ARP / MCU
Status Briefing

Status Briefing to the Citizens Advisory Board

Date: November 16, 2010

Presenter:
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Savannah River Remediation, LLC
SRR-TFO-2010-00104
Liquid Waste Flowsheet

Waste Removal, Tank and Associated Facilities Closure

Salt Removal
Heel Removal
Enhanced Chemical Cleaning
Chemical Cleaning
Closure Approval
Area Waste Determinations
Tank Grouting

Waste Treatment

ETF
Saltstone Feed Facility
Salt Batch Preparations
DDA Operations
SCIX
ARP/MCU
Tank 48 Disposition & Recovery
Recycle Management
Sludge Batch Preparations with Microfiltration

Base Operations

Salt Batch Preparations
DDA Operations
SCIX
ARP/MCU

H Canyon
Tank Farms

General Process Flow
Canisters
LLW
Sludge HLW
Salt HLW
Waste Influent
Interim Salt Disposition

Source Tanks
- 411 MCi
- 21
- Salt Solution

Salt Feed Tank
- 49

Bend Tank
- 42

Salt Solution

MST/Sludge
- 409 MCi (>99%)
- Cans

GWSB

DWPF
- 409 MCi (>99%)
- Cans

Strike Tank
- 96-H (ARP)

Strike Tank

512-S (ARP)

Decontaminated Salt Solution

MCU

Strip Effluent

1.4 MCi (0.3%)

Decontaminated Salt Solution

SPF
- Grout

SDF

ARP - Actinide Removal Process
DWPF - Defense Waste Processing Facility
MCU - Modular CSSX Unit
SPF - Saltstone Processing Facility
SDF - Saltstone Disposal Facility
Objectives

Using a “first of a kind” process for HLW treatment
  – Provide lessons learned to SWPF design
  – Provide limited treatment capability until SWPF Startup
“The tangible benefits of early small scale operation”
Management of key radionuclide decontamination has been demonstrated:

<table>
<thead>
<tr>
<th></th>
<th>Expected</th>
<th>Actual</th>
<th>Requirements Met?</th>
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</thead>
<tbody>
<tr>
<td>Cs-137 DF</td>
<td>&gt;12</td>
<td>&gt;200</td>
<td>✓</td>
</tr>
<tr>
<td>Sr-90 DF</td>
<td>54.4</td>
<td>&gt;200</td>
<td>✓</td>
</tr>
<tr>
<td>Pu DF</td>
<td>14.4</td>
<td>&gt;200</td>
<td>✓</td>
</tr>
<tr>
<td>MCU CF</td>
<td>12-15</td>
<td>12-15</td>
<td>✓</td>
</tr>
</tbody>
</table>

Management of organic carryover in progress:

<table>
<thead>
<tr>
<th>Decontaminated Salt Solution Carryover</th>
<th>&lt;50 ppm</th>
<th>&lt;25 ppm</th>
<th>✓</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strip Effluent Carryover</td>
<td>&lt;50 ppm</td>
<td>&lt;25 ppm avg &gt;67 ppm peak</td>
<td>✓</td>
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</tbody>
</table>

Ability to achieve sustained high throughput in progress:

<table>
<thead>
<tr>
<th>Weekly Production Rate</th>
<th>30,000 gal avg 40,000 gal peak</th>
<th>14,000 gal avg 40,000 peak</th>
<th>✓</th>
</tr>
</thead>
</table>
Actively implementing infrastructure upgrades focused on;

- Extended operation
- Continued reliability / attainment
- Deployment of next generation solvent
• Backup Slides
ISDP Downtime by Cause

As of September 1, 2010

Process Improvements/ Risk Reduction
- Solvent Controls / Monitoring
- Redundant Instrumentation
- Procedure Improvements

Reliability Upgrades (In Progress)
- Installed/operated upgraded (prototype) pump
- Procuring additional upgraded pumps

Risk Reduction:
- Alarm Response Procedures
- Salt Batch transition
- Process de-inventory
- Process anomaly

Causes

High Isopar
Lutz Pumps
Sample and Hold
Planned Facility Outage
SE Coalescer
DSS Coalescer
Instrumentation
512-S Filter
Operator Error
Vibration
512-S Chiller
Ventilation
Salt Batch Transition
Salt in Solvent Feed
Sump Pump
Contactor Cleaning
Leak in Valve Box
Cold Feed Pump
Feed Break
CMT Load