

Idaho Cleanup Project Core

*Safely consolidating, accelerating, and
delivering the ICP Core mission.*



Fred Hughes

**Idaho EM Site Citizens Advisory Board
June 23, 2016**

Fluor Corporation Introduction

Corporate Video

The Fluor Corporation

- ◆ Largest U.S.-based, publicly traded engineering, procurement, fabrication, construction & project management company
 - #155 on FORTUNE 500 list in 2015
- ◆ Most admired E&C company in the world (as stated by Fortune Magazine 2015)
- ◆ 2015 Revenue: \$18.1 billion; backlog: \$44.6 billion
- ◆ Over 1,000 projects annually, serving more than 600 clients in 100 countries
- ◆ More than 60,000 employees executing projects globally
- ◆ 103-year company legacy
- ◆ Supported INL since 1950s
- ◆ Parent corporation of Fluor Idaho, LLC

Fluor
IDAHO



REC Solar Grade Silicon LLC – Fluid Bed Expansion Project
Moses Lake, WA



San Francisco – Oakland Bay Bridge
San Francisco, CA

Fluor's Diversified Client Markets



GOVERNMENT

- Construction
- Contingency Operations
- Services/Base Operations
- Design-Build
- Disaster and Emergency Response
- Nuclear Operations
- Nuclear Remediation
- Nuclear Waste Disposal
- Secure Services
- Lab Management



POWER

- Environmental Compliance
- Gas-fueled/IGCC
- Nuclear
- Power Services
- Renewable Energy
- SMR Technology
- Solid-fueled
- Transmission



INFRASTRUCTURE

- Aviation
- Bridges
- Commercial & Institution
- Offshore Wind Farms
- Ports & Marine Terminals
- Public-Private Partnerships
- Rail & Transit
- Telecommunications
- Toll Roads & Highways



MINING & METALS

- Mining
- Mining Process Expertise
- Metals
- Metals Process Expertise



INDUSTRIAL

- Life Sciences
- Manufacturing
- Operational Readiness
- Operations & Maintenance
- Pulp & Paper
- Water



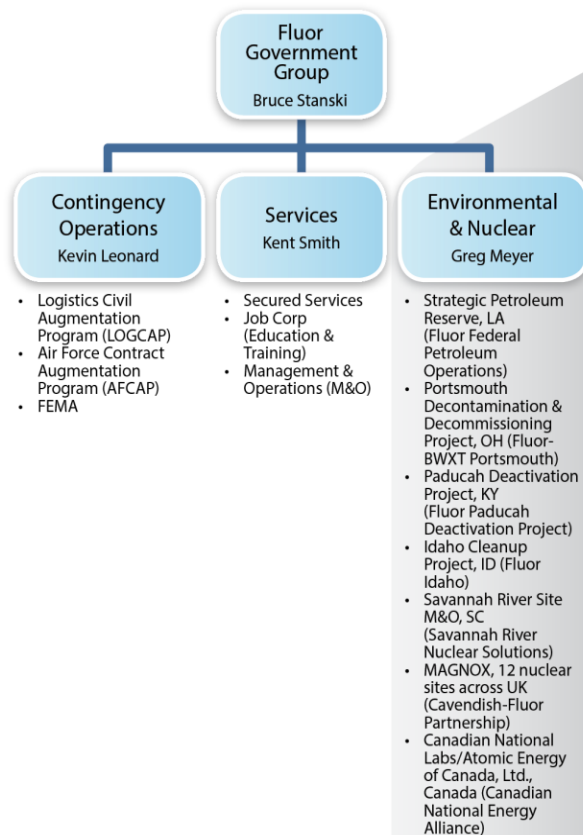
ENERGY & CHEMICALS

- Biofuels
- Carbon Capture
- Chemicals & Petrochemicals
- Gas Processing & Gas Treating
- Gasification, Gas to Liquids/ Chemicals, & IGCC
- Heavy Oil Upgrading & Oil Sands
- Hydrocarbon Transportation - Pipelines
- Liquefied Natural Gas (LNG)
- Offshore Oil & Gas Production
- Fertilizers
- Onshore Oil & Gas Production
- Petroleum Refining
- Polysilicon
- Sulfur Recovery
- Utilities & Offsites



Bringing an integrated portfolio of capabilities to clients worldwide

Introduction to Fluor Government Group

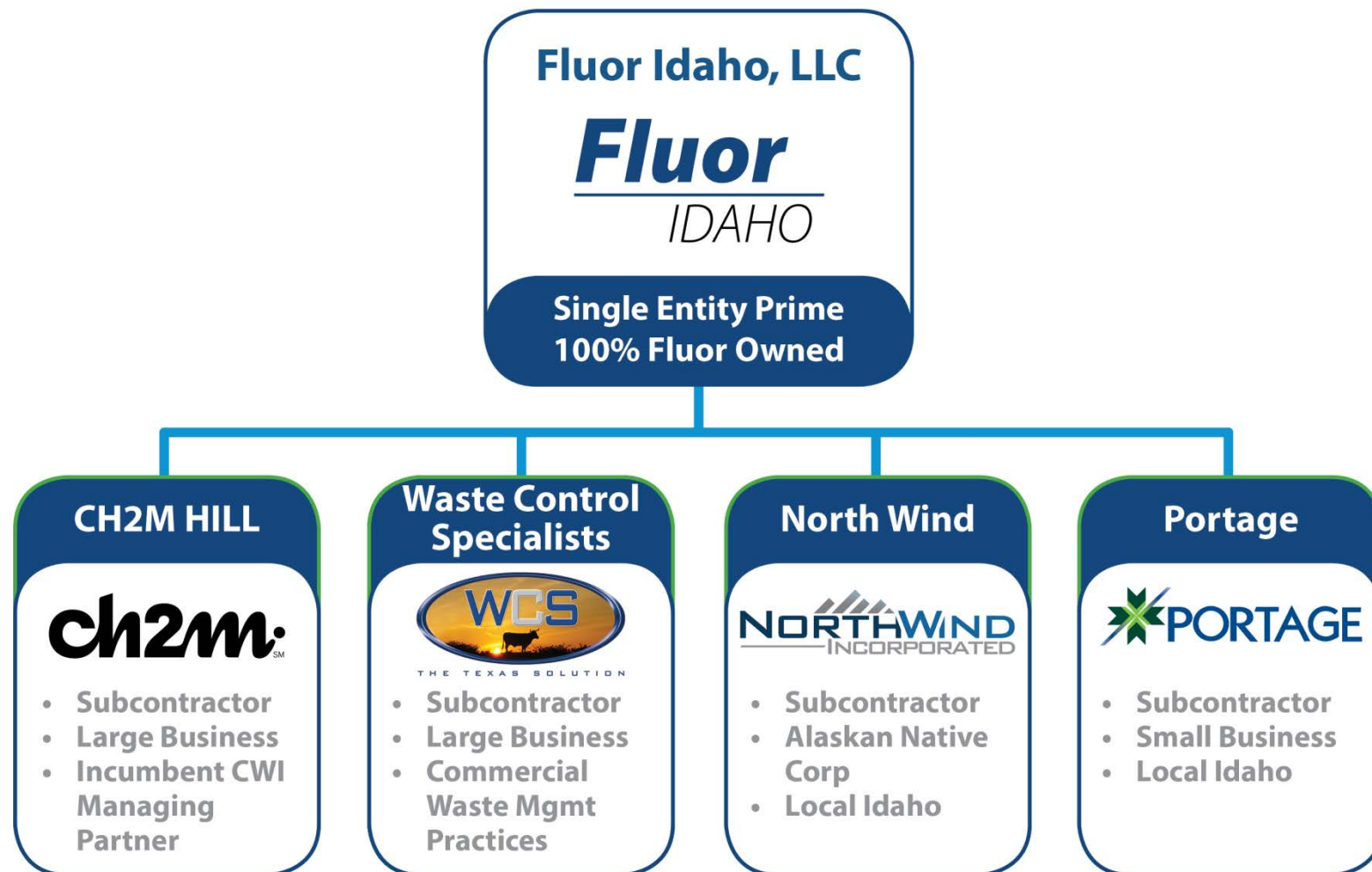


Environmental & Nuclear

Greg Meyer

- Strategic Petroleum Reserve, LA (Fluor Federal Petroleum Operations)
- Portsmouth Decontamination & Decommissioning Project, OH (Fluor-BWXT Portsmouth)
- Paducah Deactivation Project, KY (Fluor Paducah Deactivation Project)
- Idaho Cleanup Project, ID (Fluor Idaho)***
- Savannah River Site M&O, SC (Savannah River Nuclear Solutions)
- MAGNOX, 12 nuclear sites across UK (Cavendish-Fluor Partnership)
- Canadian National Labs/Atomic Energy of Canada, Ltd., Canada (Canadian National Energy Alliance)

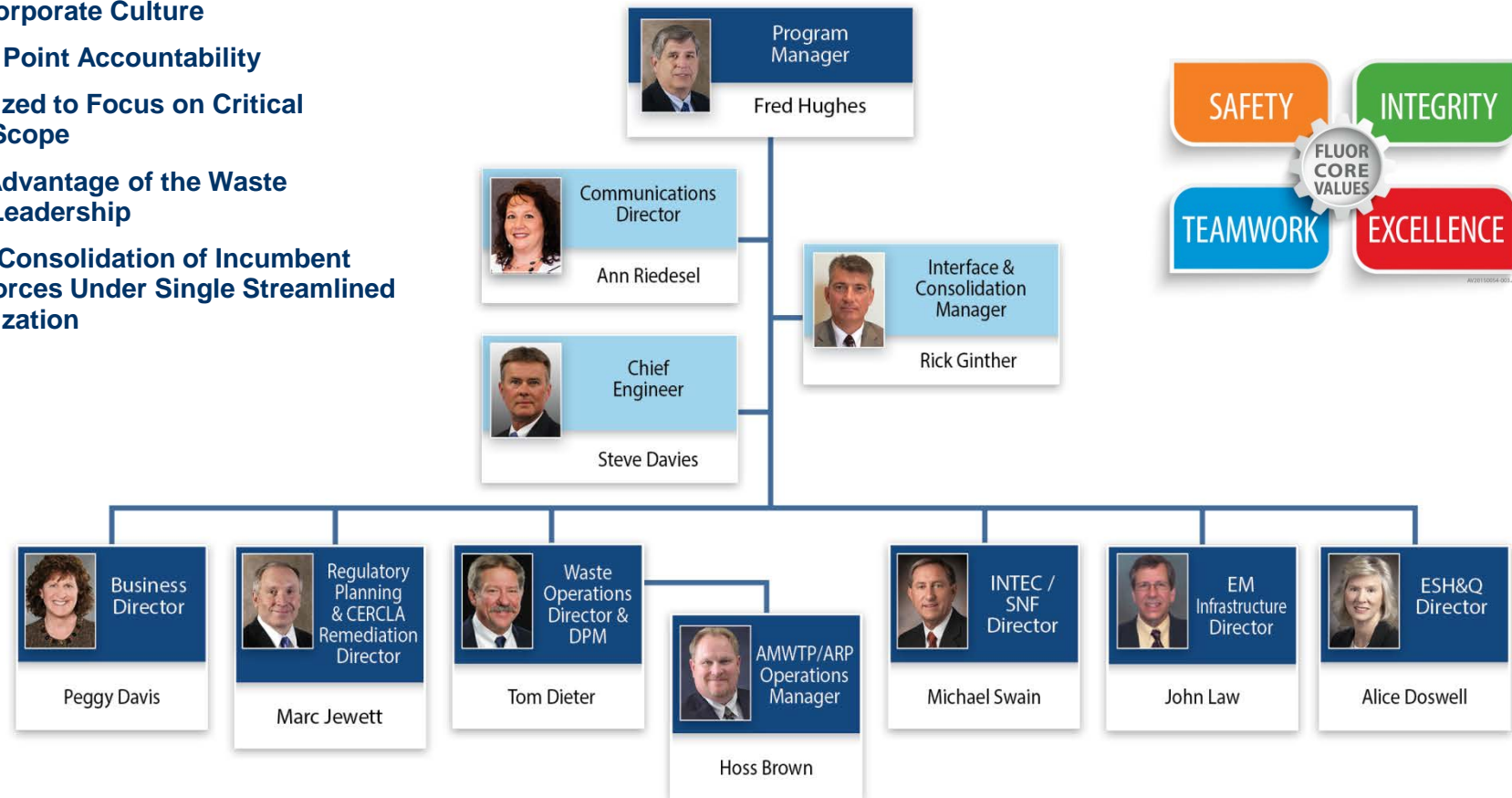
Fluor Idaho Team



Fluor Idaho Leadership Team

Benefits:

- ◆ One Corporate Culture
- ◆ Single Point Accountability
- ◆ Organized to Focus on Critical Work Scope
- ◆ Take Advantage of the Waste Triad Leadership
- ◆ Quick Consolidation of Incumbent Workforces Under Single Streamlined Organization

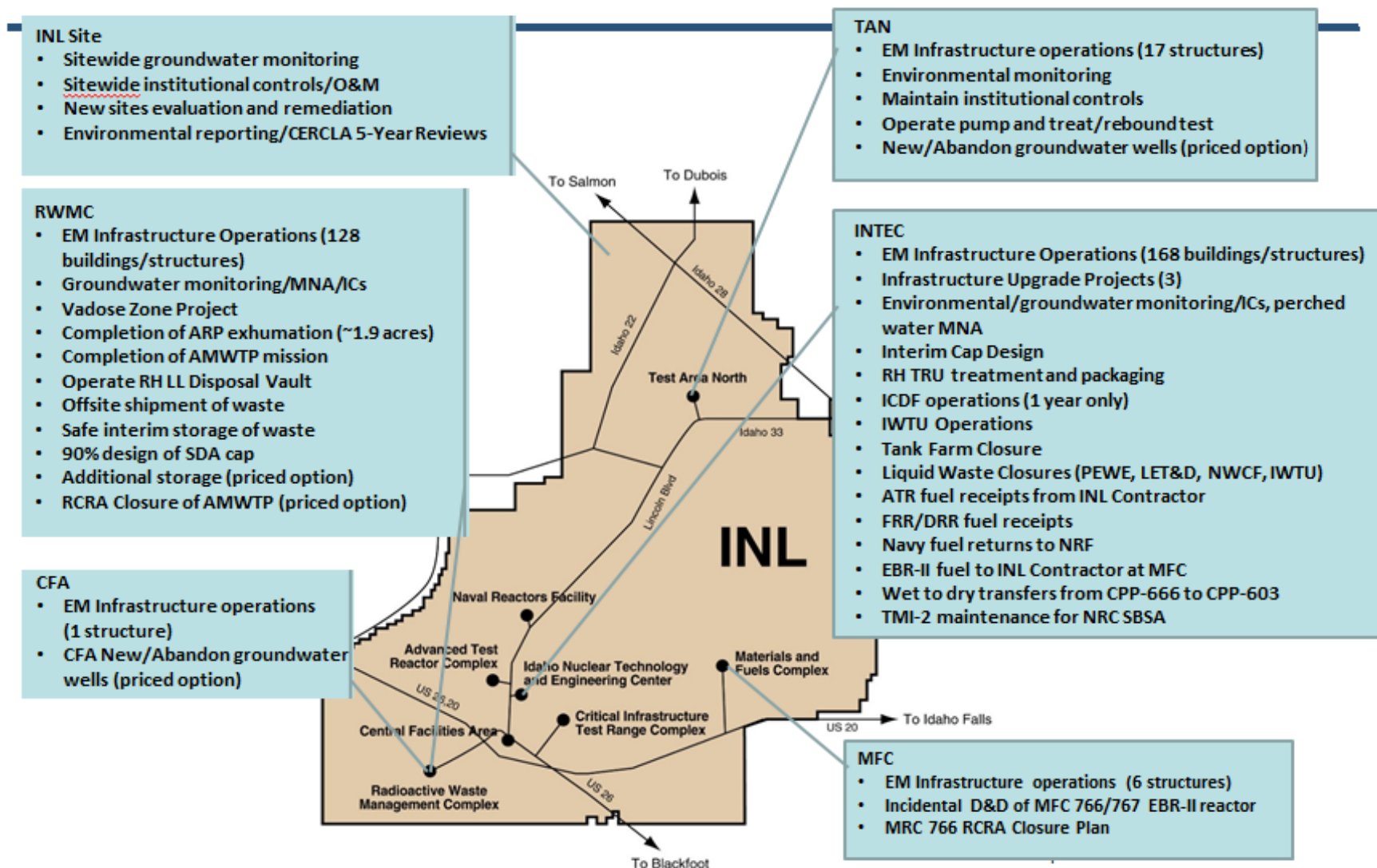


Management Imperatives

- ◆ Treat incumbent employees with respect, recognizing them for their accomplishments
- ◆ Demonstrate a safety mindset
- ◆ Produce high-quality work
- ◆ Ensure contract-based decision-making
- ◆ Keep all commitments
- ◆ Integrate two incumbent processes where possible – plan for completion
- ◆ Collect the data necessary for the contract execution baseline
- ◆ (Communicate)³ – incumbents, the customer, stakeholders



Fluor Idaho Scope – Completing What Was Started Early



Human Resources

- ◆ **Offers to represented employees (USW, OE, & Teamsters) on March 28**
 - 764 distributed with 99% signed and 3 declined
- ◆ **Offers to non-represented employees completed May 6, 2016**
 - 732 “rollover” positions; less than 20 excess positions
- ◆ **142 staff augmentation positions filled through partner subcontractors effective June 1, 2016**
- ◆ **Approximately 200 subcontracts transitioned to Fluor Idaho effective June 1, 2016**

Less than 20 employees did not find a position with Fluor Idaho

Consolidation of Work Scope

◆ Consolidation of two contracts

- Objective: Combine all waste operations under Waste Ops Director, Tom Dieter
 - Provides strong continuity for achieving ISA milestone
 - Builds on reunited focused leadership triad
 - Hughes – Program Leadership with Clear Goals & Safety Expectations
 - Dieter – Safe Execution/Performance/Integration/Focus
 - Brown – Safe Driven Productive Operations
- Phased approach
 - Early engagement with unions and workers
 - Create collaborative and mutually beneficial work arrangement
 - Worker involvement in assessment and optimization to implement “best of best” procedures, systems, and tools
- Business and program management system consolidation
 - Adopt and adapt best practices of both CWI and ITG systems where practical
 - Use CWI EVMS to streamline Fluor Idaho certification
- Challenge/Opportunity
 - Combining CWI and ITG into one contract and one entity

ESH&Q

- ◆ ESH&Q programs very mature
- ◆ Strong safety culture with employee involvement
- ◆ Permit transfers occurred smoothly and approval received from DEQ
- ◆ Both AMWTP and ARP radiation protection programs have state-of-the-art practices that will complement one another
- ◆ Incumbent QA program strong
- ◆ Received certification approvals from Carlsbad and NNSA supporting ongoing shipping

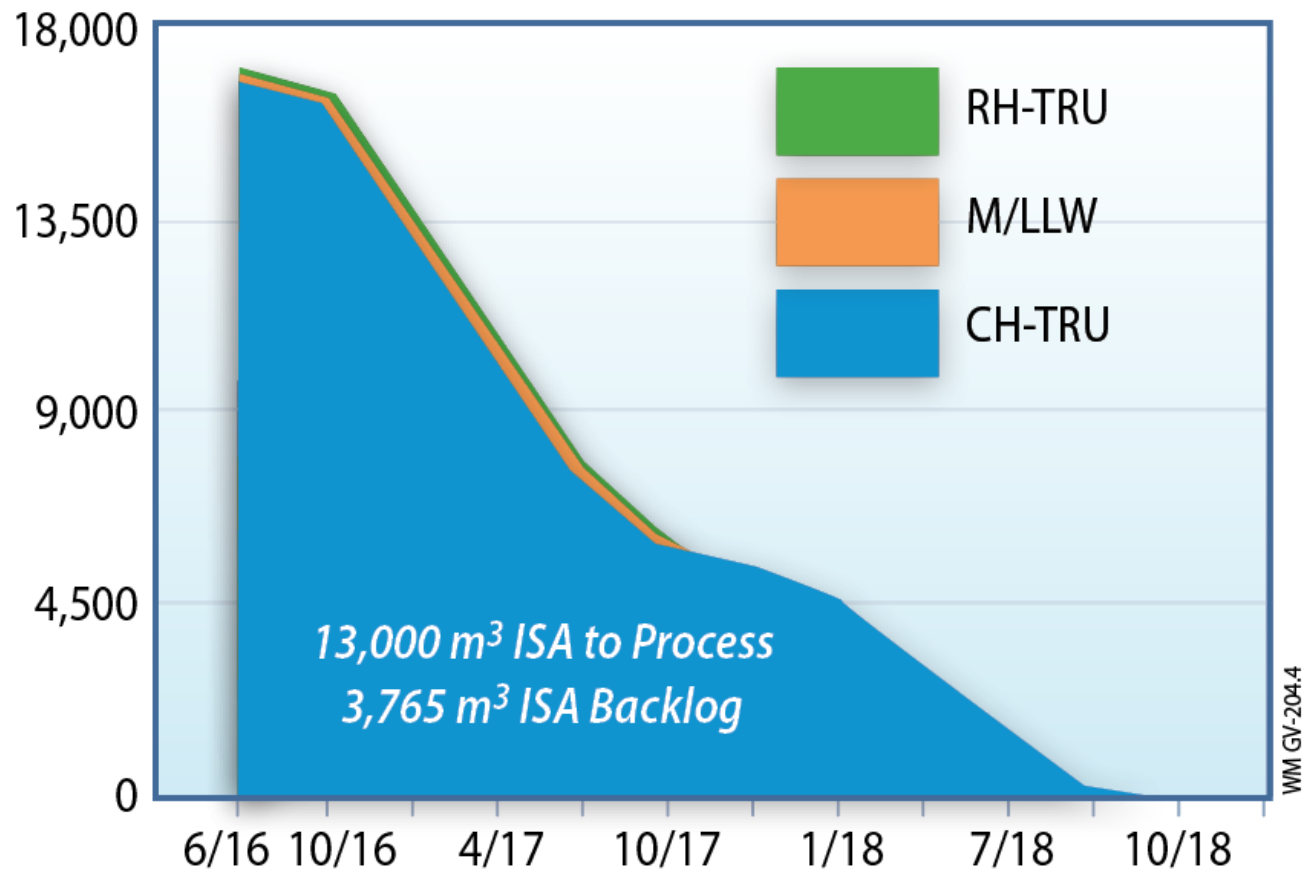


RWMC Waste Management

- ◆ Facility is now identified as the Radioactive Waste Management Complex (RWMC), not ARP or AMWTP
- ◆ Contact-handled waste in inventory at contract start identified as 11,495 m³
- ◆ WIPP and NNSA certifications transferred to Fluor Idaho
- ◆ Collaborating with USW and OE unions to develop approach to increase flexibility and improve productivity through use of combined crews on pilot work scopes
- ◆ Upgrading critical plant equipment in the AMWTP treatment facility (Brokk robots, hydraulics, software)



Legacy Waste Work-Off Curve



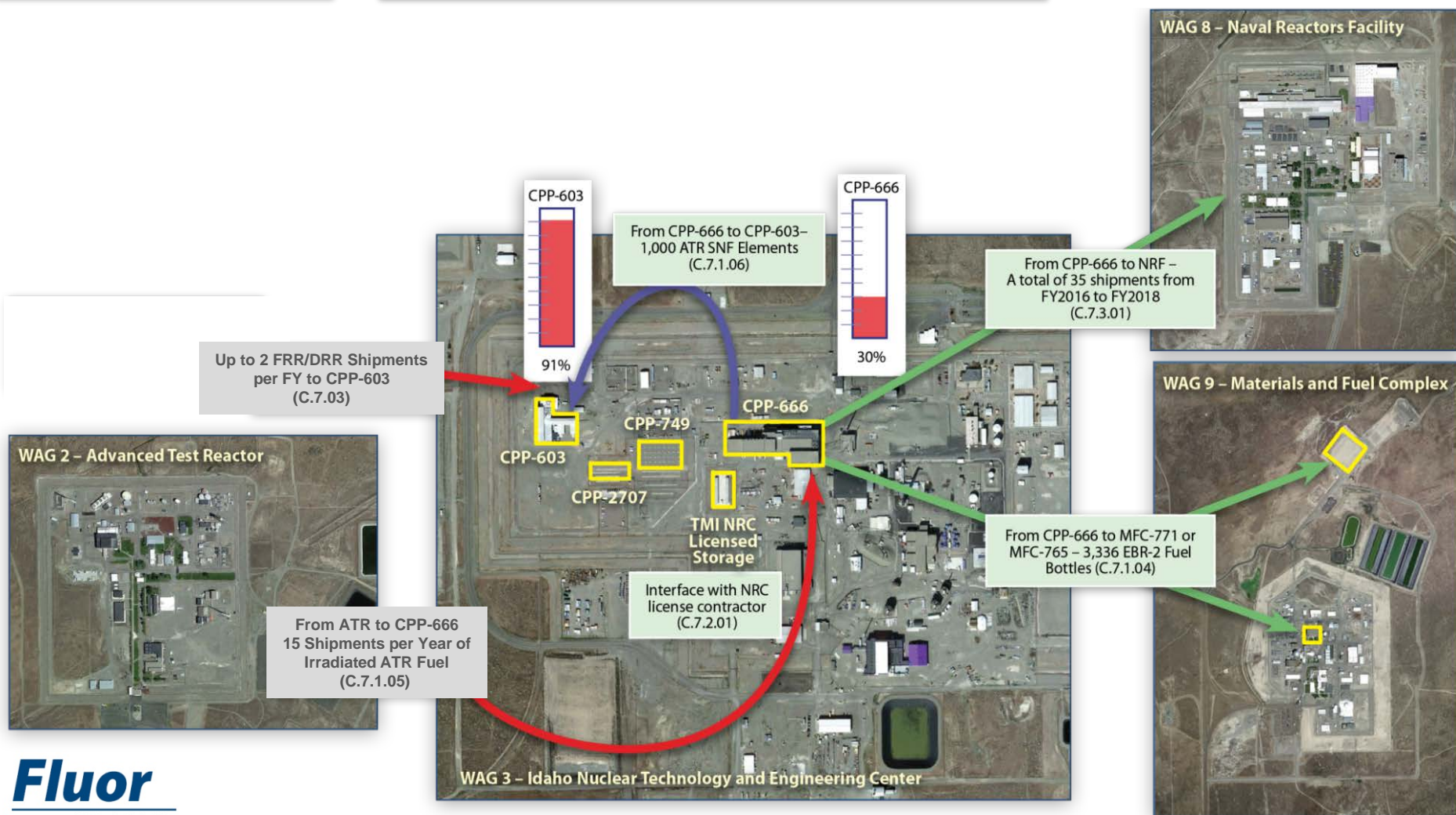
(estimates from RFP)

Spent Nuclear Fuel (SNF) Scope

- ATR receipts
- FRR/DRR receipts

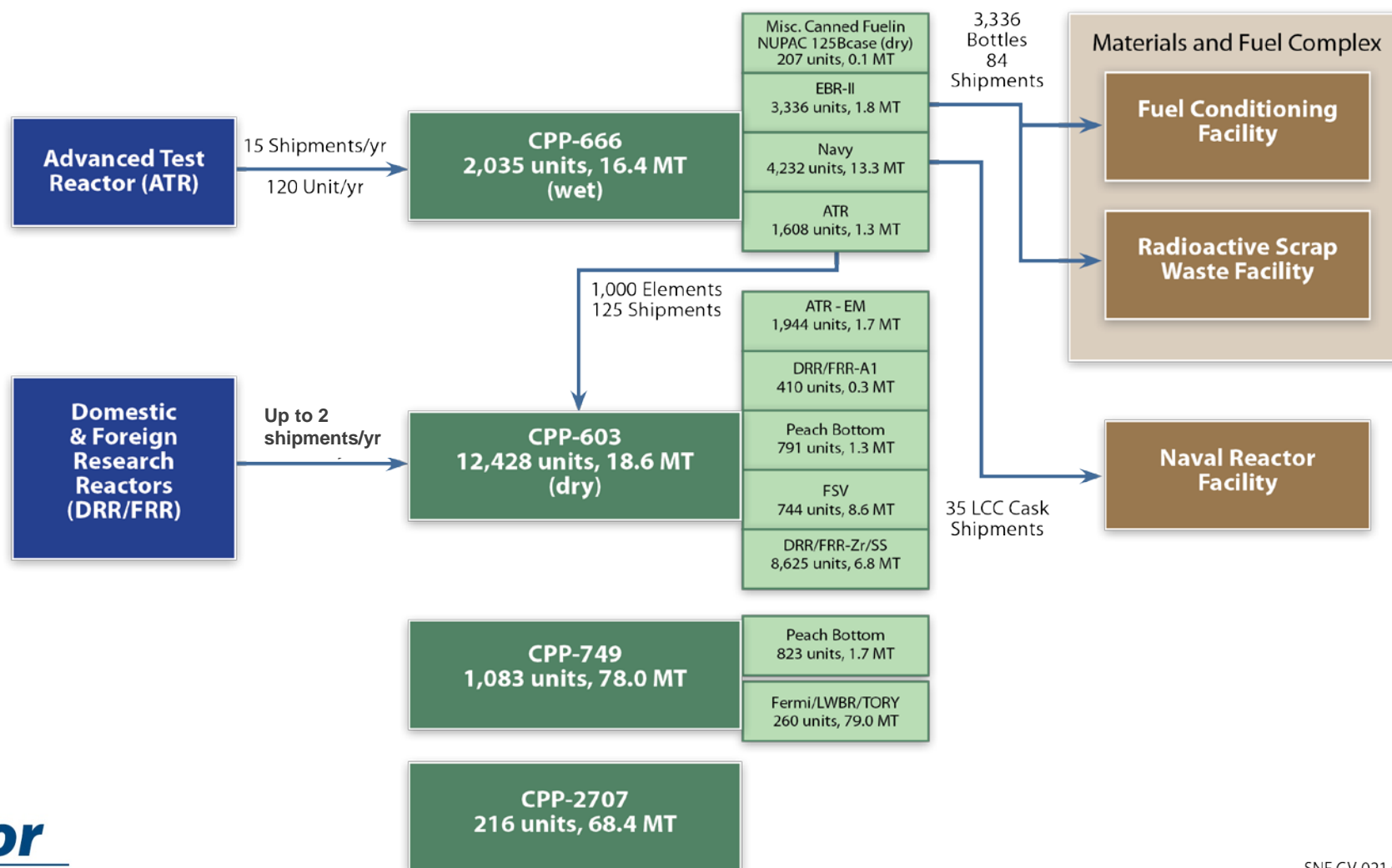
- Dry storage (CPP-603, 749, 2707) = 166 MT
- Wet Storage (CPP-666) = 16.5 MT

- EBR-II transfer to MFC
- ATR wet to dry transfer
- Navy transfer to NRF



SNF Flow

SNF Storage Facilities (182.5 MT)



EBR-II Transfers



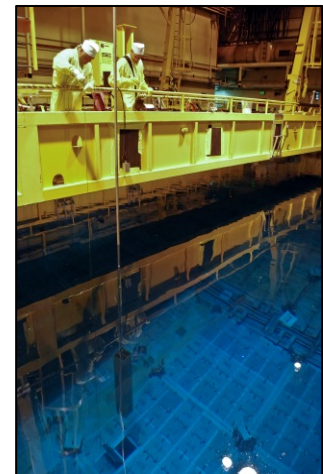
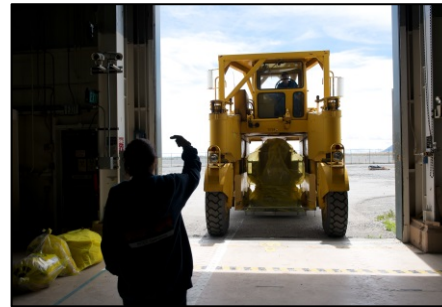
- Interim storage at RSWF pending treatment in the Fuel Conditioning Facility at MFC
- 3,336 bottles remain in CPP-666 and must be removed prior to 2023



By June 30, 2020, transfer 3,336 bottles of EBR-II SN to Materials and Fuel Complex for treatment or placement in the Radioactive Waste Storage Facility.

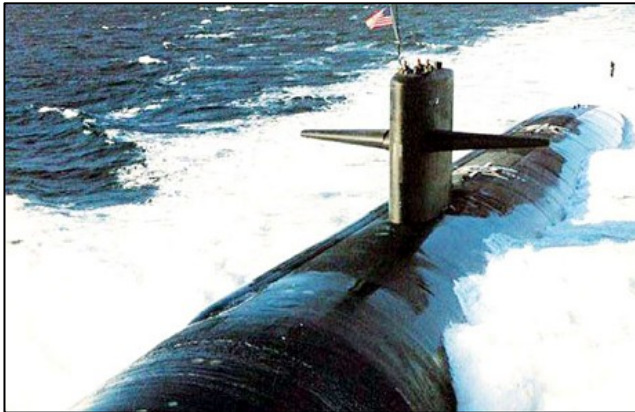
ATR Fuel Receipts and Transfers

- 15 shipments per year each containing 8 elements are received at CPP-666 for placement in wet storage
- ATR expected to operate through at least 2025
- Eligible fuel must be transferred to dry storage by 2023

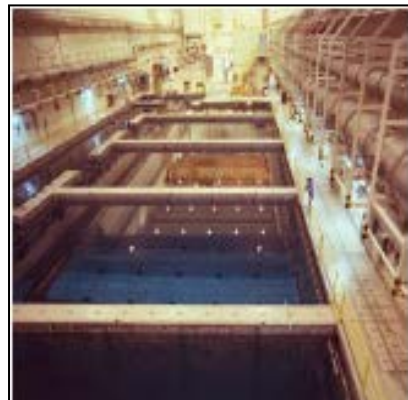


Receive 15 shipments (120 elements) from ATR to storage in CPP-666
By June 30, 2020, transfer 1000 elements of ATR SNF from CPP-666 basins to dry storage at CPP-603

Navy Fuel



- ICP receives funding from NNPP to store naval reactors spent fuel at CPP-666
- Ultimate disposition path is repackaging at NRF for disposal in a geologic repository



By June 30, 2018, retrieve, load the cask, and place cask on trailer for departure of all NNPP SNF currently stored in the INTEC CPP-666 fuel basins (35 cask shipments)

TMI-2 ISFSI



**Establish interface agreement
with NRC license contractor for surveillance
and monitoring, utilities, office space, general
infrastructure support, and emergency
management.**

Spent Nuclear Fuel Management

◆ Approach to SNF Management

◆ Build upon existing proven assets

- Maximize use of existing proven processes, procedures, and personnel for routine transfers
- Engage staff in process review and continuous improvement feedback
- Maintain material control and accountability and security compliance

◆ Establish structure for efficient project delivery

- Establish champions for 1) facilities, 2) fuel types, and 3) day shift CPP-666 floor coordination to ensure efficiency
- Initiate 24/7 SNF operations early in the contract
- Optimize use of facilities, shipping casks, and mobile equipment to facilitate parallel path transfer operations

Spent Nuclear Fuel Management



◆ Increase SNF dry storage options

- Utilize CPP-749 for portions of ATR wet to dry work
- Utilize RSWF for EBR-II canister dry storage

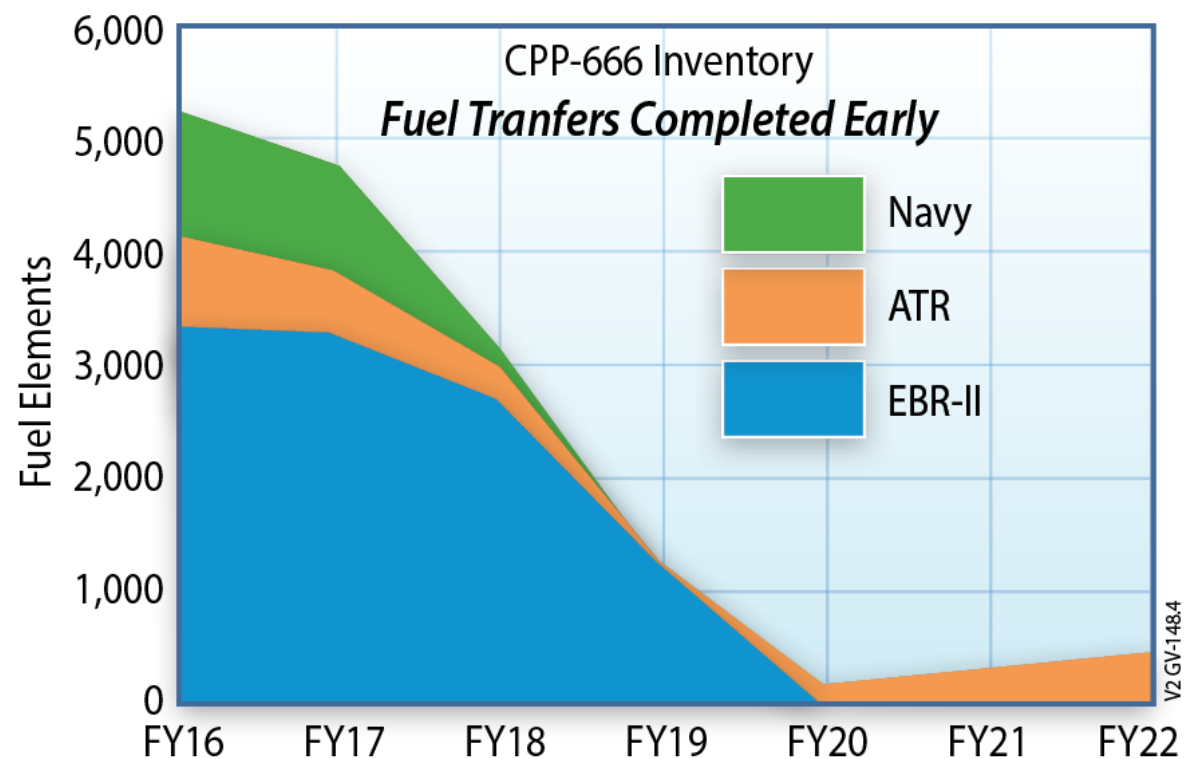
◆ Establish keen focus on work integration and transfer planning

- Integration of waste activities with fuel prep/movement activities
- Install dedicated interface management
- Implement an Integrated Fuel Transfer Schedule
- Establish dedicated CPP-666 production manager to integrate RH TRU

Spent Nuclear Fuel Transfers

◆ Deploy innovation and best industry practices

- Utilize commercial nuclear transfer experience
- Utilize skid-mounted vacuum drying systems
- Deploy portable cannistering capability in CPP-666 for preparing EBR-II fuel for dry storage



Liquid Waste Facility Closure

◆ Strategic Approach

- Manage Liquid Waste Scope as Independent Projects with Interface and Critical Integration Points
- Optimize Resources to Implement Efficiencies in Parallel
- Incidental D&D Performed By Waste Operations
- Operate IWTU in a Campaign Mode to Treat 900,000 gallons of SBW following startup/commissioning
- Capitalize on Use of Existing INTEC Tank Farm Staff With Entombment Experience
- Liquid Waste Facility RCRA Closure
 - INTEC Tank Farm
 - ILWMS
 - NWCF
 - IWTU

Environmental Restoration

- ◆ **Soil and groundwater restoration**
 - Test Area North Groundwater Plume
- ◆ **Newly identified waste sites**
- ◆ **Environmental data warehouse**
- ◆ **Management of institutional control sites**
- ◆ **Process for managing ordnance discovery and recovery**
- ◆ **Ultimately, capping key areas of INTEC and RWMC**
- ◆ **FY2016 work scope after June 1: 21 remaining deliverables; all are on track for completion in FY2016 as scheduled**

Environmental Restoration Approach

- ◆ Adopt, and then adapt and evolve, the current CERCLA remediation program
- ◆ Maintain compliance with the in-place Records of Decision (RODs) and existing agreements/milestones
- ◆ Identify opportunities for streamlining, efficiency, & process improvement
- ◆ Promote Integrated Teams to resolve issues, drive innovations, and gain acceptance of proposed strategies
- ◆ Recognize where scope is positioned within DOE's priorities & funding
- ◆ Assist the other project teams with their strategic regulatory negotiations and key regulatory document submittals.

“...the main concern

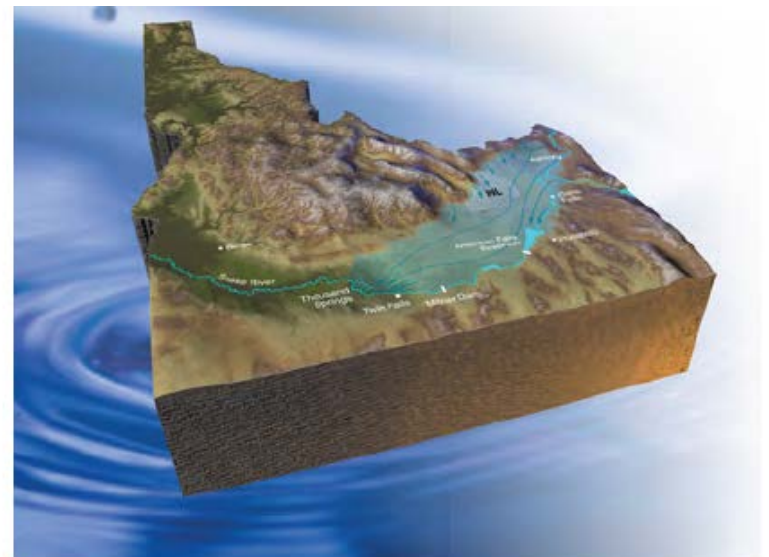
is protection of the aquifer, the environment, and just

everything that makes life whole.” - Willie Preacher,

2010.

Environmental Restoration Highlights

- ◆ **Implement Remediation Process Optimization (RPO) techniques to help realize efficiencies and cost reductions – Targeting:**
 - **Subsurface Disposal Area (SDA) Cap Design**
 - **Remedial System Operations**
 - **Monitoring Locations, Parameters, Frequencies, & Reporting**
 - **Strive for early shutdown of operating systems and seek DOE/regulatory approval for identified streamlining opportunities**
- **Maintain continuity of operations and leverage current ICP experience**
- **Communicate early, frequently, and transparently with regulators and stakeholders – following DOE's lead**
- **Apply experience and lessons learned from other DOE/commercial sites to optimize engineered cap design, construction, and performance**



Communications During Transition

◆ Focused on Getting Information to Employees

- Transition website (internal & external), employee hotline and e-mail contact established early
- Weekly updates from Program Manager to employees during transition
- Series of six Town Hall Meetings to provide more information to employees
- Partnership formed with client (Alignment Workshop, “Two Sides of the Coin” Training, Partnering Agreement, routine group and 1-on-1 meetings)
- Early and ongoing communications with labor union representatives
- Initiated meetings with key stakeholders including elected officials, community leaders, and INL site leadership
- Started implementation of Community Commitment Plan including sponsoring and participating in local events, grant program submittal for local program, and getting involved in local organizations



Communications During Contract Execution

- ◆ **Day 1 & 2 focused on welcoming employees to Fluor Idaho**
 - Day 1: Focus on work groups and new management team, and conduct initial orientation and training
 - Day 2: Employee activities centered on significant contract work objectives under “One Mission – One Fluor – One Site”
- ◆ **Continuing communications with labor union representatives**
- ◆ **Implementation of Community Commitment Plan supporting:**
 - **Economic Development**
 - **Education**
 - **Community Contributions**
- ◆ **Frequent communications with stakeholders including elected officials and community leaders**



Integrated Waste Treatment Unit (IWTU)

- ◆ **Focus:** Get IWTU operational as quickly and as simply as possible while ensuring safe, predictable, and reliable operations
- ◆ **Outlined Fluor Idaho's approach in DOE's Fluidized Bed Workshop (4/27/16)**
- ◆ **Established advisory group of experts from national laboratories, academia, and industry**
- ◆ **Conducting modeling and bench- and small-scale testing at a separate test facility**
 - Subsequent larger-scale integrated tests will also be conducted
- ◆ **Assessing components within IWTU system to resolve operational limitations and verify conditions for safe, ongoing operations**



IWTU Project Foundation

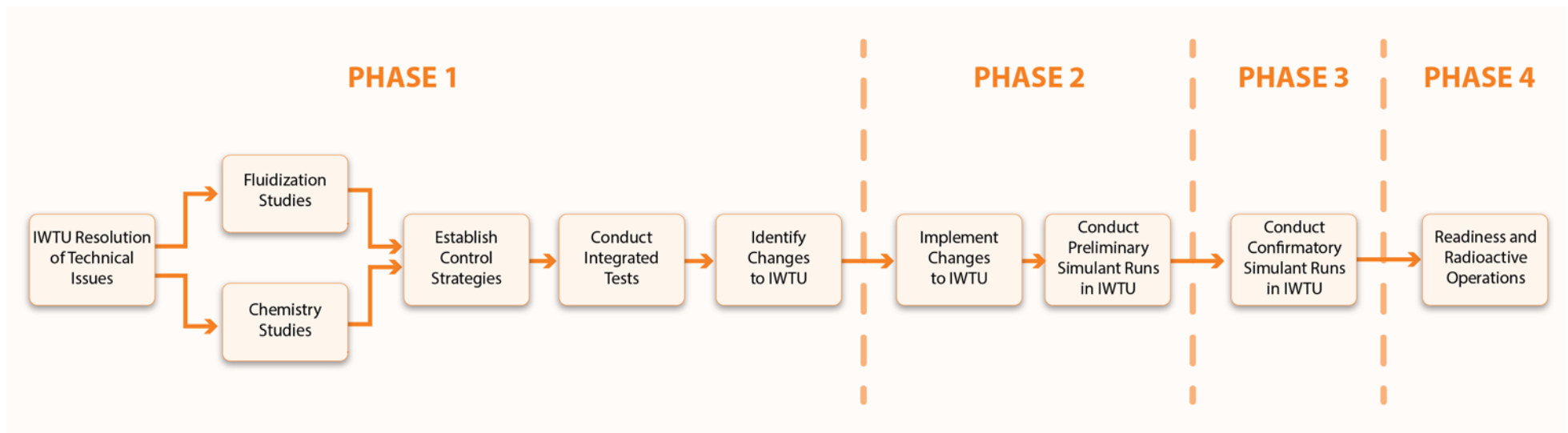
- ◆ Systematic mechanistic approach underpinned by scientific principles
- ◆ Supported by leading experts in Fluidized Bed Reactor technology
- ◆ Involves nationally recognized R&D laboratories, technology's inventor and commercial expertise from Fluor's Energy & Chemical business line
- ◆ Objective is to establish nominal operational parameters and process-control strategies



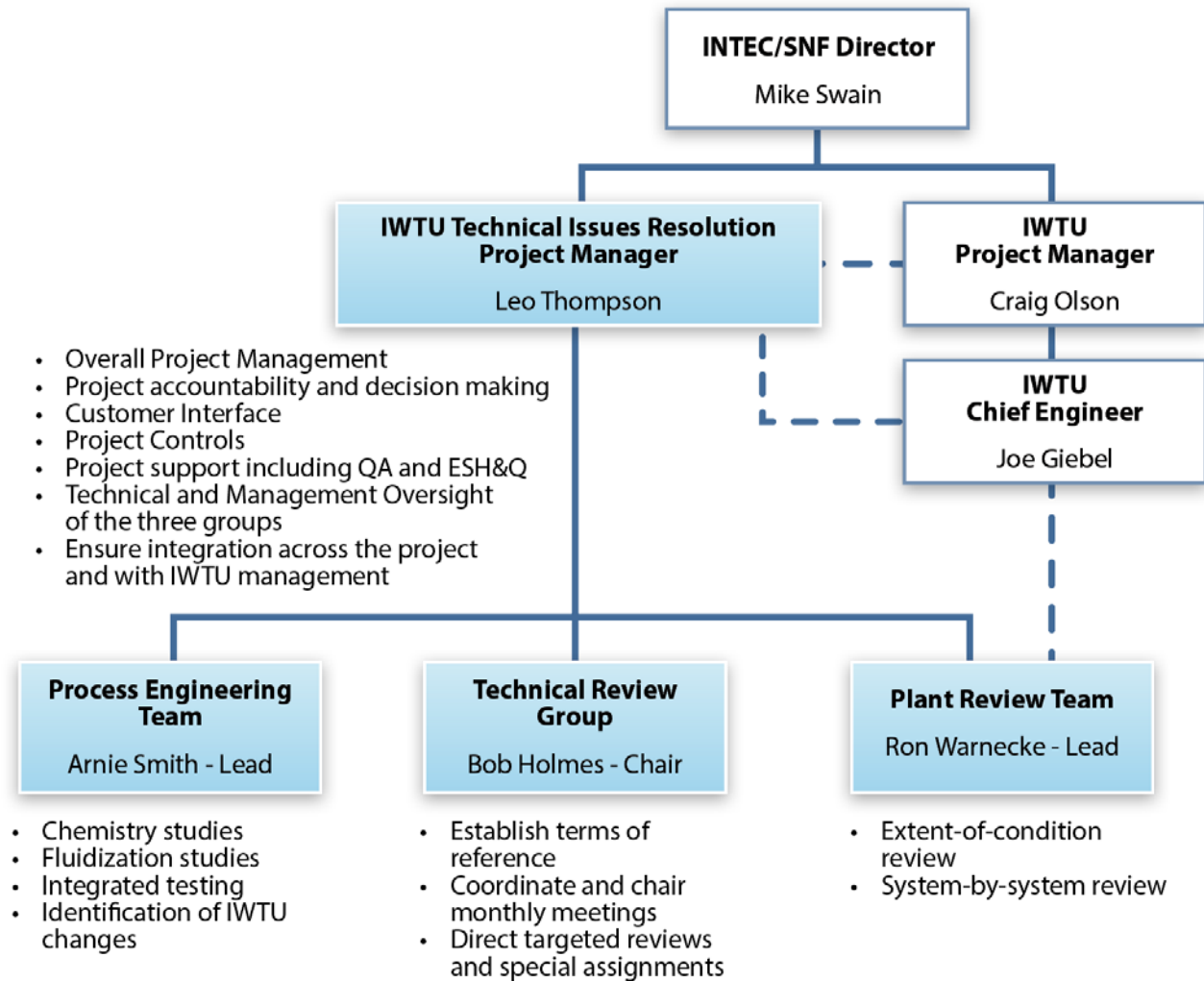
IWTU Approach

◆ Overall Project Workflow

- Systematic progression of activities
- 4 Phases building on results of earlier phases
- Initiated with focus on confirming operating principles



IWTU Project Structure



Idaho Cleanup Project 2021 End State – Complete what has been started

- ◆ Transuranic waste is certified, in compliant storage and being shipped to WIPP
- ◆ All spent fuel is in dry storage configuration
- ◆ IWTU has completed processing the 900,000 gallons of Sodium Bearing Waste and is in standby
- ◆ Liquid waste systems at INTEC are drained, flushed and RCRA compliant
- ◆ Cap design for the Sub-surface disposal area is designed
- ◆ Buried waste retrieval project at RWMC is complete



Summary

- ◆ Fluor Idaho is honored to have been selected to deliver the Idaho Cleanup Project Core Mission
- ◆ The incumbent employees with DOE support have earned an enviable reputation for the work they have done safely at this site.
 - We will build on their proud tradition of safety, environmental excellence, and customer satisfaction to continue and accelerate cleanup progress.
- ◆ We will deliver on our commitments to the DOE, the INL and the state of Idaho addressing the difficult challenges remaining in the cleanup program

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