE:**

*If you would like to read the entire document, it is located at <http://www.ntscab.com/documents.htm>*

In its 15-year history, the HAB has forwarded more than 200 pieces of advice to EM. In 2007, the HAB produced the *Groundwater Values* document and accompanying decision flowchart, which provides not only the HAB's groundwater values, "but also provides groundwater remediation decision-making guidance." In 2008, the HAB worked "with DOE and regulators during a first-of-a-kind workshop to help develop criteria for proposed plans for the initial waste site remedial decisions in the 200-Area near the Plutonium Finishing Plant." The HAB described this as a "very successful cooperative effort that resulted in a positive precedent for early public/HAB participation in the pre-decision cleanup process [13]."

**Idaho National laboratory**

The Idaho National Laboratory (INL), an 890-square-mile section of desert in southeast Idaho, was established in 1949 as the National Reactor Testing Station. Initially, the missions at INL were the development of civilian and defense nuclear reactor technologies and management of spent nuclear fuel. Fifty-two reactors—most of them first-of-a-kind—were built; three remain in operation at the site. Much of the current Idaho Cleanup Project is focused on cleanup at the site's Chemical Processing Plant and at the plutonium contaminated waste burial grounds. The site is also home to a DOE National Laboratory, where advanced nuclear technologies are studied and developed, and the National Environmental Research Park, where scientists from DOE, other federal and state agencies, universities and private research foundations conduct ecological studies in a protected outdoor laboratory.

Organizing for the INL Site Environmental Management Citizens Advisory Board (INL CAB) was initiated by DOE and volunteers in 1993, and, by 1994, 150 citizens had applied to participate in the 15-member board. Since it was chartered under the EM SSAB in 1994, the INL CAB has generated more than 120 recommendations and regularly engages in reviews of highly technical engineering evaluations and cost analyses.

**Nevada Test Site**

Formed in 1994, the Community Advisory Board for the Nevada Test Site Programs (NTS CAB) has approximately 20 members at a given time, as well as liaisons from federal, state and county government. The board makes recommendations for the Nevada Test Site, which is approximately 1,375 square miles in size—larger than the state of Rhode Island. Located in the southern portion of the Great Basin, approximately 65 miles northwest of Las Vegas, the NTS served as the primary proving ground for both conventional and nuclear weapons testing for more than 40 years.

Shortly after its formation, the NTS CAB created a subcommittee to address groundwater contamination that resulted from 828 underground nuclear tests. Water is an issue of great concern to the community, given that the average annual precipitation for portions of the NTS is less than five inches. In its extensive multi-year study of groundwater issues, "Members pored over lengthy technical documents, listened to numerous briefings by DOE scientists, and conferred with expert hydrologists, geologists, academia, and regulators [14]." In 2000, the NTS CAB held public meetings on the subject and expressed interest in providing advice on how DOE would determine the movement of groundwater off the NTS. After reviewing the board's work, DOE invited the board in 2002 to select a location for a new characterization well. The CAB identified three well locations in 2007, and DOE incorporated the recommendation into its 2009 drilling program by committing to drill a well at one of the identified locations. It was the first time—and only time to date—that a groundwater well was sited by an EM advisory board. A study by University of Nevada researchers concluded that the effectiveness of the advisory board in this endeavor "illustrates a successful community advisory process for DOE [15]."

U.S. Department of Energy

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# EM SSAB

## Top 3 Issues and Accomplishments

EM SSAB Chairs Meeting  
March 18-19, 2009 ▪ Augusta, GA



**EM** *Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure

[www.em.doe.gov](http://www.em.doe.gov)

# Hanford

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1. Tank Closure & Waste Management Environmental Impact Statement (EIS) impacts on cleanup decisions
2. Characterization, retrieval, treatment, and disposition of waste buried on Hanford's Central Plateau (including pre-1970 suspect TRU)
3. Proposed significant delays (decades) to empty underground tanks and vitrify tank waste



*EM Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure

[www.em.doe.gov](http://www.em.doe.gov)

# Hanford

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## **Accomplishment:** Two All Day Workshops

- ❖ Public Involvement Committee strategic planning workshop. Re-energized and focused the committee for the upcoming year
- ❖ Committee of the Whole-Baseline Workshop enhanced HAB understanding of how DOE develops baselines and makes assumptions on work scope



**EM** *Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure

[www.em.doe.gov](http://www.em.doe.gov)

# Idaho National Laboratory

1. Support DOE cleanup mission and adequate funding
2. Adequate funding for EM to assume the Nuclear Energy Liabilities Project
3. Opening permanent repository for calcine and spent nuclear fuel



**EM** *Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure



INL Site Environmental Management

CITIZENS ADVISORY BOARD

[www.em.doe.gov](http://www.em.doe.gov)

# Idaho National Laboratory

**Accomplishment:** The INL EM CAB's involvement and recommendations have assisted DOE in making sound budget and project decisions

- ❖ CAB influenced reprogramming and supplemental budgets to address D&D efforts and sodium bearing waste
- ❖ Supported treatment of "offsite" TRU waste by assisting with DOE-Idaho's public outreach efforts



**EM** Environmental Management

safety ❖ performance ❖ cleanup ❖ closure



INL Site Environmental Management

CITIZENS ADVISORY BOARD

[www.em.doe.gov](http://www.em.doe.gov)

# Nevada Test Site

1. Assuring continuing funding for the timely completion of the Underground Test Area Project
2. Obtaining sufficient funding to complete the Legacy TRU Waste Project
3. Resolution of the conflict between the State of Nevada and DOE regarding land use issues at the Nevada Test Site



**EM** *Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure



[www.em.doe.gov](http://www.em.doe.gov)

# Nevada Test Site

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**Accomplishment:** The first CAB-recommended well location will be drilled in May 2009



**EM** *Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure



[www.em.doe.gov](http://www.em.doe.gov)

# Northern New Mexico

1. DOE to provide full funding for implementation of the EM/LANS certified Baseline, to meet the clean-up schedule of the New Mexico Order on Consent
2. Continue installing new Groundwater Monitoring Wells using best practices with the objective of providing reliable measurement of Chemicals of Concern (COC)
3. Increase TRU waste shipments to Waste Isolation Pilot Plant – on critical path for Consent Order



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# Northern New Mexico

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**Accomplishment:** The NNM CAB's work in 2008, especially its recommendations, has been beneficial to the DOE per feedback from the DDFO and Assistant Manager for Environmental Operations, Mr. George Rael



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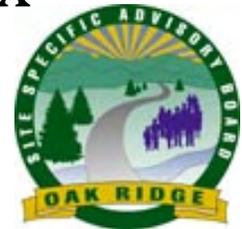
# Oak Ridge

1. Reestablishing national EM priorities with consideration of EM SSAB involvement and higher prioritization of risk reduction through D&D
2. Identification, surveillance, and maintenance of buildings that may have possible historical significance
3. Stewardship responsibilities at ongoing mission sites – locally and across the DOE complex



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# Oak Ridge

**Accomplishment:** Support for the Integrated Facility Disposition Program (addition of tremendous scope to the EM program at Oak Ridge) and the consequent Federal Facility Agreement modification



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# Paducah

1. DOE should move forward in developing a comprehensive on-site metals recycling program that will include the existing nickel ingots
2. To minimize future impacts on remediation efforts and to maintain continuity of service, DOE should amend the current remediation Request for Proposal for the inclusion of a 5-year option period to extend the environmental cleanup work scope beyond the initial period of performance
3. DOE should move forward with resolution of waste disposal options to facilitate the remediation process for burial grounds and D&D of the GDP facilities



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# Paducah

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**Accomplishment:** DOE recently conducted a successful public meeting that incorporated multiple elements of the CAB's comprehensive recommendations related to public communication



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# Portsmouth

1. Finding consensus among regulators, the community, and DOE on development of an accelerated cleanup plan, determination of groundwater remediation, and opportunities for job creation
2. Revise the PORTS D&D RFP to include EM SSAB recommendation on community investment provisions
3. Identify and address significant historical preservations issues at the PORTS site



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# Portsmouth

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**Accomplishment:** The PORTS SSAB is operational, has elected co-chairs, developed operating procedures, and established four functional committees



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# Savannah River Site

## 1. Liquid Waste Operations/Tank Closure

- ❖ Concern: Acceleration of HLW tank closure schedule – point of compliance, managing tank space, and the Salt Waste Processing Facility construction completion and startup

## 2. Continued Operations of H-Canyon

- ❖ Concern: Continued adequate funding for operations and infrastructure upgrades

## 3. Plutonium Disposition

- ❖ Concern: Federal Repository not opening to receive final Plutonium disposition



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# Savannah River Site

**Accomplishment:** Conception and development of a “Site Flow Chart” as a reference/orientation tool for SRS discussions and presentations

- ❖ The *Flow Chart* shows the inner connectivity of inputs, outputs, and processes of facilities, projects, and other site activities
- ❖ A copy of the *Flow Chart* is distributed prior to presentations and a poster size copy is referenced throughout the presentation for clarity



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U.S. DEPARTMENT OF  
**ENERGY**



# ***Update on the Office of Environmental Management***

*Environmental Management Site Specific Advisory Board  
Chairs Meeting, Augusta, GA, March 18-19, 2009*

***Dr. Inés R. Triay  
Acting Assistant Secretary  
Office of Environmental Management***



***EM Environmental Management***

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# EM Mission

***“Complete the safe cleanup of the environmental legacy brought about from five decades of nuclear weapons development, production, and Government-sponsored nuclear energy research.”***



- Largest environmental cleanup effort in the world, originally involving two million acres at 108 sites in 35 states
- Safely performing work
  - In challenging environments
  - Involving some of the most dangerous materials known to man
  - Solving highly complex technical problems with first-of-a-kind technologies
- Operating in the world’s most complex regulatory environment
- Supporting other continuing DOE missions and stakeholder partnerships



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# Program Priorities

- Essential activities to maintain a safe and secure posture in the EM complex
- Radioactive tank waste stabilization, treatment, and disposal
- Spent nuclear fuel storage, receipt, and disposition
- Special nuclear material consolidation, stabilization, and disposition
- High priority groundwater remediation
- Transuranic and mixed/low-level waste disposition
- Soil and groundwater remediation
- Excess facilities deactivation and decommissioning (D&D)



# Goal Attainment

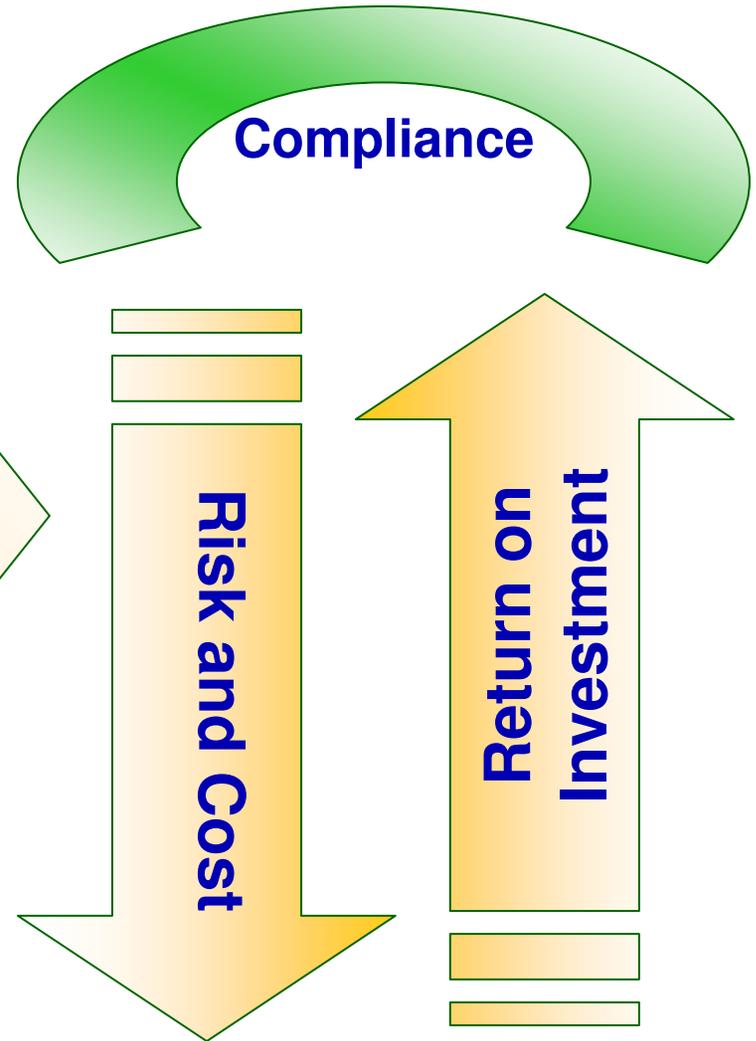
## Sound business practices

- Near term completions
- Footprint reduction

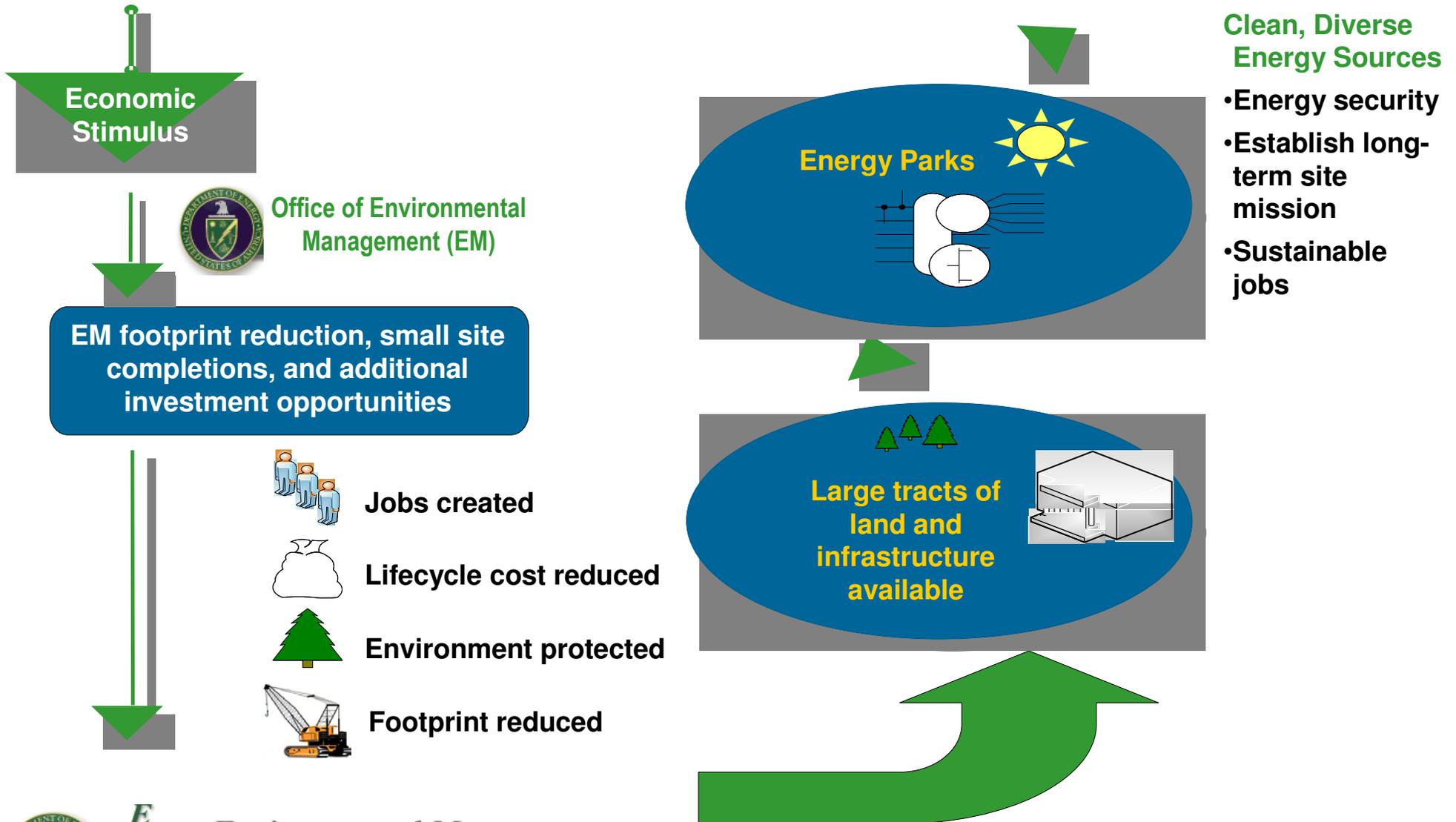
Use science and technology to optimize the efficiency of tank waste disposition

Use science and technology to optimize the efficiency of excess nuclear materials, and spent nuclear fuel disposition

Alternative management approaches such as the Energy Parks Initiative



# Footprint Reduction



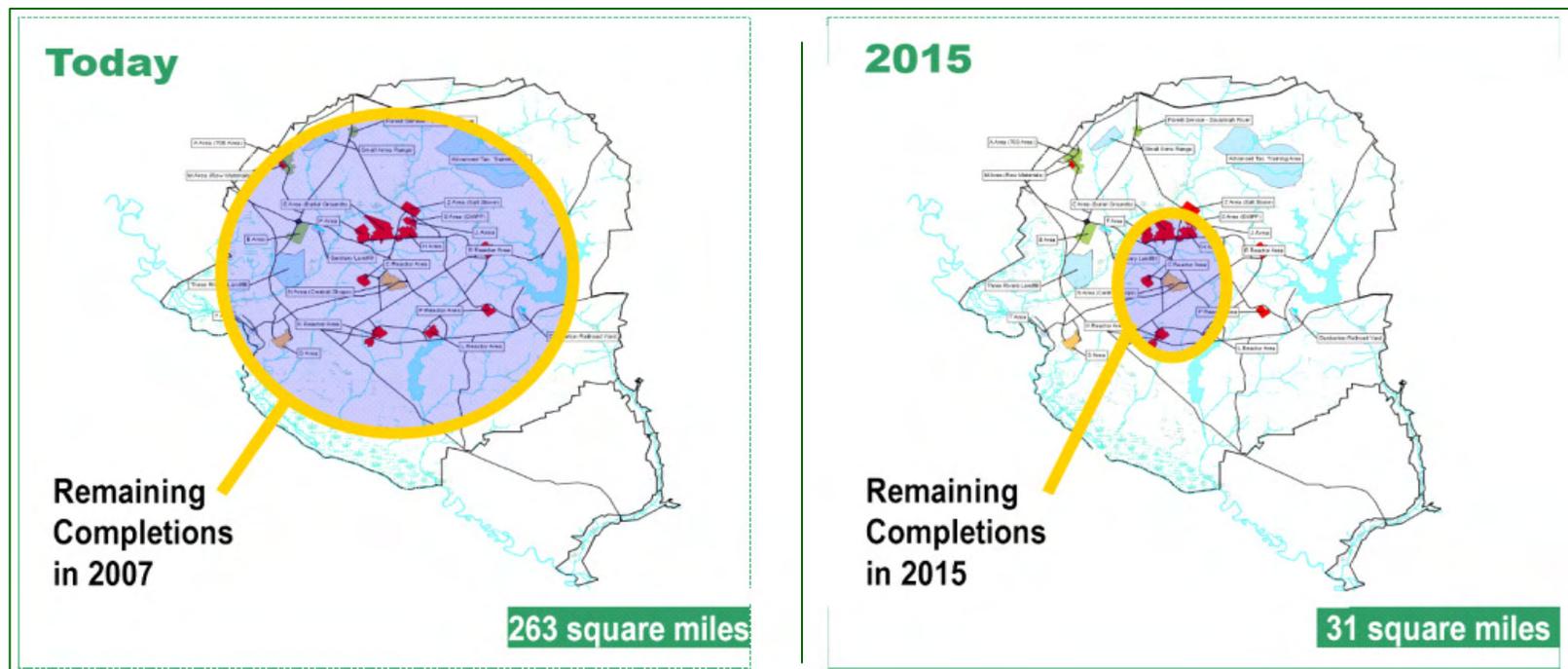
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# Footprint Reduction – Savannah River Site

- Focus on Area Closures—soil and ground water remediation
- Accelerate entombment of production reactors
- Reduces environmental risk with large return on investment
- Results in roughly 90 percent reduction of the site footprint

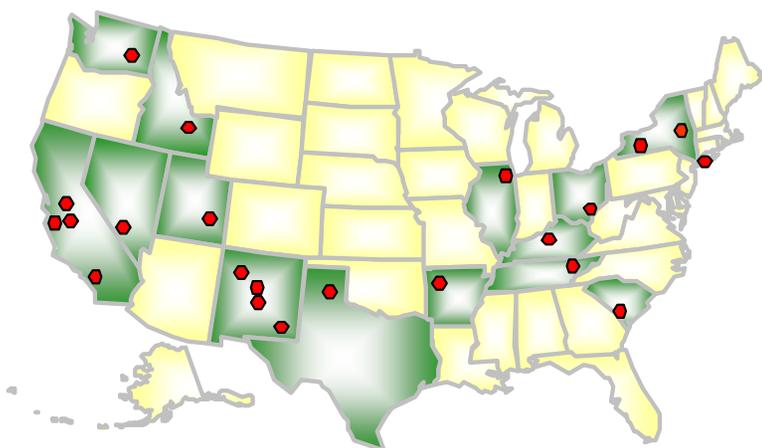


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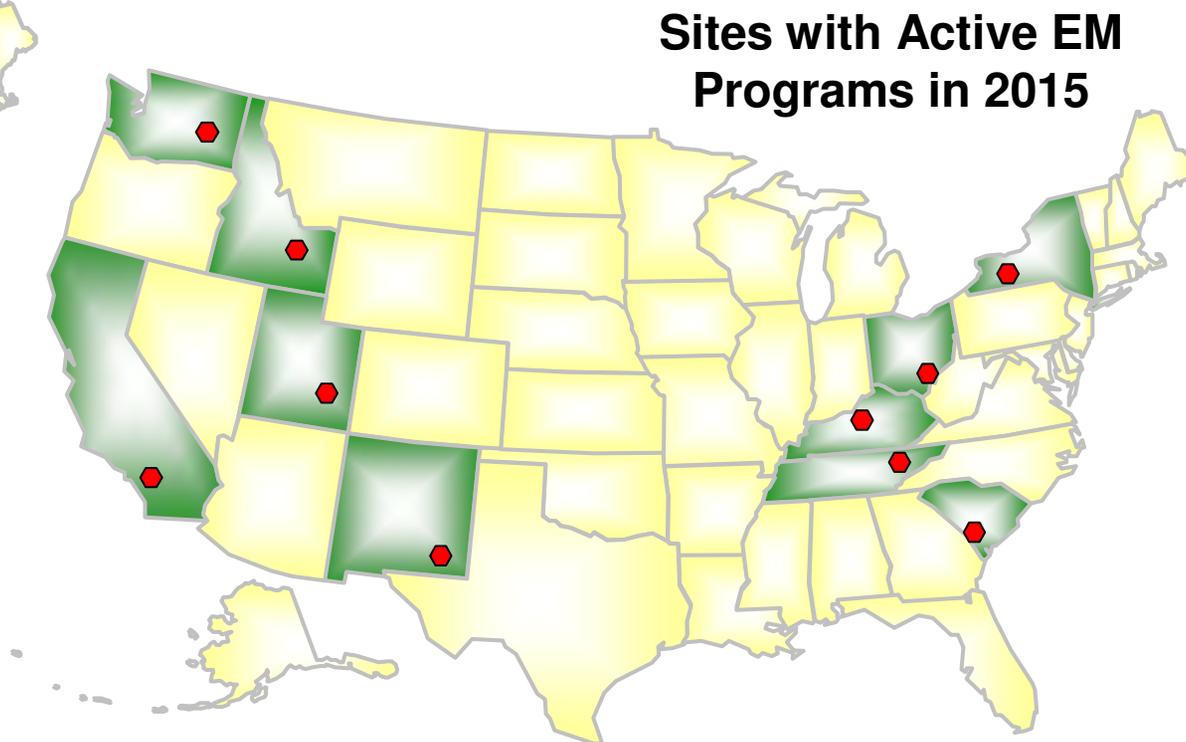
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# Small Site Near-Term Completion



**Sites with Active EM Programs in 2008**



**Sites with Active EM Programs in 2015**

**Cleanup activities at 22 sites in 14 states – to 10 sites in 10 states  
Reduce EM footprint from 900 square miles to 135 square miles  
Reduction in life-cycle cost**



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# Reutilization of Assets/Energy Parks



- EPI will convert EM liabilities (formerly contaminated sites, facilities, and materials) into assets to solve critical national energy issues
- EPI can demonstrate effective partnering of DOE, other Federal agencies, private industry, state and local governments, and local communities
- EPI can preserve and enhance economies of state and local host communities of DOE/EM sites with energy reindustrialization

**EM's unique resources can be leveraged to address some of the Nation's energy security and climate change concerns**



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# *American Recovery and Reinvestment Act of 2009* *(Recovery Act)*

- **Signed into law on Feb 17, 2009**
- **Unprecedented Congressional action**
- **Priority at highest Federal levels**
  - President
  - Congress
  - Secretary of Energy
  - Assistant Secretary for Environmental Management
- **Unprecedented transparency and accountability**
- **\$6 billion in *additional* funding for EM**



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# Recovery Act of 2009

- Focusing on “shovel ready, boots on the ground” projects contributing to footprint reduction and small site completions
- Requiring rapid deployment of resources with transparency of activities and accountability for results
- Developing dedicated EM project team
  - Safety/Operational Readiness
  - Project Management
  - Budget
  - Contracting
  - Regulatory
  - Communications

YOUR MONEY *at* WORK  
RECOVERY.GOV

Contributes to jobs creation, EM life cycle cost savings, and energy parks



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# *The EM Recovery Act Program*

- Extraordinary opportunity for EM to achieve new success—***Recovery Act funding entrusted to EM because of demonstrated results***
- Funds intended to create near-term environmental cleanup jobs, with lasting economic benefits
- Office being established in EM to support Recovery Act success



# *Recovery Act Implementation Principles*

**To achieve our job creation and footprint reduction goals as quickly as possible, we are evaluating site cleanup plans using five guiding principles:**

1. Validated cost and schedule baselines are in place
2. Contracts are in place
3. Regulatory requirements are agreed to and achievable
4. Technologies are proven and readily available
5. Significant accomplishments can be achieved by the end of FY 2011



# Recovery Act Project Priorities

- **Scope that can most readily be accelerated to take advantage of Recovery Act funds**
  - Soil and water remediation
  - Radioactive waste disposition
  - Facility decommissioning
- **Site closure and EM completion**
- **Reduce the EM footprint**
  - Across the country
  - Within a site



# Recovery Act Status

- **Aggressive implementation—Recovery Act funding within two weeks**
- **Opportunities identified at 17 sites in 12 states meeting Recovery Act principles (totaling \$6B through FY 2011)**
  - Recovery Act proposals developed by sites with site priorities in mind
  - Flexibility in work scope, but first and foremost, Recovery Act funds are about job creation
- **Recovery Act proposals accelerate work activities that have compliance milestones associated with them**



# Contacts

- Website: [www.em.doe.gov/emrecovery](http://www.em.doe.gov/emrecovery)
- Email: [emrecovery@em.doe.gov](mailto:emrecovery@em.doe.gov)
- Recovery Act Program Office 202-586-2083



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# EM SSAB Mission

The EM SSAB provides the Assistant Secretary and Field Managers with advice and recommendations regarding environmental restoration, waste disposition, risk assessment and management, science and technology activities, future land use and long term stewardship, and other site-specific issues.



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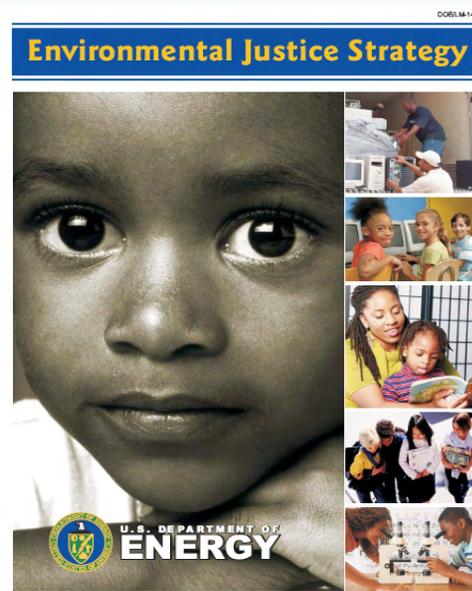
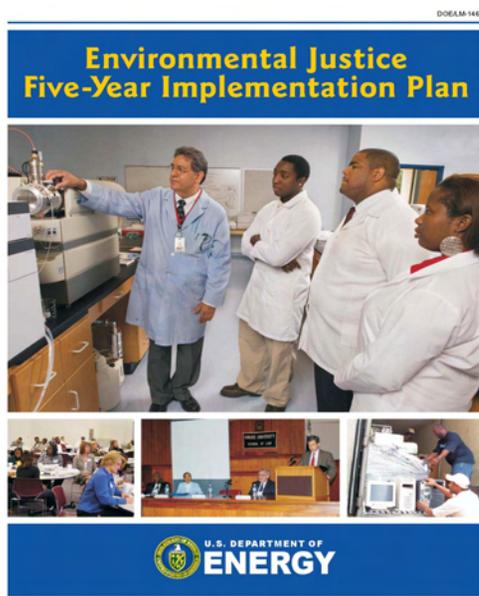
# *Topics for EM SSAB Focus*

- Recovery Act
- Ongoing Budget Priorities
- Waste Disposition
- Communications and Public Outreach Opportunities
- Opportunities for Public Engagement on Environmental Justice Issues



# Environmental Justice: 5 Year Plan

Environmental justice is “fair treatment and meaningful involvement of all people, regardless of race, ethnicity, culture, income or education level with respect to development, implementation, and enforcement of environmental laws, regulations and policies.”



Fair treatment means that racial, ethnic, or socioeconomic groups should not bear a disproportionate share of negative environmental consequences resulting from industrial, municipal, and commercial operations, or from the execution of federal, state and local laws, regulations and policies.



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# The Challenge – Maintaining EM's Momentum



- Managing performance-based projects with life cycles over several decades
- Safely conducting work
- Producing results with robust project management practices
- Applying first-of-a-kind technologies
- Achieving footprint reduction and near-term completions
- Managing and maintaining an “able and stable” workforce



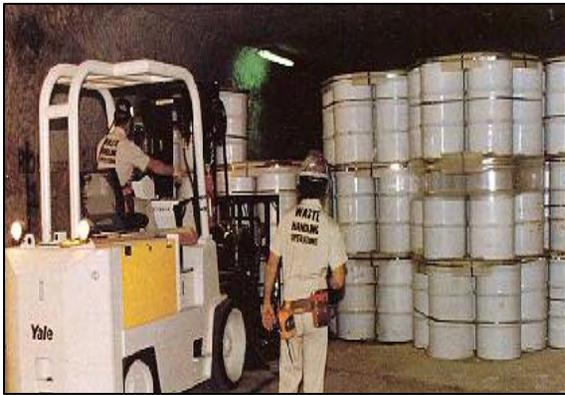
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# ***Waste and Materials Disposition Update from EM's Office of Regulatory Compliance***

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## **EM Site Specific Advisory Board Chairs Meeting March 2009**

***Frank Marcinowski  
Deputy Assistant Secretary  
for Regulatory Compliance  
Office of Environmental Management***

# Outline

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- Overview of Office of Regulatory Compliance
  - Compliance Status
  - Oversight and Management Strategies
  - DOE Order 435.1, *Radioactive Waste Management*
  - Intergovernmental, Stakeholder & Regulatory Interactions
- Discussion of Budget and Planning Impacts on Waste Disposition Plans
- Updates on Waste and Material Stream Disposition
  - High-Level/Tank Waste
  - Transuranic Waste
  - Low-Level/Mixed Low-Level Waste
  - Greater-Than Class C LLW
  - Mercury Management Project
  - Nuclear Materials Disposition
- Closing & Discussion

# *Overview on Office of Regulatory Compliance – Scope, Responsibilities and Strategies*

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# Office of Regulatory Compliance (EM-10)

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- The Office of Regulatory Compliance:
  - Responsible for EM matters related to environmental responsibilities defined by law, regulation or negotiated or stipulated compliance agreements
  - Leads efforts to develop strategies for dispositioning EM wastes and materials and for complying with applicable regulations, and supports implementation of the EM disposition projects
  - Performs oversight of compliance with DOE Order 435.1 on Radioactive Waste Management
  - Serves as EM's National Environmental Policy Act (NEPA) Compliance Officer
  - Serves as the interface with stakeholder groups within and outside the Department
- EM remains focused on providing complex-wide leadership in management and disposition of DOE waste streams and compliance with applicable environmental laws and regulations.

*Implementation of the American Recovery and Reinvestment Act requires extensive work with DOE's regulators and detailed disposition planning.*

# Compliance Status

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- DOE has entered into approximately 40 Environmental Regulatory Agreements for cleanup
  - In FY 2008, we met nearly 90 percent of nearly 200 enforceable milestones
  - For FY 2009, there are more than 160 Enforceable Milestones
- The FY 2009 Budget Request identified that some compliance requirements could not be met due to funding or technical issues
  - The additional funds from the *American Recovery and Reinvestment Act* may help to bridge some of this compliance gap
- Recent successes:
  - Resolution, last year, of the long standing legal issues with Idaho on exhumation of buried TRU waste at Idaho National Lab
  - Successful renegotiation with Washington (WA) of many milestones within the Hanford Tri-Party Agreement (TPA)
  - Successful multi-agency negotiation with NY, EPA and NRC to define terms of future cleanup at West Valley (“Core Team Approach”)
- Current challenges:
  - Litigation by WA regarding missed TPA milestones related to the Waste Treatment Plant

# *DOE Order 435.1, Radioactive Waste Management*

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- DOE's waste management policy remains unchanged
  - DOE's *Waste Management Programmatic Environmental Impact Statement* and Records of Decision are still valid
- However, nearly a decade has passed since last major revision
- Update planned to address multiple purposes
  - Incorporate lessons learned
  - Institutionalize informal guidance documents
  - Address changes in relevant statutes, regulations, and standards
  - Account for advances in technology
  - Address new and emerging DOE needs
- Progress to date
  - Formed an Integrated Project Team
  - Solicited planning input
  - Initiated Complex Wide Review to assess waste management activities and to support the update

# Performance Assessments & Community of Practice

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- Performance Assessments (PAs)
  - Are a LLW disposal requirement under DOE M 435.1-1
  - Evaluate compliance with performance objectives
  - Approved PAs exist for all DOE LLW disposal sites
- Community of Practice
  - Is being implemented via DOE's High-Level Waste Corporate Board
  - Goals/Objectives
    - Promote PA consistency
    - Provide targeted guidance and support
    - Improve sharing of modeling approaches and data
    - Conduct training sessions and workshops
    - Provide framework for enduring PA resource

# *Budget and Planning Update – Impact on Disposition*

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# *EM Risk-Based Priorities*

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- Essential activities to maintain a safe and secure posture in the EM complex
- Radioactive tank waste stabilization, treatment, and disposal
- Spent fuel stabilization, packaging, and disposition
- Special nuclear fuel storage, receipt, and disposition
- High priority groundwater remediation
- Transuranic and mixed/low-level waste disposition
- Soil and groundwater remediation
- Excess facilities deactivation and decommissioning (D&D)

# *American Recovery and Reinvestment Act (ARRA)*

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- EM has been given the opportunity to make additional investments in lower risk activities and complete building the capability for dispositioning tank waste, nuclear materials, and spent nuclear fuel
- With the additional funding EM will be expected to achieve results
  - Create and preserve thousands of jobs
  - Provide significant environmental cleanup
  - Make large tracts of land available for re-utilization
- EM takes this opportunity very seriously and is employing a formal, integrated project approach to implement ARRA

# EM's Top-Level Goals

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## Footprint Reduction

- Provide maximum return on money invested in EM – reduces overall life cycle cost of cleanup program
- Reduce the active area and number of sites
- Focus on proven successes – solid waste disposal, D&D of contaminated facilities, and soil and groundwater remediation
- Create thousands of jobs through economic recovery investment

## Reutilization of Assets/Energy Parks

- Transform EM resources: land, infrastructure, technologies, highly-skilled workforce into an Energy Parks Initiative (EPI)



# DOE's radioactive waste management priorities....

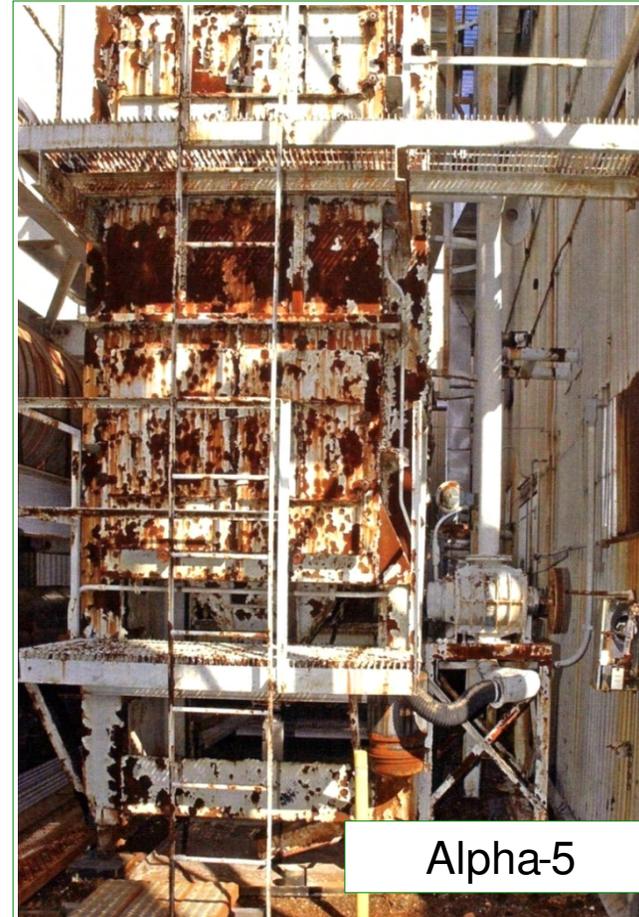
- Continue to manage waste inventories in safe, compliant manner
- Address high risk waste in a cost-effective manner
- Maintain and optimize current disposal capability for future generations
- Develop future disposal capacity in an complex environment
- Promote the development of treatment and disposal alternatives in the commercial sector
- Review current policies and directives within DOE
- Provide needed oversight



## **Planning and Analysis** — *understand changes in life -cycle cost estimate*

### **Unfunded Liability**

- ❖ **NNSA, SC and NE identified cleanup work for EM consideration**
- ❖ **306 surplus facilities**
- ❖ **34 types of materials**
- ❖ **\$3.7B-9.2B Cost estimate**



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# *Waste Disposition Updates*

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# High-Level/Liquid Waste Management

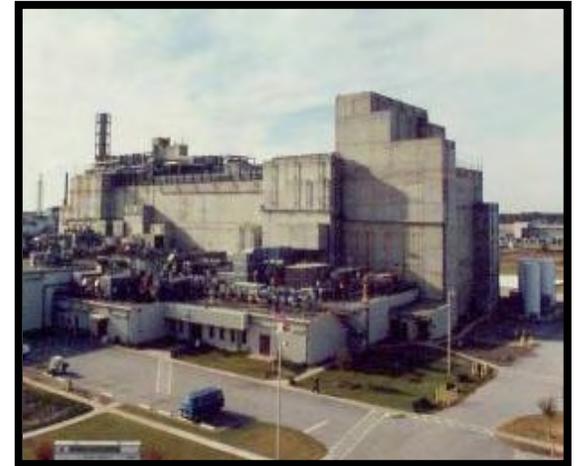
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- Disposition strategy, in brief:
  - Maintain safety of existing tanks → retrieve tank waste → process and treat waste → interim store treated waste pending final disposal
- Tank retrieval progress continues and tank closure progress has been made
  - 13 tanks closed to date [2 at SRS; 11 at INL]
- “Section 3116” of the National Defense Authorization Act and DOE Order 435.1 provide the framework for tank closures and allows residual waste (tank heels) can be left in place and managed to meet LLW requirements
  - Waste determination with NRC consultation and monitoring
  - Waste incidental to reprocessing determinations under DOE M 435.1-1

# High-Level/Liquid Waste Management

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- Waste processing progress continues at Savannah River Site
  - Defense Waste Processing Facility (DWPF) continues to vitrify the HLW –2,675 cans produced to date
  - MCU operations continue, providing interim salt treatment capabilities
  - Saltstone facility is operating, processing low activity fraction for onsite disposal
- Construction continues to provide future treatment capabilities
  - Integrated Waste Treatment Unit under construction at Idaho for treatment of sodium bearing waste (operations to begin 2011)
  - Salt Waste Processing (operations to begin in 2014)
  - Waste Treatment Plant at Office of River Protection (operations to begin in 2019)



## *What's New in HLW...*

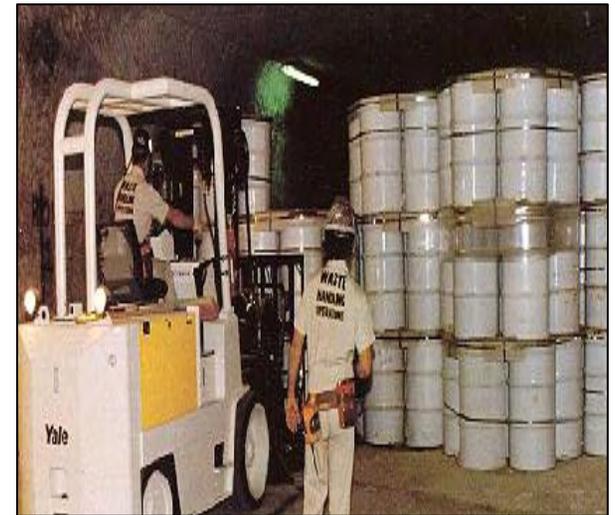
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- Newly awarded contracts to address tank waste management and treatment
  - New Tank Operations Contractor at Office of River Protection
  - New Liquid Waste Contract award is pending
- High Level Waste Corporate Board established in 2008
- Recent performance assessment work on tank farms completed at SRS and in process at Hanford
- HLW strategic initiatives under development, led by EM's Office of Engineering and Technology, and supported by EM-10, DOE sites and national labs
- Availability of geologic disposal?
  - EM's near-term plans to ensure safe treatment and interim storage of HLW are not impacted by changes in Yucca Mountain Project
  - EM will support Administration's Blue Ribbon Panel as disposal and storage alternatives are evaluated

# *Transuranic Waste Disposition Update*

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- Waste Isolation Pilot Plant (WIPP) Summary
  - Over 58,700 m<sup>3</sup> of defense transuranic waste disposed
  - Completed nearly 7,200 shipments
- Nearly 10 years of safe operations!
  - Operations began March 1999
- Remote-handled (RH) shipments began in Jan 2007
  - Over 200 RH shipments received to date
  - Currently, 3 RH sites (INL, Argonne and Oak Ridge) are shipping, with additional sites planned later this year



# TRU Shipments Received



Site	Shipments	
Argonne National Laboratory	25	
Idaho National Laboratory	3,229	
Los Alamos National Laboratory	434	
Lawrence Livermore National Laboratory	18	
Nevada Test Site	48	
Rocky Flats Environmental Technology Site	2,045	
Hanford Site	432	
Oak Ridge National Lab	6	
Savannah River Site	962	
<b>Total to WIPP</b>	<b>7,111</b>	

## *What's New in TRU Waste Disposition*

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- In March 2008, DOE published a Supplement Analysis and Amended Record of Decision to support optimization of the National TRU Program
  - Limited volumes of both CH- and RH-TRU waste may be sent to Idaho National Laboratory to be treated and characterized prior to shipment to WIPP for disposal.
  - Approximately 2,067 CH-TRU shipments and 188 RH-TRU shipments could move to INL for treatment and characterization
  - **However, DOE will continue to comply with the Idaho Settlement Agreement terms and milestones**
- Implementation of the inter-site shipping campaign began in December 2008 shipment of legacy TRU from NTS to INL, during winter maintenance outage at WIPP

American Recovery and Reinvestment Act will enable acceleration in disposition of RH TRU volumes

# Updated FY 2009 TRU Waste Shipping Goals

Generator Site	# Contact Handled Shipments	# Remote Handled Shipments
Argonne National Laboratory		34
Idaho National Laboratory	674	48
Los Alamos National Laboratory	115	16 (April)
Oak Ridge National Laboratory	34	35 (Feb)
Savannah River Site	154	46 (Spring)
GE Vallecitos, CA		17 (Spring)
<b>Total to WIPP</b>	<b>977</b>	<b>180</b>
<b>Inter-site to INL</b>		
Nevada Test Site	17	
GE Vallecitos	1	

## *WIPP Regulatory Update*

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- WIPP recertified by EPA every 5 years to demonstrate compliance with disposal standards
  - First recertification application submitted 2004; approved in March 2006
  - Second recertification application will be submitted to EPA in March 2009
- 1<sup>st</sup> Hazardous Waste Facility Permit renewal application will be submitted May 2009

## *Packaging and transportation innovations will help optimize TRU waste disposal in future*

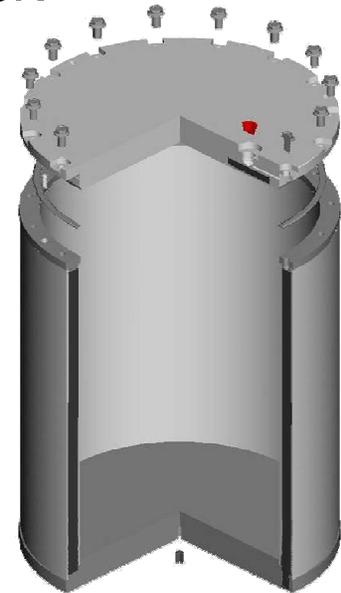
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- Use of shielded containers to enable RH TRU acceleration and improve worker safety
- Development of TRUPACT-III will enable shipment of oversized containers to be shipped without repackaging
- Detailed packaging instructions developed to increase certification rates and reduce need for future repackaging

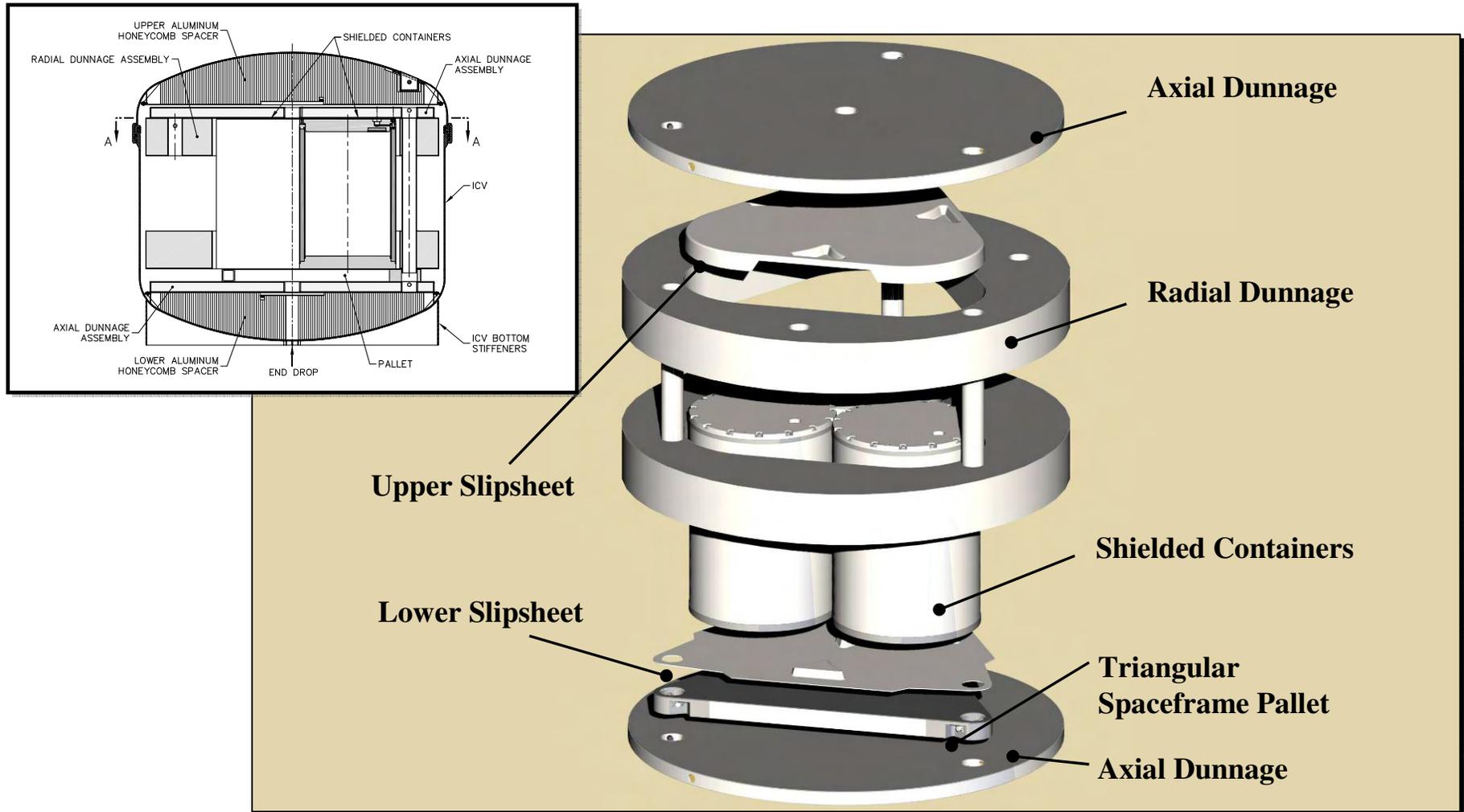
## *Shielded Containers* - A new method planned to ship RH waste to WIPP

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- External dimensions = 55-gal drum, internal capacity for a standard 30-gallon drum
- Transport in 3-pack configuration in HalfPACT under current design and licensing bases:
- Handling, storage, and emplacement in 3-pack configuration
- Incorporate into existing CH TRU waste handling infrastructure – count as RH waste
- Shielded containers will significantly reduce the number of RH waste shipments to WIPP



# Shielded Container Shipping Configuration



## *Radial Shock Absorber to be used with shield containers*

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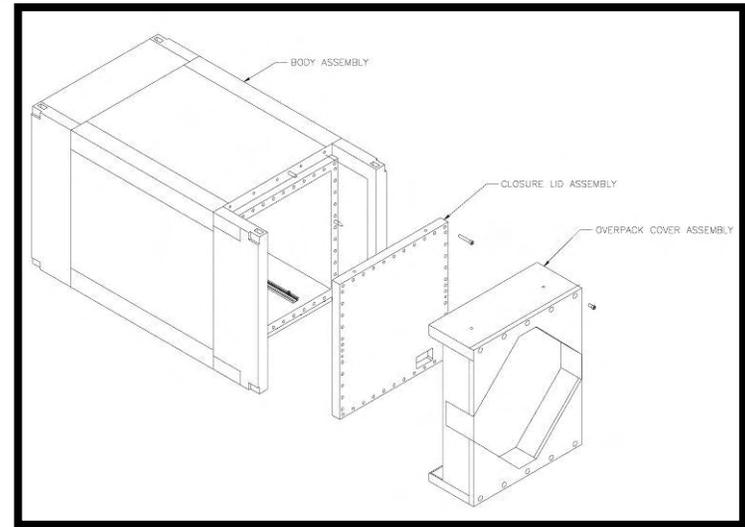


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# TRUPACT-III

- Rectangular transportation container
  - 8'2 x 8'8" x 19'.10.5" integrated shell with 5 different layers- high strength stainless
  - For use with large box waste to eliminate repackaging
  - Approximately 25% of DOE TRU waste in large boxes
  - Must meet NRC Type B requirements
  - NRC currently reviewing application



## ***DOE LLW/MLLW management-related concerns...***

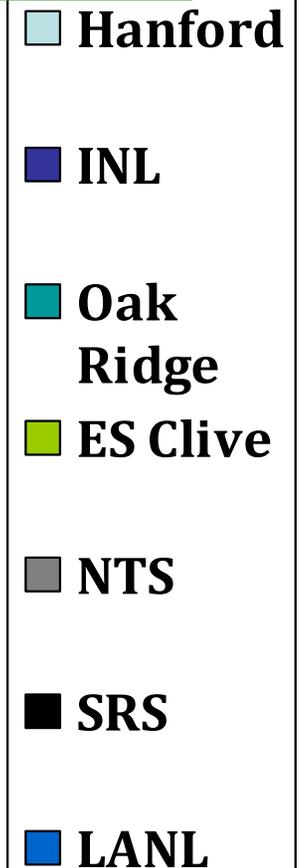
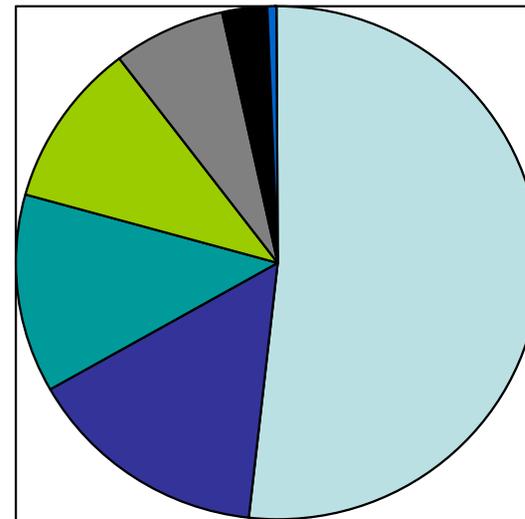
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- Increasing costs due to growing scope and market conditions
- Uncertainty in availability of future disposal capacity
- Potential challenges to DOE policies and strategies
- Ability to address excess facilities and materials scope within constrained resources
- Potential natural resource damages
- Increasing inquiries from outside DOE for access to DOE low-level and mixed low-level waste facilities, due to changing circumstances

## Most DOE LLW/MLLW is derived from decommissioning and site cleanup activities

DOE disposed nearly 1/2 million cubic meters of LLW and MLLW in fiscal year 2008

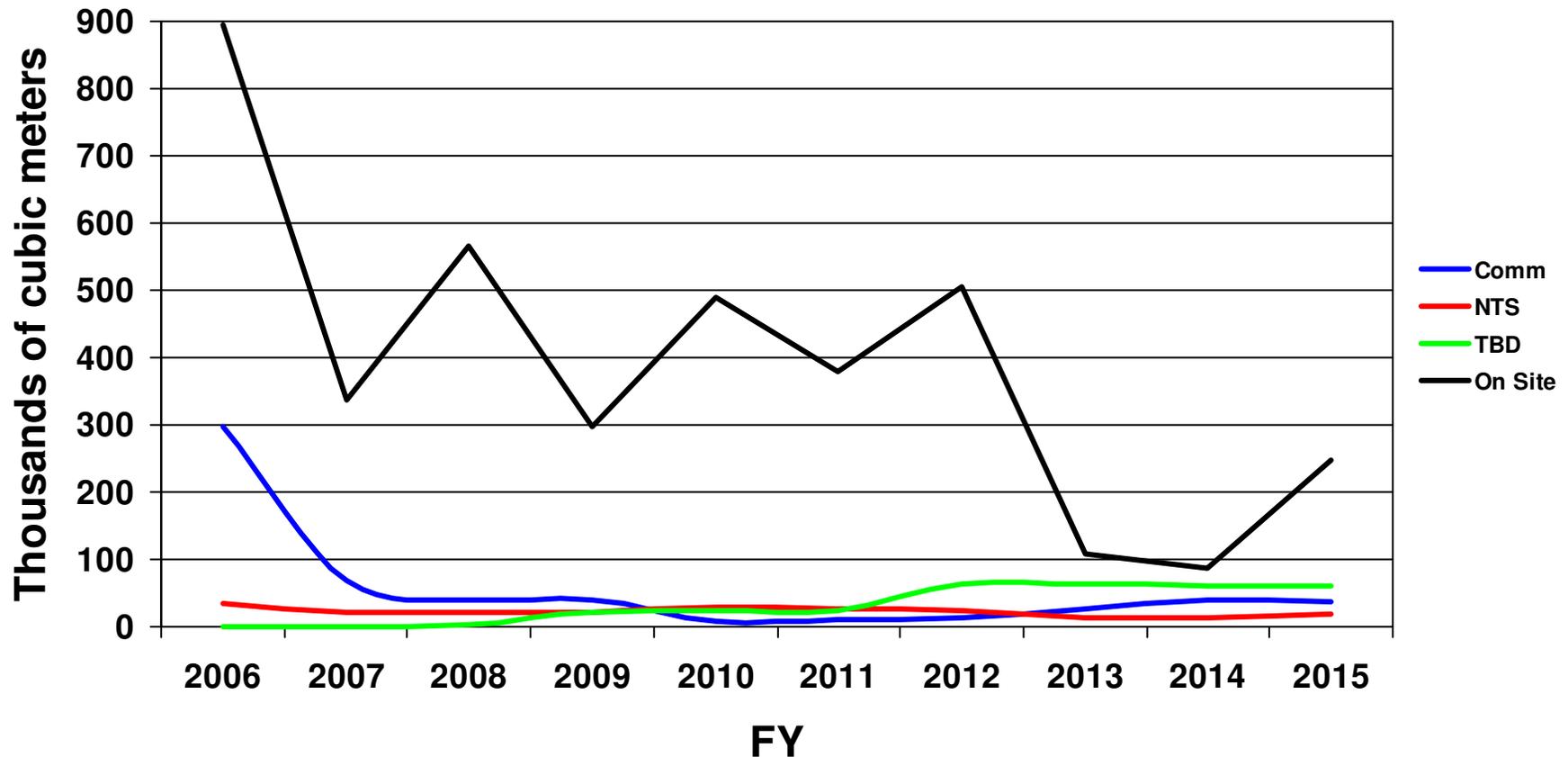
- 77% disposed on-site in DOE CERCLA disposal facilities
- 12% disposed onsite in DOE non-CERCLA facilities
- 11% disposed commercially (EnergySolutions Clive Facility)



*Commercial disposal treatment and disposal facilities are very valuable partners in the DOE cleanup mission.*



Off Site LLW/MLLW disposition has declined and  
On Site disposition follows similar trend, but at higher volumes



**EM** Environmental Management

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# Low-Level/Mixed Low-Level Waste

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- Updated life-cycle LLW/MLLW disposition data (including transportation modes and schedules) will soon be available
  - Annual update collected in January and February from all DOE waste generator sites
  - Data currently undergoing quality review
  - Revised data expected to be posted on the Waste Information Management System (WIMS) in April 2009
- Subsequent update will likely be required to reflect activities associated with *American Reinvestment and Recovery Act*
- To some degree, forecast volumes will remain somewhat uncertain
  - For example, some higher activity MLLW volumes “fall out” of TRU inventory

**WIMS can be found at <http://wims.arc.fiu.edu/WIMS>**

# *A Look Ahead - DOE LLW/MLLW Disposition*

---

- Continued use of onsite disposal at large cleanup sites
- Continued use of commercial disposal facilities, when cost effective and in the best interest of the Department
- Current Mixed Waste Disposal Unit at NTS must close in December 2010
  - Alternatives being evaluated for future higher activity MLLW disposal
- Pending EM cleanup and operations contracts include significant waste management scope
- New Tank Closure and Waste Management Environmental Impact Statement at Hanford
  - Must meet Settlement Agreement before off site waste can be received
- Complex-wide LLW/MLLW acquisitions
  - Treatment (Draft Request for Proposals issued February 3, 2009)
  - New LLW/MLLW disposal acquisition planning will begin within next year
- TSCA Incinerator (Oak Ridge) will cease operations in FY 2009

## *LLW/MLLW Disposition Update*

---

- Commercial industry continues to provide viable alternatives for disposal and treatment
  - Newly-extended national LLW disposal contract with *EnergySolutions* Clive, UT
    - Many DOE sites continue to obtain commercial disposal exemptions and take advantage of rail access to Clive
  - Alternate commercial treatment paths for PCB-contaminated waste are enabling the Department to close the TSCA Incinerator at Oak Ridge later this year

# What's New in LLW/MLLW Disposition....

---

- Complex-wide Acquisition for LLW/MLLW Treatment
  - Draft Request for Proposals issued February 3, 2009 for public comment (due mid February).
  - Scope: Bulk Survey For Release services (Nuclear Regulatory Commission requirements); Authorized Release services for low level waste (DOE Order 5400.5, Radiation Protection of the Public and the Environment requirements); Treatment services for MLLW and LLW; Ancillary Services.
  - Website for procurement:  
[http://www.emcbc.doe.gov/MLLW\\_treatment/index.html](http://www.emcbc.doe.gov/MLLW_treatment/index.html)
  - Comments are being considered for incorporation into the RFP.
  - Contract award(s) expected about the fourth quarter of calendar year 2009.
- DOE has started preliminary planning for LLW/MLLW disposal acquisition

## ***DOE EM is also closely monitoring changing circumstances in the nation's civilian LLW management system***

---

- Reduced disposal access for Class B & C wastes
- Calls for changes to Low Level Waste Policy Act
- Possible increased disposal demand to address disused sealed sources
- Changes in disposal marketplace
  - Developments in Texas compact (Waste Control Specialists)
  - Changes in treatment capabilities
- Contemplated changes in NRC waste classification systems and waste related guidance documents
  - Branch technical position on concentration averaging
  - Updated guidance on storage of B&C wastes
  - NRC review of depleted uranium disposal considerations

# Greater-Than-Class C LLW Disposal

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- DOE has statutory responsibility to provide disposal capability for GTCC LLW generated by NRC and Agreement State licensees
- DOE is preparing EIS for disposal of commercial GTCC LLW and DOE “GTCC-like waste”
- EIS scope includes 11,000m<sup>3</sup> of stored and projected waste including activated metals, sealed sources, and other waste (e.g., contaminated debris)
  - 7,300m<sup>3</sup> from the commercial sector
  - 3,700m<sup>3</sup> from DOE activities

# Greater-Than-Class C LLW Disposal

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- Disposal alternatives being evaluated include:
  - Deep geologic disposal at WIPP and proposed Yucca Mountain Repository
  - Enhanced near surface disposal at Hanford, INL, LANL, NTS, ORR, SRS, WIPP vicinity, and generic commercial locations
  - Intermediate depth borehole location at the same ENS locations, except SRS and ORR
- Preliminary Draft EIS has been completed and is undergoing internal review.
- Goal is to issue Draft EIS in 2009 and Final EIS in 2010
- Before issuing ROD, DOE must submit a Report to Congress on disposal alternatives and wait Congressional action
- Engaged with Tribal nations to obtain and reflect their unique perspective into the EIS

# Disposal Alternatives Evaluated in EIS

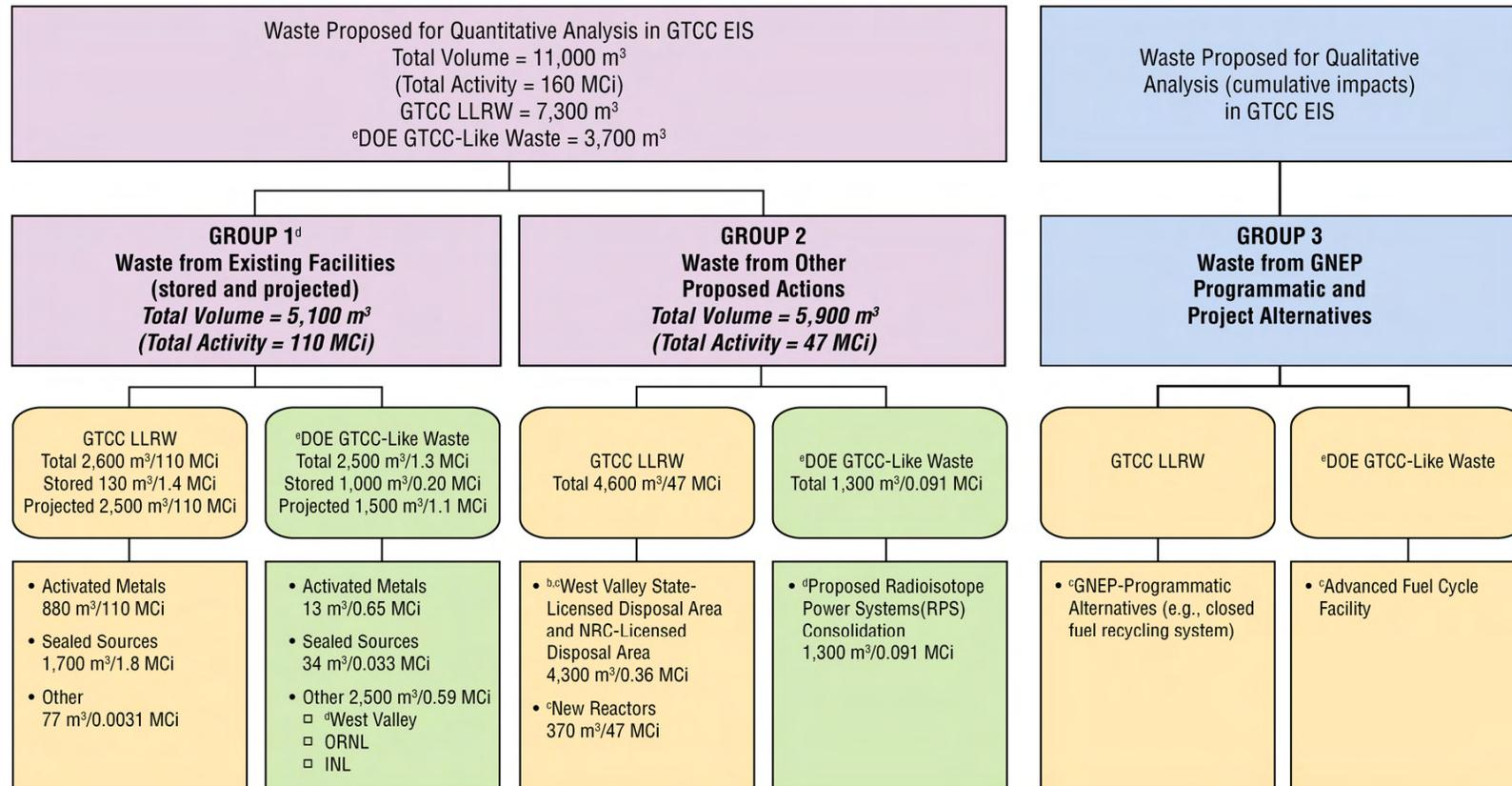
Alternative	Location
1. No action	Continued storage consistent with ongoing practices
2. Geologic Repository	Waste Isolation Pilot Plant (WIPP)
3. Geologic Repository	Proposed Yucca Mountain Repository
4. Enhanced Near Surface	Hanford, Idaho National Laboratory (INL), Los Alamos National Laboratory (LANL), Nevada Test Site (NTS), Oak Ridge Reservation (ORR), Savannah River Site (SRS), WIPP Vicinity, and generic commercial
5. Intermediate Depth Borehole	Hanford Site, INL, LANL, NTS, WIPP Vicinity, and generic commercial

## Remarks

- EIS will identify whether legislation or regulatory modifications that may be needed to implement any of these alternatives
- Combination of alternatives may be feasible
- EIS being structured so that decisions can be made on a waste stream-by-waste stream basis

# Waste Inventory Evaluated in Preliminary EIS

## Waste Volumes and Radionuclide Activities for Inclusion In GTCC EIS<sup>a</sup>



MP20801E

<sup>a</sup> Values have been rounded to two significant figures; volume estimates represent packaged waste volumes.

<sup>b</sup> The packaged waste volume given here is based on a packaging factor of 1.02 applied to in-place GTCC LLRW estimate.

<sup>c</sup> Waste volumes not included in the estimates provided in the Notice of Intent (NOI) to prepare the EIS.

<sup>d</sup> RPS waste was identified in the NOI as DOE GTCC-like waste and is now shown in Group 2. Also, 810 m<sup>3</sup> from the West Valley Site was added to the original NOI estimate and included in Group 1.

<sup>e</sup> GTCC-Like Waste refers to DOE LLRW and transuranic waste with characteristics similar to GTCC LLRW and which may not have an identified path to disposal. The term GTCC-like does not have the effect or intent of creating a new classification of radioactive waste.

**Waste Volumes  
 may be subject  
 to change**

# *Extensive coordination required on GTCC EIS*

---

- EPA Cooperating Agency; NRC Commenting Agency
- Tribal Nations (formal consultation process developed)
- Industry (waste inventory and operating experience)
- Other Stakeholders, including Advisory Boards and NGOs
- Other DOE EISs
  - Yucca Mountain Final Supplemental EISs
  - GNEP Programmatic EIS
  - Nevada Test Site
  - Hanford Tank Closure & Waste Management EIS
  - West Valley Decommissioning EIS
  - LANL Site Wide EIS
  - Complex Transformation Supplemental Programmatic EIS

*For additional information on the GTCC EIS visit <http://www.gtccceis.anl.gov/>*

# Nickel Recycle

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- DOE is evaluating disposition of ~15,300 tons of classified nickel\* recovered from uranium enrichment process equipment
- DOE plans to pursue a strategy to competitively sell the nickel to a qualified bidder that will 1) declassify, 2) decontaminate, and 3) alloy, fabricate, then manufacture the nickel into a product that can be used in a radiologically-controlled (or licensed) process
  - Nickel would remain within a controlled environment throughout the disposition process; it will not be “released” into unrestricted commerce

# Nickel Recycle

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- **The Secretarial Moratorium/Suspension has not been lifted**
  - January 12, 2000, **Moratorium** prohibits unrestricted release of volumetrically-contaminated metal into commerce
  - July 13, 2000, **Suspension** prohibits unrestricted release of all scrap metals from DOE radiological areas into commerce
- **Processing and reuse of the nickel for radiologically-controlled applications would need Secretarial approval to pursue implementation**

# ***Nickel Recycle***

---

- **The buyer must have all necessary licenses, permits, meet all requirements, and comply with the law**
- **All facility construction and licensing costs are responsibility of the buyer**
- **Nickel must be declassified and decontaminated by facility(ies) which must be licensed by the NRC or an Agreement State, or under the AEA authority**
- **Stringent “defense in depth” requirement must be met: decontaminated nickel must meet IAEA clearance levels for alloying, manufacturing, and end-use of nickel**
  - This will ensure that radiation doses and environmental impacts are kept as low as reasonably achievable, should planned controls fail
- **Stringent perpetual property/radiological control requirements are major concerns of stakeholders (e.g., MIRC, environmental groups)**
  - Technically there is no need for such controls, i.e., IAEA limits are met. This approach may be criticized by buyers as overkill.

# *Materials Disposition Update*

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***EM Environmental Management***

*safety ❖ performance ❖ cleanup ❖ closure*

# *What's New: EM's New Mercury Management Project*

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- *The Mercury Export Ban Act of 2008* requires DOE to provide storage and long-term management of mercury (non-radioactive) generated in the U.S.
  - Responsibility has been assigned to EM, with EM-10 lead
- **Critical Milestones Required by Statute**
  - DOE issues procedures and standards – 10/01/09
  - DOE designates mercury storage facility(ies) – 01/01/10
  - Mercury storage facility ready to accept mercury – 01/01/13
  - Ban on export of mercury from U.S. effective – 01/01/13
  - DOE mercury storage facility operating under RCRA permit – 01/01/15
- **Current Status**
  - Established Interagency Steering Committee with EPA and Defense Logistics Agency
  - Issued Expression of Interest in FedBizOps and Federal Register
  - Developed a NEPA strategy for facility(ies) designation

# Nuclear Materials Disposition Update

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- Nuclear Materials consolidation and disposition plans and activities are integrated across DOE
- Consolidation and disposition of surplus plutonium and highly enriched uranium at SRS continues
  - Surplus Pu to be dispositioned as MOX fuel
  - Surplus HEU is being dispositioned via down-blending into LEU for use in commercial reactors
- Construction of the  $\text{DUF}_6$  conversion facilities continues
- $\text{U}^{233}$ /Building 3019 Stabilization Project continues
  - Future processing will prepare  $\text{U}^{233}$  for permanent disposal
- DOE issued its Excess Uranium Inventory Management Plan in December 2008
- EM is safely managing inventory of nearly 2,500 MTMH of spent nuclear fuel, pending availability of the Yucca Mountain repository
- EM supports Departmental efforts to ensure disposition for small volume material streams, as well

## *Excess Uranium Inventory Management Plan – Path Forward*

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- Complete reviews required under NEPA for NU and DU (Reviews have already been completed for HEU blend-down and off-specification uranium)
- Identify marketable material based on assay and specifications of material (DU)
- Prepare cost/benefit and market analyses
- Secretary of Energy determines, as may be required, that a proposed transaction does not have an adverse material impact on the domestic mining, conversion, and enrichment industries
- Seek expressions of interest or other sources of comments
- Execute contracts to sell Uranium stores



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## ***EM Spent Nuclear Fuel (SNF) Path Forward***

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- **EM safely manages 2,400 MTHM, primarily at Hanford, INL, and SRS**
  - Hanford SNF is packaged for storage pending disposal
  - INL completing wet-to-dry this year and will be re-packaged for disposal
  - SRS currently stores its SNF in wet storage
- **EM's current strategy for aluminum-clad SNF is to consolidate and process at SRS in H-Canyon**
  - Reduces number of canisters to geologic repository
  - Recovers energy from SNF to produce electricity



**EM** *Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure

## *In closing...*

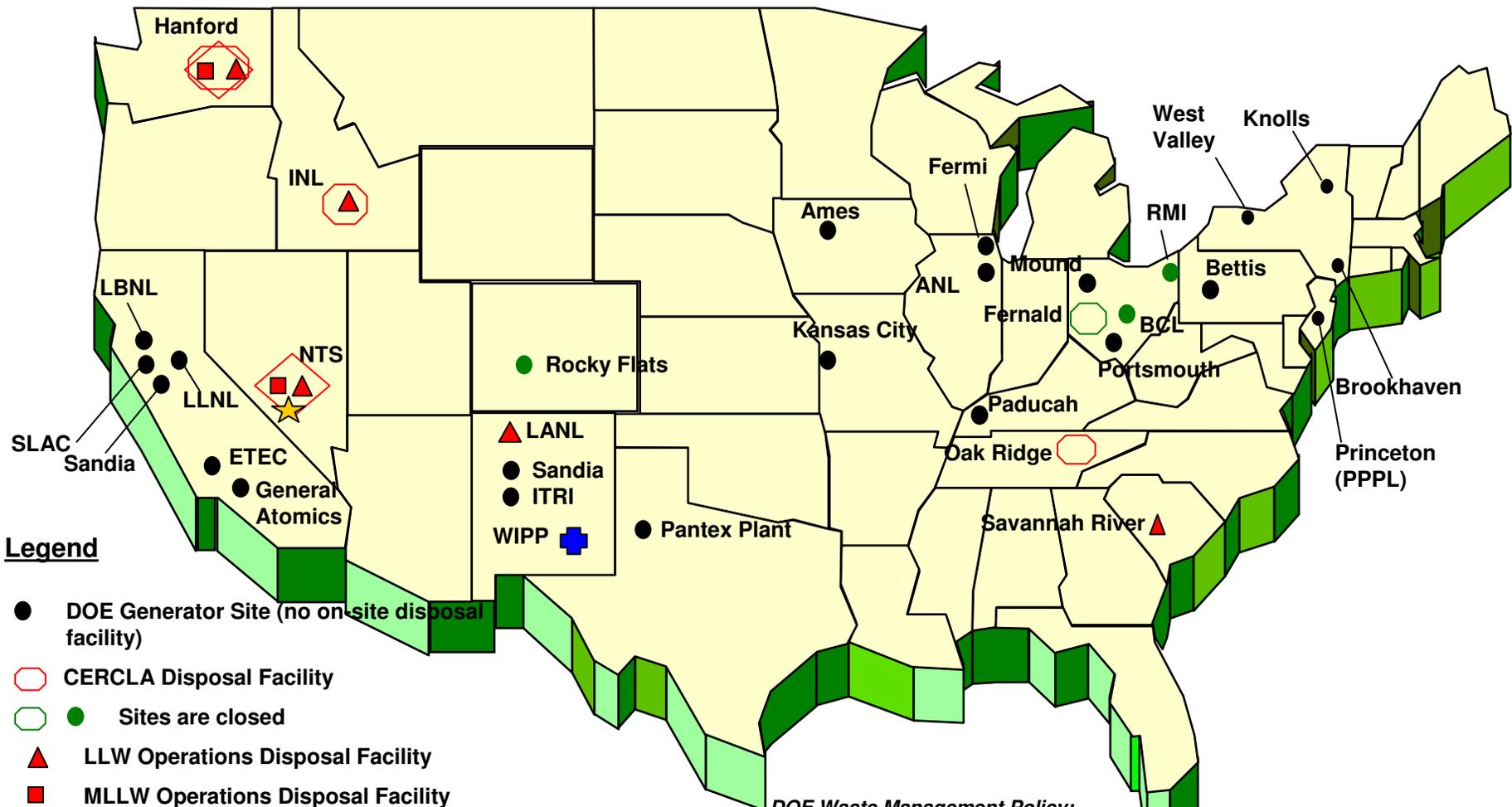
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- EM has 20 years of progress and experience in safely managing radioactive wastes and nuclear materials
  - We solve problems that once seemed unsolvable
- DOE missions and many US initiatives rely on the DOE waste management system
  - Commercial industry plays a significant role in DOE's waste management system
- A strong partnership with our regulators, stakeholders and industry is required to maintain and support the DOE waste and materials disposition system
- The *American Recovery and Reinvestment Act* will result in accelerated cleanup and increased waste and materials disposition challenges
- EM's Office of Regulatory Compliance, through its ongoing and planned initiatives, is poised to support these activities

# *Background Slides*

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# DOE's Waste Disposal Complex

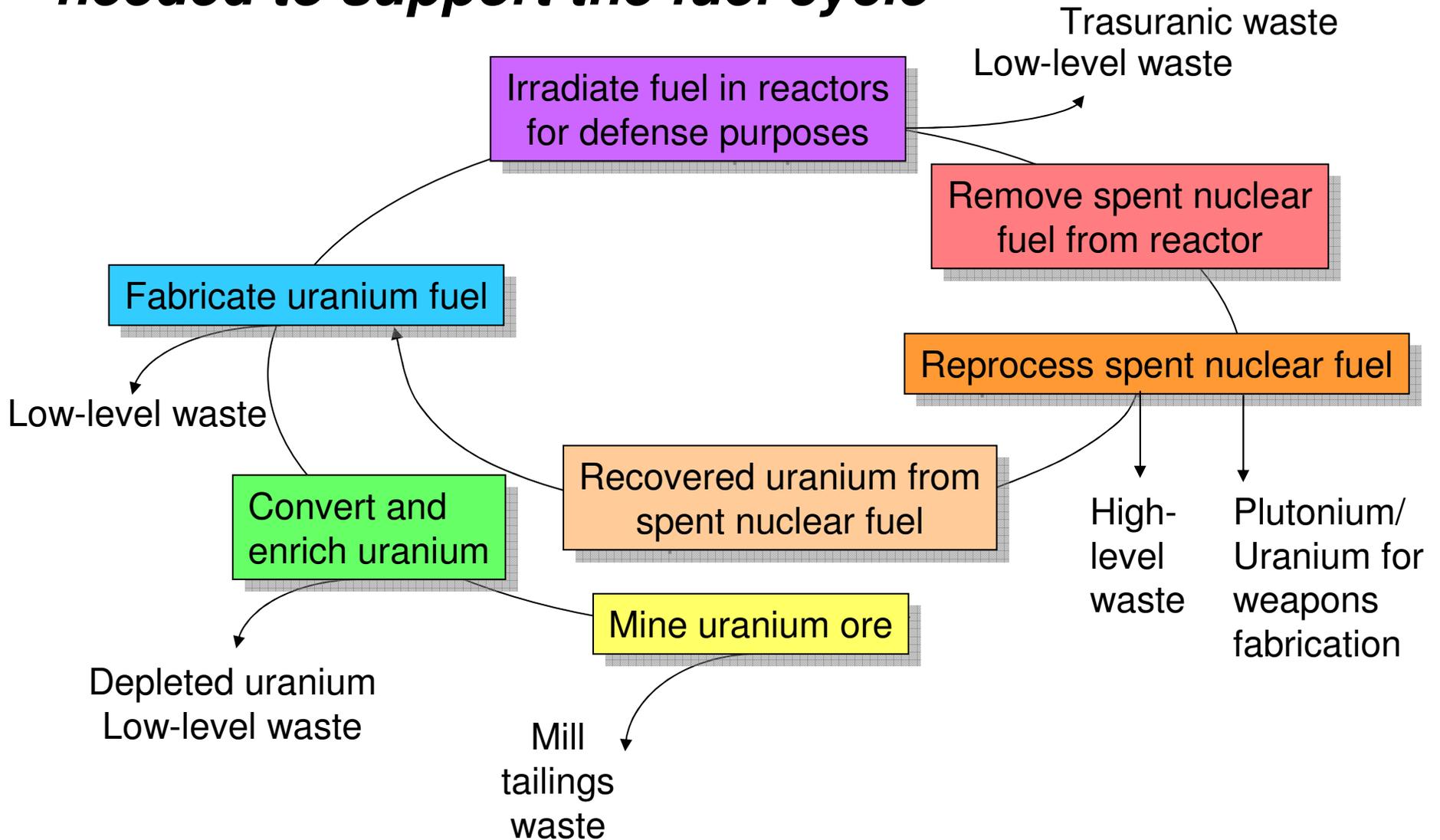


## Legend

- DOE Generator Site (no on-site disposal facility)
- CERCLA Disposal Facility
- Sites are closed
- ▲ LLW Operations Disposal Facility
- MLLW Operations Disposal Facility
- ◇ Regional LLW Disposal Facility
- ⊕ Waste Isolation Pilot Plant (WIPP) for TRU disposal
- ★ Yucca Mountain Repository for HLW/SNF Disposal

**DOE Waste Management Policy:**  
**LLW and MLLW:** If practical, disposal on the site at which it is generated. If on-site disposal not available, at another DOE disposal facility. At commercial disposal facilities if compliant, cost effective, and in best interest of the Department  
**TRU waste:** If defense, disposed at Waste Isolation Pilot Plant, New Mexico. If non-defense, safe storage awaiting future disposition  
**HLW and SNF:** Stabilization, if necessary, and safe storage until geologic disposal is available

# ***A comprehensive waste management system is needed to support the fuel cycle***



# ***Nickel Recycle***

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## ***If Strategy is approved:***

- **Obtain DOE Headquarters offices (e.g., MA, GC) concurrences to issue the draft RFP** – early 2009
- **Obtain Secretarial agreement to proceed** – mid 2009
- **Issue draft solicitation for industry review** – mid 2009
- **Finalize Environmental Assessment** – Spring 2009
- **Release final solicitation and pursue sale** – Early 2010
- **Evaluate bids and make selection** – Mid 2010
  - Complete further site-specific NEPA analysis, if required
- **Award** – Late 2010

# Intergovernmental Groups

---

- When major changes in policy direction are contemplated by the Department, EM facilitates communication of these changes to a wide range of interested (and affected) parties
- EM supports these national intergovernmental organizations through grants and cooperative agreements:
  - Energy Communities Alliance (ECA)
  - National Association of Attorneys General (NAAG)
  - National Governors Association (NGA)
  - National Conference of State Legislatures (NCSL)
  - Environmental Council of the States (ECOS)
  - State and Tribal Government Working Group (STGWWG)



# Tribal Government Interactions

- EM is committed to **government-to-government consultation** with Tribal nations to enhance EM decision-making and protect Tribal rights and interests
- Drivers
  - DOE American Indian Alaska Native Tribal Government Policy
  - Framework for Implementation of the DOE Tribal Policy
  - DOE Order 144.1
- EM regularly interacts with the Tribal nations around its sites and through the State and Tribal Government Working Group



**Seneca Nation**  
**Cochiti Pueblo**  
**Jemez Pueblo**  
**Nez Perce**  
**San Ildefonso Pueblo**  
**Santa Clara Pueblo**  
**Yakama Nation**  
**Confederated Tribes of the**  
**Umatilla Reservation**

# EM Federal Advisory Committees

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- **Environmental Management Advisory Board (EMAB)** provides advice on corporate issues to the Assistant Secretary
- **Environmental Management Site-Specific Advisory Board (EM SSAB)** provides advice on site-specific and cross-complex issues to the Assistant Secretary and the Field managers or Assistant Managers for EM activities at Hanford, Idaho, Nevada, Northern New Mexico, Oak Ridge, Paducah, Portsmouth, and Savannah River



# ***EM Program Planning and Budget***

***Merle Sykes  
Deputy Assistant Secretary  
Program Planning and Budget  
Office of Environmental Management***

**March 2009**

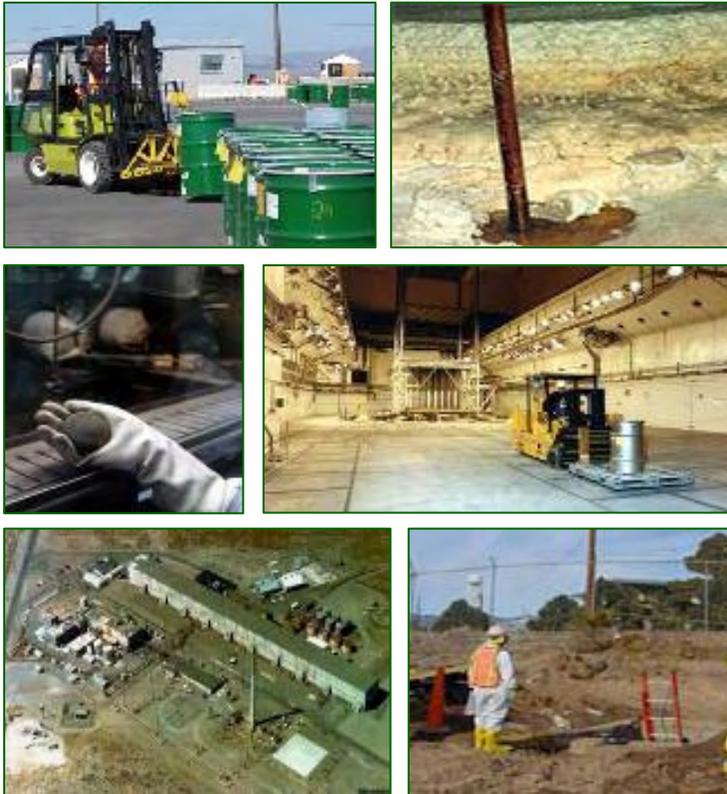


***EM Environmental Management***

***safety ❖ performance ❖ cleanup ❖ closure***

# EM Mission

*“Complete the safe cleanup of the environmental legacy brought about from five decades of nuclear weapons development, production, and Government-sponsored nuclear energy research.”*



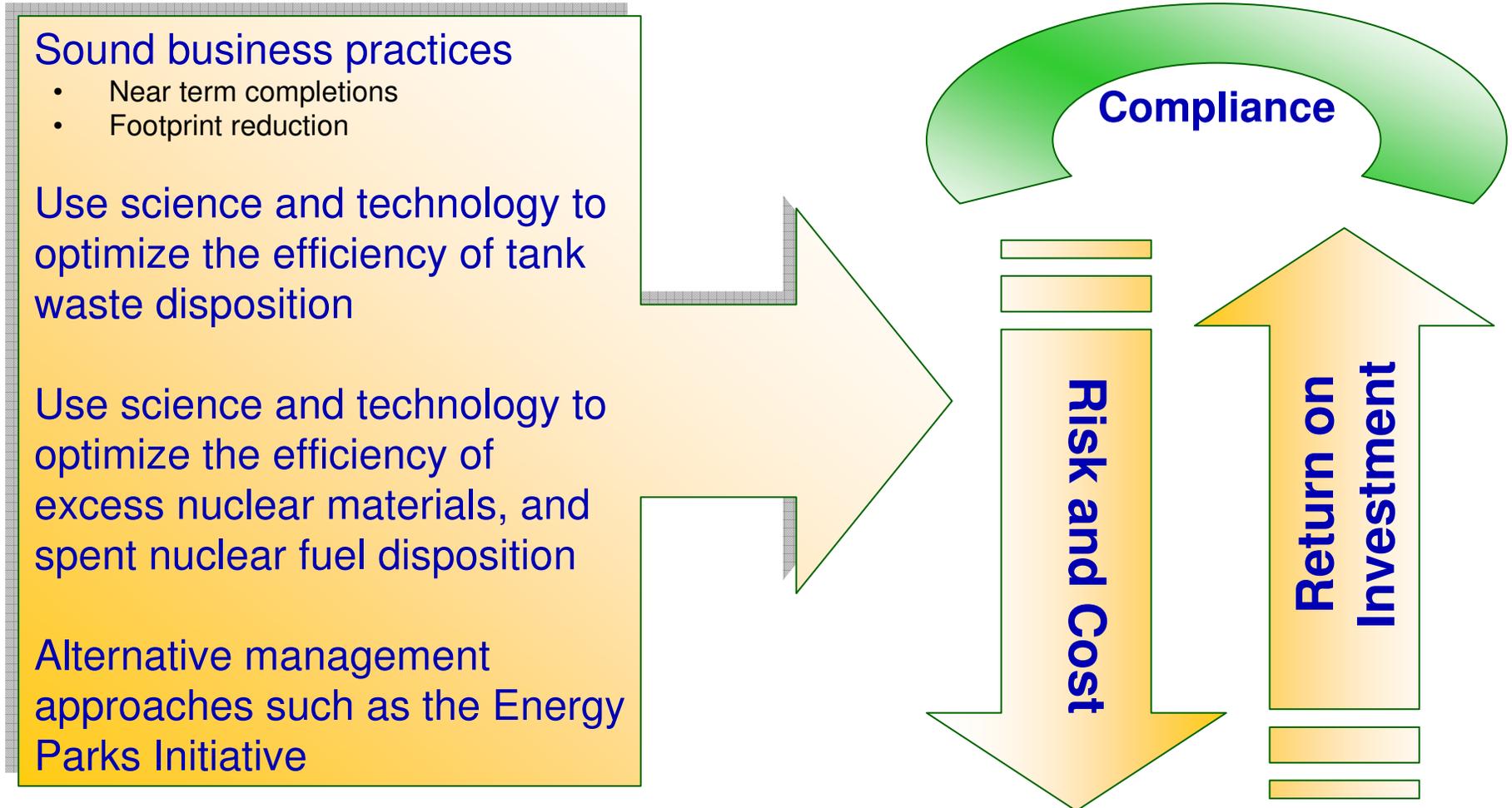
- *Largest environmental cleanup effort in the world, originally involving two million acres at 108 sites in 35 states*
- *Safely performing work*
  - *In challenging environments*
  - *Involving some of the most dangerous materials known to man*
  - *Solving highly complex technical problems with first-of-a-kind technologies*
- *Operating in the world’s most complex regulatory environment*
- *Supporting other continuing DOE missions and stakeholder partnerships*

# Program Priorities

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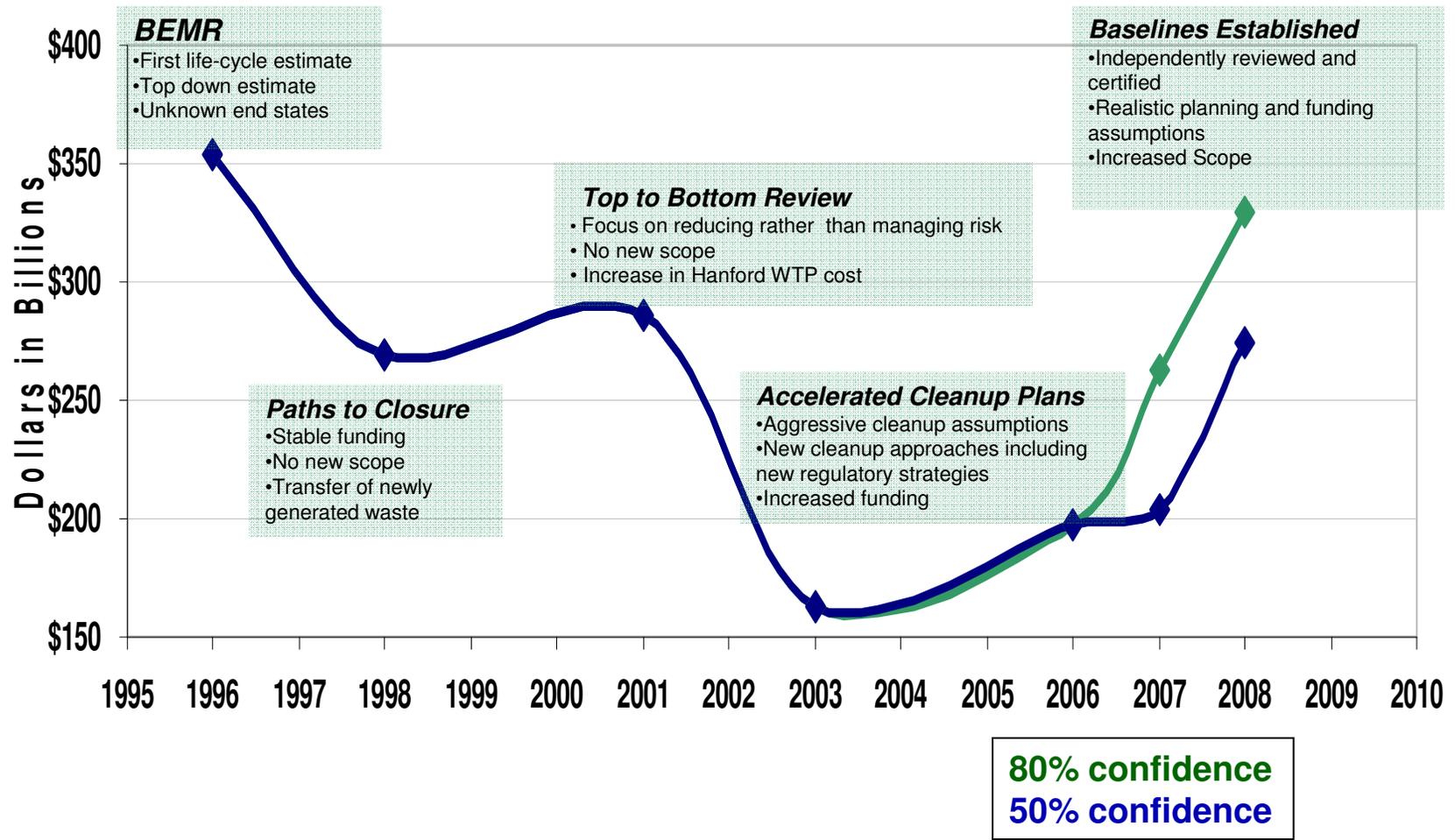
- *Essential activities to maintain a safe and secure posture in the EM complex*
- *Radioactive tank waste stabilization, treatment, and disposal*
- *Spent nuclear fuel storage, receipt, and disposition*
- *Special nuclear material consolidation, processing, and disposition*
- *High priority groundwater remediation*
- *Transuranic and mixed/low-level waste disposition*
- *Soil and groundwater remediation*
- *Excess facilities deactivation and decommissioning (D&D)*

# Cleanup Approach



# EM Life-cycle Cost

## Evolution of EM Life-cycle Cost



# EM Life-cycle Cost

## Evolution of EM Life-cycle Cost

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008			
Key Scope Assumptions	<b>BEMR</b> <ul style="list-style-type: none"> <li>• First life-cycle estimate</li> <li>• Top down estimate</li> <li>• Unknown end states</li> </ul>		<b>Paths to Closure</b> <ul style="list-style-type: none"> <li>• Stable funding</li> <li>• No new scope</li> <li>• Transfer of newly generated waste</li> </ul>			<b>Top to Bottom Review and Accelerated Cleanup Plans</b> <ul style="list-style-type: none"> <li>• Aggressive cleanup assumptions</li> <li>• New cleanup approaches including new regulatory strategies</li> <li>• Increased funding</li> <li>• Portsmouth &amp; Paducah GDP D&amp;D removed from scope</li> <li>• Office of Future Liabilities responsible for any new scope</li> <li>• Removal of Pu from Hanford</li> <li>• Low activity tank waste treated/disposed in situ</li> <li>• Transfer of spent fuel program to RW</li> <li>• Transfer of H canyon to NNSA in FY2008</li> <li>• No treatment of Idaho calcine waste</li> </ul>					<b>Certified Baselines</b> <ul style="list-style-type: none"> <li>• Re-baseline to more realistic funding assumptions</li> <li>• Increased Scope:                             <ul style="list-style-type: none"> <li>• Hanford WTP due to changing requirements</li> <li>• More robust design criteria for SRS Salt Waste Processing Facility</li> <li>• Los Alamos Consent Order</li> <li>• Portsmouth &amp; Paducah GDP D&amp;D</li> <li>• Pension &amp; benefit liabilities</li> <li>• SNF program remains in EM</li> </ul> </li> <li>• New scope:                             <ul style="list-style-type: none"> <li>• IFDP at Oak Ridge</li> <li>• Treatment and disposal of U233 in Building 3019 at Oak Ridge</li> <li>• Consolidation of Pu at SRS</li> <li>• Disposition of 13 MT of Surplus PU utilizing H-canyon</li> <li>• No in tank disposal of low activity waste activity tank</li> <li>• Treatment of Idaho calcine waste</li> </ul> </li> </ul>					

# EM Life-cycle Cost

## Life-Cycle Cost Estimate for Current EM Scope

**\$274 - \$330B**  
**2050 - 2062**

**Remaining EM  
Work Scope**  
**\$205 - \$260B**

**1997 - 2007**  
**\$69B**

**FY 2008**  
**Environmental Liability**

## New EM Scope

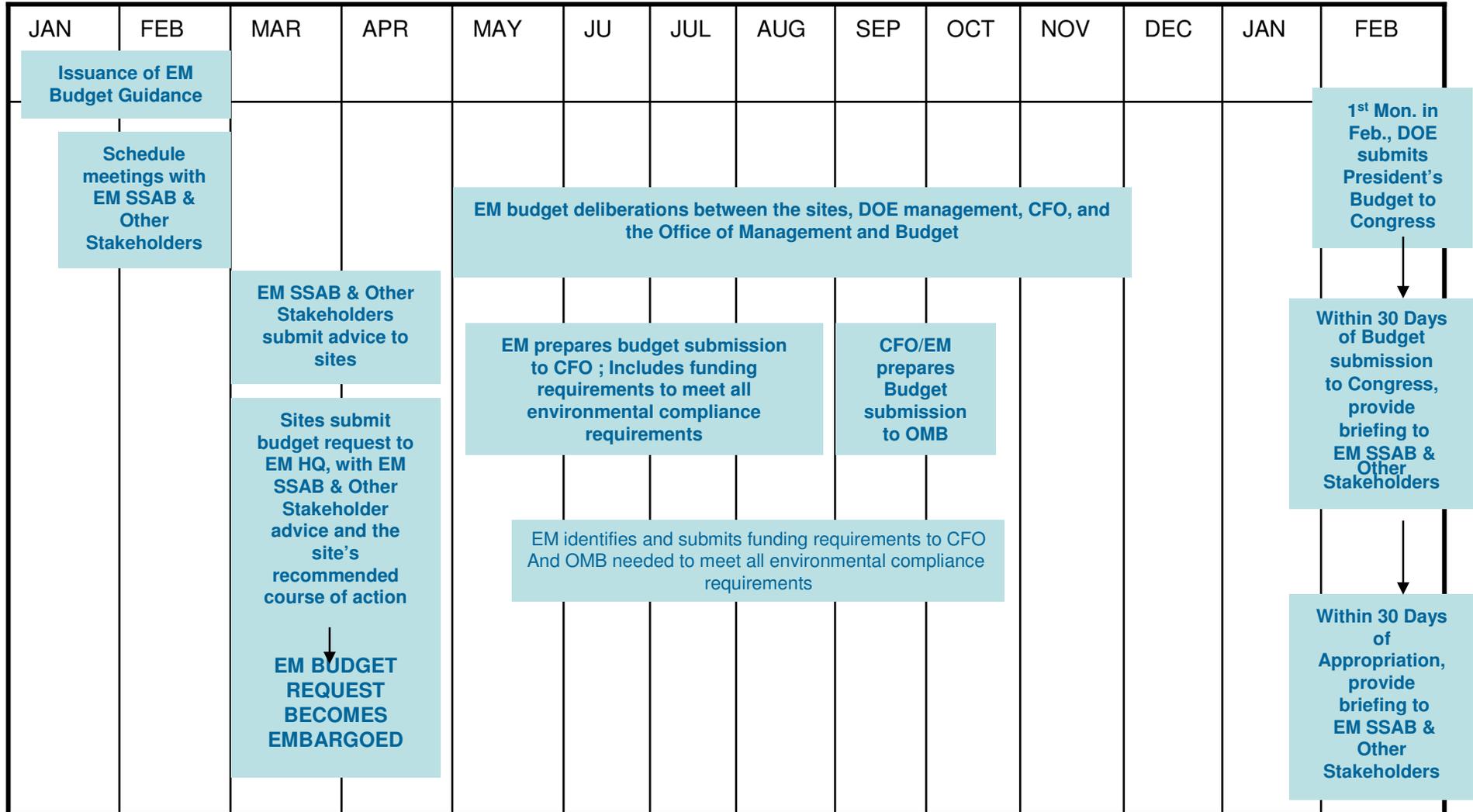
- ❖ **NNSA, SC and NE identified cleanup work for EM consideration**
- ❖ **306 surplus facilities**
- ❖ **34 types of materials**
- ❖ **\$3.7B-9.2B Cost estimate**



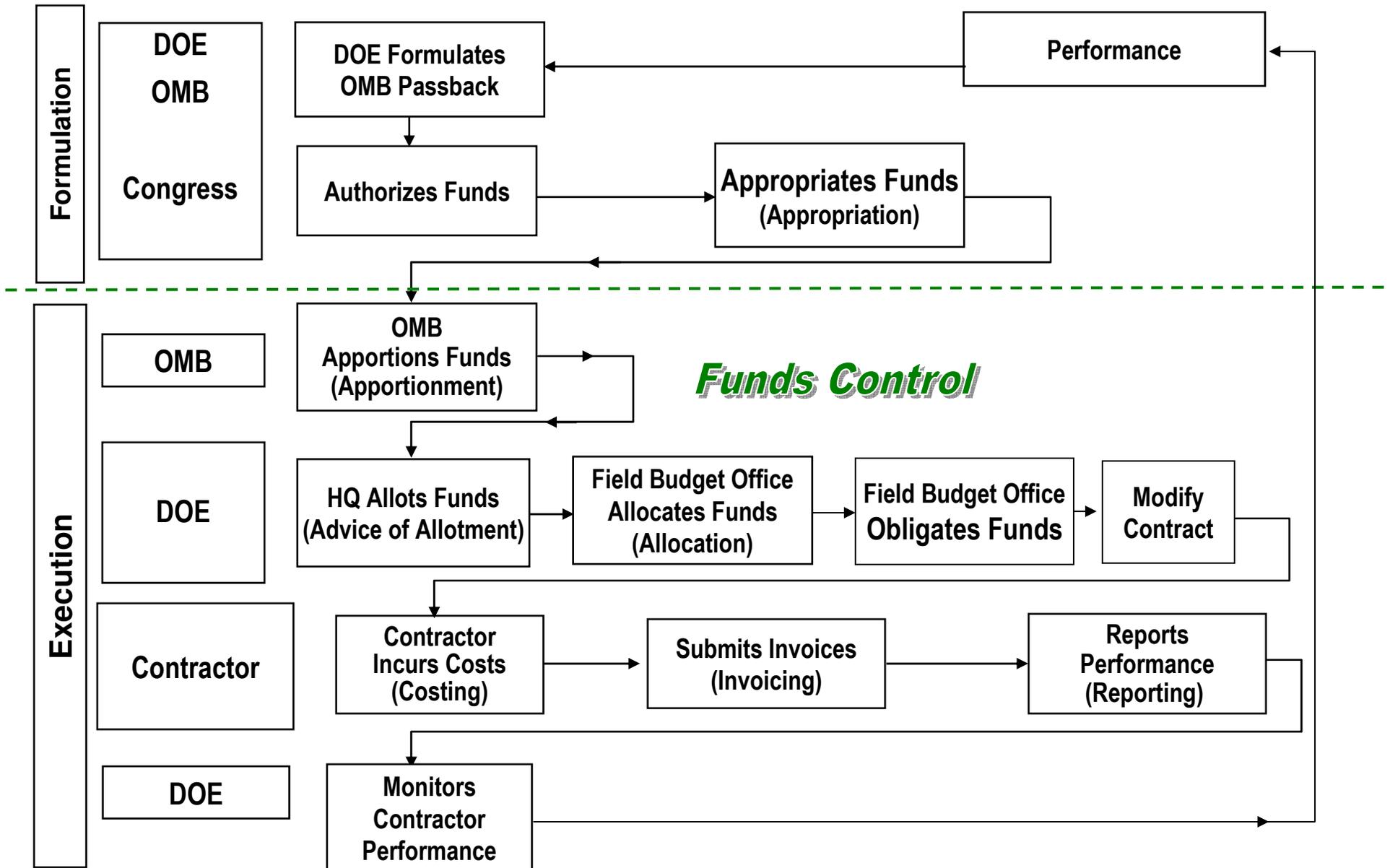
**EM Environmental Management**

safety ❖ performance ❖ cleanup ❖ closure

# Overview of Budget Process

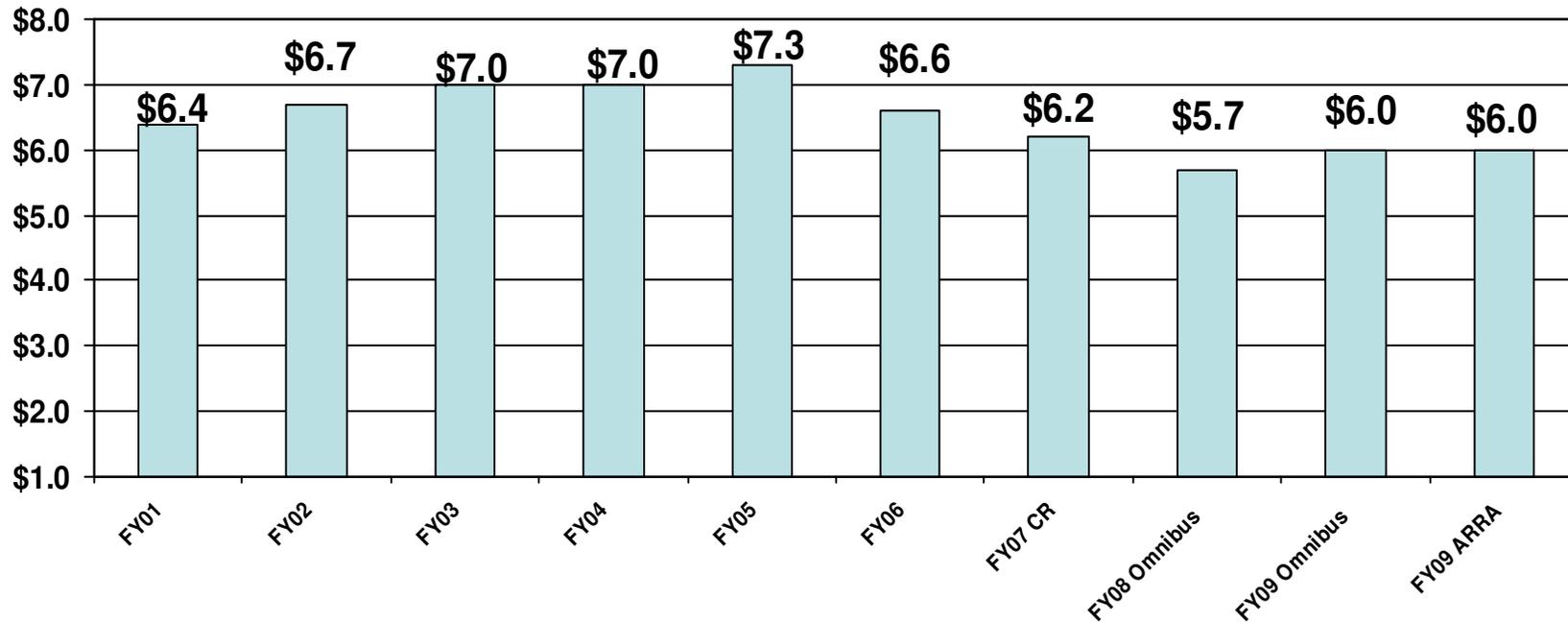


# Overview of Budget Process

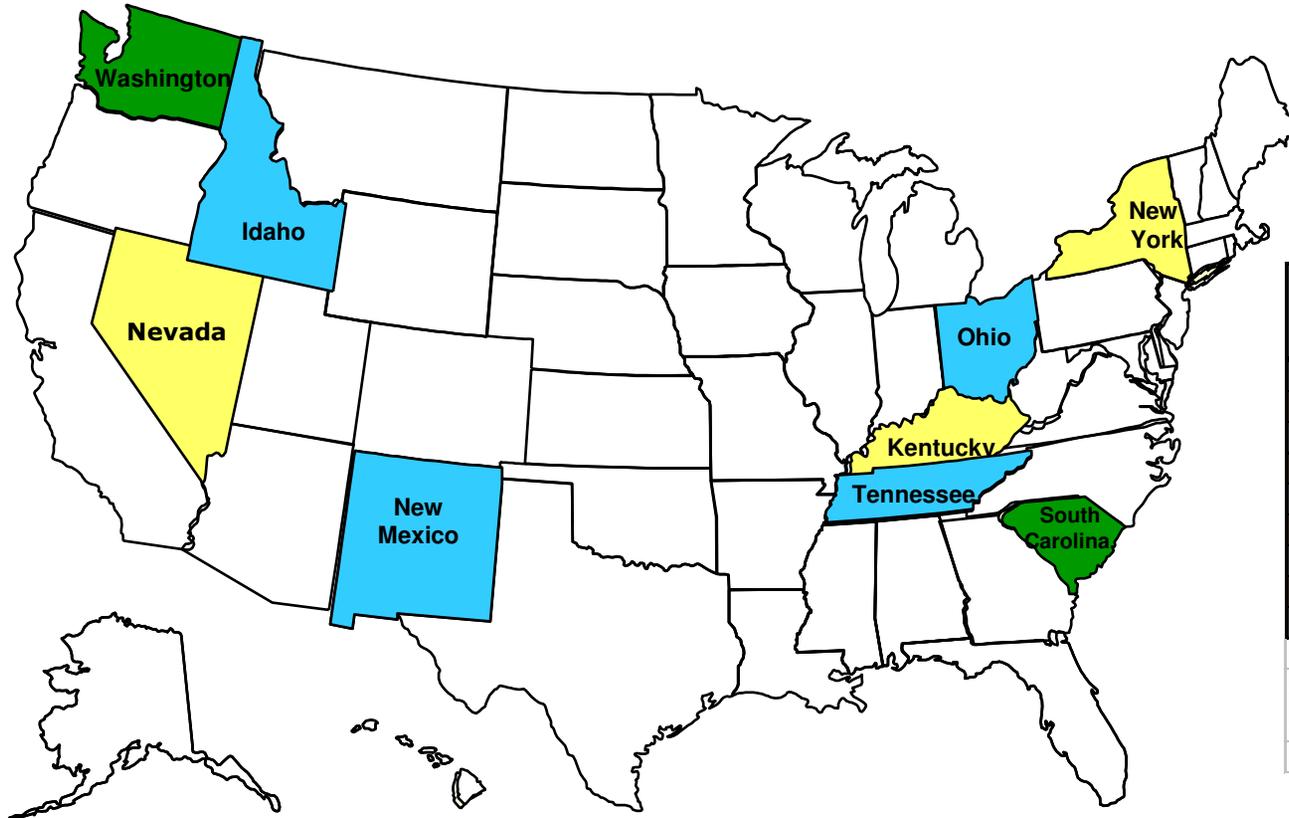


# EM Funding History

\$ in billions



# EM Program FY 2009 Budget



**EM Budget  
\$6.0 Billion**

State <sup>a</sup>	FY 2009 Omnibus (\$ in Millions)
Washington	2,138
South Carolina	1,411
Tennessee	514
Idaho	499
New Mexico	478
Ohio	324
Kentucky	180
New York	93
Nevada	76

<sup>a</sup>Table only includes states with \$50M or greater in EM funding.

**Legend:**

- Over \$1 billion
- \$300 million to \$1 billion
- \$50 million to \$300 million

# Site Specific Distribution

	FY 2008 Approp	FY 2009 Omnibus	FY 2009 Stimulus
Argonne National Laboratory	\$433	\$29,479	
Brookhaven	\$15,438	\$8,433	
Energy Technology Engineering Center	\$12,882	\$15,000	
Fernald	\$0	\$2,100	
Hanford	\$1,001,749	\$1,057,496	
Idaho	\$522,838	\$489,239	
Los Alamos National Laboratory	\$175,158	\$224,639	
Miamisburg	\$30,032	\$30,574	
Moab	\$23,734	\$45,699	
Nevada	\$85,368	\$75,674	
Oak Ridge	\$493,038	\$498,738	
Office of River Protection	\$976,540	\$1,009,943	
Paducah	\$148,211	\$169,922	
Portsmouth	\$224,260	\$240,690	
Savannah River	\$1,286,754	\$1,361,479	
SPRU	\$27,334	\$18,000	
Stanford Linear Accelerator Center	\$7,846	\$4,883	
Waste Isolation Pilot Plant	\$239,467	\$236,785	
West Valley Demonstration Project	\$66,485	\$66,900	
Other Sites	\$36,365	\$4,630	
Completed Sites Administration and Support	\$12,915	\$14,309	
Program Direction	\$306,941	\$309,807	
Program Support	\$32,844	\$33,930	
Uranium Thorium Reimbursement	\$19,818	\$10,000	\$70,000
Technology Development & Deployment	\$20,600	\$32,320	
Congessionally Directed Activities	\$17,195	\$22,665	
	<u>\$5,756,869</u>	<u>\$5,991,572</u>	<u>\$6,000,000</u>



**EM Environmental Management**

safety ❖ performance ❖ cleanup ❖ closure

# Recovery Act Priorities

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- *Maximum return on money invested*
- *“Shovel Ready” Projects*
  - *Fully defined cost, scope and schedule*
  - *Established regulatory framework*
  - *Proven technology*
  - *Proven performance*
- *Contractual mechanisms in place*
  - *Ability to deploy resources quickly and accountability for results*
- *Ability to place “Boots on the Ground”*
  - *Create and / or preserve jobs*



# Recovery Act Scope

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- *Scope that can most readily be accelerated to take advantage of Recovery Act funds*
  - *Soil and water remediation*
  - *Radioactive waste disposition*
  - *Facility decommissioning*
- *Site closure and EM completions*
- *Reduce the EM footprint*
  - *Across the complex*
  - *Within a site*



# Recovery Act Status

---

- *Aggressive implementation—ARRA funding within two weeks*
- *Opportunities identified at 17 sites in 12 states meeting ARRA principles (totaling \$6B through FY 2011)*
  - *ARRA proposals developed by sites with site priorities in mind*
  - *ARRA proposals accelerate work activities that have compliance milestones associated with them*
  - *Flexibility in work scope, but first and foremost, ARRA funds are about job creation*
- *Applying Project Management Principles*
  - *Graded approach*



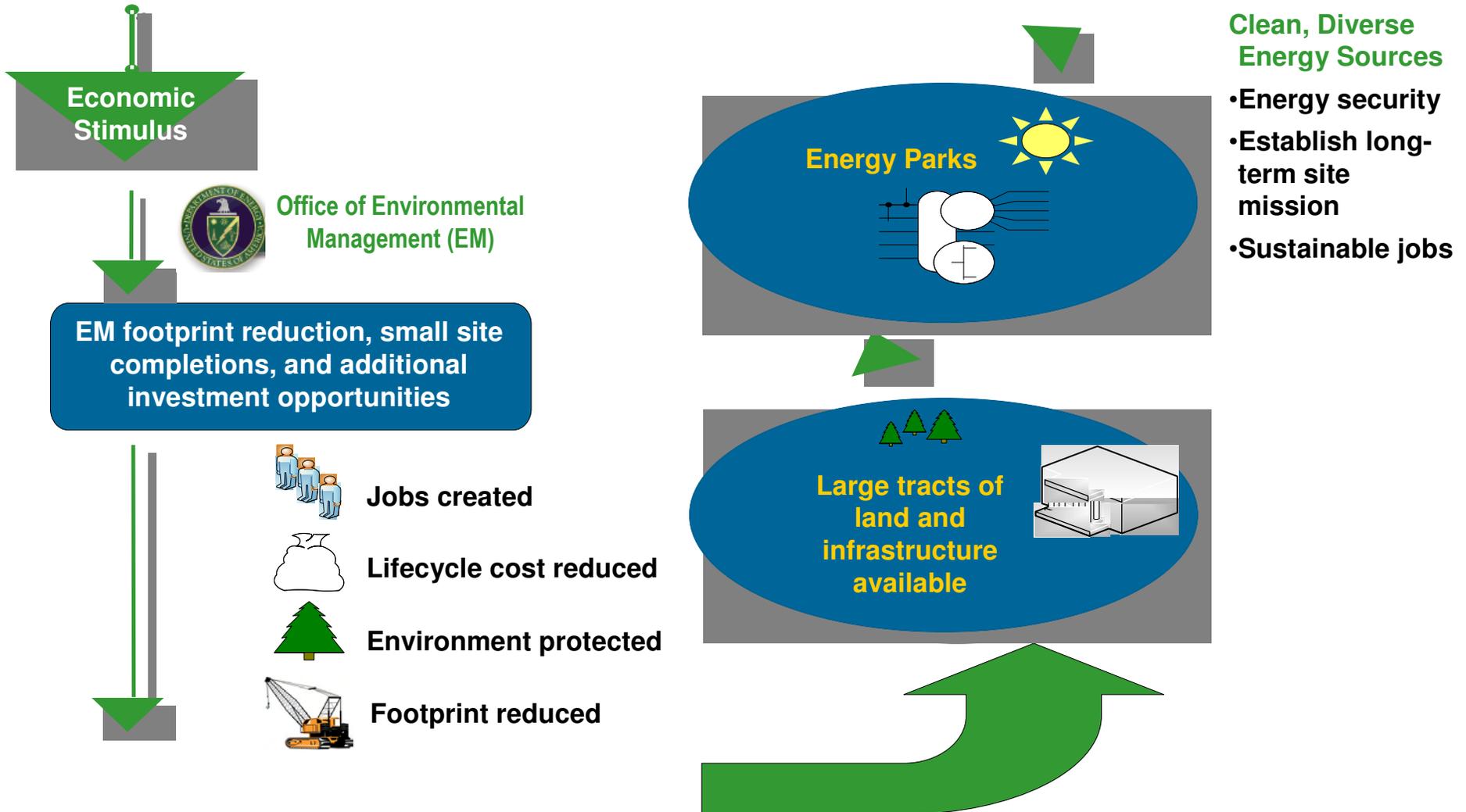
# Recovery Act

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- *EM has been given the opportunity to make additional investments in lower risk activities and complete building the capability for dispositioning tank waste, nuclear materials, and spent nuclear fuel*
- *With the additional funding EM will be expected to achieve results*
  - *Create and preserve thousands of jobs*
  - *Provide significant environmental cleanup*
  - *Make large tracts of land available for re-utilization*



# Footprint Reduction



# Savannah River Operations Office

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# The Federal Budget Process

By

**H. Kriss Nielsen**

Budget Director, Savannah River Site

**March 18, 2009**

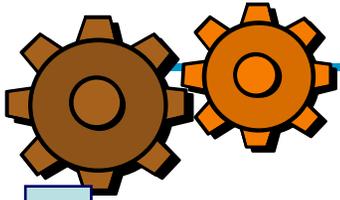
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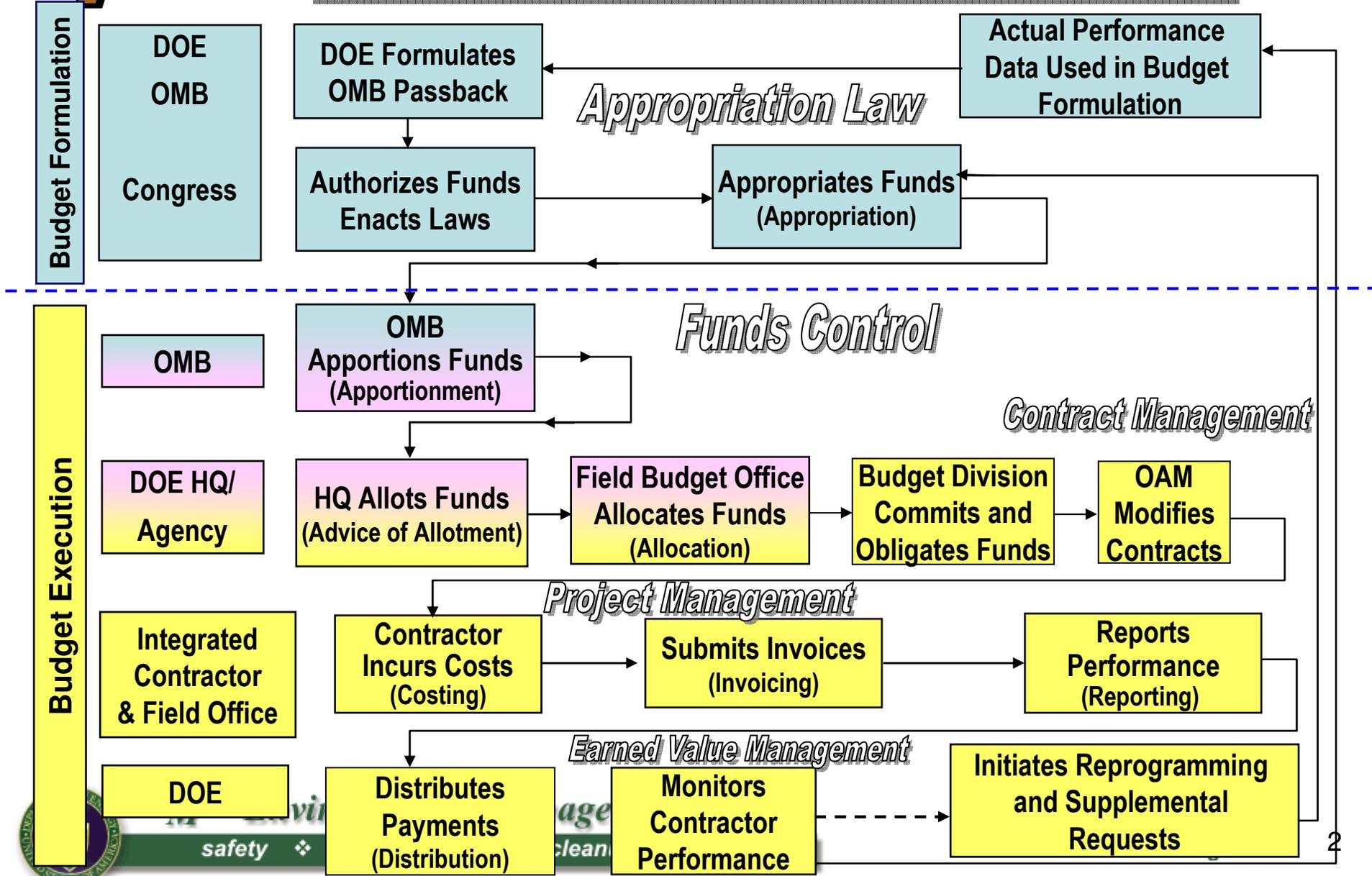
**EM** *Environmental Management*

safety ❖ performance ❖ cleanup ❖ closure

[www.em.doe.gov](http://www.em.doe.gov)



# Integrated View of the Budget Process



## Major Players and Functions

<b>Players</b>	<b>Functions Performed</b>
<b>Congress</b>	<b>Authorizes/ appropriates funds to DOE</b>
<b>OMB</b>	<b>Apportions funds to DOE</b>
<b>HQ Program Offices</b>	<b>Issues program guidance and determines funding allocations</b>
<b>DOE HQ CFO</b>	<b>Allots funds to the field</b>
<b>DOE Field</b>	<b>Obligates funds to contractors</b>
<b>Contractors</b>	<b>Execute the plan—incur costs and report status of funds to DOE</b>
<b>DOE Field/HQ and GAO</b>	<b>Monitor contractors' cost performance</b>
<b>DOE Headquarters</b>	<b>Consolidates accounting data and reports monthly to Treasury and OMB</b>



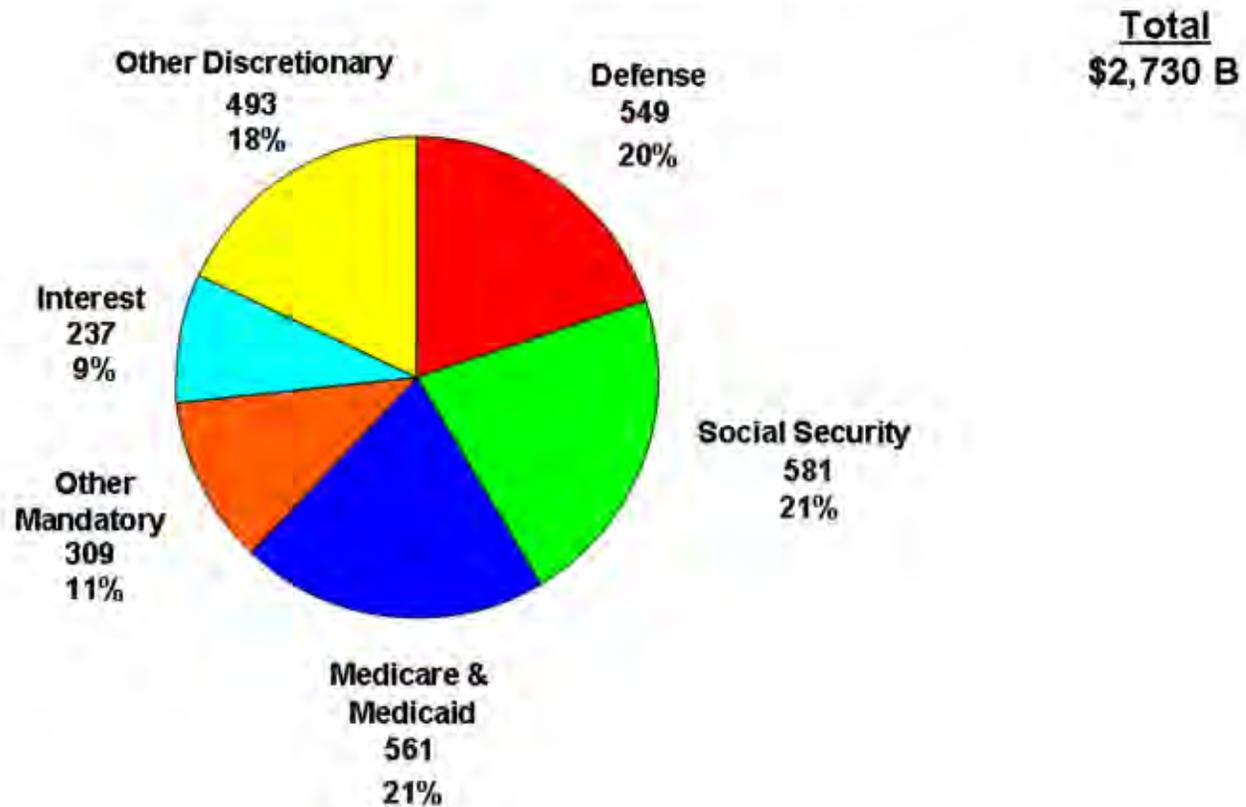
# Introduction to the Federal Budget Process

- The way in which Congress develops tax and spending legislation is guided by a set of specific procedures laid out in the Congressional Budget Act of 1974. The centerpiece of the Budget Act is the requirement that Congress each year develop a “budget resolution” setting overarching limits on spending and on tax cuts. These limits apply to legislation developed by individual congressional committees as well as to any amendments offered to such legislation on the House or Senate floor. The federal budget process includes:
  - The **President’s Budget Request (PBR)**, which kicks off the budget process each year;
  - The **congressional budget resolution** — how it is developed and what it contains;
  - How the terms of **budget resolution enforcement** are used by the House and Senate; and
  - Budget “**reconciliation**,” a special procedure used in some years to facilitate the passage of spending and tax legislation.



# Introduction to the Federal Budget Process

## U.S. Federal Spending – Fiscal Year 2007 (\$ Billion)



Source: Budget of the United States Government FY 2009

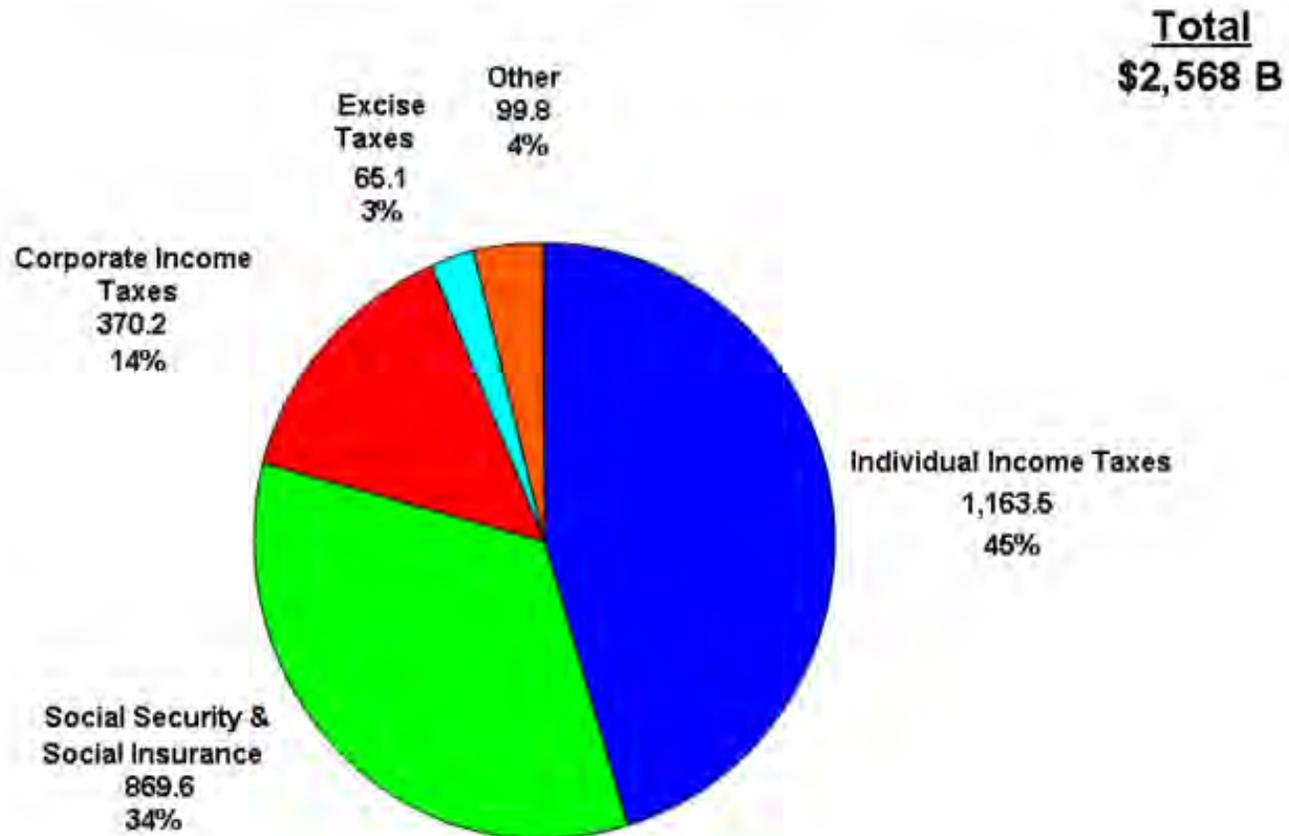
## The President's Budget Request

- On or before the **first Monday in February**, the President submits to Congress a detailed budget request for the coming federal fiscal year, which begins on October 1. This budget request, developed by the President's Office of Management and Budget (OMB), plays three important roles.
- First, it tells Congress what the President believes overall federal fiscal policy should be, as established by three main components: (1) how much money the federal government should spend on public purposes; (2) how much it should take in as tax revenues; and (3) how much of a deficit (or surplus) the federal government should run, which is simply the difference between (1) and (2).
- Second, the budget request lays out the President's relative priorities for federal programs — how much he believes should be spent on defense, agriculture, education, health, and so on. The President's Budget Request (PBR) is very specific, and recommends funding levels for individual federal programs or small groups of programs called "budget accounts." The budget typically sketches out fiscal policy and budget priorities not only for the coming year but for the next five years or more. It is also accompanied by historical tables that set out past budget figures.



# Introduction to the Federal Budget Process

## U.S. Federal Receipts – Fiscal Year 2007 (\$ Billions)



Source: *Budget of the United States Government, FY 2009*



## The President's Budget Request

- The third role that the President's budget plays is to signal to Congress what spending and tax policy changes the President recommends. The President does not need to propose legislative change for those parts of the budget that are governed by permanent law if he feels none is necessary. Nearly all of the federal tax code is set in permanent law, and will not expire. Similarly, more than one-half of federal spending — including the three largest entitlement programs (Medicare, Medicaid, and Social Security) — is also permanently enacted. Interest paid on the national debt is also paid automatically, with no need for specific legislation.
- **Debt Ceiling** - limits how much the Treasury can borrow. The debt ceiling is periodically raised through separate legislation.



## The President's Budget: Total Spending

- The President's actual budget for 2007 totals \$2.8 trillion. Percentages in parentheses indicate percentage change compared to 2006.
- \$586.1 billion (+7.0%) - Social Security
- \$548.8 billion (+9.0%) - Defense
- \$394.5 billion (+12.4%) - Medicare
- \$294.0 billion (+2.0%) - Unemployment and welfare
- \$276.4 billion (+2.9%) - Medicaid and other health related
- \$243.7 billion (+13.4%) - Interest on debt
- \$89.9 billion (+1.3%) - Education and training
- \$76.9 billion (+8.1%) - Transportation
- \$72.6 billion (+5.8%) - Veterans' benefits
- \$43.5 billion (+9.2%) - Administration of justice
- \$33.1 billion (+5.7%) - Natural resources and environment
- \$32.5 billion (+15.4%) - Foreign affairs
- \$27.0 billion (+3.7%) - Agriculture
- \$26.8 billion (+28.7%) - Community and regional development
- \$25.0 billion (+4.0%) - Science and technology
- \$23.5 billion (+0.8%) - Energy
- \$20.1 billion (+11.4%) - General government



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## The President's budget can also include:

- **Changes to “mandatory” or “entitlement” programs**, such as Social Security, Medicare, Medicaid, and certain other programs (including but not limited to food stamps, federal civilian and military retirement benefits, veterans' disability benefits, and unemployment insurance) that are not controlled by annual appropriations. For example, when the President proposed adding a prescription drug benefit to Medicare, he had to show a corresponding increase in Medicare costs in his budget, relative to what Medicare would otherwise be projected to cost. Similarly, if the President proposes a reduction in Medicaid payments to states, his budget would show lower Medicaid costs than projected under current law.
- **Changes to the tax code.** Any presidential proposal to increase or decrease taxes should be reflected in a change in the amount of federal revenue that his budget expected to be collected the next year or in future years, relative to what would otherwise be collected.
- **Summary:** The President's budget must request a specific funding level for appropriated programs and may also request changes in tax and entitlement law.



U.S. Congress

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# The Congressional Budget Resolution

- After receiving the PBR, Congress holds hearings to question Administration officials about their requests and then develops its own budget resolution. This work is done by the House and Senate Budget Committees, whose primary function is to draft the budget resolution. Once the committees are done, the budget resolution goes to the House and Senate floor, where it can be amended by a majority vote. It then goes to a House-Senate conference to resolve any differences, and a conference report is passed by both houses.
- The budget resolution is a “concurrent” congressional resolution, not an ordinary bill, and therefore does not go to the President for his signature or veto. It also requires only a majority vote to pass, and is one of the few pieces of legislation that cannot be filibustered in the Senate.
- The **budget resolution is supposed to be passed by April 15**, but it often takes longer. Occasionally, Congress does not pass a budget resolution. If that happens, the previous year’s resolution, which is a multi-year plan, stays in effect.



Senate Office Building



## What is in the budget resolution?

- Unlike the President's budget, which is very detailed, the congressional budget resolution is a very simple document. It consists of a set of numbers stating how much Congress is supposed to spend in each of 19 broad spending categories (known as budget "functions") and how much total revenue the government will collect, for each of the next five or more years. (The Congressional Budget Act requires that the resolution cover a minimum of five years, but Congress sometimes chooses to develop a 10-year budget.) The difference between the two totals — the spending ceiling and the revenue floor — represents the deficit (or surplus) expected for each year.



## How spending is defined: budget authority vs. outlays.

- The spending totals in the budget resolution are stated in two different ways: the total amount of “budget authority” that is to be provided, and the estimated level of **expenditures**, or “**outlays**.” Budget authority is how much money Congress allows a federal agency to commit to spend; outlays are how much money actually flows out of the federal treasury in a given year.
- Budget authority and outlays thus serve different purposes. Budget authority represents a limit on how much funding Congress will provide, and is generally what Congress focuses on in making most budgetary decisions. Outlays, because they represent actual cash flow, help determine the size of the overall deficit or surplus.



## How committee spending limits get set: 302(a) allocations

- The **U.S. Senate Committee on Appropriations** is a standing committee of the U.S. Senate. It has jurisdiction over all discretionary spending legislation in the Senate.
- The Senate Appropriations Committee is the largest committee in the U.S. Senate, consisting of 29 members. Its role is defined by the U.S. Constitution, which requires "appropriations made by law" prior to the expenditure of any money from the Treasury, and is therefore one of the most powerful committees in the Senate.
- The committee was first organized on March 6, 1867, when power over appropriations was taken out of the hands of the Finance Committee.
- The chairman of the Appropriations Committee has enormous power to bring home special projects for his or her state as well as having the final say on other Senator's appropriation requests.



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## “Pay-As-You-Go” or “PAYGO” Rule

- Independent of the Congressional Budget Act, the House and Senate each have a rule requiring that all entitlement increases and tax cuts be fully offset. Does not apply to discretionary spending.
- If legislation providing for new tax cuts or entitlement increases is not paid for, the “PAYGO” rule gives any Senator the power to raise a point of order against the bill, which can only be waived by the vote of 60 Senators.
- A bill that cuts taxes or increases entitlement spending without an offset would violate the PAYGO rule  
In order to satisfy the House and Senate PAYGO rules, a bill must be paid for over the first six years.



# Time Table of the Budget Process

On or Before:	Action to be completed:
First Monday in February	President submits his budget.
15-Feb	Congressional Budget Office submits report to Budget Committees.
Not later than 6 weeks after the President submits the budget.	Committees submit views and estimates to Budget Committees. (Frequently, the House Budget Committee sets own date based on Legislative Calendar)
1-Apr	Senate Budget Committee reports concurrent resolution on the budget.
15-Apr	Congress completes action on the concurrent resolution on the budget. (This is not signed by the President).*
15-May	Annual appropriation bills may be considered in House.
10-Jun	House Appropriations Committee reports last annual appropriation bill.
15-Jun	Congress completes action on reconciliation legislation. (If required by the budget resolution).
30-Jun	House completes action on annual appropriation bills.
1-Oct	Fiscal year begins.



## 5 STAGES OF THE CONGRESSIONAL BUDGET PROCESS

- **1. The President's Budget Submission.** The President submits a comprehensive budget request to Congress in early February which outlines the Administration's policy and funding priorities and the economic outlook for the coming fiscal year. This budget, which estimates spending, revenue and borrowing levels, is compiled by OMB from input by the various federal agencies, with funding broken down into 20 budget function categories.
- **2. Adoption of the Budget Resolution.** House and Senate Committees hold hearings on the President's budget and the Budget Committees report a concurrent resolution on the budget that sets each committee's allocation of spending authority for the next fiscal year and aggregate spending and revenue levels for 5 years. The budget resolution also establishes aggregate totals with respect to revenues and spending for the entire federal budget. This resolution, once adopted, is not law, as it is not signed by the President. The allocations, enforceable through points of order, establish the framework to consider spending and revenue bills on the House and Senate floor.



## 5 STAGES OF THE CONGRESSIONAL BUDGET PROCESS

- **3. Passage of Appropriation Bills.** In May the House begins consideration of the 13 annual appropriation bills for the next fiscal year based on the discretionary spending allocation in the budget resolution. As these bills move through hearings, markups, Floor consideration, and conference they are constrained by the levels and allocations in the budget resolution and the enforcement of the Budget Act and through House and Senate rules.
- **4. Consideration of Reconciliation Legislation.** If the spending and revenue levels in the budget resolution require changes in existing law, the resolution would contain instructions to committees to report legislation containing such statutory changes. Whether for tax increases or decreases, deficit reduction, mandatory spending increases or decreases or adjustments in the public debt limit, this process has been used to focus many agents on one goal, often in a large bill.
- **5. Consideration of Authorization Legislation.** Congress considers numerous measures authorizing the appropriation of funds on a myriad of programs each fiscal year. This decision-making is constrained by the Budget Act and through House and Senate rules.



## Rerack, Realignment and Reprogramming

- **Rerack:** Racking and stacking the budget formulation spreadsheet numbers to improve the budget previous submitted. Reracking is done in May-July, forwarded to agency for approval and forwarding to OMB.
- **Realignment:** OMB receives rerack in September, reviews and forwards to Congress for approval. The Realignment process re-aligns budget dollars to match the site's Programs'/Projects' work scope more appropriately.
- **Reprogramming:** Resource realignment process within an appropriation account
  - **Informal** approved at agency level. Involves transferring up to \$5M from one PBS to another. Play this card only once per PBS. Process duration is about three months.
  - **Formal** approved by committees of both the House and Senate. Process very laborious at all levels, very time consuming. No limit on dollar amount. Play this card only once. Process duration about six months.



# Appropriations and Apportionments

- **Appropriations:**
  - Acts of Congress, signed into law by the President
  - Provide budget authority, permits Federal agency to incur obligations and spend public funds
- **Apportionments:**
  - A plan approved by OMB to spend resources provided by law
  - Submitted to OMB on SF 132 Apportionment and Re-apportionment Schedule
  - Funds apportioned are made available to DOE for allotment, obligation, and expenditure
  - Process is detailed in DOE M 135.1-1A Budget Execution, and in OMB Circular A-11
- **Accountability:**
  - Forecasts how authority will be obligated and what results are expected
  - Serves as a “Contract” between the Agency and Congress.
  - Measures Performance



# Budget Formulation Process

<b>Budget Formulation Process:</b>		
<b>Key Step</b>	<b>FY 2010 Example</b>	<b>Description</b>
<b>GUIDANCE</b>	Jun-08	OMB tells agency how to do strategic plan and budget request. Overall budget numbers are set.
<b>STRATEGY</b>	Spring - summer 2008	Agency strategic plan development/update. Strategic plan sets framework for broad agency programs.
<b>REQUEST</b>	December 2007 - August 2008	Operating components develop/submit budget request to agency. Actual programs and expenditures start to be planned.
<b>DECISIONS</b>	June - August 2008	Agency develops strategy on how to deal with OMB. Agency has to decide what will sell and its ability to achieve it.
<b>TO OMB</b>	Sep-08	Agency sends budget request to OMB. Agency decisions are documented and price tags attached.
<b>PASSBACK</b>	November, December 2008	OMB recommendations and Presidential decisions to agency. "This is what we can afford," states OMB.
<b>APPEALS</b>	After passback.	Agency works the system; may appeal decisions if they are not to the agency's liking. "This is what the President really wants," states the agency.
<b>TO CONGRESS</b>	Feb-09	The President's Budget request or Congressional submission is sent to Congress. The Executive Branch takes a stand, and asks for money.

# Budget Formulation Process

## Budget Formulation Process (continued):

Key Step	FY 2010 Example	Description
<b>HEARINGS</b>	March/April 2009	House and Senate hold hearings on President's request. Congress asks for additional information; agency prepares it. Congressional appropriators attempt to figure out what is behind President's numbers and words.
<b>Q &amp; As</b>	February - June 2009	Questions from members and staff and agency responses establish a record.
<b>MARKUPS</b>	March - October 2009	House and Senate sub- and full committees discuss and act on the request, incorporating their views on what is worth funding. Agency works the system, attempting to influence outcomes.
<b>VOTES</b>	Sep-09	House and Senate debate and vote in floor action.
<b>THE CR</b>	Sep-09	Continuing Resolution, or stop-gap spending measure, used if time runs out. Otherwise, shutdown.
<b>CONFERENCE</b>	Oct-09	House and Senate meet to negotiate their differences.
<b>ENACTED</b>	October/November 2009	Congress finally makes up its mind, and passes bill. President vetoes or signs bill. Appropriations Act is now law. All negotiations are over at the Presidential level, but operating levels still have room to negotiate.



# Budget Formulation Process

<b>Budget Execution Process:</b>		
<b>Key Step</b>	<b>FY 2010 Example</b>	<b>Description</b>
<b>OP PLAN, expenditure plan</b>	Sep-09	Agency does operating plan, or how it will spend appropriated money. The GPRA annual plan is refined. Changes in programs are made to fit resources made available in the appropriations act, as well as to accommodate expressed Congressional concerns.
<b>ALLOCATE</b>	October - December 2009	Operating components get agency permission to use resources, and parcel them out to operating officials.
<b>ACTION!</b>	October 2009 and following years.	Goods and services are procured and delivered.
<b>AUDITS</b>	Anytime.	GAO and/or the IG may investigate anything related to resources.



# Budget Execution Process

## Budget Execution Process:

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<b>ACTION!</b>	October 2009 and following years.	Goods and services are procured and delivered.
<b>AUDITS</b>	Anytime.	GAO and/or the IG may investigate anything related to resources.

## Congressional Oversight Process:

<b>OVERSIGHT</b>	March/April 2011, and cumulatively every year until three years are covered.	Congressional committees request data, may hold hearings, take the only action they can: By September/October 2011, actions on the FY 2012 request let the agency and operating managers know how well they did, in the eyes of Congress, during FY 2010.
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## Budget Execution – Major Processes

- Obtaining Congressional and **Program Execution Guidance**
- **Distributing and controlling** funds inside control points
  - Approved Funding Program
  - Monthly Advice of Allotment
  - Monthly Financial Allocations Plans (commitments and obligations)
- **Obligating and spending** funds to accomplish mission program objectives
- **Accounting for and reporting** on actual performance data (Earned Value)
- **Monitoring and evaluating** financial execution (spend plans vs cost actuals, cost variance and root cause analysis)



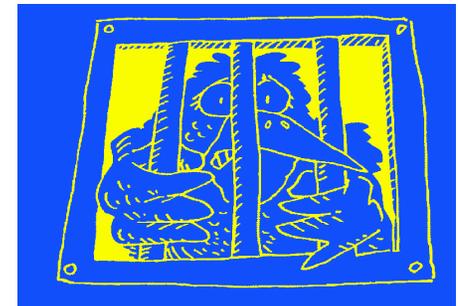
## Administrative Control of Funds

- Title 31, Section 1514, of U.S. Code, Administrative Division of Apportionments requires the Secretary of Energy to prescribe and carry out a system for administratively controlling funds.
- Funds are expended solely for the purposes for which they were appropriated, except as otherwise provided by law.
- Funds are certified as available and committed before obligations.
- Obligations or expenditures are not authorized or incurred in excess of available funds or in excess of any legal or administrative limitations.
- Only valid obligations are recorded in the accounting records, and all obligations incurred are recorded accurately and promptly.
- Outstanding obligations are validated annually.
- Legal Availability of Funds:
  - **Purpose:** What we are authorized to do with appropriated funds.
  - **Time:** Obligation must occur before expiration of obligational availability of appropriation. Annual, Multi-year, and No-year appropriations.
  - **Amount:** Obligations cannot exceed appropriations



## Anti-Deficiency Act

- 31 U.S.C. 1514, ***Administrative Division of Apportionments***: agencies must establish a formal administrative control of funds process
- 31 U.S.C. 1517, ***Prohibited Obligations and Expenditures***: legal violation occurs if appropriations, apportionments, or allotments are exceeded
- 31 U.S.C. 1518, ***Adverse Personnel Actions***: administrative penalties (including termination) accrue if section 1517 is violated — not willfully
- 31 U.S.C. 1519, ***Criminal Penalties***: criminal penalties accrue if violation of section 1517 is willful



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# Application of Funds Process

**1. Commitment** (reservation of funds):

An administrative reservation of funds in accounting system to ensure ample funds are available to cover obligational documents to be issued in future

**2. Obligation:**

A financial condition that is realized when a legal responsibility is incurred for which the Department must expend funds in future for goods and services that have been contractually ordered or consumed

**3. Costs:**

Costs are incurred when outstanding orders have been filled and/or services have been rendered for which payments are pending

**4. Outlay or Expenditure:**

The issuance of checks, disbursements of cash, or electronic transfer of funds made to liquidate/satisfy Federal obligations





U.S. DEPARTMENT OF  
**ENERGY**

# *Engineering & Technology Update*

**Mark Gilbertson**

*Deputy Assistant Secretary*

*Office of Engineering and Technology*

**Site Specific Advisory Board Meeting**

**Savannah River Site – Augusta, GA**

**March 18, 2009**



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# *Introduction*

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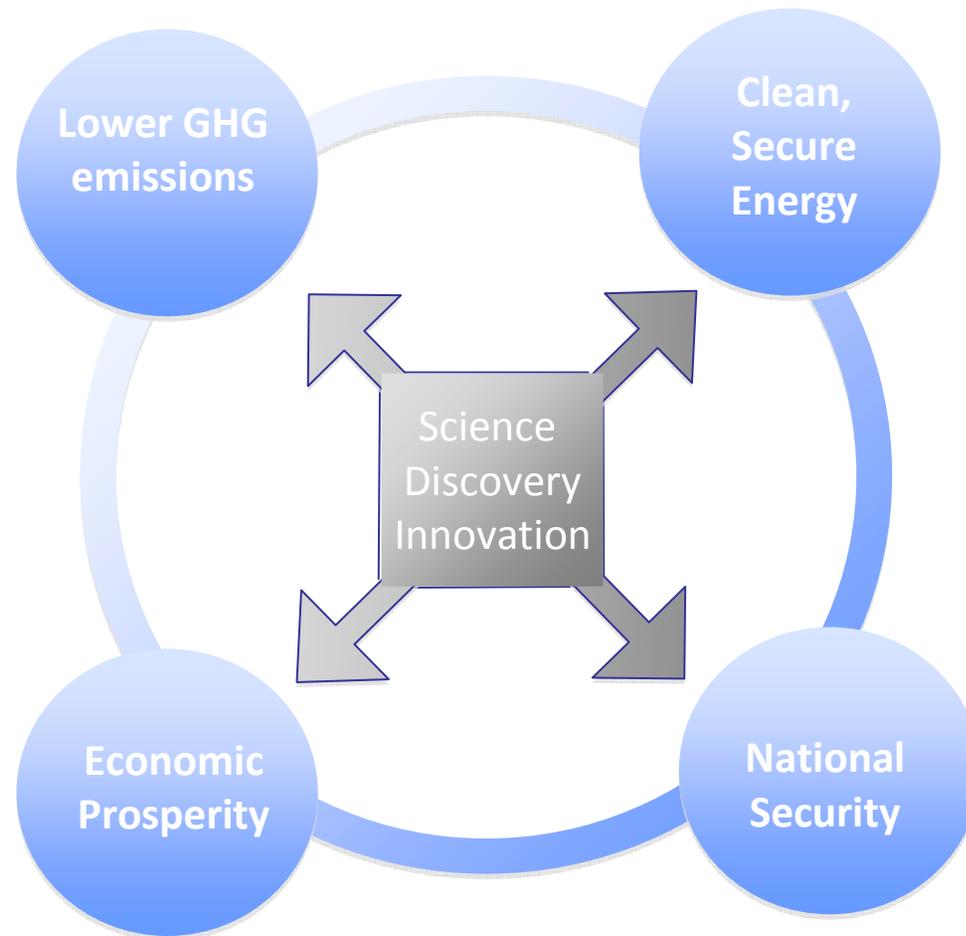
- **Engineering and Technology Mission**
- **Strategic Planning and Management Initiatives**
- **Engineering Initiatives**
  - **Technology Readiness Assessment**
  - **External Technical Reviews**
- **Leverage Research and Development from Public and Private Sector**
- **Technology Development**
- **Energy Park Initiative**



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# Strategic Framework: Science & Discovery at the Core



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# *Engineering and Technology*

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## ➤ **Mission**

- **To identify vulnerabilities and to reduce the technical risk and uncertainty in EM projects**

## ➤ **Vision**

- **Engineering and technology initiative will provide the engineering foundation, technical assistance, new approaches, and new technologies that contribute to significant reductions in risk (technical, environmental, safety, and health), cost, and schedule for completion of the EM mission.**



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# ***Strategic Planning for Engineering and Technology Program Activities***

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- **Strategic Planning Approach**
  - Implement Roadmap Initiatives
  - Select Critical, High-Risk, High-Payoff Projects
  - Conduct Technical Workshops and Exchanges
  - Complete External Technical Reviews
  - Review Risk Management Plans
  - Complete Technology Readiness Assessments
  
- **Collaboration with National Laboratories, Private Sector, and Universities for innovative technologies and technical exchanges**
  
- **Work with Federal Project Directors**



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# *Engineering and Technology FY2009 Management Initiatives*

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- **Best-in-Class Program**
- **Technology Readiness Assessment Policy and Guidance**
- **External Technical Review Guidance**
- **Secretary's Transformational Energy Action Management (TEAM) Initiative**
- **Real Property Management Process**

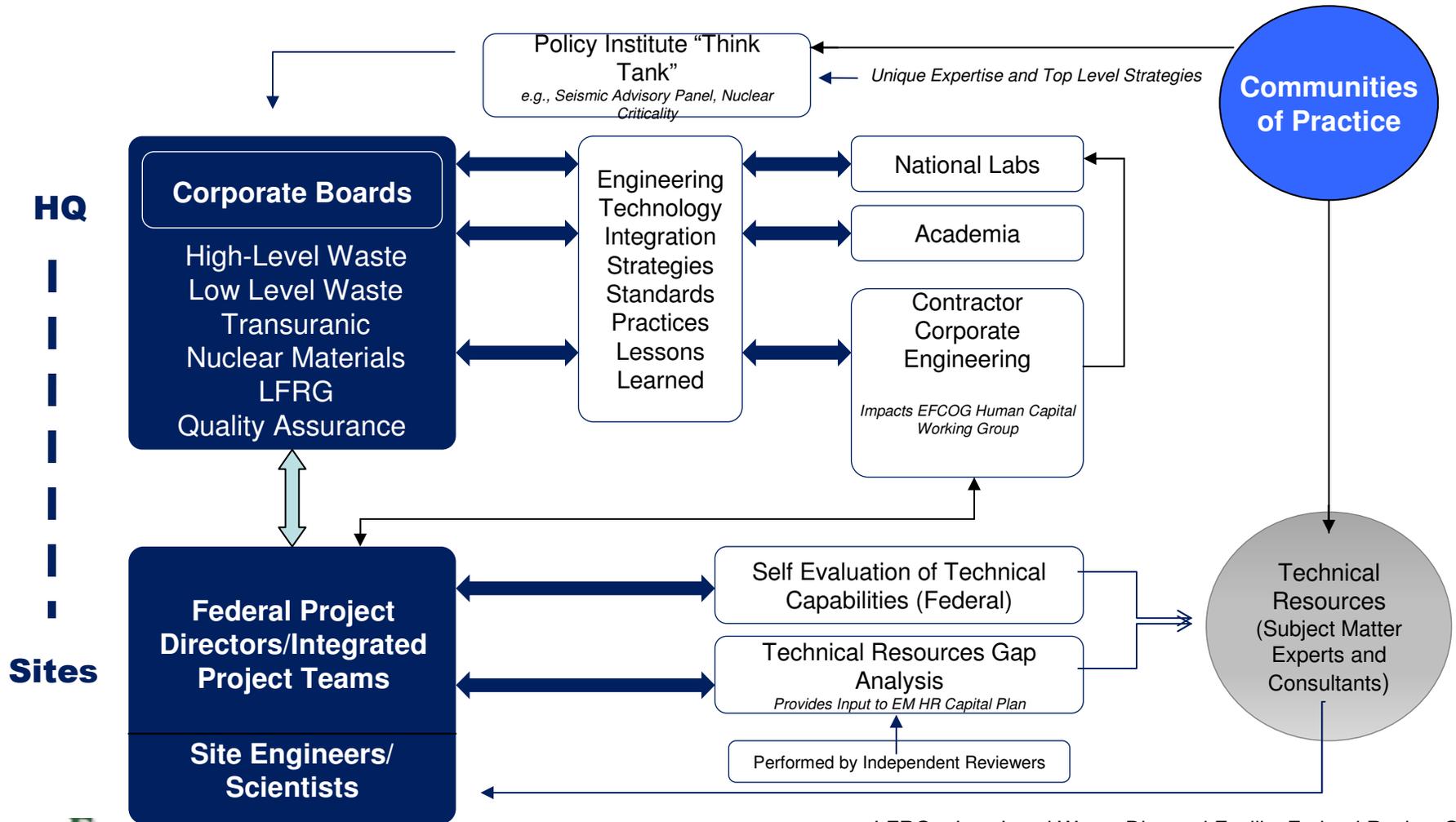


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# Striving for EM Program Engineering and Technology Excellence



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LFRG – Low Level Waste Disposal Facility Federal Review Group  
EFCOG – Energy Facilities Contractors Group

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# ***NAS Advice on DOE's Cleanup Technology Roadmap: Gaps and Bridges***

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## **National Academies Interim Report Observations – Feb. 2008**

- **Complexity and enormity of cleanup task require . . . significant, on-going R&D program.**
- **EM Roadmap can be an important tool for guiding R&D investments.**
- **National Laboratories at each of the four major sites have special capabilities that are needed to address EM's long-term needs.**



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# *NAS Advice on DOE's Cleanup Technology Roadmap: Conclusions*

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- At the beginning of the study the NAS Committee understood that the Roadmap would be a 'living' document to help plan, justify, and increase the effectiveness of EM's R&D program in support of its site cleanup mission.
- The Committee found that the Roadmap can be an important tool for enhancing EM's R&D efforts and has recommended detailed improvements and periodic updates of the Roadmap.



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# *Technology Readiness Assessments*

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- **A useful project management tool to support design/construction project management decisions, reduce technical risk – and thereby – limit costs and schedule overruns**
  
- **A consistent, systematic and structured process to evaluate and communicate the status of technology development**
  
- **An emerging standard for Federal Projects**
  - **Originally developed by NASA**
  - **Congressionally mandated for DoD**
  - **Recommended for DOE use by GAO (GAO-07-336)**
  
- **International use – U. K. Nuclear Decommissioning Authority, Australian Defense Department**



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# *External Technical Reviews*

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## **Improved reliance on external technical reviews (ETRs)**

- **Review conducted by subject matter experts who are independent of the project**
- **Provide information relevant to assessing technical risk for the project**

## **Results are used to:**

- **Develop strategies for reducing identified technical risks**
- **Provide technical analysis to support critical project decisions**



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# Technical Risk Rating Indicators

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## ➤ “Stoplight” Indicators:

-  Project technical risk(s) require heightened attention and may require Acquisition Executive decisions on direction or resources.
-  Project technical risk(s) require additional focus and may require Acquisition Executive decisions on direction or resources.
-  Project technical risk(s) have concerns in several areas and may require additional focus by the Integrated Project Team.
-  Project technical risk(s) are manageable. Minor concern in selected areas, but additional focus not required.
-  Project technical risk(s) are manageable as planned.



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# *Technology Development and Deployment*

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- **Much progress made in Environmental Management cleanup mission, e.g., new technical approaches were instrumental in the completions at Fernald and Rocky Flats (e.g., silos waste retrieval and processing and silos grouting at Fernald and chemical decontamination of glove boxes and tanks at Rocky Flats); more expected over next few years.**
- **Major uncertainties/risks across the DOE complex must be addressed through innovative technologies and approaches.**
- **Technologies have been inserted to reduce risk through accelerated schedules, cost savings, reduction in worker risk, and solving intractable problems.**
- **Solutions have made a difference in waste processing, soils and groundwater treatment, and deactivation and decommissioning.**



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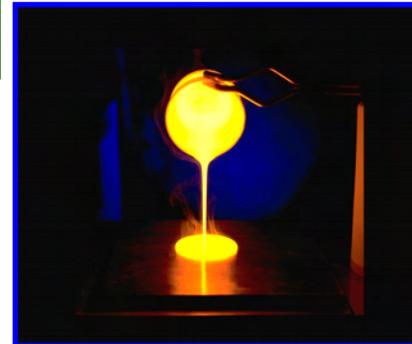
# *New Technologies and Processes Benefit EM Cleanup Mission*



*New decontamination approach at Rocky Flats significantly minimized waste generation and ultimately enabled site closure*



*Robotic crawler reduced worker safety risk at Hanford site*



*Improved glass formulation saved millions of dollars at Savannah River's Defense Waste Processing Facility*



*Alternatives to costly Pump and Treat technology used to clean up contaminated soil and groundwater*

**New technology deployment resulted in significant risk reduction and cost avoidance.**

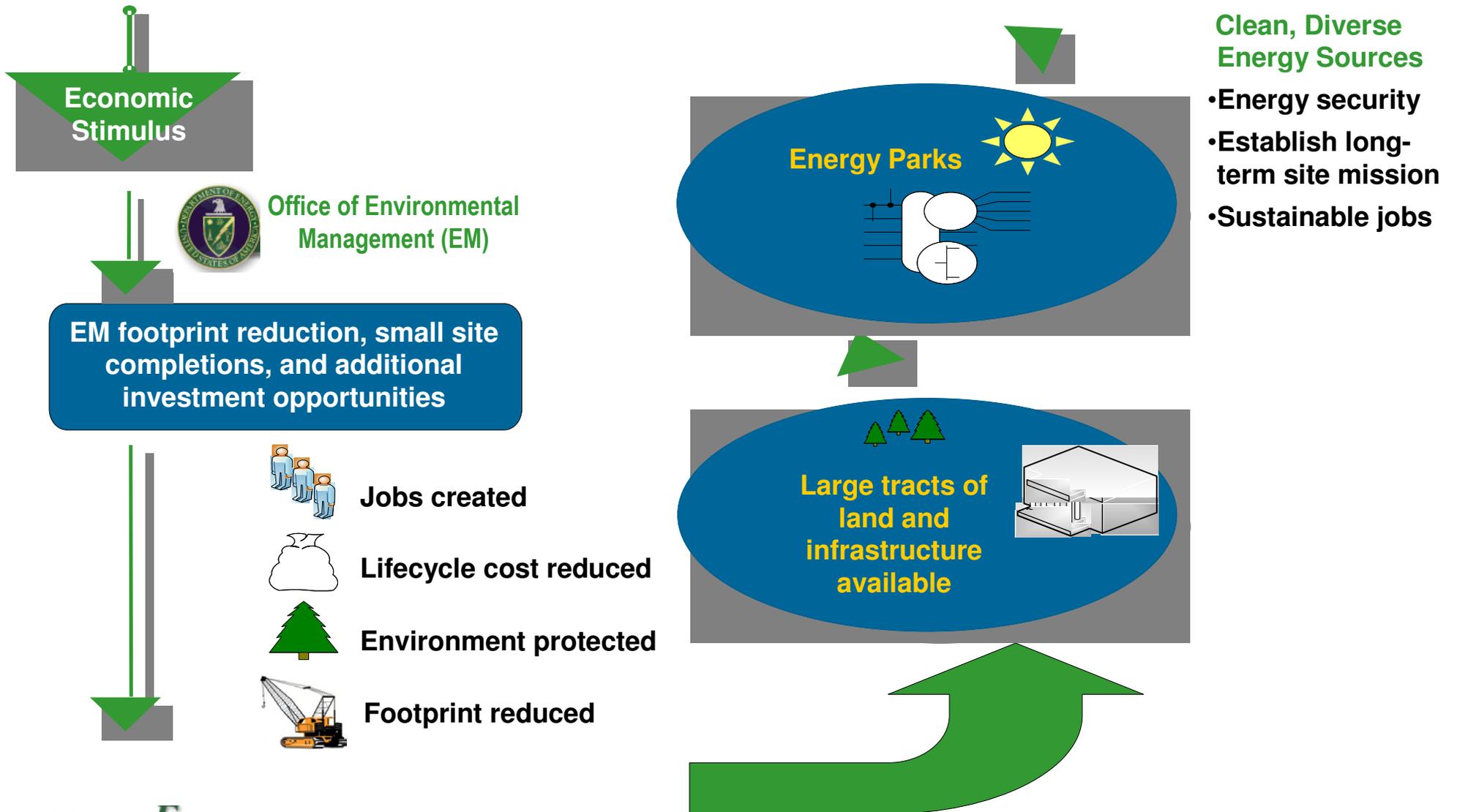


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# Footprint Reduction



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# ***Energy Parks Initiative: A bold and innovative concept***

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**. . . to leverage assets and create opportunity to enable rapid development of large-scale energy-related facilities.**

**. . . particularly those with significant potential of sustained progress towards energy independence, regional economy, national security, environmental sustainability, and other national concerns.**



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# *Energy Parks Initiative: Summary*

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- **A teaming of DOE, industry, and regional stakeholders, to enable rapid development of certain large-scale facilities at specific sites.**
- **DOE generates opportunity by designating valuable assets (including land), requesting expressions of interest, and negotiating to maximize the value and impact of opportunity.**



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# *Energy Parks Initiative: Why EM?*

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- **Facilitates EM mission execution**
  - **Transition to beneficial use**
  - **Engages stakeholders as partners**
  - **Leverages liabilities into opportunity**
  - **Supports “industrial use” standards**
  - **Reduces “EM footprint”**
  - **Averts life-cycle costs**
- **Attractive assets help meet national goals**
- **Increases taxpayer return-on-investment (ROI)**



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# *Energy Parks Initiative: Kind of Assets*

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- ✓ **Infrastructure** (roads, buildings, equipment, utilities, barge & rail access, transmission systems, and specialty features and capability)
- ✓ **Natural Resources** (land, water, and renewable energy)
- ✓ **Institutional Controls** (clear land title, physical control, water rights, NPDES and other permits, buffer area, environmental & seismic characterization, and security)
- ✓ **Human and Economic Capital** (knowledge of regulatory environment, highly trained workforce, transition to succeeding missions, and return of valuable assets to the local tax base)
- ✓ **Diversity, Size, and Remoteness** (allows consideration of many uses, and protection of critical infrastructure)
- ✓ **Applied Tools** (technology, loan guarantees, purchasing power)



# *Energy Parks Initiative: Technology*

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**Options include conventional & advanced energy technologies, such as:**

- **Renewable energy: solar, wind, biomass, geothermal**
- **Fossil fuels: clean coal, gas turbines**
- **Electricity generation, transmission, & distribution**
- **Hydrogen generation**
- **Emission controls, carbon sequestration**
- **Specialty manufacturing**
- **Nuclear: power, fuel cycle, waste management**



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# *Related Activity: Supports Energy Parks Initiative*

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... from “greening” of energy supply to teaming with community reuse organizations & industry

- **Hanford:** shares infrastructure with nuclear utility; 71 acres transferred for development
- **Savannah River:** working on leasing 2,500 acres for electric production; large-scale demonstration of new energy technologies and manufacturing of energy generation equipment
- **Oak Ridge:** private-sector business and industrial park; transferred 50 acres and much site infrastructure
- **WIPP:** RFI for 16 square miles of solar resources
- **Mound and Fernald:** ongoing site conversion



# Challenges

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- **Provide solutions to reduce technical uncertainty, especially for first of a kind technologies.**
- **Improve engineering and scientific capabilities.**
- **Develop policy, strategies, and guidance for facility management and land redevelopment and for improvement of energy efficiency and conservation.**
- **Determine the investment level needed by EM to address the engineering and technology challenges of the future.**
- **Determine options for reuse of sites as the EM footprint is reduced**



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# Conclusions

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- Engineering tools such as Technology Readiness Assessments and External Technical Reviews have been proven useful in providing significant input for critical project management decisions. Technology Maturity Plans are key to reducing project risk.
- Roadmap identifies strategies and needs to reduce risks and technical uncertainty to improve technologies and processes at EM sites.
- Project Risk Management Plans should be used to help resolve technical risks and uncertainties. Technical Risk Rating Tool helps project managers assess existing technical Risk and makes the assessment process more transparent.
- Establishment of communities of practice within EM and its stakeholders to foster the exchange of technical and scientific information and solutions will improve communication that is needed to ensure project success.
- Energy Parks are a beneficial reuse of sites as the EM footprint is reduced.



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# BACK UP SLIDES



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# ***NAS Advice on DOE's Cleanup Technology Roadmap: Principal Science and Technology Gaps***

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## **Waste Processing:**

- 1. Substantial amounts of waste may be left in tanks after their cleanout—especially those with obstructions or associate piping. (High Priority)**
- 2. Low-activity streams from tank waste processing could contain substantial amounts of radionuclides. (Medium Priority)**
- 3. New facility designs, processes usually rely on pilot-scale testing with simulated rather than actual wastes. (Medium Priority)**
- 4. Increased vitrification capacity may be needed to meet schedule requirements of EM's HLW programs. (High Priority)**
- 5. The baseline tank waste vitrification process significantly increases the volume of HLW to be disposed of. (Medium Priority)**
- 6. A variety of wastes and nuclear materials do not yet have a disposition path. (Low Priority)**



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# ***NAS Advice on DOE's Cleanup Technology Roadmap: Principal Science and Technology Gaps***

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## **Groundwater and Soil Remediation:**

- 1. The behavior of contaminants in the subsurface is poorly understood. (High Priority)**
- 2. Site and contaminant source characteristics may limit the usefulness of EM's baseline subsurface remediation technologies. (Medium Priority)**
- 3. The long-term performance of trench caps, liners, and reactive barriers cannot be assessed with current knowledge. (Medium Priority)**
- 4. The long-term ability of cementitious materials to isolate wastes is not demonstrated. (High Priority)**



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# ***NAS Advice on DOE's Cleanup Technology Roadmap: Principal Science and Technology Gaps***

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## **Facility Deactivation and Decommissioning (D&D):**

- 1. D&D work relies on manual labor for facility characterization, equipment removal, and dismantlement. (High Priority)**
- 2. Personal protective equipment tends to be heavy, hot, and limits movement of workers. (Low Priority)**
- 3. Removing contamination from building walls, other surfaces can be slow and ineffective. (Medium Priority)**



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# ***NAS Advice on DOE's Cleanup Technology Roadmap: Findings***

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- **FINDING:** The EM Technology Roadmap is an important and much needed tool for guiding DOE headquarters investments in longer-term R&D to support efficient and safe cleanup.
- **FINDING:** The current Roadmap describes technical risks in the EM site cleanup program and R&D initiatives to mitigate these risks. However, it does not connect these initiatives to major milestones in the EM cleanup program.
- **FINDING:** EM is the DOE office designated to clean up the nuclear materials production sites of the Cold War. Cleaning up these legacy sites nevertheless remains a responsibility for all of DOE and the Nation. EM cannot complete its mission without the active cooperation of other DOE offices and Federal agencies. The Roadmap can be improved by specifying opportunities for cooperative work with the National Laboratories and other DOE and Federal agencies.
- **FINDING:** The scientific and technical state-of-the-art will evolve during the next 30 years of the EM site cleanup program, as will public expectations for the cleanup goals. A robust EM science, engineering, and technology program will be required to keep up with these evolutions, to provide up-to-date bases for EM's cleanup decisions, and to maintain a skilled workforce.
- **FINDING:** The unique chemical, physical, and radiological properties of waste and contamination at the EM cleanup sites, and the unique subsurface characteristics of the sites themselves require special capabilities of the sites and their associated National Laboratories to sustain long-term R&D for EM's 30-year cleanup program. These special capabilities include qualified, experienced personnel and facilities for radiochemical, engineering, and field experiments. It is Congress' and DOE's responsibility to maintain the National Laboratories' capabilities, not only for cutting-edge scientific research, but also for research applied to national problems such as DOE's Cold War legacy cleanup.



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# Edible Oil Treatment Leads to Enhanced Attenuation for Chlorinated Solvents

## Need

- There are two fundamental challenges in reaching final closure for many DOE sites with contaminated soils and groundwater
  - Transitioning from costly source treatments to passive (**green**) treatments and to an acceptable end state
  - Developing regulatory support and acceptance to implement attenuation based remedies

## Solution

- Demonstrate full scale test of enhanced attenuation remedy utilizing edible oil at Savannah River Site's T-Area

## Results

- Edible oils can reduce contaminant concentrations in two ways: stimulating microbiological degradation processes and reducing contaminant mobility by physical sequestration
- Developing guidance with state and federal regulators for implementing attenuation based remedies within regulatory frameworks

## Impact

- Technical developments enable transition from active, energy-intensive treatments to "**green**" treatments, minimizing our energy footprint on a national scale, while also saving money
- Publicly available training is resulting in technical advancements in the public/private sectors.



Researchers are hopeful that an enhanced attenuation approach will lead to effective groundwater cleanup with reduced energy use and impact to the environment



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# Low – Temperature Caustic Leaching

## Need

- The mass of Sludge in the SRS High-level waste (HLW) tanks is currently estimated to fill ~ 7,900 canisters when treated, which is more than previously estimated and likely will impact the Site Treatment Plan commitment to treat all HLW by 2028

## Solution

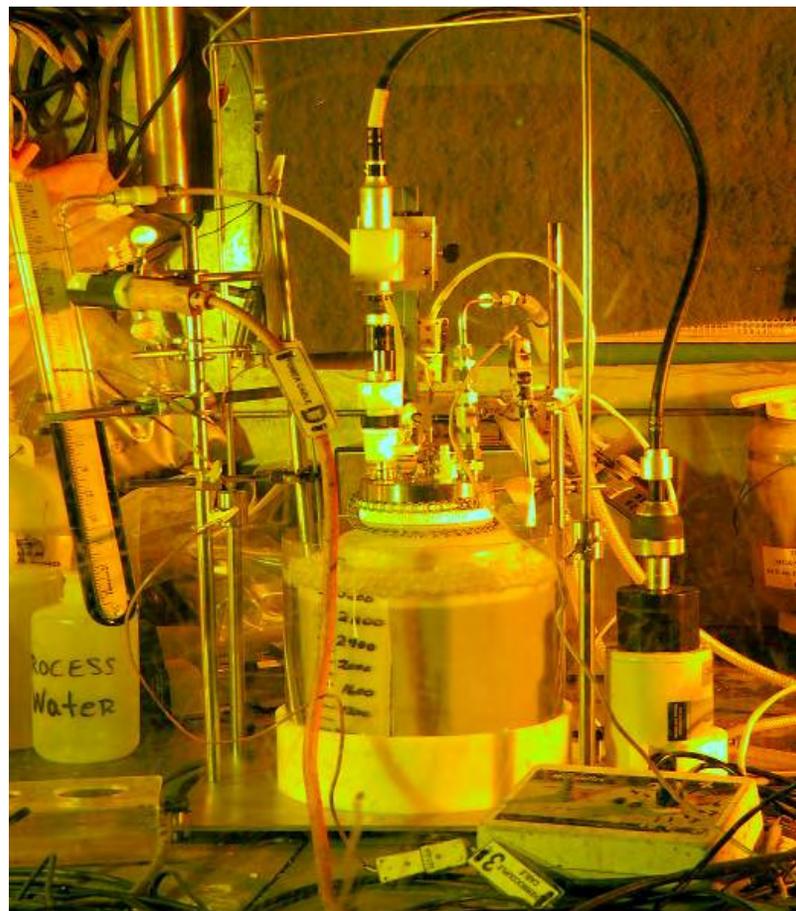
- In-tank, low-temperature caustic leaching to remove the aluminum in the sludge could significantly reduce the volume of waste required for vitrification

## Results

- Low-temperature caustic leaching was recently demonstrated at full scale in Tank 51 at SRS
  - 65% of the insoluble aluminum was removed
  - No new equipment was required and dissolution was complete after 80 days
  - The aluminum-rich decant stream is staged for feed to the Salt Waste Processing Facility

## Impact

- The aluminum removed reduced the sludge volume by the equivalent of 100 canisters, reducing the total life-cycle cost of the SRS HLW mission by an estimated \$100 million
- This process is expected to reduce sludge mass by the equivalent of 900 canisters with a \$900 million life-cycle cost reduction



**Caustic Leach Test System**



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# D&D Toolbox

## Need

- 207 facilities at the Oak Ridge Reservation and hundreds of facilities at other DOE sites awaiting D&D were erected in the mid 1940s and early 1950s to support the Manhattan Project and Cold War missions and are now structurally deteriorated and unsafe for workers to access for surveillance and maintenance and D&D

## Solution

- A systems approach, being used for highly contaminated, deteriorated structures that may be unsafe for prolonged worker access will deliver a “D&D Tool Box” with validated performance data on applicable D&D technologies that can be used on a wide variety of facilities and structures

## Results

- The “D&D Tool Box” consists of characterization, decontamination, and demolition technologies, including robotic systems and platforms that will provide alternative approaches to D&D

## Impact

- The “D&D Tool Box” will provide reduced risk to workers, site personnel, and the environment while accelerating D&D and saving money
- The technical approaches will be applicable across the DOE Complex



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# Savannah River Site (SRS) Citizens Advisory Board “Board’s-Eye View” of Cleanup

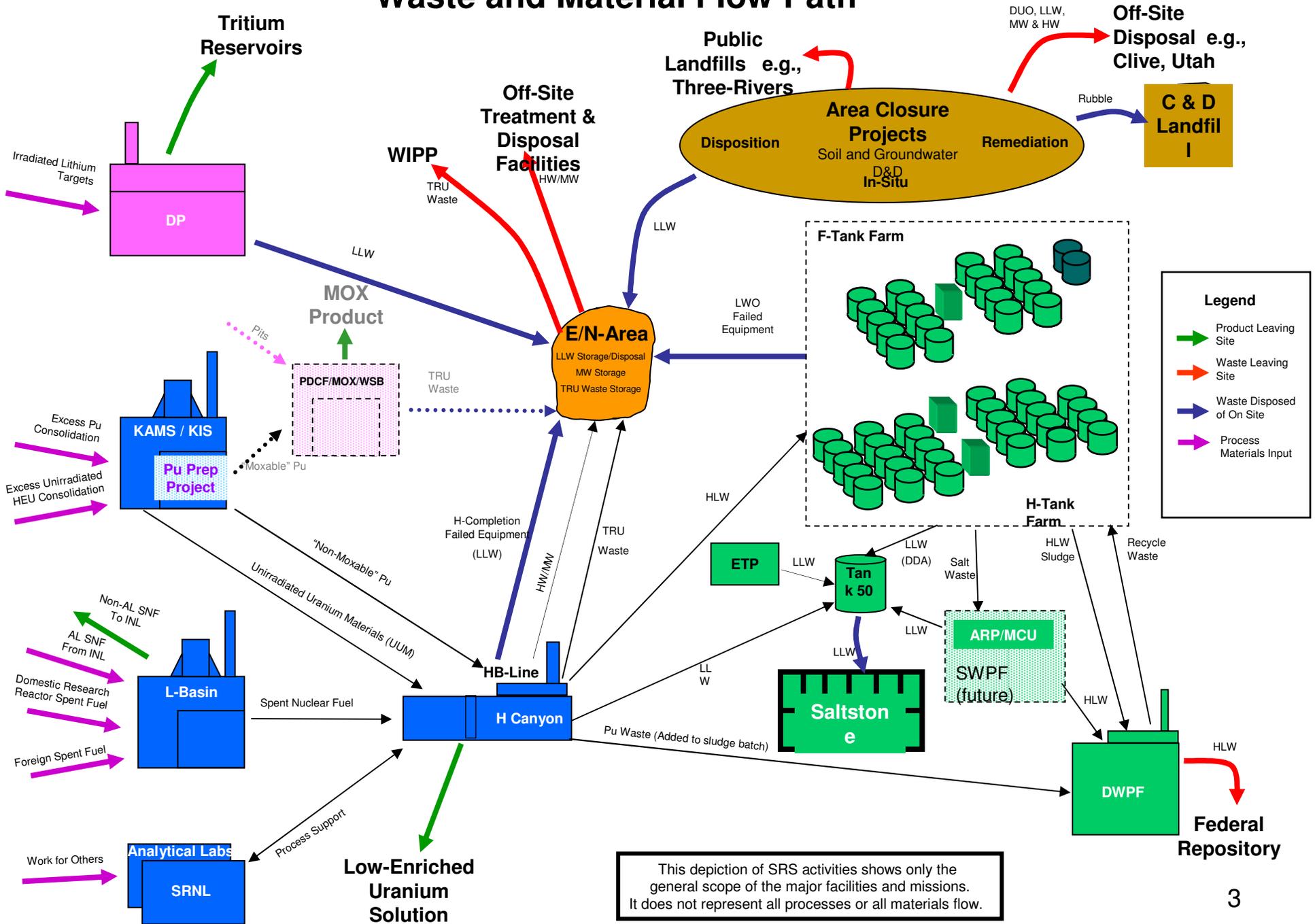
Art Domby, Member,  
SRS-Citizens Advisory Board  
March 18, 2009



# Board's-Eye View

- Savannah River Site (SRS) Waste & Material Flow Path
  - National Nuclear Security Administration (NNSA) and Environmental Management Activities
- Environmental Cleanup
  - 2035 Completion Projects
    - Soil & Groundwater Remediation
    - Area Completion Strategy
    - H-Canyon's Role in SRS and Complex Cleanup
  - SRS Liquid Waste Disposition

# Savannah River Site Waste and Material Flow Path





# Savannah River Site

## “Waste and Material Flow Path”

### NNSA Activities:

- Tritium Production
- Mixed Oxide (MOX) Fuel Production
- Plutonium/Weapons Nuclear Material Consolidation and Control in K-Area

Budget: \$700-\$800 Million/FY



# Savannah River Site

## “Waste and Material Flow Path”

### Environmental Management (EM) Activities:

- Environmental Clean-up
- Excess Nuclear Material Stabilization and Disposition
- Spent Fuel Management in L-Area
- Safeguards and Security
- Federal Program Direction

*Budget: \$1.3 Billion/FY*

### Savannah River National Lab:

*Budget: \$90 Million/FY*



# Environmental Cleanup

## “2035 Completion” Projects

### Nuclear Material Stabilization & Disposition

- Excess Plutonium; Highly Enriched Uranium; Unirradiated Uranium; Depleted Uranium Oxide; Transuranic Materials

### Spent Nuclear Fuel Stabilization & Disposition

### Solid Waste Stabilization & Disposition

### Soil and Groundwater Remediation

- Solvents from production; tritium in groundwater and in reactor disassembly basins



## Environmental Cleanup *(continued)*

### “2035 Completion” Projects *(continued)*

- Tank Farm Activities (Tanks closed by FY2032)
  - Salt Waste Processing Facility (SWPF) – Interim Processing; SWPF Under Construction
  - Defense Waste Processing Facility - Operational
- Safeguards & Security
- Program Direction; Community & Regulatory



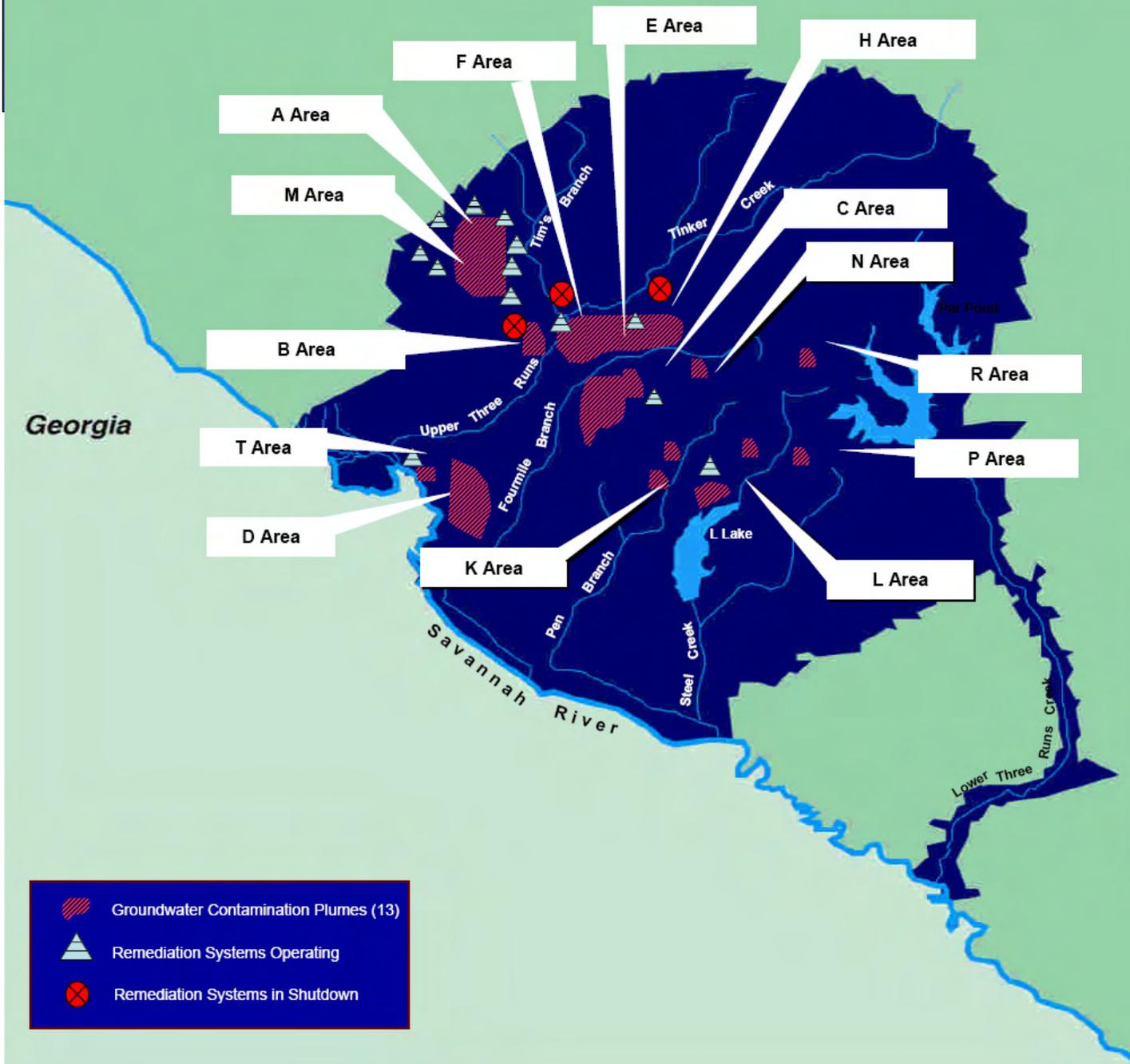
# Environmental Cleanup *(continued)*

## Soil and Groundwater Remediation

- 14 Groundwater Plumes
- Area Completion Strategy (2005-2034)
- Nuclear Facility Deactivation & Decommissioning
- Met all Federal Facility Agreement – Appendix E Milestones

# Groundwater Plumes

South Carolina



## 14 Groundwater Contamination Plumes

A/M, B, C, D, E, F, G, H, K, L, N, P, R, T Areas

## 12 Active Remediation Systems

2 Airstrippers, 2 Recirculation, Dynamic Underground Stripping, 4 Soil Vapor Extraction Units (A/M Areas)  
Base Injection (F&H Waste Management Facility)  
Electrical Resistance Heating (Chemical, Metals, & Pesticides Pits)  
Phytoremediation (Mixed Waste Management Facility)

## 8 Enhanced Systems

Baroballs (A/M, Miscellaneous Chemical Basin, P Burning Rubble Pit)  
Microblowers (A and C Burning Rubble Pits)  
Barrier walls (F&H Waste Management Facility)  
T Area Edible Oil Treatment

## 6 Passive Systems

Monitored Natural Attenuation (Chemical, Metals, & Pesticides Pits; D Oil Seepage Basin; R Reactor Seepage Basin; K and L Burning Rubble Pits, Sanitary Landfill)

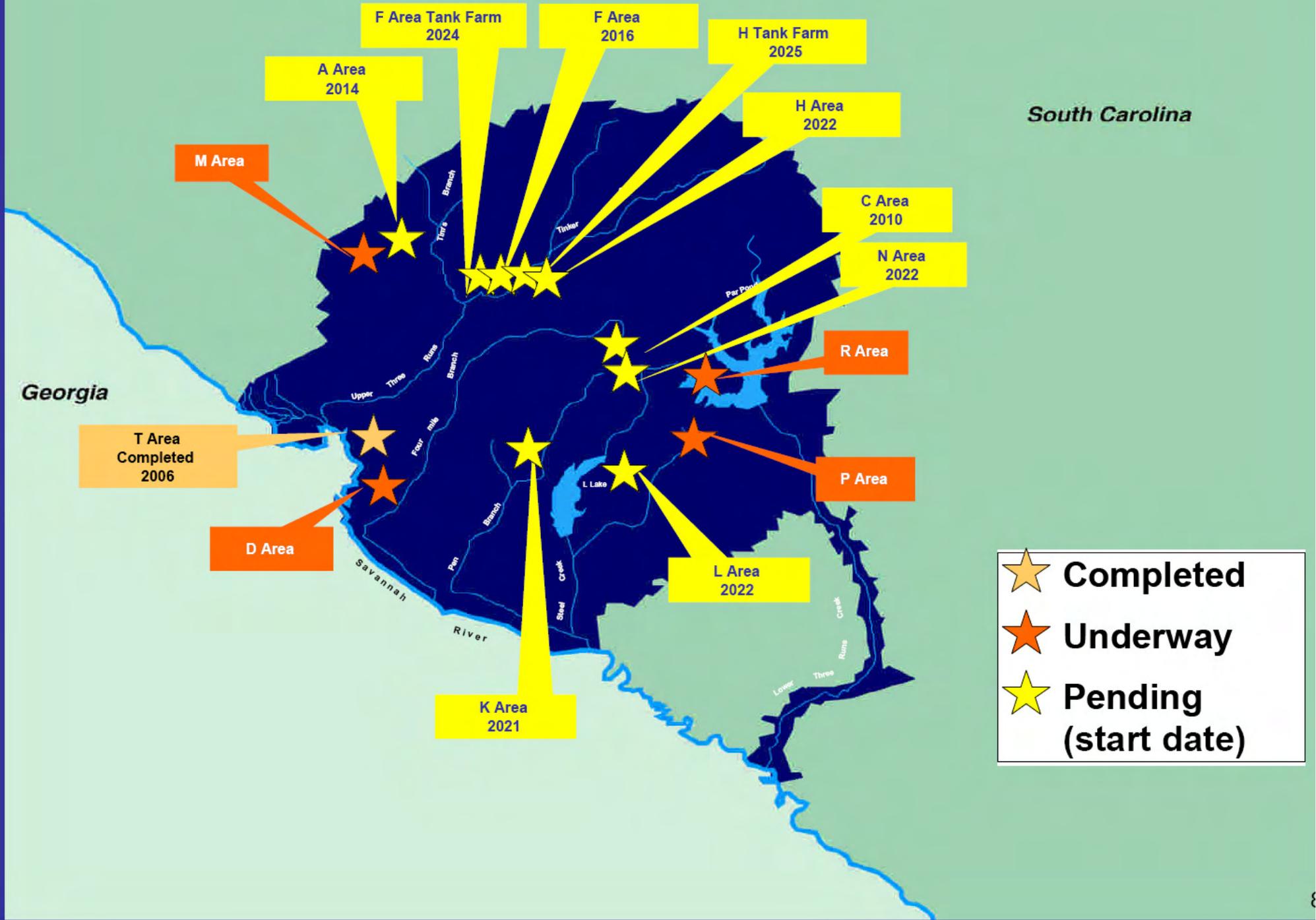
## 3 Systems In Shutdown

Biosparge (Sanitary Landfill)  
Groundwater Waste Treatment Units (F&H)

## 11 Systems Pending

- Groundwater Contamination Plumes (13)
- Remediation Systems Operating
- Remediation Systems in Shutdown

# Area Completions





# Area Completion Strategy

- Groupings of Waste Units and Facilities by Geographic Area
  - Area “End-States” Determined (NEPA; Public Participation)
  - Soil and Groundwater Projects Integrated/Coordinated
    - Sampling, analysis, remediation Coordinated
  - Deactivation and Decommissioning
- Decreases “Footprint” of Impacted Areas
- “Slide Along” Activities/Lessons Learned/Technology Development
  - Electric resistance heating of subsurface
  - Phytoremediation
  - Subsurface “barrier” walls
  - Edible oil injection
  - Steam Injection
- Generation of Performance Assessment Data
  - F Tank Farm Performance Assessment



# Area Completion Strategy

- F-Area “Outside Facilities” 2004-2008
- M-Area 2004-2011 (scheduled)
- P-Area Reactor 2005-2014 (scheduled)
- R-Area Reactor 2007-2015 (scheduled)



## H-Canyon – “A National Treasure”

- Only large scale processing Facility for Nuclear Materials;
- Scheduled Shutdown in 2019;
- Infrastructure Upgrades to Assure Completion of Mission;
- Proven, Reliable Technology.



# H-Canyon – A National Treasure *(continued)*

## Importance to DOE-Complex

- “Down blending” of Highly Enriched Uranium to Low Enriched Uranium plowshares
- “Non-MOXable” Plutonium Disposition
- Other Nuclear Materials (e.g. Space Programs)
- Aluminum Spent Fuel Reprocessing
- Domestic Research Reactor Fuel Reprocessing
- Foreign Spent Nuclear Fuel/Non-proliferation
- Processing will keep other DOE Sites from implementing expensive security measures for small quantities of materials.

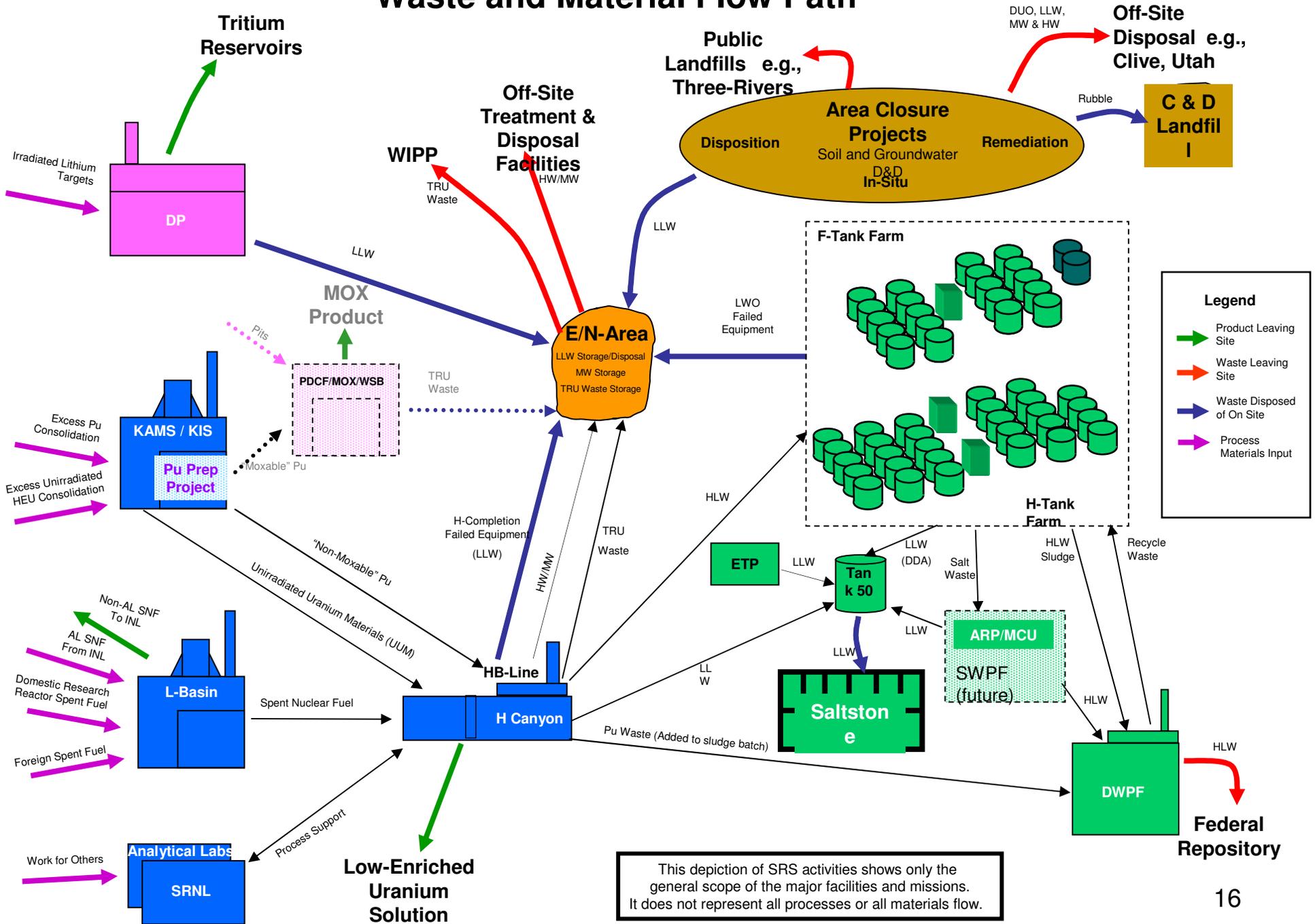


# H-Canyon – A National Treasure *(continued)*

## H-Canyon's Critical Role in SRS and Complex Waste Disposition Paths

- Plutonium to Defense Waste Processing Facility (DWPF)
- High Level Waste to Tank Farms, then to Saltstone or DWPF
- Low-Level Waste to Saltstone

# Savannah River Site Waste and Material Flow Path



This depiction of SRS activities shows only the general scope of the major facilities and missions. It does not represent all processes or all materials flow.



# Liquid Waste Disposition

## Legacy “Liquid Wastes” in F and H Tank Farms

- 37 Million Gallons of Liquid Wastes
  - Includes Radioactive Contaminants from other Sites
- 397,000,000 Curies
  - Half of the Radioactivity in the DOE Complex
- 51 Tanks (2 Closed; 12 Leaking; 22 “Non-compliant”; Carbon Steel)
- “Poses the single greatest environmental risk in the state of South Carolina”



# Liquid Waste Disposition

*(continued)*

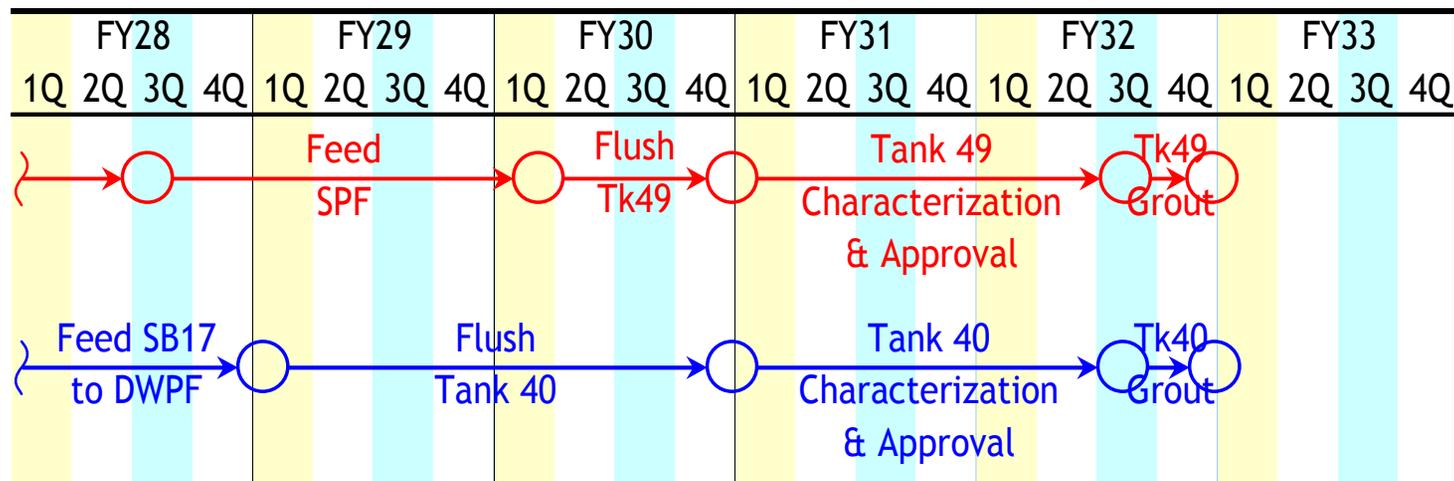
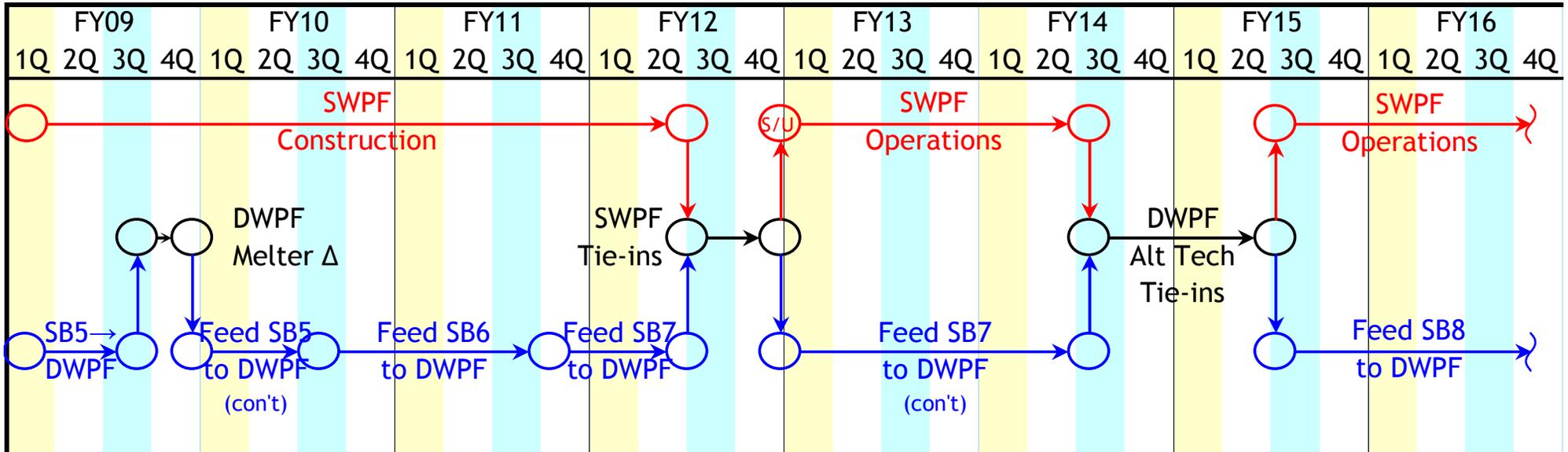
## 2005 Federal Legislation Allows Tank Closure with Grout, Residual Liquid Waste left in Tanks

- DOE Secretary “Waste Determination”
  - Nuclear Regulatory Commission (NRC) Standards for Near-Surface Disposal
- NRC “Consultation” in development of Waste Determination
- NRC Monitoring of Tank Closure

## Objectives

- Less than 1,400,000 Curies Disposed at the Savannah River Site (Saltstone)
- >99% of Radionuclides Processed into Glass and Incapable of Future Use
- 8,000-9,000 “Cans” with Vitrified High Level Waste

# Critical Path Analysis



Note: From FY15– FY28

- (9) Sludge Batches fed to DWPF
- (3) DWPF Melter Change Outages
- Continued SWPF Operations except during DWPF Melter Change outages



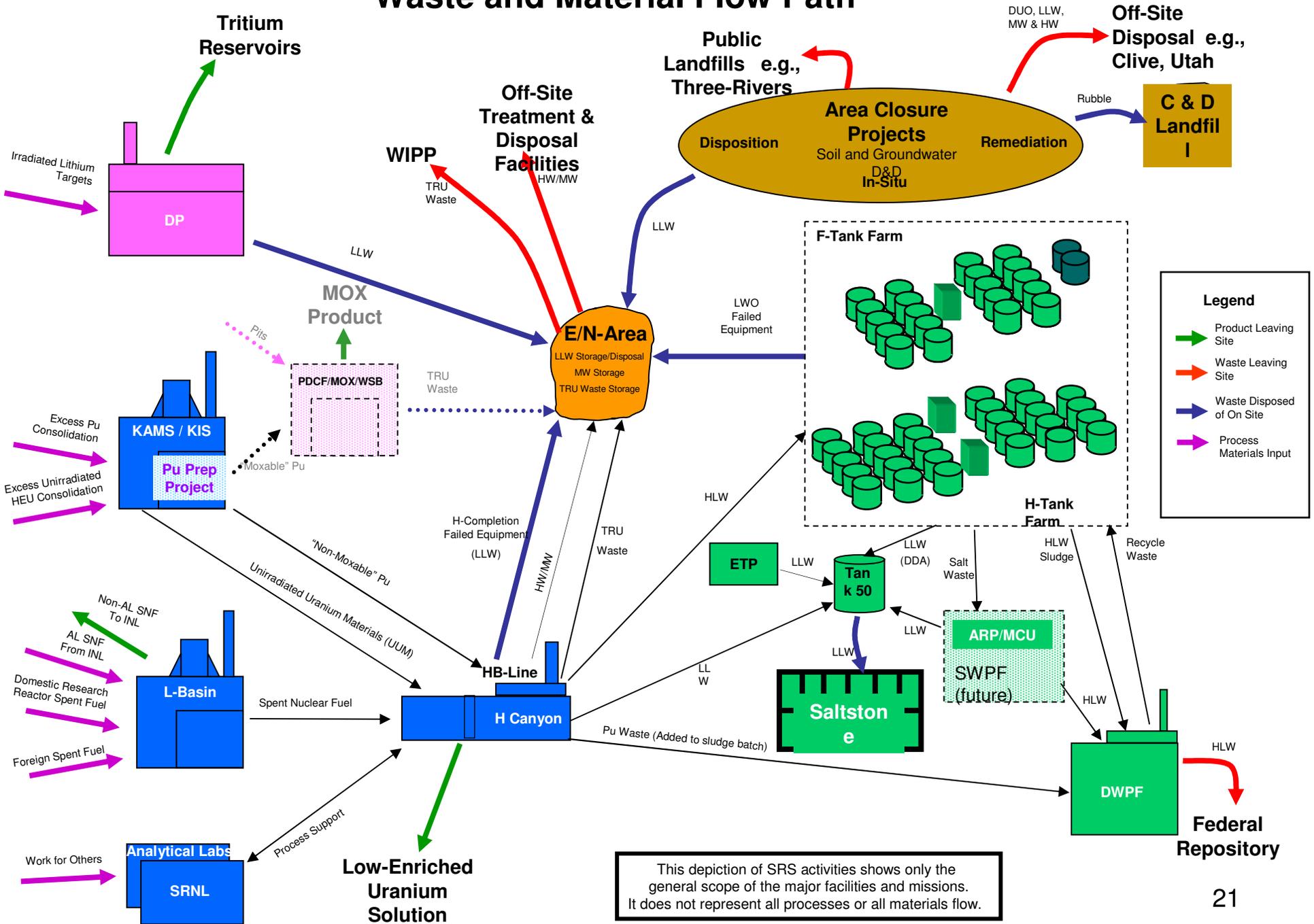
# Liquid Waste Disposition

*(continued)*

H-Canyon; Salt Waste Processing Facility; and  
Defense Waste Processing Facility

- Unique Chain of Processes and Facilities
- Technology Development, Demonstration & Processing of Nuclear Materials and High Level Waste
- Valuable Resources and Treatment Facilities for the Nation
- H-Canyon Scheduled Shutdown 2019

# Savannah River Site Waste and Material Flow Path



This depiction of SRS activities shows only the general scope of the major facilities and missions. It does not represent all processes or all materials flow.



# Summary

- SRS is complex and integrated onsite and throughout the DOE-complex;
- SRS has advanced technology available through onsite programs and the Savannah River National Laboratory;
- SRS Citizens Advisory Board effective and active public participation.
  - Recommendation and participation in the 3116 Waste Determination;
  - P Reactor Deactivation and Decommissioning Workshops to educate and provide input to the final end-state expectations;
  - F Tank Farm Performance Assessment comments; and
  - Annually input to the Budget Integrated Priority List.

**DOE's Environmental Management Site-Specific Advisory Board  
15 Years of Community Involvement - 9315**

M. Nielson, C. Alexander Brennan  
U.S. Dept. of Energy Office of Environmental Management  
Office of Public & Intergovernmental Accountability  
1000 Independence Avenue, S.W.  
Washington, D.C. 20585

**ABSTRACT**

This paper provides an overview of the U.S. Department of Energy's Environmental Management Site-Specific Advisory Board (EM SSAB) from its roots in the early 1990s at the Keystone Center to its current activities. The EM SSAB has a unique mandate to provide input regarding the cleanup of nuclear legacy sites in the United States. Chartered under the Federal Advisory Committee Act, the EM SSAB today comprises eight local boards. The Office of Environmental Management has made public participation a fundamental component of its cleanup mission and has found that the EM SSAB has contributed greatly to bringing community values and priorities to the cleanup decision-making processes. Public participation that involves ongoing community engagement has inherent challenges; the EM SSAB has additional challenges that reflect the political and technical nature of the Agency's work.

**INTRODUCTION**

This year marks the 20<sup>th</sup> anniversary of the U.S. Department of Energy's (DOE) Office of Environmental Management (EM), an anniversary that is closely linked to the 1989 dismantling of the Berlin Wall and the end of Cold War hostilities between Western powers and the Soviet bloc. Destruction of the wall was symbolic of a larger deconstruction effort that would begin as a result of this political breakthrough: the cleanup of the nuclear weapons production legacy that was created during the Cold War.

When EM was established for this effort, the scope and risks of the work were largely unknown. Today, EM manages the largest environmental cleanup program in the world. Together, the legacy sites comprise 2 million acres, the size of Delaware and Rhode Island combined. Of the 108 contaminated sites that were identified for EM cleanup, 86 of those sites have been cleaned up and closed nationwide. Still, on the remaining sites, there are 4,500 facilities waiting for decontamination and decommissioning.

Early in this effort, EM recognized that progress toward cleanup would depend upon commitment, innovation, and collaboration with the affected communities. In search of mechanisms for such collaboration, the Agency joined in a 1992 federal dialogue to explore citizen involvement to address such issues as cleanup levels, future use and safety on the site [1]. The Keystone Center, a non-profit environmental conflict-management group, convened the working dialogue among representatives of federal government agencies; state, Tribal and local governments; and regionally and locally based environmental, community, environmental justice, Native American and labor organizations. The goal was to develop consensus policy recommendations, aimed at improving the process by which federal facility environmental cleanup decisions were made. The Environmental Management Site-Specific Advisory Board (EM SSAB) was one result of this effort, as was EM's entire Public & Intergovernmental Accountability Program.

The charter for the EM SSAB [2] was approved under the Federal Advisory Committee Act (FACA) [3] in 1994. So as EM celebrates its 20<sup>th</sup> anniversary in 2009, the EM SSAB marks its 15<sup>th</sup> anniversary.

Although the EM SSAB is the only citizen advisory board funded directly by EM, the office supports a number of other activities focused on gathering public input. Also supported is the Environmental Management Advisory Board (EMAB), an external board that provides independent advice, information, and recommendations to the Assistant Secretary for Environmental Management on corporate issues relating to accelerated site cleanup and risk reduction. Like the EM SSAB, EMAB's activities are governed by FACA. EMAB members include individuals from governmental and non-governmental entities, private industry, and scientific and academic communities. EM also supports intergovernmental, including Tribal, consultations; public meetings; requests for public comment; and ad hoc activities. EM also seeks, but does not fund, additional stakeholder input from community reuse and economic development organizations, state-chartered oversight boards, councils of government and other organizations.

**“Public participation must be a fundamental component of the Department’s program operations, planning activities and decision-making. The business of the Department must be open to the full view and input of those whom it serves, consistent with applicable laws, regulations, and contacts.”** U.S. Secretary of Energy Hazel R. O’Leary, upon issuing the first Guidance on Implementation of the Department’s Public Participation Policy [4].

## **PUBLIC INVOLVEMENT AT DOE-EM**

A cornerstone of EM’s commitment to public involvement is the EM SSAB. It is currently the only directly funded, citizen advisory board for EM planning and decision-making processes involved with cleanup of the nuclear weapons complex. Now comprising eight local boards located in close proximity to major EM sites, the EM SSAB provides the EM program with information, advice, and recommendations concerning issues affecting the program, both locally and nationally.\* The EM SSAB, with approximately 200 members, is the largest advisory board chartered under FACA.

Under its FACA charter, which must be renewed every two years, the EM SSAB is authorized to provide direct input to EM, and the Agency must support the EM SSAB. The charter, furthermore, prescribes the structure and basic operations of the Board [2].

Enacted in 1972, FACA “provides a clear framework for providing broad public input (not just special interest) into decision-making; directs the input to the appropriate bodies (the sponsoring body) so that it can make a difference; provides a uniform reporting system that enhances government and public accountability; and ensures that the advisory committees are reviewed for their contributions, effectiveness and stewardship of federal resources [3].”

The two major goals of FACA are

- 1) *To Enhance Public Accountability of Advisory Committees - To control the undue influence of special interests by balancing committee membership, and to ensure that public access to committee deliberations is maximized.*
- 2) *To Reduce Wasteful Expenditures on Advisory Committees - To improve the overall management of committee activities by establishing a set of management controls designed to*
  - *Monitor federal advisory committee costs;*
  - *Identify and eliminate unproductive and/or unnecessary committees; and**Provide for an annual report of committee activities and accomplishments to the Congress [3].*

\* DOE created several local citizen advisory boards prior to 1994, which were brought under the umbrella of the new EM SSAB charter. The EM SSAB has comprised as many as 11 local boards at one time; the changing number of local boards within the EM SSAB reflects cleanup completion at some sites and the disbanding of the related local site boards.

Following the enactment of the legislation, FACA implementation was clarified by the General Services Administration (GSA), which published its “Federal Advisory Committee Management; Final Rule” in 1987 and a revision in 1989 [5]. The updated “Federal Advisory Committee Management; Final Rule,” 41 Code of Federal Regulations (CFR) Parts 101-6 and 102-3, was published in the *Federal Register* in 2001 [6].

Some specific requirements, which are important to understanding and complying with FACA, include

- *Advisory committee memberships are to be fairly balanced in terms of the points of view represented and the functions to be performed. FACA § 5 (b)(2); 41 CFR §§ 102-3.30 (c) & 3.60(b)(3); Appendix A-III. to Subpart B.*
- *Advisory committee meetings are required to be open to the public. Meeting notices and agendas must be published in the Federal Register to accommodate public participation. 41 CFR §§ 102-3.150, 3.155 & 3.175(c).*
- *Designated Federal Officers must approve all meetings and agendas, and attend meetings. 41 CFR § 102-3.120.*
- *Detailed minutes of each advisory committee meeting must be kept. FACA § 10(c).*
- *Boards are not independent; however, recommendations of advisory committees should be the result of independent judgment. FACA § 5(b)(3); 41 CFR § 102-3.105(g).*
- *Each FACA chartered Board must be re-justified every year and re-chartered every two years. FACA § 7, § 14 (b)(1).*

In addition to FACA and GSA rulemakings, DOE has issued guidance in the Advisory Committee Management Program Manual [7], the EM SSAB Charter [2], the EM SSAB Guidance [8] and the DOE Public Participation and Community Relations Policy [9]. The policy describes how DOE will approach public participation:

- *DOE will actively seek to identify stakeholders, consider public input, and incorporate or otherwise respond to the views of its stakeholders in making its decisions.*
- *The public will be informed in a timely manner and be empowered to participate in appropriate stages in DOE’s decision-making processes.*
- *Credible, effective public participation processes, including active community outreach, will be consistently incorporated in DOE programs at Headquarters and in the field.*
- *DOE will conduct periodic reviews of its public participation and community relations efforts [9].*

**“...public participation is a fundamental component in program operations, planning activities, and decision-making within DOE...Effective public participation and good community relations both rest on a foundation of positive personal relationships; DOE managers and staff are encouraged to seek to build and nurture such relationships.”** Department of Energy Public Participation and Community Relations Policy (2003) [9].

## EM SSAB IN ACTION

The structure of the EM SSAB—a single FACA-chartered advisory board consisting of multiple local site-specific boards or committees—reflects concerns in Washington, D.C. in the early 1990s that too many advisory boards existed, making management and evaluation of them onerous for the agencies. Both Congress and the White House wanted to control the number of advisory boards to allow for better oversight and ongoing justification of their value to government and to taxpayers. Had the EM SSAB

been conceived at a different time, its structure might well have been different. But its current structure has served EM well.

With a large scope of issues for consideration, the local boards are able to focus on the unique aspects of their communities and the specific site. When common issues and concerns arise, the local boards can consult one another and share their lessons learned. Through their chairpersons, who meet twice each year in-person and every other month via teleconference, the local boards can confer on joint recommendations to EM.

Per DOE policy, decisions to create local boards are made by EM when the Assistant Secretary, Site Managers and other DOE officials determine that 1) there is local citizen interest in site planning but no existing mechanism for it; and that 2) the formation of a board under the EM SSAB charter can be expected to provide the information, advice and recommendations that management seeks. FACA also requires that a board's function be "essential" to the agency and "in the public interest [3]". The GSA 41 CFR further states that reasons for creating an advisory committee may include whether

- *Advisory committee deliberations will result in the creation or elimination of (or change in) regulations, policies, or guidelines affecting agency business;*
- *The advisory committee will make recommendations resulting in significant improvements in service or reductions in costs; or*
- *The advisory committee's recommendations will provide an important additional perspective or viewpoint affecting agency operations. 41 CFR §102-3.30 (a) [5].*

Regardless of their location, the EM SSAB local boards share one mission and operate under one charter. Specifically, the EM SSAB Charter calls for the Board to provide the Assistant Secretary for Environmental Management, the appropriate Site Manager(s), and any other DOE officials the Assistant Secretary designates, with information, advice, and recommendations concerning EM matters, notably

- Cleanup Standards and Environmental Restoration
- Waste Management and Disposition
- Stabilization and Disposition of Non-Stockpile Nuclear Materials
- Excess Facilities
- Future Land-Use and Long-Term Stewardship
- Risk Assessment and Management
- Cleanup Science and Technology Activities
- Other EM projects or issues, at the direction of the Assistant Secretary, Site Manager(s), and/or other designated DOE officials [2]

The local board members are people who are directly affected by site cleanup activities and who together bring to the group a full diversity of views, cultures, and demographics from affected communities and regions. Members may include stakeholders from local governments, universities, Tribal Nations, industry, environmental and civic groups, labor organizations and other interested citizens. The overall task of providing advice and recommendations to EM means that members must gather information, engage others in the community, often analyze technical data, and reach a conclusion that they will send forward as a product of the group, as opposed to a list of individual opinions. The EM SSAB, in short, is a highly collaborative effort.

The EM SSAB role in site cleanup, furthermore, is very complex both substantively and politically. The land area of many of the sites is large, and there are hundreds and sometimes thousands of waste disposal locations on a site that must be addressed. Remediation is aimed not only at radioactive waste of various

levels and hazards, but also at chemical wastes on the sites. The job of the local boards is further complicated at most sites by non-cleanup, ongoing missions, including those involving radioactive materials.

The EM SSAB provides a mechanism for community education on the scope of contamination and the technical aspects of cleanup, as well as a way to learn the range of views that exist with regard to sites, their future uses and cleanup processes. Local boards infuse Agency decision making with community values regarding site cleanup. The range of recommendations from the local boards spans both technical and non-technical issues relevant to cleanup efforts.

**“Our challenges are political and social as well as technical... The course of the environmental management program will be decided through broad public debate—both national and local.”**

Thomas P. Grumbly, Assistant Secretary for Environmental Management [10, p. xiii].

Despite the range and complexity of the work, the EM SSAB has contributed significantly to the EM cleanup program. What follows is a brief introduction to each local board and contributions each has made to EM decision-making processes. The first two discussions highlight accomplishments of the Fernald and Rocky Flats boards, both of which disbanded following the completion of the EM mission at their respective sites. (Another early board at Sandia decided to dissolve after the EM mission was completed at the site, and the board at the Pantex Plant, near Amarillo, Texas, disbanded.)

### **Fernald (Ohio)**

The Fernald Citizens Advisory Board (FCAB) was created in 1993 and contributed to remediation decisions through the completion of EM’s mission at the site in 2006. Fourteen citizen members and several ex-officio government representatives made up the board for the 1,050 acre rural site, located in western Ohio. Built in 1951 to produce uranium for nuclear weapons, the facility operated for almost 40 years.

The FCAB tells its story in the publication *History and Accomplishments of the Fernald Citizens Advisory Board, 1993-2006* [11]. In that report, the FCAB highlights its many accomplishments, including its series of “Future of Fernald” public workshops that resulted in a consensus community vision for future use of the site at Fernald. That vision led to the creation of the Fernald Preserve and visitors’ center, which opened in October 2008.

After intensive study regarding cleanup options, the board pursued what it called “a balanced approach” to remediation at the site. Noted by the FCAB as among its greatest accomplishments, “This approach set target cleanup levels that restricted future uses of the site, but substantially reduced the amount of soil that would need to be removed. The approach also recommended that higher concentration wastes be shipped off site, while a much greater volume of low-level waste would be placed in an onsite disposal facility. The balanced approach is believed to have saved taxpayers several hundred million dollars and accelerated the cleanup by more than a decade [11, p.16].”

The FCAB received the 1999 Outstanding Organization of the Year Award from the International Association of Public Participation and has been sited as a model for other groups working on environmental cleanup.

### **Rocky Flats (Colorado)**

Located 16 miles northwest of Denver, Colorado, Rocky Flats was the site of the primary nuclear weapons pit (or trigger) production facility in the U.S. during the Cold War. Reflecting local interest in the site, which had been the focus of numerous protests, the initial call for citizen board members in 1993

brought more than 200 applications. The Rocky Flats Citizen Advisory Board (RFCAB) was formed later that year and, as the RFCAB's *Legacy Report to the Community* states, "Around the table for that first meeting were individuals who in the past had often been at odds with each other. Now they were seated around a common table with the task of working together on the cleanup of the site [12]."

Unlike other EM SSAB boards, the RFCAB was incorporated as a non-profit and was funded entirely by a DOE grant. Among the achievements that the board cited were DOE's acceptance of numerous recommendations including those related to scoping for site cleanup activities, soil cleanup levels for plutonium, and long-term stewardship at the site. Also significant were board-generated ideas for the *DOE Ten Year Plan*, which set a 2006 target date for completing the Rocky Flats cleanup and resulted in cost savings of \$7 billion when compared to estimated costs for an extended cleanup period.

EM and the board completed their work in 2006. During its 13 years of operations, the board had a total of 83 members, who formulated 117 consensus recommendations concerning the cleanup at Rocky Flats.

Much of the site today is operated as a national wildlife refuge in the U.S. Fish and Wildlife Refuge System. The DOE Office of Legacy Management has oversight of ongoing monitoring and maintenance operations at the site and has created the Rocky Flats Stewardship Council for ongoing public participation in site activities.

**"After 13 years of operation, there are many individuals that have contributed to the Board's success. Most important are the members themselves who have collectively donated thousands of hours of their time reviewing documents, attending meetings, drafting recommendations and participating in discussion."** Rocky Flats Citizens Advisory Board; *Our Legacy Report to the Community (2006)* [12].

The summaries below focus on the accomplishments of functioning local boards that currently comprise the EM SSAB.

### **Hanford (Washington)**

One of the largest of the Cold War legacy sites at 586-square miles, Hanford was the first and primary plutonium-production site in the country. Between the start of operations in 1944 and the shutdown of the last reactor in the late 1980s, operations at Hanford generated large amounts of radioactive and hazardous chemical waste. Bordering on the Columbia River and, across it, the state of Oregon, the Hanford site in southeastern Washington has caused considerable human health and ecological concerns due to both groundwater and soil contamination.

In May 1989, DOE, the Environmental Protection Agency (EPA) and the State of Washington Department of Ecology signed the Hanford Federal Facility Agreement and Consent Order, also known as the Tri-Party Agreement, creating milestones for cleanup operations. The involvement of these three government agencies (including two DOE offices, the Office of River Protection and the Richland Operations Office), the state of Oregon, five Tribal governments, county and municipal governments, and many stakeholder groups make Hanford operations highly complex and the work of the Hanford Advisory Board (HAB) equally so.

The HAB was created in 1994 and today is composed of 31 members who serve as representatives of various stakeholder groups, unlike members of other local boards who represent the general citizenry. The HAB's operating procedures require consensus in decision-making, which can make the board's deliberations long, albeit rich in content and in the generation of ideas for alternative solutions.

In its 15-year history, the HAB has forwarded more than 200 pieces of advice to EM. In 2007, the HAB produced the *Groundwater Values* document and accompanying decision flowchart, which provides not only the HAB's groundwater values, "but also provides groundwater remediation decision-making guidance." In 2008, the HAB worked "with DOE and regulators during a first-of-a-kind workshop to help develop criteria for proposed plans for the initial waste site remedial decisions in the 200-Area near the Plutonium Finishing Plant." The HAB described this as a "very successful cooperative effort that resulted in a positive precedent for early public/HAB participation in the pre-decision cleanup process [13]."

### **Idaho National laboratory**

The Idaho National Laboratory (INL), an 890-square-mile section of desert in southeast Idaho, was established in 1949 as the National Reactor Testing Station. Initially, the missions at INL were the development of civilian and defense nuclear reactor technologies and management of spent nuclear fuel. Fifty-two reactors—most of them first-of-a-kind—were built; three remain in operation at the site. Much of the current Idaho Cleanup Project is focused on cleanup at the site's Chemical Processing Plant and at the plutonium contaminated waste burial grounds. The site is also home to a DOE National Laboratory, where advanced nuclear technologies are studied and developed, and the National Environmental Research Park, where scientists from DOE, other federal and state agencies, universities and private research foundations conduct ecological studies in a protected outdoor laboratory.

Organizing for the INL Site Environmental Management Citizens Advisory Board (INL CAB) was initiated by DOE and volunteers in 1993, and, by 1994, 150 citizens had applied to participate in the 15-member board. Since it was chartered under the EM SSAB in 1994, the INL CAB has generated more than 120 recommendations and regularly engages in reviews of highly technical engineering evaluations and cost analyses.

### **Nevada Test Site**

Formed in 1994, the Community Advisory Board for the Nevada Test Site Programs (NTS CAB) has approximately 20 members at a given time, as well as liaisons from federal, state and county government. The board makes recommendations for the Nevada Test Site, which is approximately 1,375 square miles in size—larger than the state of Rhode Island. Located in the southern portion of the Great Basin, approximately 65 miles northwest of Las Vegas, the NTS served as the primary proving ground for both conventional and nuclear weapons testing for more than 40 years.

Shortly after its formation, the NTS CAB created a subcommittee to address groundwater contamination that resulted from 828 underground nuclear tests. Water is an issue of great concern to the community, given that the average annual precipitation for portions of the NTS is less than five inches. In its extensive multi-year study of groundwater issues, "Members pored over lengthy technical documents, listened to numerous briefings by DOE scientists, and conferred with expert hydrologists, geologists, academia, and regulators [14]." In 2000, the NTS CAB held public meetings on the subject and expressed interest in providing advice on how DOE would determine the movement of groundwater off the NTS. After reviewing the board's work, DOE invited the board in 2002 to select a location for a new characterization well. The CAB identified three well locations in 2007, and DOE incorporated the recommendation into its 2009 drilling program by committing to drill a well at one of the identified locations. It was the first time—and only time to date—that a groundwater well was sited by an EM advisory board. A study by University of Nevada researchers concluded that the effectiveness of the advisory board in this endeavor "illustrates a successful community advisory process for DOE [15]."

### **Northern New Mexico**

Organized in 1994, the Los Alamos Citizens Advisory Board was disbanded by EM after just a few years. Too often making recommendations unrelated to EM's responsibilities, the board failed to yield the requested input for the site's cleanup activities. Re-formed in 1997 as the Northern New Mexico Citizens Advisory Board (NNMCAB), the board today is functioning well and has up to 27 members, who provide recommendations concerning cleanup activities at the Los Alamos National Laboratory (LANL). The site, which covers approximately 39 square miles, has an ongoing mission as a DOE National Laboratory and a research facility of the National Nuclear Security Administration.

Recently, the NNMCAB worked successfully with DOE and LANL to prepare and present a Public Forum on Closure Alternatives for LANL Material Disposal Area G. The Forum was held on April 16, 2008, at the Santa Fe Community College to educate the citizens of Northern New Mexico so that they could have an informed opinion as to what the complex closure options for the landfill entail.

In addition to landfill activities, the NNMCAB is expanding its activities to include air quality, storm water and environmental justice issues. By broadening its scope, the NNMCAB hopes to address more concerns of the highly diverse community of Northern New Mexico. An independent evaluation of NNMCAB public participation activities with regard to groundwater contamination and local citizens' concerns pointed to growing involvement between DOE and the public, with an increasing amount of information being made available and an increase in public meetings [16].

### **Oak Ridge (Tennessee)**

Formed in 1995 and comprising 20 members, the Oak Ridge Site-Specific Advisory Board (ORSSAB) focuses on cleanup at the 35,000-acre Oak Ridge Reservation (ORR). Located in east Tennessee, the ORR has three major facilities: EM's East Tennessee Technology Park; the Office of Science's Oak Ridge National Laboratory; and the Y-12 National Security Complex, which is operated by the National Nuclear Security Administration. Built as part of the Manhattan Project, the ORR today has ongoing missions in the areas of science, environmental management, nuclear fuel supply, and national security. Community input has led to DOE support for cleaning up portions of the site for reindustrialization, thus creating jobs for the surrounding area, despite the extra cost associated with this plan.

A leader in public outreach and education, the ORSSAB and its Stewardship Committee received EPA's 2006 Citizen Excellence in Community Involvement Award, which is given annually to recognize an individual or community group for outstanding achievement in the field of environmental protection. The Award noted two major achievements by the board: 1) the development of the Stewardship Education Resource Kit, which was created to provide local educators with materials to teach students about environmental cleanup and long-term stewardship issues, in general, and on the Oak Ridge Reservation, in particular, and 2) the development of a process to ensure that contaminated parcels of DOE land are tracked and documented. Information on the long-term care of perpetually contaminated sites, including a county plat map, is now available to the public on-line at no cost.

In early 2007, ORSSAB spearheaded the Community Oral History Initiative to preserve the history of the site. To date, nearly 300 interviews with Oak Ridge scientists, engineers, community leaders and area residents have been conducted. The oral history program is headquartered at the Oak Ridge Public Library and is led by a steering committee that includes a broad group of stakeholders, including DOE representatives, state, city and regional representatives.

**“The Oak Ridge community has played important and varied roles in DOE’s planning and implementing the accelerated cleanup program at ORB.... For example, community members ...advocated cleanup to an unrestricted industrial use level as opposed to a level that would allow for residential use. ...In the case of Lower East Poplar Creek, community members pushed for a more limited cleanup of mercury, thereby saving DOE tens of millions of dollars. Community support for a more limited remediation was based on a technical analysis that concluded that remediation activities would increase potential impacts to human health and the environment.”** *The Politics of Cleanup: Lessons Learned from Complex Federal Environmental Cleanups* [17, p. 61].

### **Paducah (Kentucky)**

The Paducah Gaseous Diffusion Plant (PGDP) and site is located on 3,400 acres in rural western Kentucky, 15 miles west of Paducah, near the confluence of the Ohio and Mississippi rivers. In 1951 construction began on the gaseous diffusion plant, and since 1952, the plant has produced enriched uranium, in support of federal efforts and commercial nuclear power missions. While the uranium production is conducted by a private firm, rather than the government, EM has been the landlord since 1993, with responsibilities for environmental remediation, waste management and management of depleted uranium hexafluoride.

The PGDP Citizens Advisory Board was formed in 1996. Its 18-member board meets monthly and recently has focused on recycling non-contaminated materials on the site. The Paducah CAB has generated a number of recommendations that together have increased attention on identification and disposition of potentially recyclable materials, such as nickel. In addition, the board has recommended that DOE look for a long-term disposal strategy and local processing options for recyclable materials. DOE has accepted the recommendation.

### **Portsmouth (Ohio)**

The Portsmouth Gaseous Diffusion Plant, which is located in southern Ohio near Piketon, was constructed in the mid-1950s to enrich uranium for fueling military reactors and for nuclear weapons production. Later, the Piketon plant, like its sister enrichment plant in Paducah, Kentucky (see above), changed missions to the production of low-enriched uranium for commercial nuclear power plants. In May 2001, the private firm that operates the facility, ceased uranium enrichment operations in Piketon and consolidated operations at Paducah. The following year, transfer and shipping operations were also consolidated at Paducah. DOE, which owns both sites, oversees site remediation and is responsible for the cleanup of numerous depleted uranium hexafluoride cylinders as well as hazardous chemicals at Portsmouth.

Local citizen interest in work on the site led DOE to establish a local board with up to 20 members under the EM SSAB charter in July 2008. The board has begun holding public meetings and has completed a retreat, where work plans for the year ahead were formulated.

The Portsmouth site’s on-going mission is hosting the privately operated American Centrifuge Demonstration Facility and the future American Centrifuge Plant, but EM will not have a role in that mission.

### **Savannah River Site (South Carolina)**

The Savannah River Site (SRS) was constructed during the early 1950s to produce basic materials for use in the fabrication of nuclear weapons, primarily tritium and plutonium-239, for national defense programs. Environmental cleanup began on the site in 1981, and in 1983, construction of a waste processing facility began. Waste processing continues at the site, which is located on the Savannah River

along the South Carolina-Georgia border. Also located there is DOE's Savannah River National Laboratory, which conducts research in areas, such as the cleanup of contaminated groundwater and soils, the development of hydrogen as an energy source, the safe management of hazardous materials, and the detection of weapons of mass destruction.

The SRS Citizen's Advisory Board (SRS CAB) was formed in early 1994, following a year-long public involvement effort that included 20-plus public meetings and that generated more than 250 applicants from South Carolina and Georgia for the 25-member board. The board has provided 158 recommendations since its founding, including some on highly technical subjects. The continuous strong support of the SRS CAB for a permit change that allowed for salt processing was a key factor in the final issuance of the permit, which had been opposed by several environmental groups and stalled by legal proceedings initiated by them.

The SRS CAB received the EPA National Citizen's Award in 2007 for its dedication and commitment to the residents around the Savannah River Site, in particular the SRS CAB's public education efforts on a variety of topics related to transportation, treatment and final disposition of spent fuel, among other subjects. Also noted were the CAB's outreach efforts, especially the *Board Beat*, a semi-annual community newsletter about the SRS and CAB activities, and the piloting of E-Meetings (Internet-based) to reach and inform a larger audience [18].

**"I cannot overstate the value of the EM SSAB to the Office of Environmental Management. In 2008, we have received more than 60 recommendations from the boards. Since I came to DOE in 2005, we have received approximately 250 recommendations from the Board. The EM SSAB chairs have submitted 10 recommendations in the past three years, perhaps the most valuable being the recommendation concerning EM SSAB input into the budget process."** Assistant Secretary, Office of Environmental Management, James A. Rispoli to the EM SSAB Chairs' Meeting, September 17, 2008.

## THE CHALLENGE OF ASSESSMENT

Numerous measurement criteria have been offered by researchers for evaluating the effectiveness of citizen advisory boards. Discussed here is one set of characteristics that was offered by the U.S. National Research Council (NRC) Panel on Public Participation in Environmental Assessment and Decision Making, after an extensive study that was supported by DOE and other federal agencies [19]. The Panel, which reviewed volumes of literature on advisory board assessment, described three goals of public participation:

- **Quality** refers to assessments or decisions that (1) identify the values, interests and concerns of all who are interested in or might be affected by the environmental process or decision; (2) identify the range of actions that might be taken; (3) identify and systematically consider the effects that might follow and uncertainties about them; (4) use the best available knowledge and methods relevant to the above tasks, particularly (3); and (5) incorporate new information, methods, and concerns that arise over time.
- **Legitimacy** refers to a process that is seen by interested and affected parties as fair and competent and that follows the governing laws and regulations.
- **Capacity** refers to participants, including agency officials and scientists, (1) becoming better informed and more skilled at effective participation; (2) becoming better able to engage the best available scientific knowledge and information about diverse values, interests, and concerns; and

*(3) developing a more widely shared understanding of each other and of the issues; and (4) improving their ability to communicate with each other [19, p. 1-2].*

Not all participants in the advisory board processes may agree with those measures. As the NRC report suggests, the various stakeholder groups, including government, often have different priorities and expectations and may perceive and value outcomes differently: "...there are many goals for public participation processes and thus many criteria for what constitutes a 'good' or 'effective' outcome and a 'good' or 'effective' process. Goals include both those focused on the quality of environmental assessments and decisions and those focused on the relationships among the participants." No set of "best practices" captures the goals and values of each citizens' group and participating stakeholders [19, p. 225].

**When done well, public participation improves the quality and legitimacy of a decision and builds the capacity of all involved to engage in the policy process. It can lead to better results in terms of environmental quality and other social objectives. It also can enhance trust and understanding among parties. Achieving these results depends on using practices that address difficulties that specific aspects of the context can present.** *Public Participation in Environmental Assessment and Decision Making, National Research Council [19, p. 2].*

To guide evaluation of advisory boards, DOE requires an annual assessment of the effectiveness of advisory boards relative to the government investment in them [DOE Manual 515.1-1, §VII-3(b)]. Compliance and measurable outcomes also are addressed by FACA, which does not prescribe specific outcomes or establish specific thresholds for effectiveness, but does define broad areas for evaluation:

- *The committees must carry out "the purpose for which they were established. FACA § 2. (b)(3) and § 7 (b)(1).*
- *The committees must be "fairly balanced in terms of points of view represented and the functions to be performed by the advisory committee." FACA § 5. (b)(2).*
- *The functions of the advisory committee's "cannot be performed by the agency, another existing committee, or other means such as a public meeting." 41 CFR § 102-3.60 (b)(2).*
- *Committee input is "advisory only, and all matters under [board] consideration should be determined, in accordance with law, by the official, agency, or officer involved." FACA § 2 (b)(6).*
- *"...advice and recommendations of an advisory committee will not be inappropriately influenced by the appointing authority or by any special interest, but will instead be the result of the advisory committee's independent judgment." FACA § 5. (b)(3).*

FACA further sets out requirements for an annual report and for advisory board charter renewal or elimination every two years, [FACA, §2. (b)(3)]. Annual reports are to include the number of meetings held by a board, diversity of representatives, recommendations and responses to those recommendations, as well as subjective reporting of "the impact the Board has had on DOE activities during the past fiscal year is required (e.g., the HAB recommended that the Department reduce indirect costs, saving more than \$200 million; the NTS CAB supported the decision to apply for a Resource Conservation and Recovery Act (RCRA) Part B permit that will enable the site to accept mixed low-level waste from throughout the DOE complex)." The FACA annual reports are posted on the websites of the local advisory boards.

The EM SSAB local boards also evaluate how they are functioning. All local boards hold an annual retreat to discuss the previous year and create a work plan for the following year. Evaluations look at results vis-à-vis the board work plans, as well as member assessments of satisfaction with process and membership on the board.

As indicated in the board summaries above, EM SSAB local boards have received national recognition through several prestigious awards. Since its creation, the EM SSAB has also been the subject of numerous evaluations by researchers.

Within the scope of this paper, it is not possible to convey the breadth of findings and recommendations from these various studies. Nonetheless, five cross-site studies of the EM SSAB are provided here for reference:

- *The Politics of Cleanup: Lessons Learned from Complex Federal Environmental Cleanups*. S. Kirschenberg, P. Kalomiris, D. Abelson, S. Synwelski. Energy Communities Alliance, Inc. 2007 [study of three boards, including those at two closure sites], <http://www.energyca.org/>
- *Evaluating Public Participation in Environmental Decisions; Working Draft Prepared for the National Research Council's Panel on Public Participation in Environmental Assessment and Decision Making*. J.A. Bradbury of Pacific Northwest National Laboratory. February 2005 [study of eight DOE EM SSAB local boards], <http://www7.nationalacademies.org/hdgc/Bradbury%20Text.pdf>
- *An Evaluation of DOE-EM Public Participation Programs*. J. A. Bradbury, K. M. Branch, E.L. Malone of PNNL-14200, Pacific Northwest National Laboratory. February 2003 [study of seven boards], [http://www.pnl.gov/main/publications/external/technical\\_reports/PNNL-14200.pdf](http://www.pnl.gov/main/publications/external/technical_reports/PNNL-14200.pdf)
- *An Evaluation of the Effectiveness of Local Site-Specific Advisory Boards for the U.S. Department of Energy Environmental Restoration Programs*. J. A. Bradbury, K. M. Branch of Pacific Northwest National Laboratory. February 1999 [study of nine boards], [http://www.osti.gov/energycitations/product.biblio.jsp?osti\\_id=4269](http://www.osti.gov/energycitations/product.biblio.jsp?osti_id=4269)
- *Performance Measures for Evaluation of Public Participation Activities in DOE's Office of Environmental Management*. S. A. Carnes, M. Schweitzer, E. B. Peele, A. K. Wolfe, J. F. Munroe of Oak Ridge National Laboratory. August 1996 [study of attributes and indicators of public participation success at nine DOE sites with local EM SSAB boards or other public participation activities], [http://www.osti.gov/energycitations/product.biblio.jsp?osti\\_id=366507](http://www.osti.gov/energycitations/product.biblio.jsp?osti_id=366507)

Each report acknowledges the differences in remediation needs, local issues, board membership and various dynamics at the various sites. The studies have identified practices that the researchers believe contribute to the successes and problems at the various sites. There also appears to be unanimity among the reviewers that the EM SSAB is contributing significantly to the efficient cleanup of the nuclear legacy waste sites and that DOE has demonstrated commitment and responsiveness to the advice and recommendations of the local boards. The Office of Public and Intergovernmental Accountability will be evaluating recent studies and other relevant research in working with the local advisory boards toward improving EM SSAB processes and outcomes.

## CONTINUOUS IMPROVEMENT

**"...at the three sites ECA examined, the common denominator underlying why conflict arose was that local governments and other members of the community were not engaged in the process and/or these parties and the decision makers (DOE and the regulatory agencies) could not come to agreement on levels of risk."** *The Politics of Cleanup: Lessons Learned from Complex Federal Environmental Cleanups* [17, p. 13].

From the various assessments over the life of the EM SSAB, EM notes several ongoing challenges for the local boards. Most boards, for instance, report difficulty in engaging a diverse membership. Some of the obstacles have to do with the level of involvement required of members; most boards report that members devote at least 10 hours per month to board activities, must attend six to 12 meetings per year, depending

on the board, and commit to ongoing education due to the complexity and highly technical nature of the site cleanup information. In addition, some sites are quite remote, with limited population in the affected area. Maintaining membership diversity can be a problem in these areas, despite vigorous recruitment efforts that include direct mailings as well as print and electronic media advertisements.

As Judith A. Bradbury noted in her work for the NRC, differences in points of view and expectations, levels of trust, as well as cultural and personality differences, can cause frustration among members and thus difficulty in member retention. Analyzing data collected between 1996 and 2002, Ms. Bradbury reported, “Oak Ridge and Savannah River, for example, were unable to maintain representation by activist groups who resigned from the board after the first two years [20, p. 9].” She attributed that “to a perception that the boards were captive to DOE. At the time of the studies, Paducah was able to recruit and maintain participation by activist groups, but experienced difficulty in recruiting representatives from the business and local government. The board was perceived as an activist board... [20, p. 9].” Nonetheless, as Ms. Bradbury also noted, the credibility of citizen advisory boards is largely dependent on the diversity of members [20, p. 8].

Another challenge for the EM SSAB are resource uncertainties and budget limitations, over which local stakeholders have little control—and which, of course, are set by Congress. EM’s cleanup operation currently is a \$5.5 billion/year effort. While that is a large sum of money, the cleanup process is ongoing, and funding is not available to remediate all sites immediately.

A further challenge is the volume and complexity of information that a board member must understand in order to engage in deliberations and make informed recommendations to EM. In addition to highly technical information, each board member also must understand applicable law, regulations, orders and policy involved in the cleanup process, as well as those that apply to the operations of citizen advisory boards, such as FACA. By the time board members complete their terms, they are usually familiar with assessment, remediation, and restoration legislation, such as the National Environmental Policy Act (40 CFR Parts 1500-1508), which requires public involvement in the Environmental Impact Statement process; Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980 and the Superfund Amendments and Reauthorization Act; the National Oil and Hazardous Substance Pollution Contingency Plan; and, significantly for many sites, multi-party agreements among DOE, state agencies and EPA.

## CONCLUSION

Public participation is an iterative process—communities inform technical decisions, and technical decisions and new findings affect public deliberations. In the 15 years since its creation, the EM SSAB has brought community values to EM decision-making processes at its various sites, with their different cleanup challenges and community dynamics.

Ultimately, perceived outcomes weigh heavily in judgments regarding how successful the EM SSAB has been. For the community, primary determinants of success might be cleanup levels achieved and future land-use; the government and taxpayers also weigh heavily whether the projects were completed on time and at the best possible cost. Since 1994, the local site boards have met numerous times, providing DOE with hundreds of recommendations. Many of these recommendations have proven highly effective in redirecting EM efforts in ways that have saved taxpayers hundreds of millions of dollars. Communities are pleased that the sites near them are being cleaned up, although many continue to call for more money and better communication, among other things.

Overall, EM greatly values its public outreach and stakeholder programs and believes public involvement has been critical to its successes in recent years. When conducted in an open, responsive, and accountable

manner, public participation results in substantive input to EM decision-making processes, which in turn leads to improved trust and confidence in the EM Program among stakeholders.

DOE and the EM SSAB plan continual improvement through sharing lessons learned, ongoing self-assessment by local committees, external evaluation and social science research on best practices for citizen advisory boards.

**Using these tools [of public engagement], we will engage in meaningful dialogue with regulators, stakeholders, and Tribal Nations to assess existing priorities and mutually identify opportunities to complete cleanup.** EM Assistant Secretary James A. Rispoli, 2008 [21].

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**Rupp, Denise (NV)**

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**From:** Bill and Sarah Lindsey [fc1073@cox.net]  
**Sent:** Wednesday, April 15, 2009 12:11 PM  
**To:** NTSCAB  
**Cc:** Snyder, Kelly (NV)  
**Subject:** CAB

Denise,

I have certainly enjoyed working with you, Kelly and the CAB board members, but due to family issues with my parents, I do not feel I can keep the time commitment I made to the board. As a result, I feel I must resign effective immediately. If I need to do anything else, please let me know.

Say Hi to everyone!

Thanks

William W Lindsey

## Rupp, Denise (NV)

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**From:** Stacy Standley [standley@india-bg.net]  
**Sent:** Monday, April 27, 2009 11:39 AM  
**To:** NTSCAB  
**Subject:** My CAB membership

Dear Kelly and Dave,

My business activity is requiring me to spend more and more time out of Las Vegas, and not in a manner which allows me to schedule around my CAB commitment. I will be out of town on May 6, and all of July-August, and Mid-Oct to the end of the year.

Therefore, I feel it is best that I, very reluctantly, resign my CAB membership.

We have reached the end of the EMPIRE committee's work program, so I feel that I have reached a personal milestone, that does not leave unfinished business.

The past 3 years have been a rewarding learning experience, and I have enjoyed the work of the CAB and the value which it provides to the DOE.

I offer you and all the CAB members the very best as they move forward with the important work of the CAB.

Best Regards,

Stacy Standley

Stacy Standley  
BG India LLC  
5114 Turnberry Lane  
Las Vegas, NV 89113  
702-248-6502

India:  
A-5, 44 Amrita Shergill Marg  
New Delhi 110016  
91-9811866884

**Public Notification of Corrective Actions**

**April 1, 2009**

**Las Vegas, Nevada**

The Department of Energy (DOE) will not be submitting any Corrective Action Unit (CAU) final Corrective Action Decision Documents (CADDs), CADD/Corrective Action Plans (CAPs), CADD/Closure Reports (CRs), or Streamlined Approach for Environmental Restoration (SAFER) Work Plans, proposing closure-in-place to the Nevada Division of Environmental Protection (NDEP), during the next 60 days.

**Southern Nevada Public Reading Facility**

**c/o Nuclear Testing Archive**

**775 East Flamingo Road**

**Las Vegas, NV 89119**

**Northern Nevada Public Reading Facility**

**Nevada State Library and Archives**

**100 N. Stewart Street**

**Carson City, NV 89701-4285**

Additionally, the following is a list of all documents submitted to the Public Reading Facilities during March 2009. Attached is the Executive Summary from the Post Closure Inspection Report.

<b>CAU Number</b>	<b>CAU Description</b>	<b>Document</b>	<b>Submittal Date</b>
101 & 102	Central and Western Pahute Mesa	Phase II Corrective Action Investigation Plan	3/4/09
101 & 102	Central and Western Pahute Mesa	Phase I Transport Model	3/11/09
400, 404, 407, 423, 424, 426, 427, 453, 484 & 487	Multiple Descriptions	Post Closure Inspection Report	3/17/09
5, 113, 115, 118, 127, 137, 140, 143, 145, 151, 165, 168, 204, 254, 261, 262, 309, 322, 339, 357, 383, 476, 477, 478, 482, 528, 529, 542, 543, 545, 551, 552, 554 & 559	Multiple Descriptions	Post-Closure Inspection Letter Report	3/24/09

## **Executive Summary for Post-Closure Inspection Report for the Tonopah Test Range**

This report provides the results of the annual post-closure inspections conducted at the closed Corrective Action Unit (CAU) sites located on the Tonopah Test Range (TTR), Nevada. This report covers calendar year 2008 and includes inspection and repair activities completed at the following ten CAUs:

- CAU 400: Bomblet Pit and Five Points Landfill (TTR)
- CAU 404: Roller Coaster Lagoons and Trench (TTR)
- CAU 407: Roller Coaster RadSafe Area (TTR)
- CAU 423: Area 3 Underground Discharge Point, Building 0360 (TTR)
- CAU 424: Area 3 Landfill Complexes (TTR)
- CAU 426: Cactus Spring Waste Trenches (TTR)
- CAU 427: Area 3 Septic Waste Systems 2, 6 (TTR)
- CAU 453: Area 9 UXO Landfill (TTR)
- CAU 484: Surface Debris, Waste Sites, and Burn Area (TTR)
- CAU 487: Thunderwell Site (TTR)

The annual post-closure inspections were conducted May 20–21, 2008. The first semiannual inspection at CAU 484 was conducted on March 6, 2008, after known inclement weather that prevented access to the site during the winter months subsided. Semiannual inspections are required at CAU 484 for the first year of post-closure monitoring, after which inspections will be performed annually.

All inspections were conducted according to the post-closure plans in the approved Closure Reports. The post-closure inspection plan for each CAU is included in Attachment B, with the exception of CAU 400. CAU 400 does not require post-closure inspections, but inspections of the vegetation and fencing are conducted as a best management practice. The inspection checklists for each site inspection are included in Attachment C, the field notes are included in Attachment D, and the site photographs are included in Attachment E. Vegetation monitoring of CAU 400, CAU 404, CAU 407, and CAU 426 was performed in May 2008, and the vegetation monitoring report is included in Attachment F.

Maintenance and/or repairs were performed at CAUs 407, 427, and 453. Loose barbed wire fencing at CAU 407 was tightened on July 10, 2008. On August 1, 2008, additional lava rock was brought in and spread over the areas where it delineates the use-restricted areas at CAU 427. Animal burrows at CAU 453 were backfilled on August 1, 2008.

TTR post-closure site inspections should continue as scheduled with the exception of CAUs 404, 423, and 427. These sites were reevaluated against recent risk-based closure criteria. Results of the reevaluation are presented in the document Recommendations and Justifications for Modifications for Use Restrictions Established under the U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office Federal Facility Agreement and Consent Order (U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office, 2008). As a result of this evaluation, the use restrictions were removed from CAUs 423 and 427 and the use restriction for CAU 404 has been changed to administrative (i.e., no inspections are required). The remaining sites will continue to be inspected.

Vegetation survey inspections have been conducted annually at CAUs 400, 404, 407, and 426. Discontinuation of vegetation surveys is recommended at the CAU 400 Bomblet Pit and CAU 426, which have been successfully revegetated. Fencing should remain at these sites. Discontinuation of vegetation surveys is also recommended at CAU 404, which has been changed to an administrative closure with no inspections required. Vegetation monitoring at the CAU 400 Five Points Landfill and CAU 407 should continue.

## Public Notification of Corrective Actions

May 6, 2009

Las Vegas, Nevada

The Department of Energy (DOE) will be submitting the following Corrective Action Unit (CAU) final Corrective Action Decision Document (CADD), CADD/Corrective Action Plan (CAP), CADD/Closure Report (CR), or Streamlined Approach for Environmental Restoration (SAFER) Work Plan, proposing closure-in-place to the Nevada Division of Environmental Protection (NDEP), during the next 60 days. This document will recommend a closure-in-place strategy in which engineering and/or administrative controls will be used to close the sites although contamination remains.

When submitting this document to NDEP, copies will be supplied to the Las Vegas and Carson City Public Reading Facilities for review. The Community Advisory Board (CAB) may request copies of the documents by contacting the CAB office at [ntscab@nv.doe.gov](mailto:ntscab@nv.doe.gov). Submit comments regarding a decision document to Tim Murphy (NDEP) at [TMurphy@ndep.nv.gov](mailto:TMurphy@ndep.nv.gov) within 30 days of the document's release. Public Reading Room addresses are listed below.

CAU Number	CAU Description	Document	Approximate Submittal Date
370	T-4 Atmospheric Test Site	CADD/CR	5/29/09
111	Area 5 WMD Retired Mixed Waste Pits	CADD/CAP	6/9/09

### Site Information for CAU 370, T-4 Atmospheric Test Site

**Location:** Area 4

**CAU Brief History:** T-4 is the location of four atmospheric tests (Tower Tests).

**Contaminants of Concern:** radiological contaminated surface soils and lead

**Type of Corrective Action Taking Place:** Through a CADD/CR the site will be posted and closed utilizing a land use-restriction.

### Site Information for CAU 111, Area 5 WMD Retired Mixed Waste Pits

**Location:** Area 5

**CAU Brief History:** The 92-Acre Area constitutes the southeast quadrant of the Area 5 Radioactive Waste Management Site (RWMS) and contains 13 boreholes, 16 trenches, and 9 pits that were used to dispose packaged waste.

**Contaminants of Concern:** radioactive, hazardous, asbestos

**Type of Corrective Action Taking Place:** An engineered cover will be constructed over the 92-Acre Area, and a use restriction will be implemented.

### Southern Nevada Public Reading Facility

c/o Nuclear Testing Archive

775 East Flamingo Road

Las Vegas, NV 89119

### Northern Nevada Public Reading Facility

Nevada State Library and Archives

100 N. Stewart Street

Carson City, NV 89701-4285

Additionally, the following is a list of all documents submitted to the Public Reading Facilities during April 2009. Attached are the Executive Summaries from the CAU 563 CAP and 371 Corrective Action Investigation Plan (CAIP).

CAU Number	CAU Description	Document	Submittal Date
563	Septic Systems	CAP	4/9/09
371	Johnnie Boy Crater and Pin Stripe	CAIP	4/17/09

## Executive Summary for CAU 563 CAP

This Corrective Action Plan (CAP) has been prepared for Corrective Action Unit (CAU) 563, Septic Systems, in accordance with the *Federal Facility Agreement and Consent Order* (1996; as amended February 2008). CAU 563 consists of four Corrective Action Sites (CASs) located in Areas 3 and 12 of the Nevada Test Site. CAU 563 consists of the following CASs:

- CAS 03-04-02, Area 3 Subdock Septic Tank
- CAS 03-59-05, Area 3 Subdock Cesspool
- CAS 12-59-01, Drilling/Welding Shop Septic Tanks
- CAS 12-60-01, Drilling/Welding Shop Outfalls

Site characterization activities were performed in 2007, and the results are presented in Appendix A of the CAU 563 Corrective Action Decision Document (U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office, 2008). The scope of work required to implement the recommended closure alternatives is summarized below.

- **CAS 03-04-02, Area 3 Subdock Septic Tank**, contains no contaminants of concern (COCs) above action levels. No further action is required for this site; however, as a best management practice (BMP), all aboveground features (e.g., riser pipes and bumper posts) will be removed, the septic tank will be removed, and all open pipe ends will be sealed with grout.
- **CAS 03-59-05, Area 3 Subdock Cesspool**, contains no COCs above action levels. No further action is required for this site; however, as a BMP, all aboveground features (e.g., riser pipes and bumper posts) will be removed, the cesspool will be abandoned by filling it with sand or native soil, and all open pipe ends will be sealed with grout.
- **CAS 12-59-01, Drilling/Welding Shop Septic Tanks**, will be clean closed by excavating approximately 4 cubic yards (yd<sup>3</sup>) of arsenic- and chromium-impacted soil. In addition, as a BMP, the liquid in the South Tank will be removed, the North Tank will be removed or filled with grout and left in place, the South Tank will be filled with grout and left in place, all open pipe ends will be sealed with grout or similar material, approximately 10 yd<sup>3</sup> of chlordane-impacted soil will be excavated, and debris within the CAS boundary will be removed.
- **CAS 12-60-01, Drilling/Welding Shop Outfalls**, contains no COCs above action levels. No further action is required for this site; however, as a BMP, three drain pipe openings will be sealed with grout.

## Executive Summary for CAU 371 CAIP

Corrective Action Unit (CAU) 371 is located in Areas 11 and 18 of the Nevada Test Site, which is approximately 65 miles northwest of Las Vegas, Nevada. Corrective Action Unit 371 is comprised of the two corrective action sites (CASs) listed below:

- 11-23-05, Pin Stripe Contamination Area
- 18-45-01, U-18j-2 Crater (Johnnie Boy)

These sites are being investigated because existing information on the nature and extent of potential contamination is insufficient to evaluate and recommend corrective action alternatives. Additional information will be obtained by conducting a corrective action investigation before evaluating corrective action alternatives and selecting the appropriate corrective action for each CAS. The results of the field investigation will support a defensible evaluation of viable corrective action alternatives that will be presented in the Corrective Action Decision Document.

The sites will be investigated based on the data quality objectives (DQOs) developed on November 19, 2008, by representatives of the Nevada Division of Environmental Protection; U.S. Department of Energy, National Nuclear Security Administration Nevada Site Office; Stoller-Navarro Joint Venture; and National Security Technologies, LLC. The DQO process was used to identify and define the type, amount, and quality of data needed to develop and evaluate appropriate corrective actions for CAU 371.

Appendix A provides a detailed discussion of the DQO methodology and the DQOs specific to each CAS.

The scope of the corrective action investigation for CAU 371 includes the following activities:

- Move surface debris and/or materials, as needed, to facilitate sampling.
- Conduct radiological surveys.
- Measure *in situ* external dose rates using thermoluminescent dosimeters or other dose measurement devices.
- Collect and submit environmental samples for laboratory analysis to determine internal dose rates.
- Combine internal and external dose rates to determine whether total dose rates exceed final action levels (FALs).
- Collect and submit environmental samples for laboratory analysis to determine whether chemical contaminants are present at concentrations exceeding FALs.
- If contamination exceeds FALs, define the extent of the contamination exceeding FALs.
- Investigate waste to determine whether potential source material is present.

This Corrective Action Investigation Plan has been developed in accordance with the *Federal Facility Agreement and Consent Order* that was agreed to by the State of Nevada; U.S. Department of Energy; and U.S. Department of Defense. Under the *Federal Facility Agreement and Consent Order*, this Corrective Action Investigation Plan will be submitted to the Nevada Division of Environmental Protection for approval. Fieldwork will be conducted following approval of the plan.

## **Environmental Management's Monthly Report to the CAB**

### **April 2009**

#### **Low-Level Waste (LLW)**

##### **Activities (March)**

- The Nevada Site Office (NSO) conducted two (2) Radioactive Waste Acceptance Program (RWAP) facility surveillances this month (one of the Savannah River Site [SRS], and one on the Nuclear Fuel Services [NFS] site). The NFS surveillance began on March 31 and results of it will be reported in next month's update. The SRS surveillance resulted in seven observations and no findings.
- As of March 29, 2008, the cumulative LLW volume received for FY 2009 is 595,641 ft<sup>3</sup> in 615 shipments. The cumulative mixed LLW (MLLW) volume received for FY 2009 is 14,310 ft<sup>3</sup> in 25 shipments. LLW Operations has worked 445,665 hours since its last lost-time accident (September 2003).
- Acceptance of new waste streams of MLLW for disposal is still under hiatus due to ongoing discussion with the State of Nevada Attorney General.
- The LLW Sub-Project conducted a safety surveillance of the Areas 3 Radioactive Waste Management Complex Disposal Authorization Statement. No findings or observations were discovered.

##### **Planned Activities (April)**

- Expect to receive over 126,000 ft<sup>3</sup> of LLW and MLLW for disposal during the month.
- The LLW Sub-Project plans to conduct one RWAP Audit of the Y-12 facility.
- The Sub-Project will host the Spring Waste Generators' Workshop, the NNSA/EM-50 generator meeting, and the LLW Federal Review Group's meeting, during the week of April 27, 2009.

#### **Transuranic Waste (TRU)**

##### **Activities (March)**

- Repackaging activities were completed in the Visual Examination and Repackaging Building (VERB). Completed rework of Standard Waste Boxes (SWB) that were rejected by Carlsbad Field Office (CBFO).
- NSO continued to work with CBFO to validate characterization data for the repackaged waste to ensure compliance with the CBFO's repackaging requirements.
- In March 2009, 192 cubic meters of LLW from the VERB repackaging operations were disposed at the Area 5 Radioactive Waste Management Complex (total LLW disposed since the start of VERB operation in August 2008: 471 cubic meters).
- Macroencapsulated and disposed of MLLW Oversized Boxes (OSB) debris in 16 containers with a total volume of 136 cubic meters.
- CBFO will continue to work with NSO to approve the remaining legacy TRU waste for shipment (25 SWBs and 26 drums). The Mobile Loading Unit is scheduled to return in April 2009.
- CBFO provided gas generation test canisters and their final procedure. Gas generation testing is required on seven drums prior to shipment in TRUPACT II container.
- NSO participated in weekly meetings with CBFO to discuss the Integrated Project Schedule and ongoing activities to ensure completion of TRU waste shipment to the INL Consolidation Site.

### Planned Activities (April)

- Any SWBs that do not pass CBFO's approval will be reworked as necessary. Final VERB decontamination will be completed.
- Gas generation testing of seven TRU waste drums will be completed.
- Macroencapsulation will be completed on all remaining boxes for disposal as MLLW.
- NSO will continue to work with the CBFO to validate characterization data for the remaining TRU waste.
- Final TRU waste shipments to the Idaho National Laboratory Consolidation Site will be made.

### Underground Test Area (UGTA)

#### Activities (March)

- Frenchman Flat
  - Continued support to FY 2009 fracture analysis task and other geologic databases.
  - Comment resolution continued for the Phase II Transport Model.
  - The risk evaluation team continued developing recommendations for further work.
- Pahute Mesa
  - Completed the draft Phase II Well Drilling Criteria Report.
  - Began construction of access road, drill pad and sumps at the ER-EC-11 site
  - Began construction of access road, drill pad and sumps at the ER-20-8 site
  - Completed baseline change control for new work scope at the ER-EC-1 and ER-EC-6 well sites.
  - Continued support to acquisition of subcontracts for new well drilling and related services.
  - Began acquisition process for downhole hardware required for ER-EC-6 well.
  - Continued revising National Environmental Policy Act (NEPA) document for new wells on the Nevada Test and Training Range.
  - Revisions to field instructions continued.
  - The Fluid Management and Waste Management plans were completed.
  - Sampling at ER-EC-1 was initiated.
- Yucca Flat
  - Phase I flow and transport modeling continued.
- Rainier Mesa/Shoshone Mountain
  - Continued support to the Phase I flow and transport modeling efforts.

#### Planned Activities (April)

- Frenchman Flat
  - Continue FY 2009 fracture analysis task and other geologic databases.
  - Recommendations for further risk evaluation work will be completed.
  - Comment responses for the Phase II Transport Model will continue development.
- Pahute Mesa
  - Review and finalize the Phase II Well Drilling Criteria Report.
  - Stake remaining seven new Phase II well site locations
  - Complete construction of ER-20-8 access road, drill pad and sumps.
  - Continue construction of access road, drill pad and sumps at the ER-EC-11 well site
  - Begin construction of the conductor hole at the ER-20-7 well site
  - Complete sampling of ER-EC-1 and ER-EC-6 wells.
  - Continue support to acquisition of subcontracts for new well drilling and related services.
  - Sampling at ER-EC-1 and ER-EC-6 will be completed.
  - Preparations will continue for well drilling.
- Yucca Flat
  - Continue support to the Phase I flow and transport modeling.

- Rainier Mesa/Shoshone Mountain
  - Continue support to the Phase I flow and transport modeling efforts.

## **Industrial Sites**

### **Activities (March)**

- Corrective Action Units (CAU)s 5, 113, 115, 118, 127, 137, 140, 143, 145, 151, 165, 168, 204, 254, 261, 262, 309, 322, 339, 357, 383, 476, 477, 478, 482, 528, 529, 542, 543, 545, 551, 552, 554 & 559
  - Submitted Final Post-Closure Inspection Letter Report to the Nevada Division of Environmental Protection (NDEP). The letter report covers above-listed CAUs, which include contaminated waste sites, decontamination and decommissioning sites, inactive tanks, disposal wells, bunkers, drains and sumps, septic tanks and lagoons, inactive ponds and tunnel muckpiles, and spill sites.
- CAU 91, Area 3 U-3fi Injection Well; CAU 92, Area 6 Decon Pond Facility; CAU 110, Area 3 WMD U-3ax/bl Crater; and CAU 112, Area 23 Hazardous Waste Trenches
  - Performed Post-Closure Inspections
- CAU 114, Area 25 EMAD Facility
  - Completed closure strategy presentation
- CAU 117, Area 26 Pluto Disassembly Facility
  - Completed closure field work, demobilization in progress
- CAU 130, Storage Tanks
  - Submitted Final Closure Report to NDEP
- CAU 139, Waste Disposal Sites
  - Completed closure field work
- CAUs 143, Area 25 Contaminated Waste Dumps; 165, Area 25 and 26 Dry Well and Washdown Areas; 261, Area 25 Test Cell A Leachfield System; 262, Area 25 Septic Systems and UDP; and 528, Polychlorinated Biphenyls Contamination
  - Performed post-closure repairs
- CAU 166, Storage Yards and Contaminated Materials
  - Began closure field work
- CAUs 400, 404, 407, 423, 424, 426, 427, 453, 484 & 487
  - Submitted Final Post-Closure Inspection Report to NDEP. The letter report covers above-listed CAUs, which include ordnance sites, contaminated waste sites, drains and sumps, and septic tanks and lagoons on the Nevada Test and Training Range (NTTR).
- CAU 563, Septic Systems
  - Submitted Final Corrective Action Plan to NDEP

### **Planned Activities (April)**

- CAUs 5, 113, 115, 118, 127, 137, 140, 143, 145, 151, 165, 168, 204, 254, 261, 262, 309, 322, 339, 357, 383, 476, 477, 478, 482, 528, 529, 542, 543, 545, 551, 552, 554 & 559
  - Receive approval for the Final Post-Closure Inspection Letter Report from NDEP. The report covers above-listed CAUs, which include contaminated waste sites, decontamination and decommissioning sites, inactive tanks, disposal wells, bunkers, drains and sumps, septic tanks and lagoons, inactive ponds and tunnel muckpiles, and spill sites.
- CAU 114, Area 25 EMAD Facility
  - Begin closure field work
- CAU 117, Area 26 Pluto Disassembly Facility
  - Complete demobilization

- CAU 130, Storage Tanks
  - Receive Final Closure Report approval from NDEP
- CAU 166, Storage Yards and Contaminated Materials
  - Complete closure field work
- CAUs 400, 404, 407, 423, 424, 426, 427, 453, 484 & 487
  - Receive approval for the Final Post-Closure Inspection Report from NDEP. The report covers above-listed CAUs, which include ordnance sites, contaminated waste sites, drains and sumps, and septic tanks and lagoons on the Nevada Test and Training Range (NTTR).
- CAU 562, Waste Systems
  - Submit Final Corrective Action Investigation Plan to NDEP
- CAU 563, Septic Systems
  - Receive approval for the Final Corrective Action Plan from NDEP

### **Soils:**

#### **Activities (March)**

- CAU 107, Low Impact Soil Sites
  - Submitted the Final Streamlined Approach for Environmental Restoration Plan, Rev. 1 to NDEP

#### **Planned Activities (April)**

- CAU 107, Low Impact Soil Sites
  - Complete fieldwork for Closure Report
  - Receive approval for the Final Streamlined Approach for Environmental Restoration Plan, Rev. 1 from NDEP
- CAU 371, Johnnie Boy Crater and Pin Stripe
  - Initiate field investigation activities

### **Public Involvement**

#### **Activities (March)**

- Hosted a booth at the Waste Management Symposium 2009 (Phoenix, Arizona, March 1 - 5).
- Met with Susan Gunn, instructor at Advanced Technologies High School, to facilitate progress on the Environmental Management Student Forum project
- Attended CHOLLA (Clasping Hands Offering Lifelong Learning Adventures) meeting. This group is comprised of area organizations and businesses promoting field trips and other learning opportunities to the Clark County School District.
- Attended the Environmental Management Site-Specific Advisory Board Chairs meeting in August, GA
- Participated in Community Advisory Board for Nevada Test Site Programs committee meetings.

#### **Planned Activities (April)**

- Staff the Operation Clean Desert display at the “2009 Party for the Planet - Earth Day Festival” at Mandalay Bay, Shark Reef Aquarium (April 18).
- Staff the Operation Clean Desert display for the “Bring Your Daughters and Sons to Work Day” at the Nevada Site Office (April 23).
- Participate in Community Advisory Board for Nevada Test Site Programs committee meetings.

## **Environmental Management's Monthly Report to the CAB May 2009**

### **Low-Level Waste (LLW)**

#### **Completed Activities (April)**

- The Nevada Site Office (NSO) conducted a Radioactive Waste Acceptance Program (RWAP) Facility Audit of Y-12 in Oak Ridge, TN. The team identified one (1) Corrective Action Request (CAR) and twelve (12) observations. The CAR is due to inadequate verification/Quality Assessment of Y-12's shipment database software. The observations primarily consisted of deficiencies in the implementation of the NTS Waste Acceptance Criteria (WAC) Revision 7. Neither the finding nor the observations were of significant impact to warrant termination of Y-12's NTSWAC certification. Y-12 will respond to the CAR and close the observations within the next 60 days.
- As of April 24, 2009, the cumulative LLW volume received for FY 2009 is 678,698 ft<sup>3</sup> in 725 shipments. The cumulative mixed LLW (MLLW) volume received for FY 2009 is 18,300 ft<sup>3</sup> in 24 shipments. LLW Operations has worked 451,020 hours since its last lost-time accident (September 2003).
- On April 14, the Nevada Attorney General sent Acting EM-1 a letter recommending Environmental Management work with the State of Nevada Division of Environmental Protection to resume mixed low-level waste disposal at the Nevada Test Site. On April 17, EM-10 sent a letter to the State of Nevada Division of Environmental Protection announcing EM will resume its MLLW disposal operations within the next few weeks. The suspension of MLLW disposal was a result of the State of Nevada Attorney General's 2008 letter questioning the use of the Nevada Test Site for waste disposal.
- The NSO updated its LLW forecasts. The NSO is expecting to receive 1,258,444 ft<sup>3</sup> of LLW by the end of FY 2009.

#### **Planned Activities (May)**

- Expect to receive over 115,000 ft<sup>3</sup> of LLW and MLLW for disposal during the month.
- The LLW Sub-Project plans to conduct one (1) RWAP Audit of the Idaho facility and (1) impromptu Facility Surveillance.

### **Transuranic Waste (TRU)**

In April, DOE made 5 shipments to the Idaho National Laboratory TRU Waste Consolidation Facility. As a result of these shipments, 99.7% of the 1,650 legacy drums and 58 legacy oversized boxes have been shipped to either the Waste Isolation Pilot Plant (WIPP) or the Consolidation Site. Only two containers remain at the Nevada Test Site. One of the two containers could not be assayed by any DOE WIPP certified non-destructive assay machines and one container was held due to the finding of a prohibited item in the waste during the final data verification process. The Nevada Site Office (NSO) has reported this information to the Nevada Division of Environmental Protection (NDEP). Over the next thirty days, NSO and NDEP will negotiate a new Site Treatment Plan milestone for the remaining waste.

### **Underground Test Area (UGTA)**

#### **Completed Activities (April)**

##### **Frenchman Flat**

- Recommendations made by the risk evaluation team were reviewed for further risk evaluation work. Comments were forwarded to the team lead.
- Comment responses from the DOE review for the Phase II Transport Model continued.

- Decision trees for long-term monitoring were developed.

### **Pahute Mesa**

- The draft drilling criteria document was issued for DOE review.
- Revisions to field instructions for groundwater sampling and drill cuttings logs were finalized.
- Preparations continued for the start of well drilling. Mobilization is planned for May 18.
- Completed construction of access road, drill pad and sumps at the ER-20-8 site.
- Continued acquisition of subcontracts for new well drilling and related services.
- Continued addressing permit, National Environmental Policy Act and Environmental Baseline Survey issues for new well sites on the Nevada Test and Training Range.
- NSO contactors submitted the draft drilling criteria document to DOE for review.
- The Fluid Management and Waste Management plans were reviewed by NDEP and comments were forwarded to DOE.
- There was no work performed at the ER-20-7 site during the month of April.

### **Yucca Flat**

- Phase I flow and transport modeling continued.

### **Rainier Mesa/Shoshone Mountain**

- Phase I flow and transport modeling continued.

### **ER-EC Wells (Air Force Land)**

- A Baseline Environmental Survey was initiated for well location ER-EC-11
- Completed pumping and groundwater sampling of the ER-EC-1 and ER-EC-6 wells. All data indicated background levels.
- Awarded purchase orders for downhole hardware for zone isolation in the ER-EC-6 well.

### Planned Activities (May)

#### **Frenchman Flat**

- Continue the FY 2009 fracture analysis task and other geologic databases.
- Recommendations for further efforts to support human health and environmental risk will be finalized.
- Monitoring objectives and decision trees will be reviewed by pre-emptive review committee.

#### **Pahute Mesa**

- The Phase II Well Drilling Criteria Report will undergo review by the technical review team and will be finalized prior to the start of drilling.
- Complete conductor hole construction at the ER-20-7 and ER-20-8 well sites.
- Complete subcontractor training and begin mobilization of contractor and subcontractor equipment to the ER-20-7 site.
- Complete acquisition of subcontracts for new well drilling and related services.
- The Drilling Criteria document will be finalized.
- The Fluid Management Plan and Waste Management Plan will be finalized.
- Drilling will commence at location ER-20-7.

#### **Yucca Flat**

- Continue the Phase I flow and transport modeling.

#### **Rainier Mesa/Shoshone Mountain**

- Continue the Phase I flow and transport modeling.

#### **ER-EC Wells (Air Force Land)**

- Complete change out of the existing pump and associated tubing in ER-EC-6.
- Installing tubing with isolation packers for discrete water level measurements from separate zones in ER-EC-6.

### Industrial Sites

#### Accomplishments (April)

- Corrective Action Units (CAU)s 5, 113, 115, 118, 127, 137, 140, 143, 145, 151, 165, 168, 204, 254, 261, 262, 309, 322, 339, 357, 383, 476, 477, 478, 482, 528, 529, 542, 543, 545, 551, 552, 554 & 559
  - Received approval for the Final Post-Closure Inspection Letter Report from the Nevada Division of Environmental Protection (NDEP). The letter report covers above-listed CAUs, which include contaminated waste sites, decontamination and decommissioning sites, inactive tanks, disposal wells, bunkers, drains and sumps, septic tanks and lagoons, inactive ponds and tunnel muckpiles, and spill sites.
- CAU 114, Area 25 EMAD Facility
  - Began closure field work
- CAU 117, Area 26 Pluto Disassembly Facility
  - Completed demobilization
- CAU 130, Storage Tanks
  - Received Final Closure Report (CR) approval from NDEP
- CAU 166, Storage Yards and Contaminated Materials
  - Continued closure field work
- CAU 168, Area 25 and 26 Contaminated Materials and Waste Dumps
  - Submitted Final Letter Report to NDEP to document waste disposal activities and received approval
- CAU 560, Septic Systems
  - Conducted Decision I Sampling
- CAU 562, Waste Systems
  - Submitted Final Corrective Action Investigation Plan (CAIP) to NDEP

Planned (May)

- CAU 116, Area 25 Test Cell C Facility
  - Begin closure field work
- CAU 134, Aboveground Storage Tanks
  - Submit Final CR to NDEP
- CAU 166, Storage Yards and Contaminated Materials
  - Complete closure field work
- CAU 557, Spills and Tank Sites
  - Submit Final Corrective Action Decision Document (CADD)/CR to NDEP
- CAU 562, Waste Systems
  - Receive approval for the Final CAIP from NDEP

**Soils**

Completed Activities (April)

- CAU 107, Low Impact Soil Sites
  - Submitted Final Streamlined Approach for Environmental Restoration (SAFER) Plan, Revision 1, to NDEP
- CAU 371, Johnnie Boy Crater and Pin Stripe
  - Received approval for the Final CAIP from NDEP
  - Initiated field characterization activities
- CAU 372, Cabriole/Palanquin Unit Craters
  - Submitted Draft CAIP to NDEP

Planned Activities (May)

- CAU 107, Low Impact Soil Sites

- Receive Final SAFER Plan, Revision 1, approval from NDEP
- CAU 370, T-4 Atmospheric Test Site
  - Submit Final CADD/CR to NDEP
- CAU 371, Johnnie Boy crater and Pin Stripe
  - Continue field investigation activities
- CAU 372, Cabriole/Palanquin Unit Craters
  - Receive Draft CAIP comments from NDEP

## **Public Involvement**

### **Completed Activities (April)**

- Operation Clean Desert display and computer game exhibited at the Party for the Planet at the Mandalay Bay Shark Reef Aquarium on April 18, 2009. During this six hour event, 114 game CDs and 136 activity books were distributed. Party for the Planet is a free annual Earth Day event hosted in connection with Association of Zoos & Aquariums. This is a celebration of the environment and what we can do to make our world a little better. The event was marketed and promoted to Las Vegas Valley residents by Shark Reef Aquarium and Mandalay Bay using various media outlets.
- Environmental Management contractor staff participated in the Take Your Daughters and Sons to Work Day on April 23, 2009 by hosting a "Donning Protective Equipment" hands-on activity. The three, 20-minute sessions provided children of NSO federal and contractor employees, ages 8-10, an opportunity to put on protective clothing used by site workers. During this event, 44 Operation Clean Desert activity books and computer game CDs were distributed.
- Participated in Community Advisory Board (CAB) for Nevada Test Site Programs committee meetings.

### **Planned Activities (May)**

- The Operation Clean Desert display will be exhibited at Rosemary Clarke Middle School in Pahrump, May 20-21, 2009. Over the course of the two days, approximately 420 students will be briefed on the history of the Nevada Test Site and environmental cleanup activities taking place. The Groundwater at the NTS and Waste Management Timeline posters will also be displayed for students.
- Participate in the CAB Full Board meeting on May 6, 2009 in Pahrump, NV.

## **Emergency Preparedness Working Group (EPWG) Grant:**

- Nevada Site Office funds the EPWG grant based on \$.50 per cubic foot of low-level/mixed low-level waste disposed at the Nevada Test Site
- EPWG currently consists of six Nevada counties: Clark, Elko, Esmeralda, Lincoln, Nye, and White Pine
- EPWG addresses grant administration issues and any cross-cutting emergency related questions that incorporate grant funding or are required to attain operations level emergency response capability
- Priorities for grant funding include consideration for the needs of a county and the resource base available in that county
- State of Nevada Division of Emergency Management is responsible for overall administration of the grant to include providing funding to the counties in accordance with approved grant application and oversight of funding use, among other fiscal accounting and funds management requirement

Department of Energy Low Level Waste Grant Assistance Scope by County

<u>Fiscal Year</u>	<u>Clark</u>	<u>Elko</u>	<u>Esmeralda</u>	<u>Lincoln</u>	<u>Nye</u>	<u>White Pine</u>	<u>Total</u>
2000	\$50,500.00	\$50,500.00	\$50,500.00	\$50,500.00	\$50,500.00	\$50,500.00	\$303,000.00
2001	\$10,000.00*	\$37,305.00	\$66,600.00	\$52,014.00	\$92,595.00	\$81,486.00	\$330,000.00
2002**	\$25,000.00	\$199,866.40	\$202,480.00	\$214,101.00	\$203,785.00	\$200,043.40	\$1,045,275.80
2003	\$100,000.00	\$178,061.00	\$190,095.00	\$178,036.00	\$175,906.00	\$177,902.00	\$1,000,000.00
2004	\$100,000.00	\$367,800.00	\$393,754.00	\$389,700.00	\$375,631.00	\$373,115.00	\$2,000,000.00
2005	\$100,000.00	\$400,674.00	\$451,268.00	\$450,000.00	\$448,058.00	\$450,000.00	\$2,300,000.00
2006	\$50,000.00	\$85,000.00	\$91,250.00	\$91,250.00	\$91,250.00	\$91,250.00	\$500,000.00
2007	\$28,261.00	\$95,000.00	\$95,000.00	\$95,000.00	\$91,000.00	\$95,739.00	\$500,000.00
2008	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$587,373.00
<u>2009</u>	<u>\$91,700.00</u>	<u>\$95,000.00</u>	<u>\$121,666.00</u>	<u>\$145,481.00</u>	<u>\$81,937.00</u>	<u>\$98,216.00</u>	<u>\$634,000.00</u>
Total to Date	\$545,461.00	\$1,509,206.40	\$1,662,613.00	\$1,666,082.00	\$1,610,662.00	\$1,618,251.40	\$9,199,648.80

\* In 2001 Clark County Transferred \$15,000 to Lincoln County for an emergency generator for the hospital in Caliente.

\*\* The numbers in this table do not include the \$50,000 provided to Inyo County California in FY02 and \$51,054 in FY03.

\*\*\* Actual volumes received for FY2008 Communication from NSTec Oct 20, 2008. 1,174,746 ft3