

# SRS Aligning Mission Needs and Aging Infrastructure

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*Waste Management Conference*

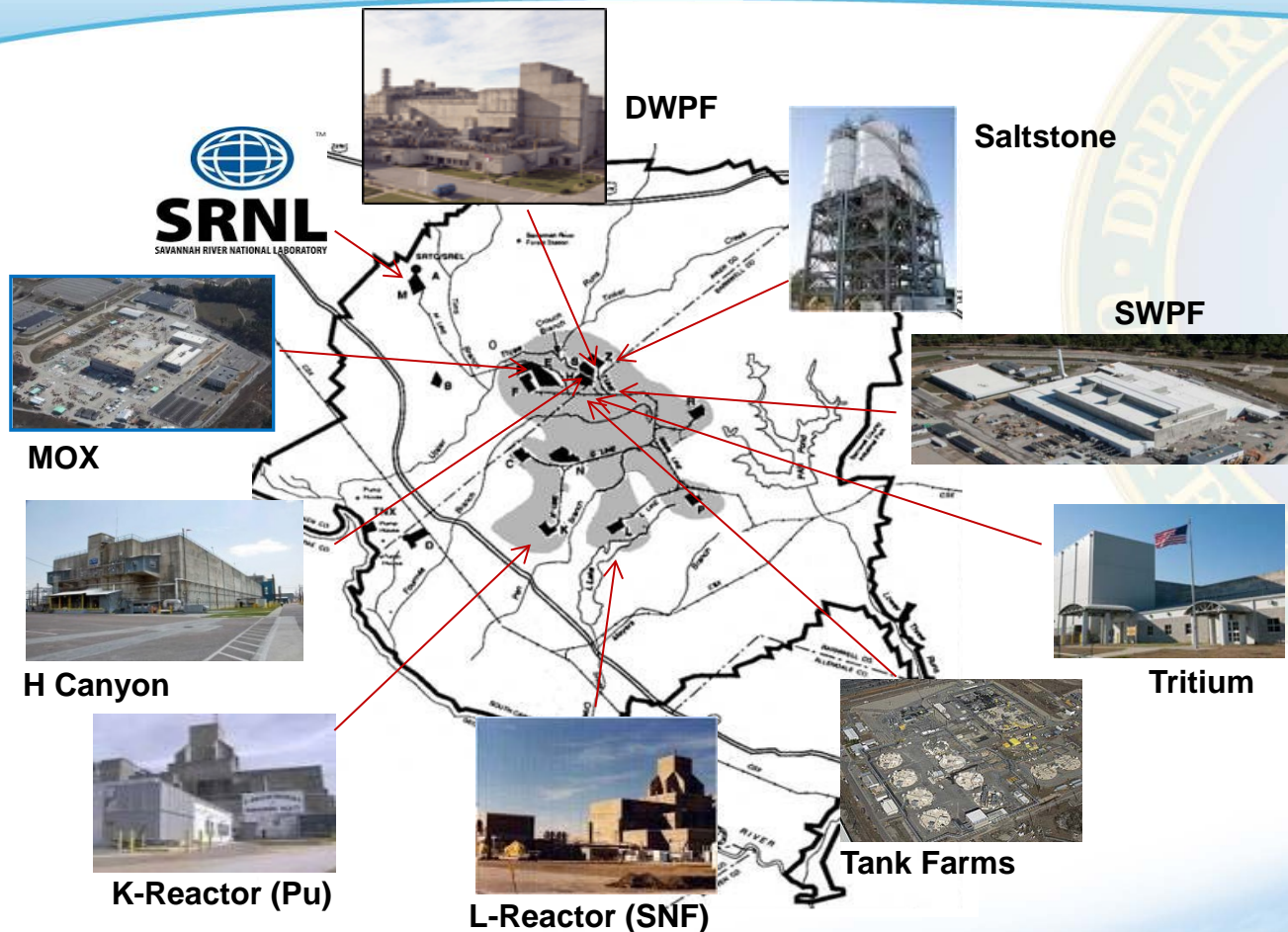
*March 17, 2015*

Savannah River Site





# SRS Infrastructure Snapshot



**2300 Assets – 35% of the EM Complex Total!**



# SRS Infrastructure Snapshot (cont'd)

**11,000** Workforce



**WATER WATER**

**2 Million**  
Gallons/day



Domestic

**1500**  
Fire Hydrants

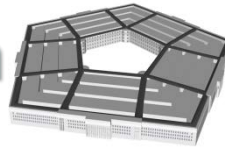


**58 Miles**



Sanitary Waste

**8 Million**  
Square Feet  
of  
Facility Space



*More than  
the Pentagon!*

**310 sq miles**  
of land area

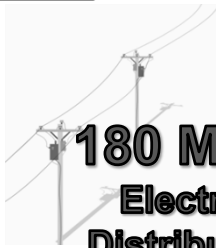
*Larger  
than  
the DC  
Beltway*



**33 Miles**  
RR Track



**180 Miles**  
Electric  
Distribution



**119 MILES**  
PAVED ROADS

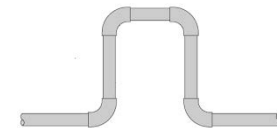
Distance from  
Washington to  
Philadelphia



**37 Million**  
Gallons  
RAD Waste in  
45 Tanks



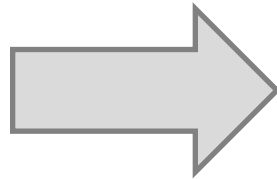
**20 Miles**  
Steam Lines



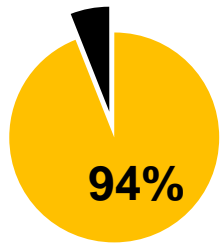


# SRS Infrastructure Challenge

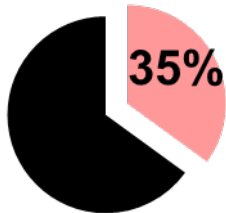
**Aging and Worn Infrastructure**



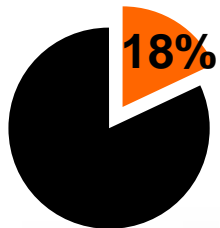
**\$324M\* Recapitalization Needed  
(Across All Programs)**



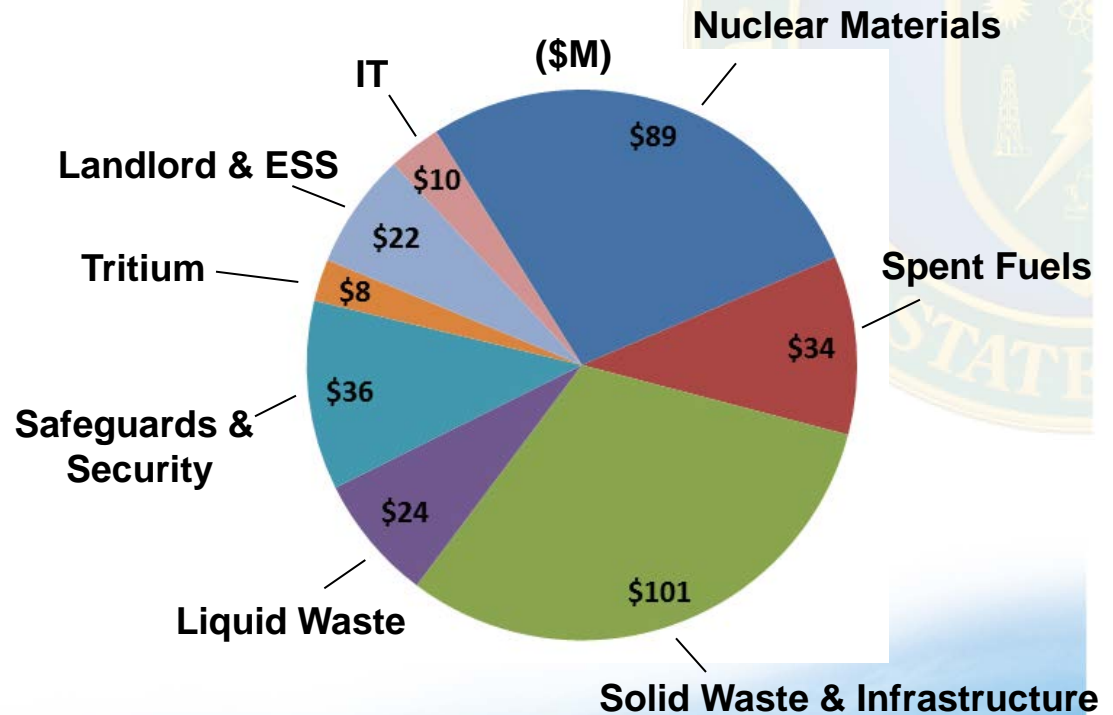
Over 20 yrs old



Over 30 yrs old



Over 40 yrs old





# Infrastructure, Funding, and Priorities

- Infrastructure

- Mission Specific
- General

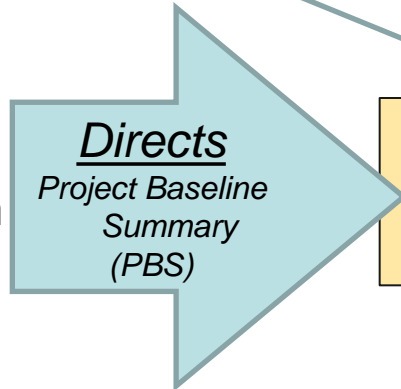


H-Canyon



River Water Pump House

- Funding
  - Program
  - Indirect



- Balancing Priorities

- Tactical Mission Accomplishment
- Strategic Infrastructure Viability



DWPF Canisters



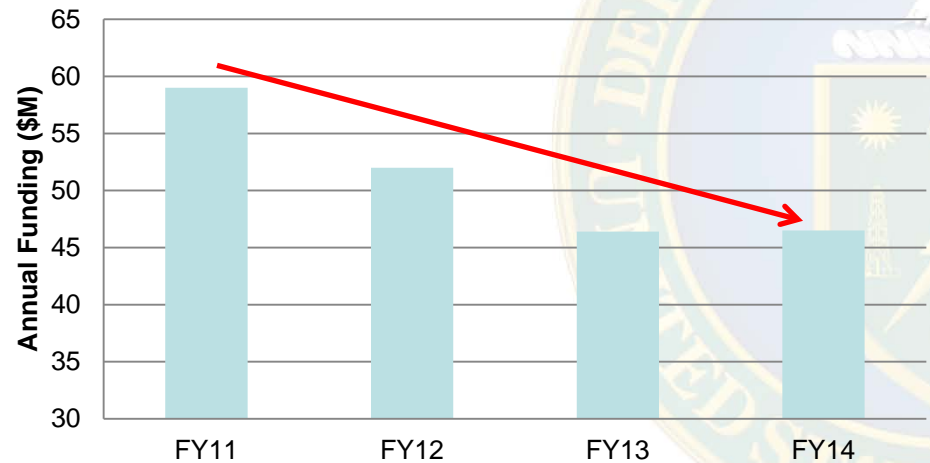
SRS C-Road



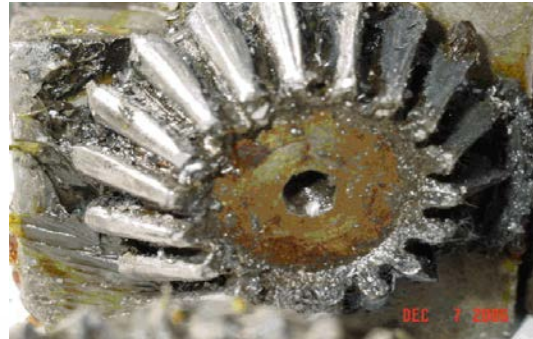
# General Infrastructure Decay

- Aged facilities (60+ years old)
- Old run to failure philosophy
- Limited funding sources
- "Stop Gap" Maintenance
- Sustainable approach challenge

### SRS General Infrastructure Funding Profile (FY11-14)



H-Area Switch Gear Roof



Electrical Breaker Worn Worm Gear



C-Road Drain Failure



# Infrastructure - System Health Results

Site Services-December 2014 System Health Dashboard (page 1/2) Status Date 12/18/2014

SS Facilities & Support		Electrical Distribution		Domestic Water		River Water	
 <b>CI IPL</b> <b>Items</b> <b>Yes</b>		 <b>CI IPL</b> <b>Items</b> <b>Yes</b>		 <b>CI IPL</b> <b>Items</b> <b>No</b>		 <b>CI IPL</b> <b>Items</b> <b>Yes</b>	
Roofs	HVAC	13.8 kVSwgear	Dist Xformers	A-Plant	Distribution	Intake	Pumps
Electrical/D.G.	Shops	Recv Tanks	Breakers	Small Systems	Instrumentation	Electrical	Misc. Equip.
Radio/Paging		Poles/OH Lines		Wells		Dist Piping	Valves
<p>Roofs: 730-1B, 730-4B, 703-47A &amp; 717-A have degraded roof membranes that require repair/ replacement. <b>703-A roof repair/replacement is complete.</b></p> <p>Radio: <b>Obsolete Controller Boards with no available spare parts.</b></p> <p>HVAC: Issues @ 717-F, 730-B, 730-1B, 730-2B, 706-N, 713-N. Chilled water automatic valves not functional &amp; no min. wall piping issues were found- 730-B, 730-1B, 730-2B &amp; 730-4B. Electrical/D.G.: 707-C backup generator is being replaced, portable installed.</p> <p>Misc.: 766-H has fire wall/fire damper issues.</p>		<p>Recv Tanks: <b>All K/L 151 Bldgs have NCRs with conditional releases per the CSE.</b></p> <p>Xformers: 151-1 &amp; 2L Station Service Xformers are degraded. 252-21H needs replaced due to poor test results.</p> <p>Breakers: 151-C Air magnetic breaker testing is trending in the negative direction. Engineering recommend replacement with vacuum retrofit units.</p> <p>Poles/OH Lines: Hot Spots on Arresters. Joslyn PS cone (voltage stress cones) will be inspected and replaced as required during routine scheduled maintenance. Five reject 13.8 kV poles in H-Area (2 serve SRR facilities, 3 serve SRNS facilities).</p>		<p>Instrumentation: A-Area Water Treatment Plant monitoring system Programmable Logic Controller (PLC) and monitor has been replaced. All 11 Remote Terminal Units (RTUs) have now been replaced. System functionality now dependent on replacement of failed field data transmitters. There are 41 transmitters; pressure, flow and tank level, of which 10 are functional. Functional at this time: <b>4 of 4 tank levels</b>, 3 of 18 flow transmitters and 3 of 19 pressure transmitters.</p>		<p>Valves- <b>Air inlet/release valves and valve houses have failed.</b></p> <p>Pumps- The #10 motor suffered a winding fault, rebuilding is being pursued.</p>	
Fire Water		Chilled Water		Process/Service Water		Sanitary Wastewater	
 <b>CI IPL</b> <b>Items</b> <b>Yes</b>		 <b>CI IPL</b> <b>Items</b> <b>No</b>		 <b>CI IPL</b> <b>Items</b> <b>Yes</b>		 <b>CI IPL</b> <b>Items</b> <b>No</b>	
Water Source	Tanks	Chilled Water	Cooling Water	SW Sys.	H Proc Wtr Sys	Collection Sys	Lift Stations
Pumps	Controllers	Treatment Sys		SW Treat. Sys.	H Proc Wtr Treat	Central SWTF	K-Area SSWT
Piping	Valves			Wells	Chem Neutral	L-Area SSWT	
<p>Pumps: N-Area electric fire pump is not meeting NFPA 25 annual flow criteria.</p> <p>Controllers: Aging equipment issues.</p> <p>Tanks: B &amp; F-Areas internal coating concerns. Tank painting is in progress in Z-Area.</p> <p>Note: Temporary Exemption SRS-SRID-FA12-TE -2014-001 is written for the A Area Fire Water Supply System pending DOE HQ approval.</p>		<p>Cooling Water: 785-A Cooling Tower- Fan #2 not switching to high speed in auto - troubleshooting scheduled.</p> <p>Chilled Water: A Area Chillers- Bad temp sensor causing chiller control to malfunction, vendor is troubleshooting; <b>VFD bad on pump #6, Engr. troubleshooting;</b></p> <p>B Area Chillers- Pump #3 bearing to be replaced; Deposits in heat exchanger tubes - treatment plan being developed; <b>high vibration in CW pump #1, PdM evaluating; damaged control cable, Engr. evaluating.</b></p> <p>Treatment Sys: B-Area- ozone compressor to be replaced.</p>		<p>H Proc Wtr Sys: Well 905-108H motor leads failed after transformer replacement, leads being replaced. Repairs to Cooling Tower deluge commencing.</p> <p>SW Sys.: A-Area- <b>Leak in supply line to 723-A, repairs scheduled.</b></p> <p>SW Treat Sys: A-Area caustic system experiencing priming issues; Engineering to provide recommendations. Overall system reliability issues; needs repair; design for automated system in A-Area 95% complete.</p>		<p>Collection Sys: aging issue. Lift Stations: General aging equip issues, there are 56 lift stations total, 3 need control panel replacements. Lack of autodialers (remote alarms) ~15 lift stations need them added. K &amp; L-Area SSWT: Equalization (EQ) Basin pumps' replacement has been postponed due to the degradation and breaking of discharge piping from the original pumps. Replacement date TBD.</p> <p>Central SWTF: Test Procedure for the 654-G Emerg. Diesel completed and approved, air flash labels to be made/installed. Troubleshooting of ATS TBD. Soda Ash pump rebuild/replacement is being pursued.</p>	

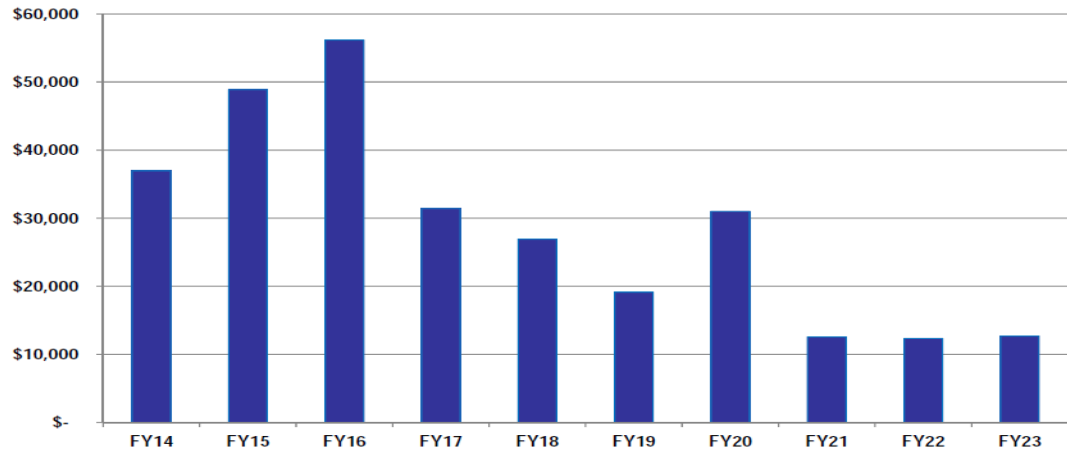


# Increasing Cost ~\$300M

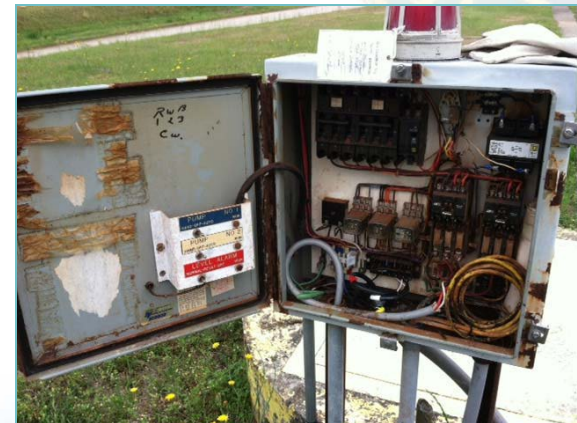
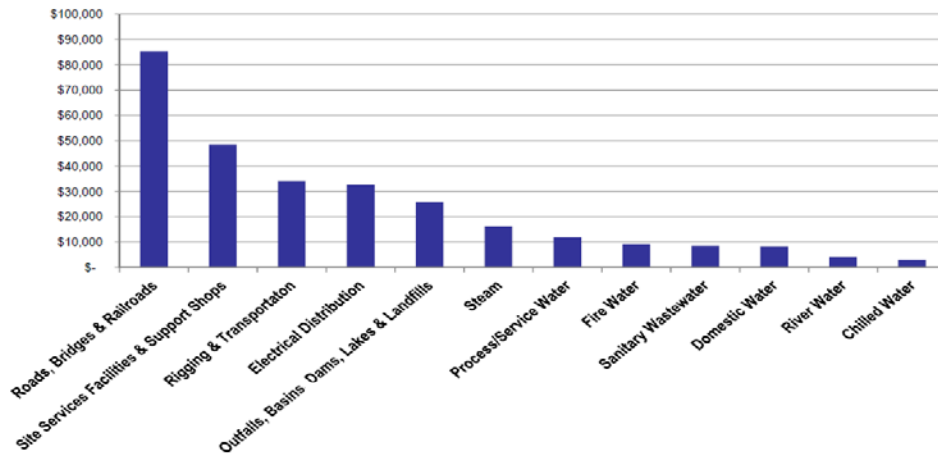


**A-Area Pole Transformers**

Placeholder Unburdened Estimates Per FY (\$ Millions)



FY14- FY23 (\$ Millions)



**Sanitary Sewer Lift Station Control Box**







# Infrastructure - Strategic Outlook

- **Moving to Change – General Infrastructure Paradigm**
  - EM Mission Extending
  - Enduring NNSA Mission
- **Partnerships / Teamwork - Site, HQs, Tenants, Contractors**
  - Infrastructure Vision Evolving – Recognition of the Risk
  - Infrastructure Alignment and Right Sizing Process
  - Consistent approach with **Lab Operations Board (LOB)** efforts
- **Future**
  - Investments for infrastructure right-sizing, alignment, and D&D.
  - Investments for Recapitalization
  - Innovative Solutions – Third Party Financing