



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
**ENVIRONMENTAL
MANAGEMENT**

Office of River Protection

Congressional Nuclear Cleanup Caucus

Kevin Smith

Manager

Office of River Protection

May 7, 2013

Historical Overview of the Hanford Site

1940s – 1980s – Building Hanford



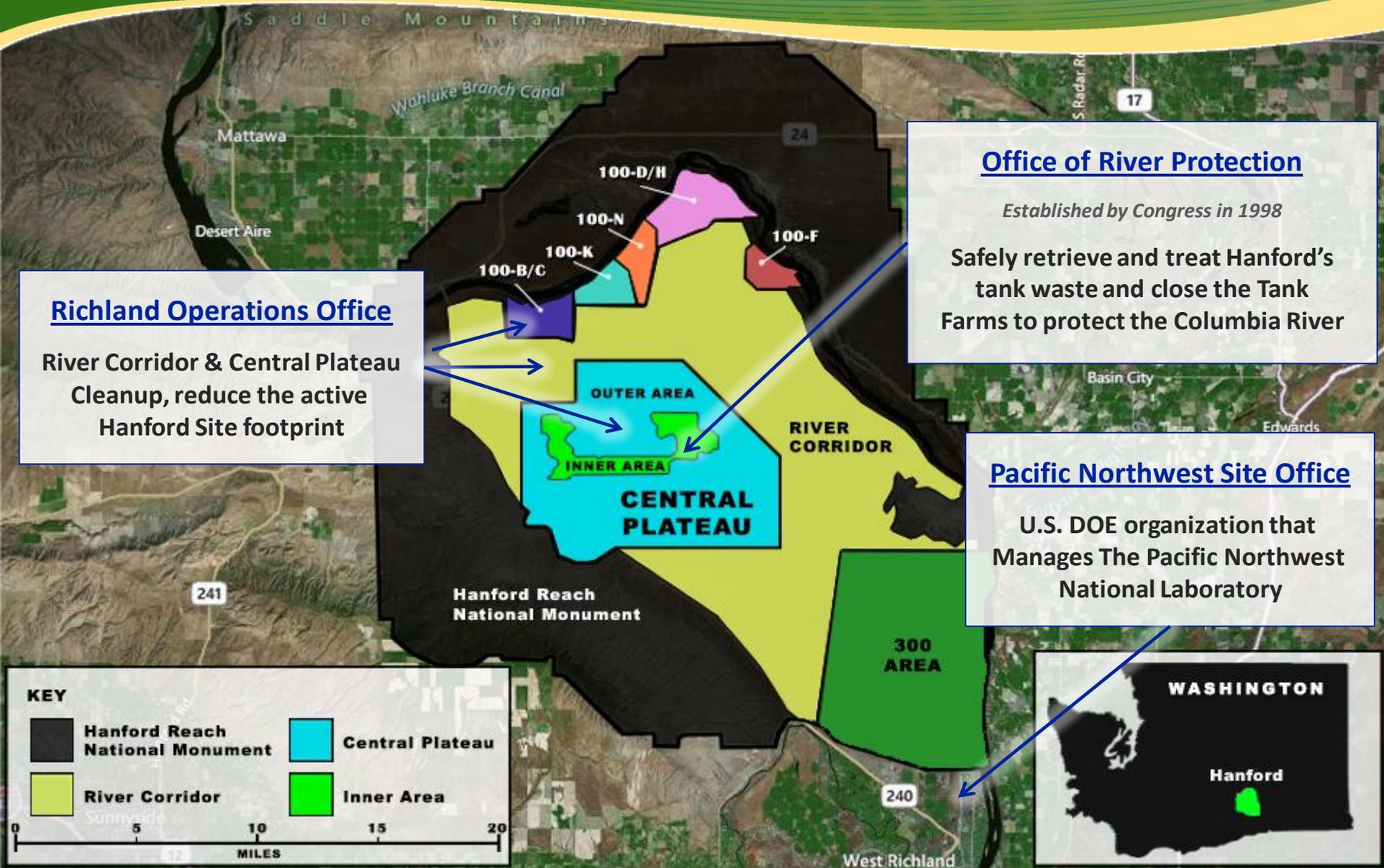
1945-1985 – Plutonium Weapons Production

Waste Treatment Plant



1990s – Present – Decommissioning

Hanford Site Geography



Richland Operations Office

River Corridor & Central Plateau Cleanup, reduce the active Hanford Site footprint

Office of River Protection

Established by Congress in 1998

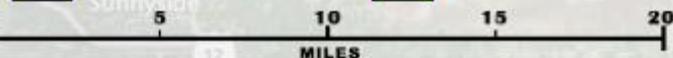
Safely retrieve and treat Hanford's tank waste and close the Tank Farms to protect the Columbia River

Pacific Northwest Site Office

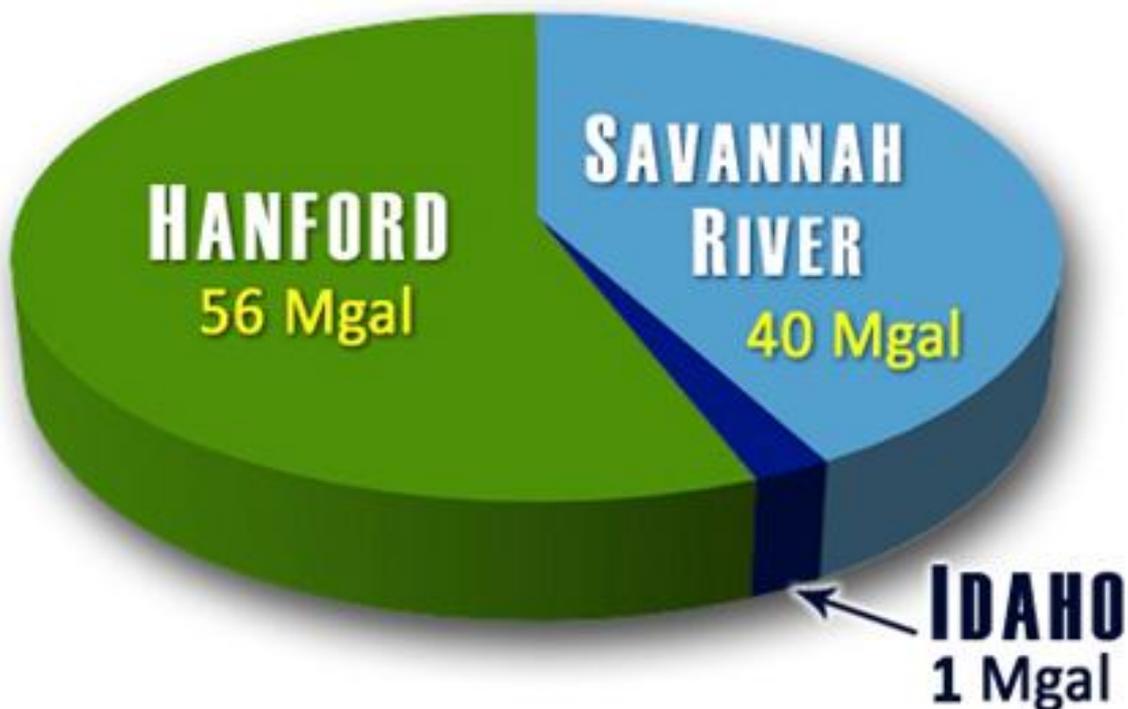
U.S. DOE organization that Manages The Pacific Northwest National Laboratory

KEY

- Hanford Reach National Monument
- River Corridor
- Central Plateau
- Inner Area



Retrieve and treat the radioactive and chemical tank waste and close Hanford's Tank Farms



Total number of gallons contained within tanks at various DOE sites

Continuing to collaborate with the state of Washington
to succeed in our environmental cleanup mission

TANK FARMS

WASTE TREATMENT PLANT

ORP Challenges

Safely managing nuclear waste legacy in aging tanks while WTP is brought online



Operate as One System Goals and Objectives

Depiction of the waste feed delivery
to the Waste Treatment Plant



ORP Budget

	FY12	FY14 Budget Request
		<i>in thousands</i>
Tank Farm Activities	442,010	520,216
Waste Treatment & Immobilization Plant	740,000	690,000
Totals	1,182,010	1,210,216



FY14 funding supports C-Farm retrievals and continued progress on resolution of WTP technical issues.

ORP FY13 Tank Farms Achievements

Safely retrieving and managing the legacy nuclear waste in Hanford's Tank Farms



ORP FY13 Waste Treatment Plant Achievements

Significant completion of of:

- Steam Plant
- Laboratory
- Outfitting Laboratory



ORP FY14 Tank Farms Planned Work:

Completion of C-Farm tank retrievals in FY14



ORP FY14 Waste Treatment Plant Planned Work

Substantial completion of:

- Low Activity Waste Facility
- Balance of Facilities
- Laboratory

Resolve WTP technical issues



**Continuing the journey to improve
safety culture at the Hanford Site**

A photograph of two construction workers on a blue scissor lift. They are wearing yellow hard hats, safety harnesses, and work clothes. They are positioned on a blue lift that is elevated above a dense grid of steel rebar. The lift has "Genie GS-1930" written on its side. The background is filled with the complex structure of rebar, suggesting a construction site for a large concrete structure. The overall scene is one of active construction work with a strong emphasis on safety.

SAFETY



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Washington River Protection Solutions

Office of River Protection

Congressional Nuclear Cleanup Caucus

Michael Johnson

President and Project Manager
Washington River Protection Solutions

May 7, 2013



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Tank operations contract/mission

Protect the public and the environment from the risk posed by 56 million gallons of radioactive and chemical waste stored in 177 underground tanks



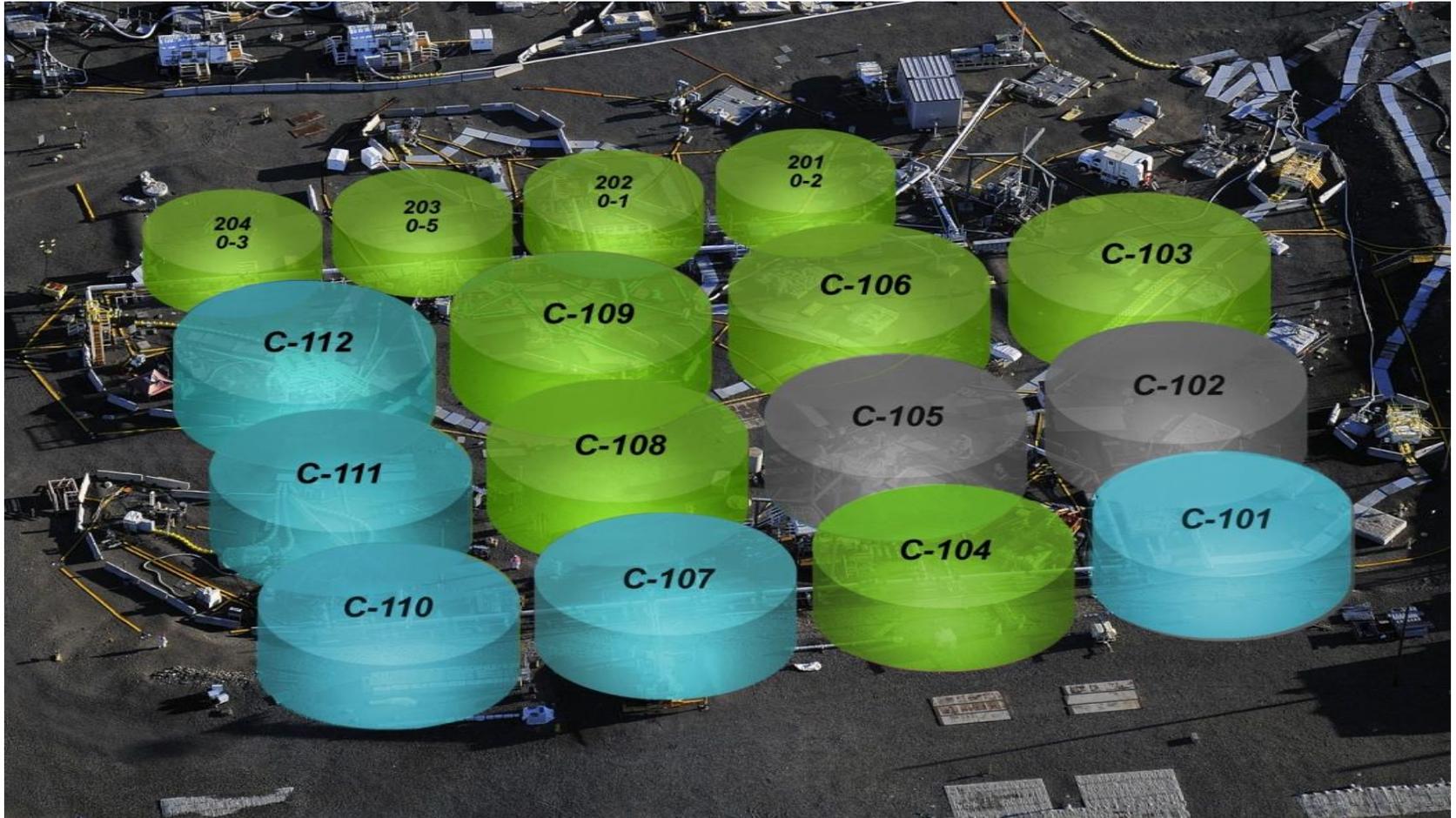
Safely manage and retrieve waste from tanks and prepare the delivery system for the Waste Treatment Plant



Support the commissioning of the Waste Treatment Plant for long-term operations



C-Farm waste retrieval progress



RETRIEVED

IN PROGRESS

TO BE RETRIEVED

Deploying multiple technologies

Modified Sluicing



Mobile Arm Retrieval System



Enhanced Reach Sluicing



Chemical Dissolution



Foldtrack





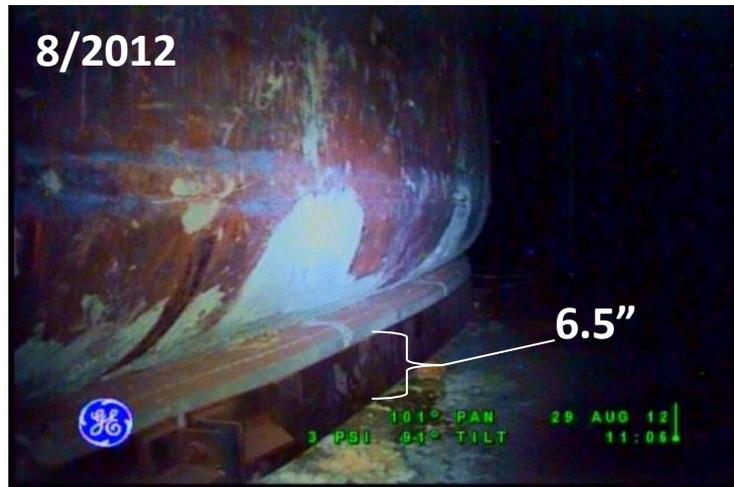
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Upgrading infrastructure



Managing aging tanks

AY-102 leak into annulus *Detail of waste material in AY-102*



Liquid level decrease in SSTs



Detail of waste surface in T-111

Integrating from Waste Stream to Glass





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One System progress

- Performed waste-feed mixing, blending and sampling demonstrations
- Completed seven DNFSB-2010-2 deliverables in FY2012
- Designed a tank ventilation upgrade





WRPS SAFETY CULTURE SURVEY 2012 Survey Questionnaire

Welcome to the 2012 WASHINGTON RIVER PROTECTION SOLUTIONS (WRPS) Safety Culture Survey. This is the second survey since WRPS assumed Tank Farm Operations on October 1, 2008. A baseline survey was administered in December 2009 to all WRPS personnel. This survey will be used, in part, to compare WRPS today to the results in 2009.



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Accomplishing the mission





Bechtel National, Inc.

Office of River Protection

Congressional Nuclear Cleanup Caucus

Frank Russo
Project Director
Bechtel National, Inc.

May 7, 2013



Waste Treatment Plant



High-Level Waste Facility

Pretreatment Facility

Analytical Laboratory

Low-Activity Waste Facility

Balance of Facilities



Embracing Safety as a Core Value

- WTP worker risks and hazards are typical of large construction projects
- WTP worker performance is significantly better than industry benchmarks
- Worker-led safety programs address all worker risks and hazards
- Challenge is to guard against complacency



*Achieved more than 13 million hours without
Lost Time Injury*



VPP Superior Star Site



Strengthening Nuclear Safety & Quality Culture

- Key behaviors are the foundation to achieving performance
- WTP scored the highest at the Hanford site in the DOE site-wide survey and had 80% participation
- All employees received Safety Conscious Work Environment Training
- Continuous improvement monitored by independent Nuclear Safety and Quality Review Board



Performance Goals



Key Behaviors



- Discipline in Execution
- Self Critical
- Accountability
- Interdependent
- Trust
- Decisive



Achieving milestones

- WTP achieved three Consent Decree milestones in FY13
 - High-Level Waste Vitrification Facility 37-foot elevation steel
 - Lab Substantially Complete
 - Steam Plant Construction Complete



Structural steel reaches the +37-foot elevation of the HLW Facility



WTP Priorities

- Focusing construction on:
 - Low-Activity Waste Vitrification Facility
 - Analytical Laboratory
 - Balance of Facilities
- Supporting the Design Completion teams
- Conducting reviews now to support Operational Readiness Reviews
 - Reliability Validation Process
 - Readiness Manager assigned



Pretreatment Facility

World's largest radioactive chemical separations facility

Confirming and improving reliability and flexibility in black cells



Pretreatment Facility Exterior



Pretreatment control room building pad



Pretreatment Facility hot cell



Pretreatment Facility black cell



High-Level Waste Vitrification Facility

Turns high-level waste into glass

Construction and design work continues in areas not impacted by remaining technical issues



High-Level Waste Facility exterior



High-Level Waste Facility truck bay walls



High-Level Waste Facility bridge crane



High-Level Waste Facility rebar above filter cave



Low-Activity Waste Vitrification Facility

Turns low-activity waste into glass

Construction continues on track for the Low-Activity Waste Vitrification Facility



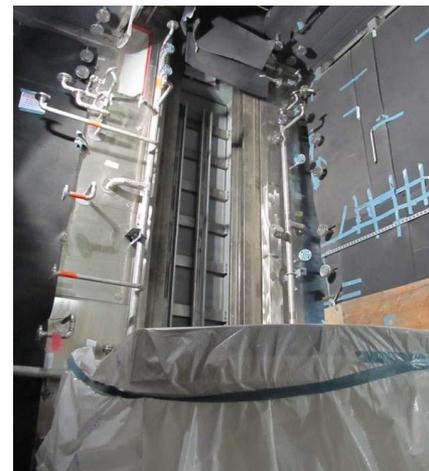
Low-Activity Waste Facility exterior



300-ton Low-Activity Waste melter



Overhead pipe racks for steam and glass formers



Low-Activity Waste cooling panels installed in melter turntable area



Analytical Laboratory

Ensures glass meets regulatory requirements

Complete construction of Analytical Laboratory in FY14



Analytical Laboratory exterior



Analytical Laboratory hot cell



Analytical Laboratory autosampling equipment



Balance of Facilities

Vast infrastructure to support operations

Priority is to complete Balance of Facilities to provide the infrastructure for the eventual operation of WTP



18 support buildings for the Balance of Facilities



Tri-Party Agreement Milestone Achieved: Completed Steam Plant Construction



Overhead pipe racks for steam and glass forming materials



Glass former silos



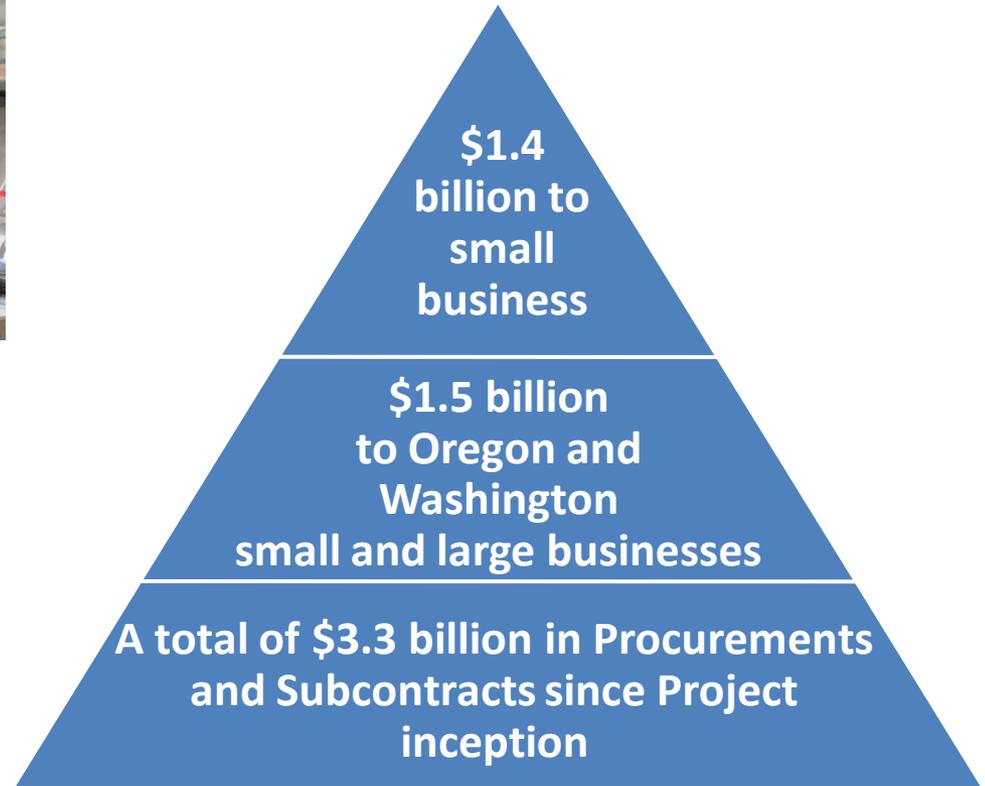
WTP has Awarded \$3.3 billion in Procurements and Subcontracts



Low-Activity Waste Facility exhauster



Low-Activity Waste Facility carbon bed adsorber





Working Through the Challenges

- Maintaining team momentum and focus during uncertain times
- Continuous nuclear safety and quality improvement
- Maintaining focus on zero industrial incidents and accidents
- Keeping the supply chain engaged and viable





Integrating from Waste Stream to Glass





The Mission

