OFFICE OF
RIVER PROTECTION
United States Department of Energy

Direct-Feed Low Activity Waste Update

Waste Management Symposium 2017

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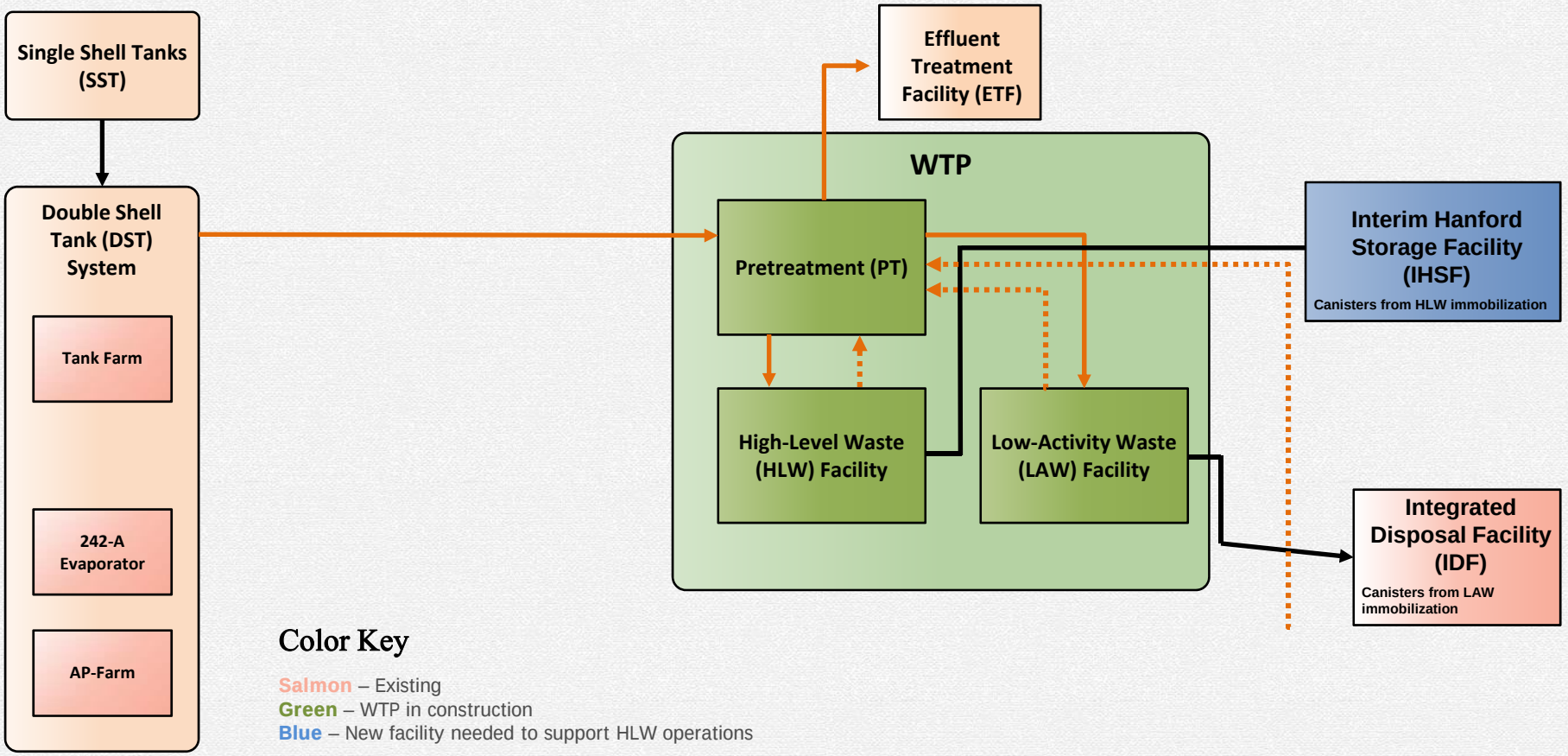
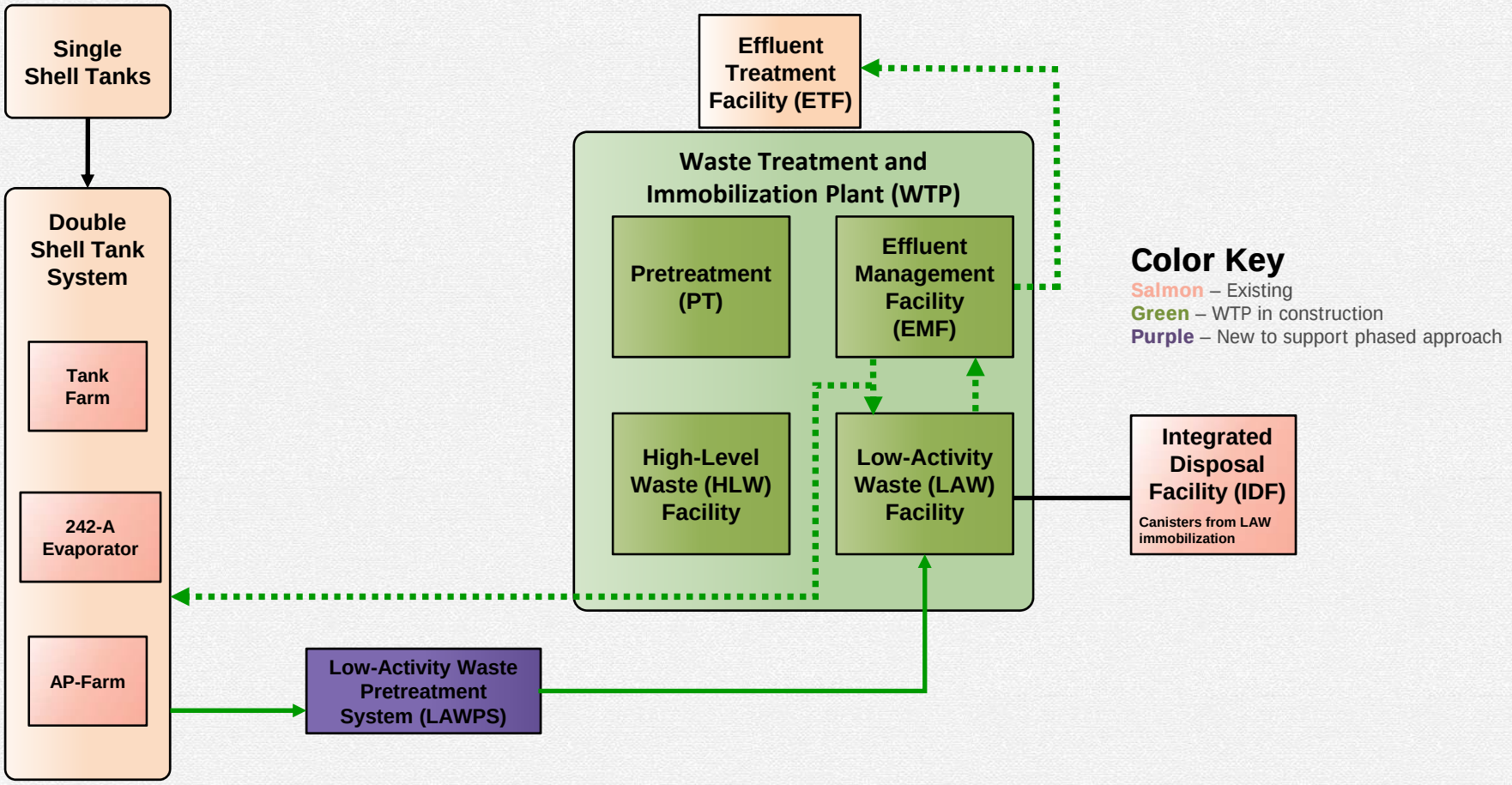
March 7, 2017

Original treatment approach



Original waste treatment approach sent all tank waste through the WTP Pretreatment Facility first, producing feed for high-level and low-activity waste facilities.

Direct-Feed Low Activity Waste Treatment Approach



The DFLAW approach sends pretreated tank liquids to the Low-Activity Waste (LAW) Facility, enabling treatment operations as soon as practicable.

DFLAW Integrated Delivery Team

The Office of River Protection
- Mission integration and accomplishment
- Delivering the DFLAW program

WRPS, tank operations contractor
- Tank farm operations
- LAWPS
- Waste feed delivery
- Effluent retention and treatment

BNI, WTP contractor
- Design, construction, startup and commissioning
  - LAW vitrification facility
  - WTP Analytical Laboratory
  - WTP Balance of Facilities

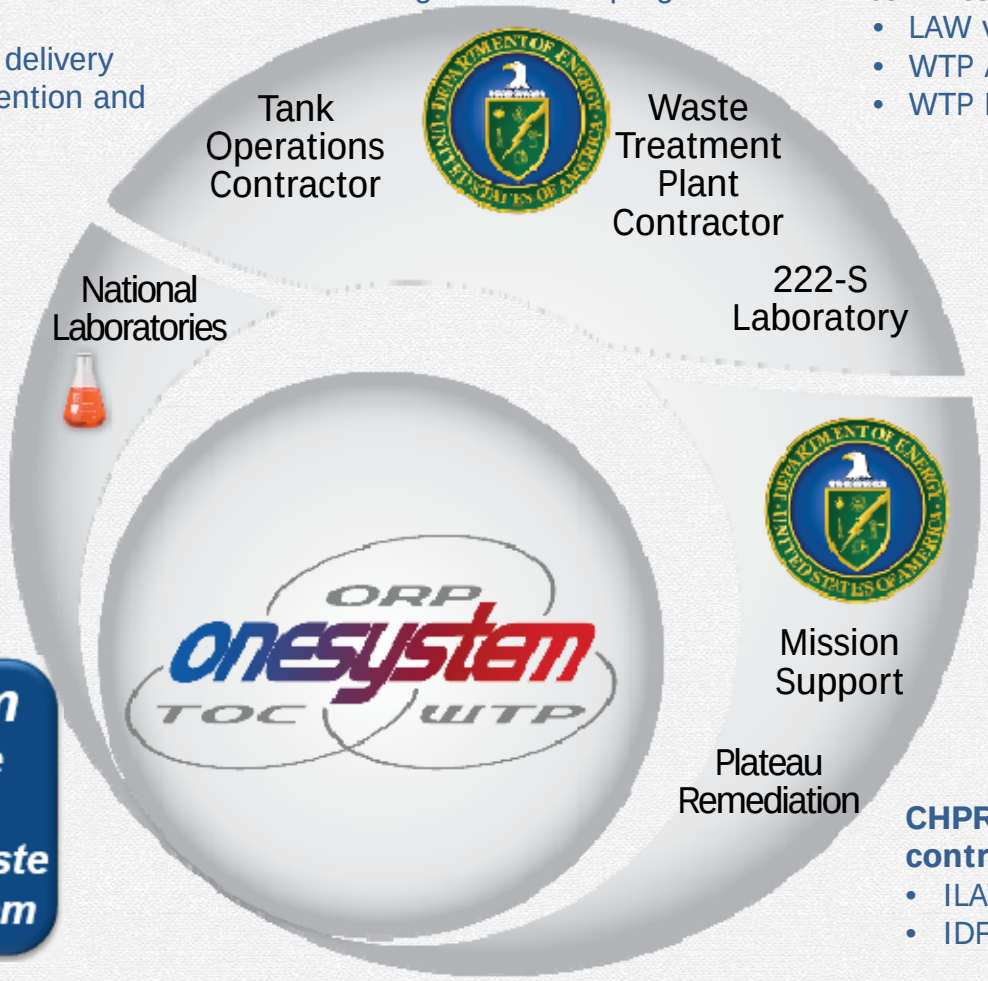
National laboratories
- Technical expertise
- Process improvements and issue resolution

WAI, 222-S laboratory contractor
- Analytical services in support of DFLAW

Richland Operations Office
- Hanford Site cleanup
- Waste disposition

MSA, Hanford sitewide services contractor
- Infrastructure and utilities services

CHPRC, environmental cleanup contractor
- ILAW container disposal services
- IDF operations



One System integrating the Direct Feed Low-Activity Waste (DFLAW) program

DFLAW Program Layout

First step in sequential approach to tank waste treatment and disposal

- DFLAW facilities and infrastructure actively working to startup as early as 2022
- Provides earliest practicable tank waste disposition

Slide 5

NM1 What is this stuff on the side?
Nartker, Michael, 21/02/2017

YML1 bullets that were loitering
Levardi, Yvonne M, 23/02/2017

NM2
YML2

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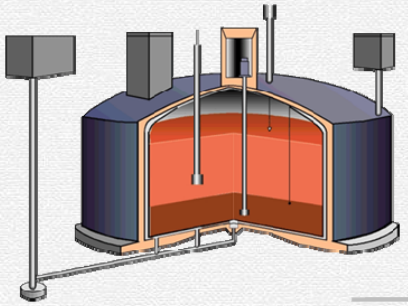
DFLAW Program Expected Results

20 Proposed waste feed delivery campaigns

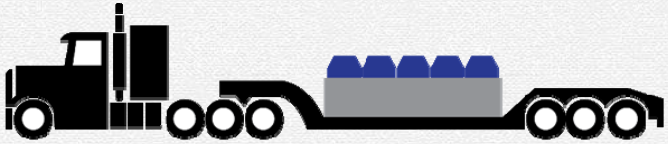
6.3 Million gallons of tank space generated*

1,000,000 Gallons per campaign



9,600 Metric tons of sodium processed

15% of Tank Farm sodium inventory



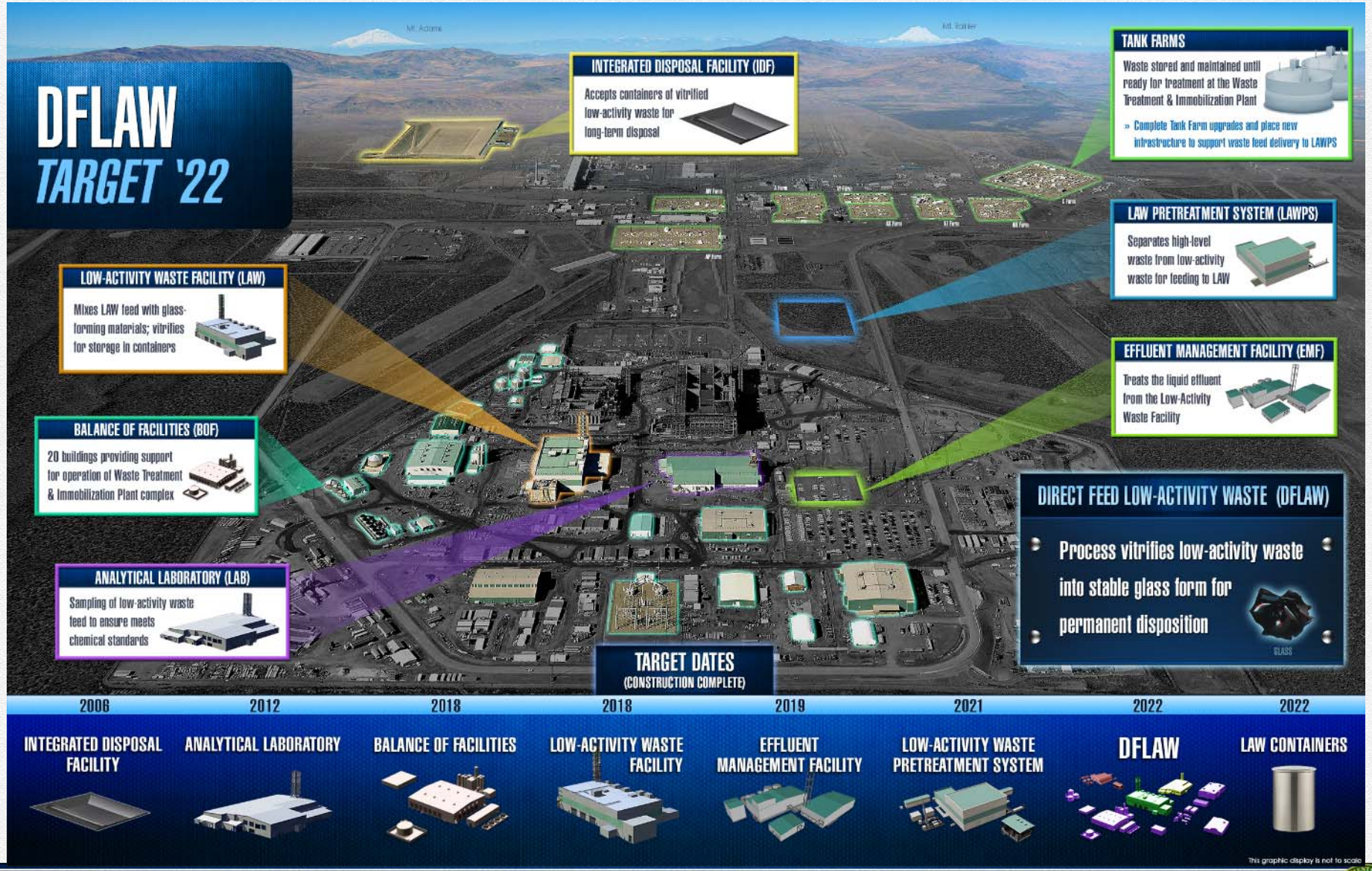
12,000 Immobilized LAW containers produced

Slide 6

NM2 Why don't we say anything about how many millions of gallons of waste vitrified and/or tanks emptied? Those would seem to be the key statistics.
Nartker, Michael, 21/02/2017

YML2 Because there is no conclusive answer on exactly how much of the 56 million gallons of waste will be vitrified, hence the need for supplemental treatment.
Levardi, Yvonne M, 23/02/2017

DFLAW Facility Overview



DFLAW Facilities

Containers of vitrified low-activity waste will be placed at **Integrated Disposal Facility** for long-term storage

✓ **Status:** Construction substantially complete (2006); upgrades, permits needed

The **Analytical Laboratory** will analyze low-activity waste feed samples to determine appropriate glass-forming material-to-waste ratio for vitrification

✓ **Status:** Construction substantially complete (2012); modifications ongoing

DFLAW Facilities

The **Balance of Facilities** consists of 21 infrastructure facilities and systems necessary to support WTP operations

✓ **Status:** Construction underway. On schedule to complete construction by FY2018 target date.

The **Low-Activity Waste Facility** is the largest and most complex of the WTP facilities supporting DFLAW

✓ **Status:** 56 percent complete overall. On schedule for construction complete by FY2018.

DFLAW Facilities

The **Effluent Management Facility** will concentrate and treat the liquid effluent from the LAW facility

✓ **Status:** In design. Target date for construction complete in FY2019.

The **Low-Activity Waste Pretreatment System** will remove solids and cesium from DSTs to provide low-activity waste feed to WTP

✓ **Status:** In design. Target date for construction complete by FY2021.

Additional DFLAW Support

- Key components of the DFLAW program also include the following operating facilities:
  - 242-A Evaporator
  - 222-S Laboratory
  - Effluent Treatment Facility
- Upgrades to Double-Shell Tanks will be required to support waste feed to LAW Facility.

Questions?

The Hanford Reach
White Bluffs Overlooking the Columbia River