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Effluent Treatment Facility Process Systems Overview

We do the right thing.



D.C. Bumgardner

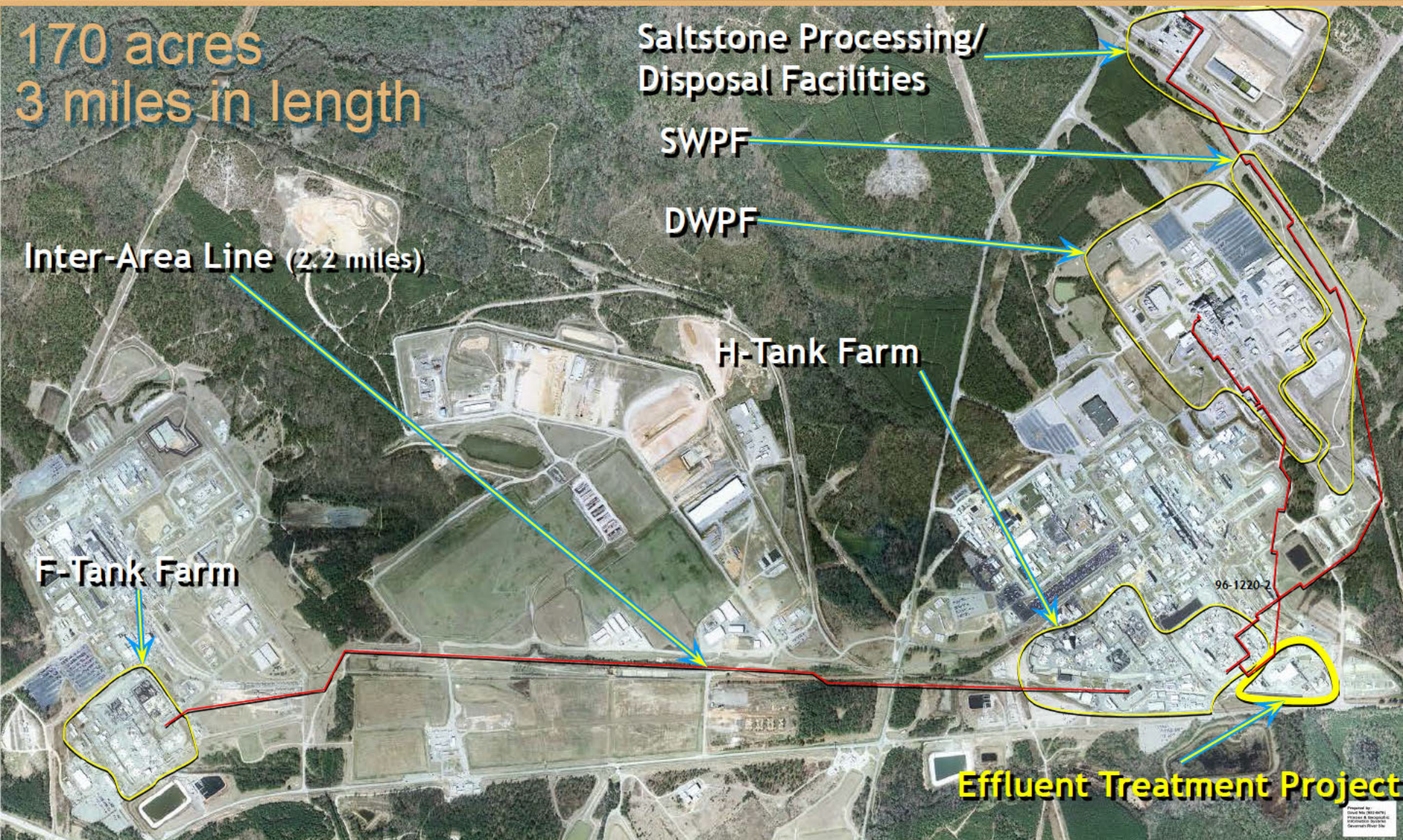
SRS Citizens Advisory Board
August 4, 2015

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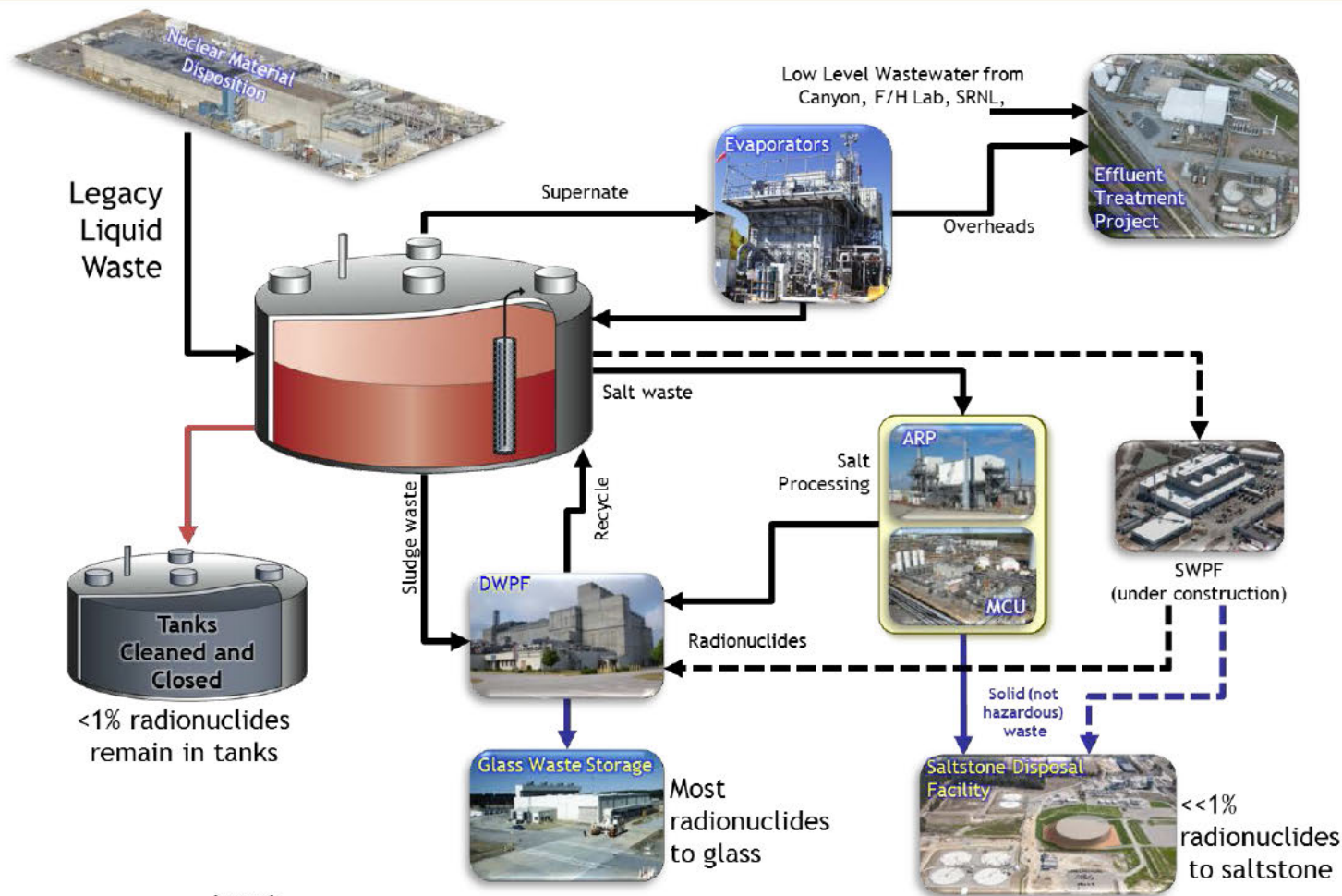
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- Provide an overview of the Effluent Treatment Facility

Liquid Waste Facilities



Liquid Waste Facilities



Legend:

- ARP Actinide Removal Process
- BWRE Bulk Waste Removal Efforts
- DWPF Defense Waste Processing Facility
- MCU Modular Caustic Side Solvent Extraction Unit
- SWPF Salt Waste Processing Facility

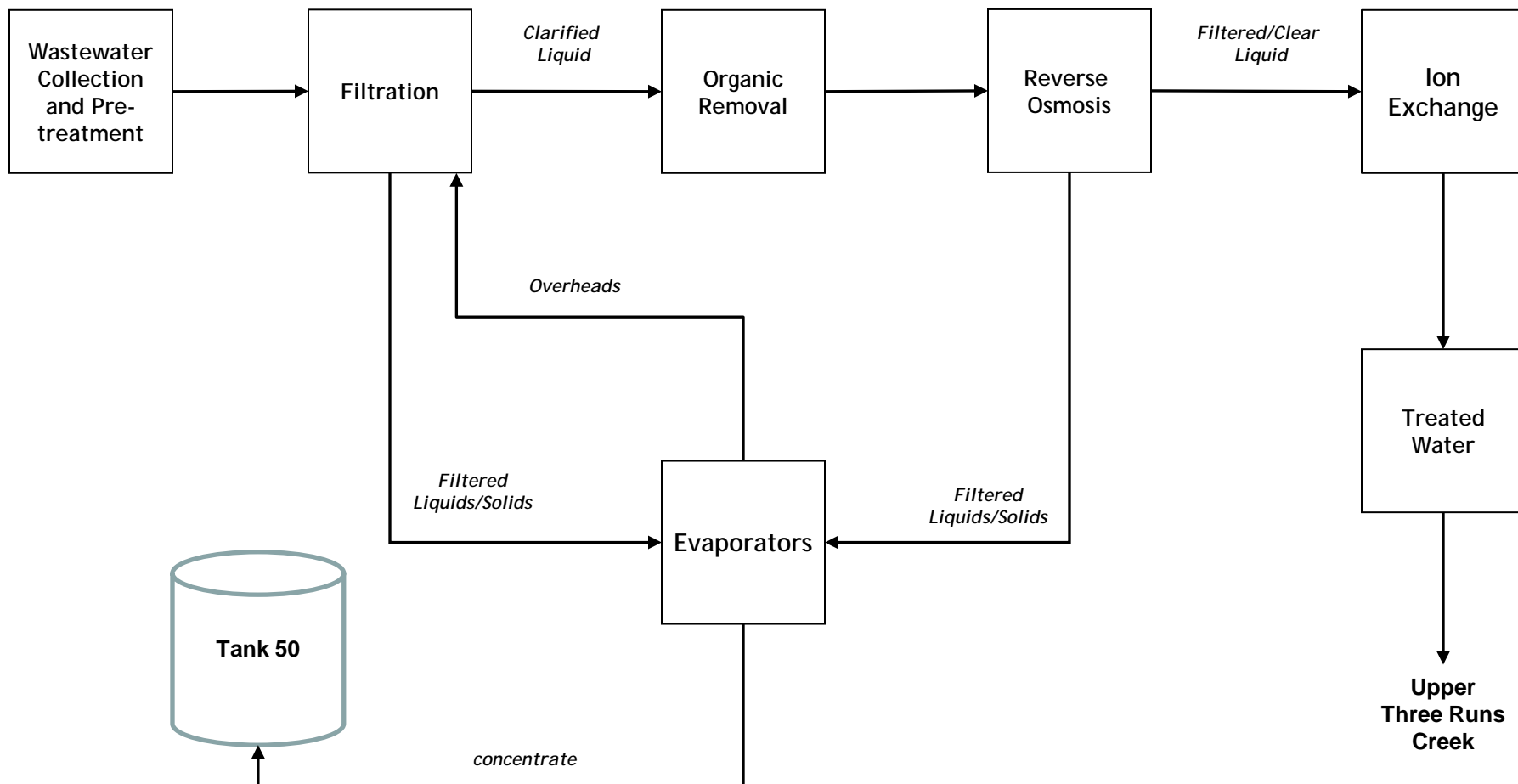
Effluent Treatment Facility



- The Effluent Treatment Facility (ETF) treats low-level radioactive wastewater from the F and H Area separations and waste management facilities to remove chemical and radioactive contaminants before releasing water to the Upper Three Runs Creek

ETF Treatment Process Overview

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ETF Basin Systems



- Basins collect potentially contaminated liquids from storm water run off and cooling water diversions from F and H Areas
- After sampling and analysis, liquids from the basin are pumped either to ETF for treatment, or Four Mile Creek

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- Two 450,000 gallon waste water tanks receive low level wastewater
- Pretreatment consists of adjusting the wastewater chemistry so that particles can be filtered

ETF Filtration System



- The filtration system removes particles from the wastewater
- After filtration the clear liquid is sent to organic removal and the solution of particles is sent to the Evaporator System.

ETF Organic and Mercury Removal



- The organic and mercury removal system consists of chemical columns that remove organics and mercury
- After organic and mercury removal the liquid is transferred to the Reverse Osmosis System

ETF Reverse Osmosis Filter Train



- The reverse osmosis system removes dissolved solids from the wastewater
- The clear liquid is transferred to Ion Exchange and solution containing solids is sent to the Evaporator system.

ETF Ion Exchange Columns



- The ion exchange system removes residual heavy metals, radioactive contaminants from the wastewater.
- After ion exchange treatment the wastewater is transferred to the treated water system.

ETF Treated Water Tanks



- The ETF Treated Water Tanks store water following completion of processing.
- After sampling shows the treated water meets release requirement the treated water is discharged to Upper Three Runs Creek

ETF Evaporator System



- The ETF evaporator system reduces volume of waste from the ETF process.
- The concentrated waste is transferred to Tank 50 and then to Saltstone

Effluent Treatment Facility (ETF)

1989 - 2015

ETF

Receipts from
Tank Farms,
Canyons & SRNL



280 Mgals of water
treated, released at
drinking water standard

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ARP - Actinide Removal Process

BWRE - Bulk Waste Removal Efforts

DWPF - Defense Waste Processing Facility

MCU - Modular Caustic Side Solvent Extraction Unit

SWPF - Salt Waste Processing Facility