



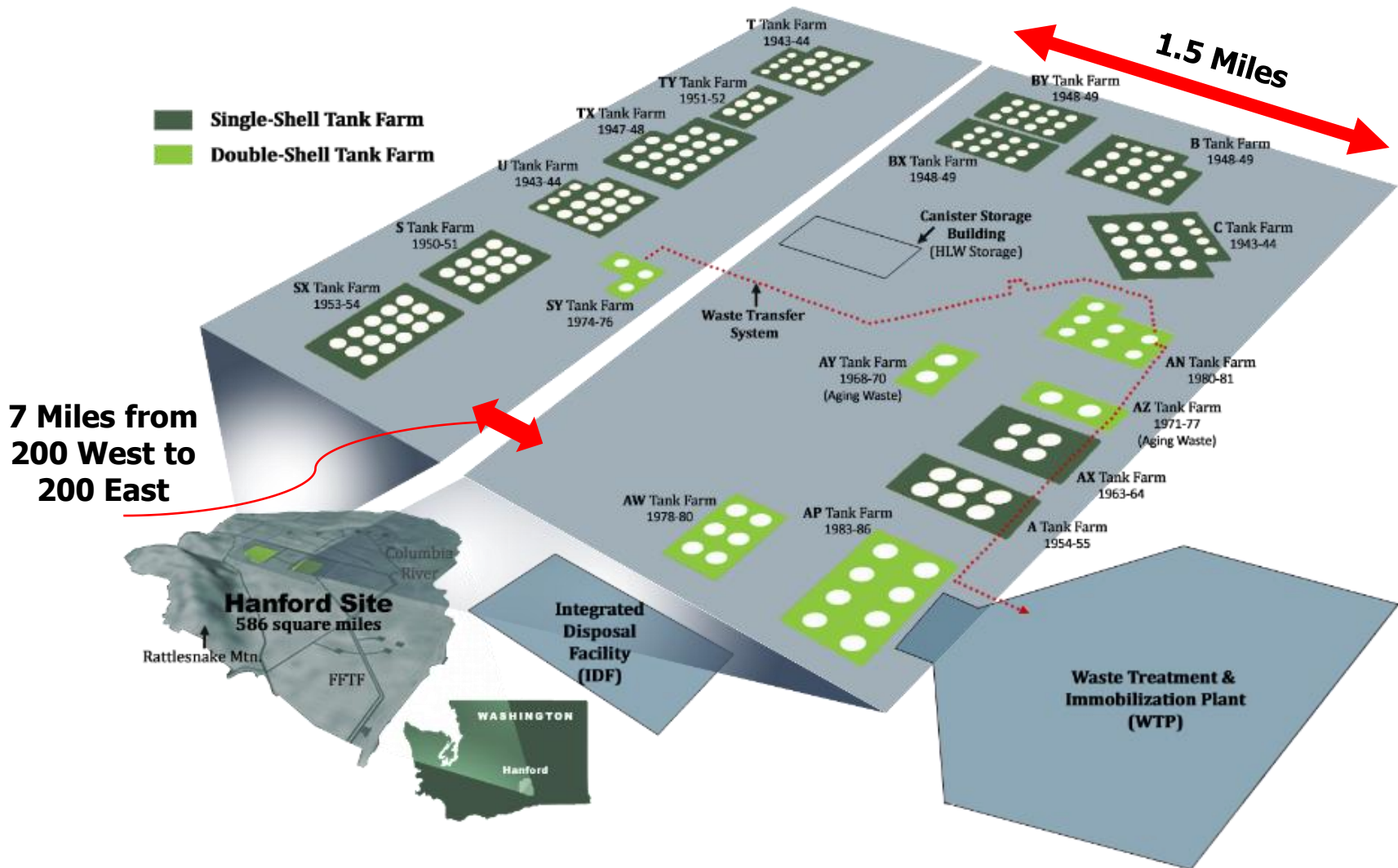
OFFICE OF
RIVER PROTECTION
United States Department of Energy

DFLAW and the Road to Near-Term Tank Waste Treatment





Tank Waste Treatment: Hanford Site





WTP Project – \$16.8B+ capital project (largest in DOE)

- Pretreatment (PT) Facility
- High Level Waste (HLW) Facility
- Low Activity Waste (LAW) Facility
- Analytical Laboratory
- Balance of Facilities (BOF)

LAW

- LAW / Lab nearing completion
- BOF in startup / commissioning
- Direct Feed plan for startup

HLW

- Technical issues caused delays
- BOF also supports HLW/PT

PT

- Three remaining technical issues
- Resolution anticipated by 2nd Qtr, CY2018



September 2017

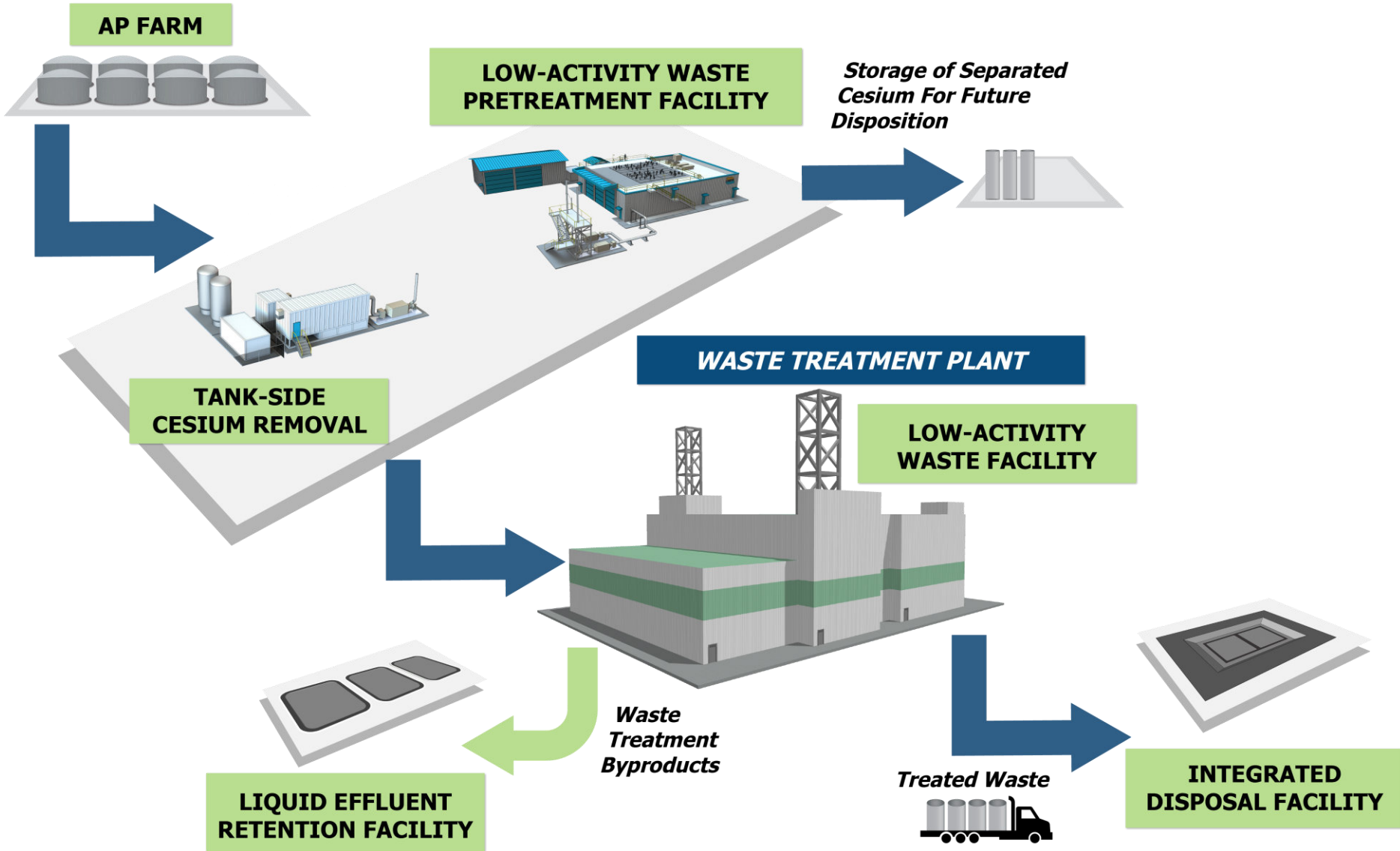
DFLAW approach:

- Strategy supports phased mission progression towards the treatment of tank waste
- Phased feed approach looking at tank-side separation to provide initial feed for LAW Facility operations
- Revising the design of Low-Activity Waste Pretreatment System (LAWPS) facility to improve cost and schedule
- Focus on DFLAW startup to enable effective transition from construction to operations

Outcome: Increased confidence in the start of Low Activity Waste Treatment as soon as December 2021 and no later than December 2023

Additional benefits include:

- Enables the start of waste treatment in the near-term
- Drives cultural shift to operations at Waste Treatment and Immobilization Plant (WTP)
- Places approximately 75% of the WTP in operation
- Addresses liquids, the most mobile form of tank waste
- Creates double-shell tank space
- Supports the development of skills and experience in transitioning from design/construction to startup, commissioning, and operations
- Provides valuable lessons-learned to aid startup and commissioning and of the remaining portions of WTP



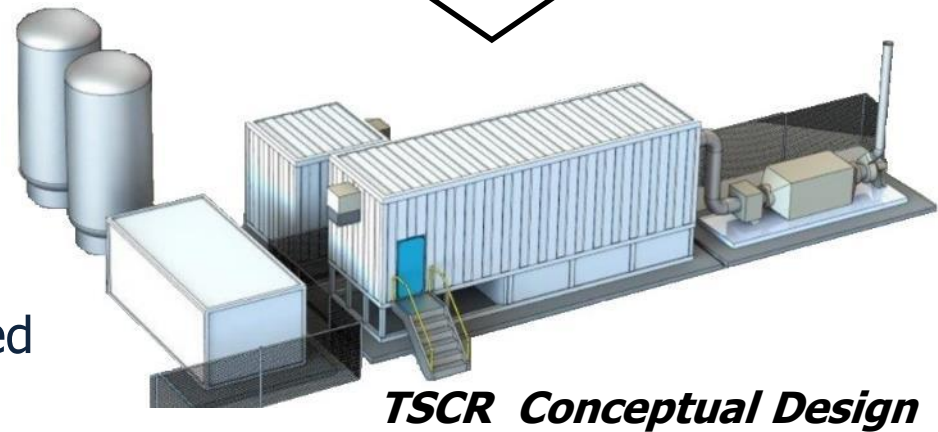
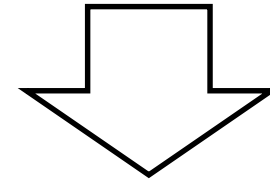
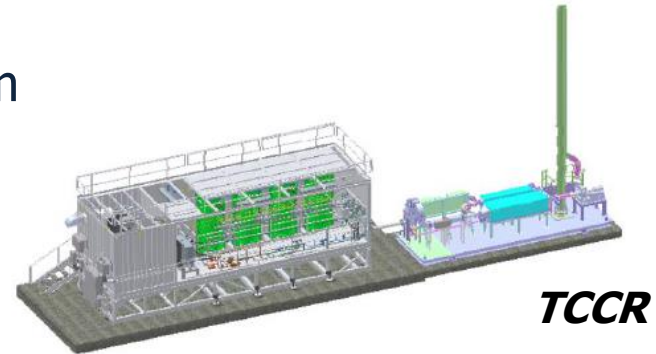
In order to make progress toward DFLAW, DOE is proceeding with an approach that will provide feed to the LAW Facility as soon as December 2021 but no later than December 2023.

The ***Tank Side Cesium Removal (TSCR)*** system is expected to provide the initial feed for LAW.

Safe, cost-effective scale-up of treatment capabilities, precisely matching waste feed with available LAW treatment capability

Tank Side Cesium Removal (TSCR) – would provide the initial feed for LAW

- Leverages functional characteristics of Tank Closure Cesium Removal (TCCR) system designed for Savannah River Site
- Portable and tank-side
- Ion-exchange to remove Cesium (proven technology – Fukushima)
- Pre/post-ion exchange filtration to remove undissolved solids and media fines
- Hydrogen retention mitigation, enclosure ventilation skid, hose-in-hose transfer lines to w/DSTs
- Equipment Request for Proposal issued in January





Low-Activity Waste Pretreatment System (LAWPS)

- LAWPS design reconsidered in fall of 2017 due to significant cost/schedule growth
- Transition to non-elutable resin created opportunities for design simplification
 - Reduced number of safety systems
 - Reduced footprint
 - Siting location options created
- Contractor proposal due in March, programmatic decisions will follow





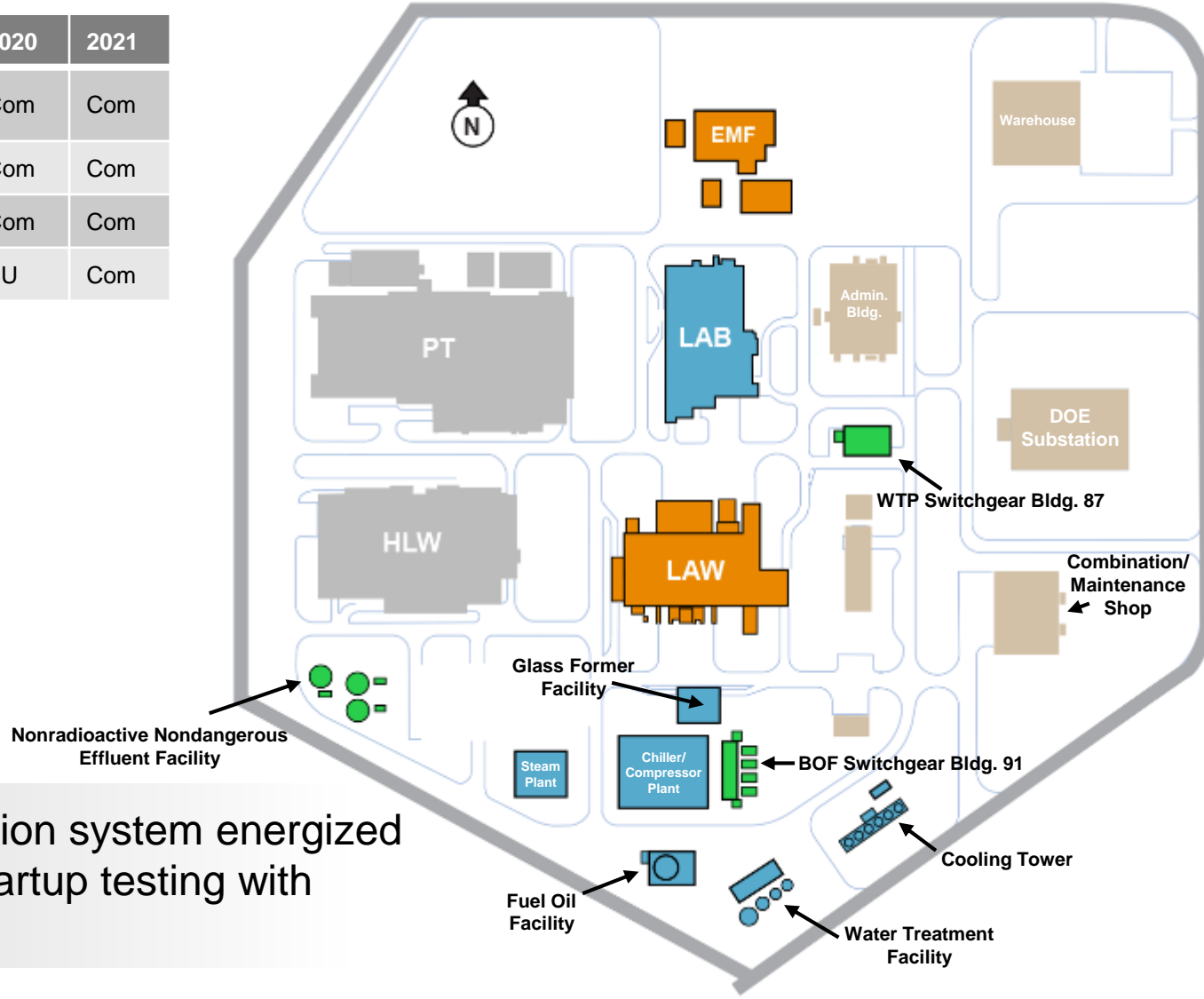
	2017	2018	2019	2020	2021
BOF	SU	SU/Com	Com	Com	Com
LAB	SU	SU	Com	Com	Com
LAW	C	C	SU	Com	Com
EMF	C	C	C	SU	Com

Legend *

- C = Construction
- SU = Startup
- Com = Commissioning
- Maintenance/Operations

* Reflects DFLAW systems status

BOF = Balance of Facilities
 LAB = Analytical Laboratory
 LAW = Low-Activity Waste
 EMF = Effluent Management Facility



WTP electrical distribution system energized and supporting BOF startup testing with permanent plant power





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TSCR in design



WTP startup testing nearing completion for BOF systems and LAW systems commence startup testing





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TSCR design complete



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LAW startup testing in progress





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TSCR fabrication / delivery complete



EMF system startup in progress and WTP systems preparing to support LAW Cold Commissioning





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TSCR commissioning / testing complete



LAW Feed



WTP ready to support DFLAW operations





Transition from construction to operations – develop skills and experiences that will translate to future effort

Hanford Site Integrated Priority List – alignment on priorities with the Tri-Party Agreement signatories

Initiation of waste treatment – will create the opportunity to broaden the discussion on treatment options

Site contracts transitions – opportunity for the identification of new ideas and efficiencies





DOE recognizes the urgency of the cleanup mission and the need to continue to achieve safe and efficient progress

Continuing to make progress towards DFLAW operations

DOE and its contractors are aligned on the approach and are working to increase confidence in achieving DFLAW operations as soon as December 2021 and no later than December 2023

DOE is committed to continuing to work with regulators and other stakeholders

