



Enterprise SRS: Develop & Deploy Next Generation Clean-up Technologies

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E•SRS Initiative: Next Generation Clean-up Technologies

PURPOSE

- Provide comprehensive information on the concept, status and schedule of the Next Generation Clean-up Technologies E•SRS initiative (Recommendation 288)
- Share site technology demonstration/deployment successes
- Show this initiative does not compromise prime clean-up mission
- Solicit feedback on “whether this initiative is in the best interest of, or can better serve, stakeholders and citizens”



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Commitment to Progress: E•SRS Initiative – Next Generation Clean-up Technologies

- **SRS has shared our experience and expertise in environmental clean-up with our communities, region, and sister sites for decades.**
- **Enterprise•SRS is proactively broadening application of that experience and expertise nationally and globally while maintaining principal focus on the prime missions at the site: environmental stewardship, national security, and clean energy. This expanded outreach will**
 - Gain new knowledge and experience to apply in our communities, region, and sister sites
 - Strengthen the viability of the site
 - Help make our nation and the world a safer and more secure place.



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Excerpt from Response to Recommendation #288:

As DOE-SR solves the legacy clean-up challenges at SRS, knowledge, experience, as well as physical assets can also be leveraged to address national issues in the areas of environmental stewardship, national security, and clean energy.

VISION:

Establish SRS as national and international provider of applied environmental clean-up solutions, sharing our extensive experience, expertise & land assets to implement innovative technology and transition strategies to achieve appropriate (realistic and protective) environmental end states:

1. Active-to-passive Environmental Clean-up Transition strategies
2. In-situ Decommissioning - applied science & approaches
3. Long-term Monitoring strategies
4. Advanced Remediation Technology - domestic & international



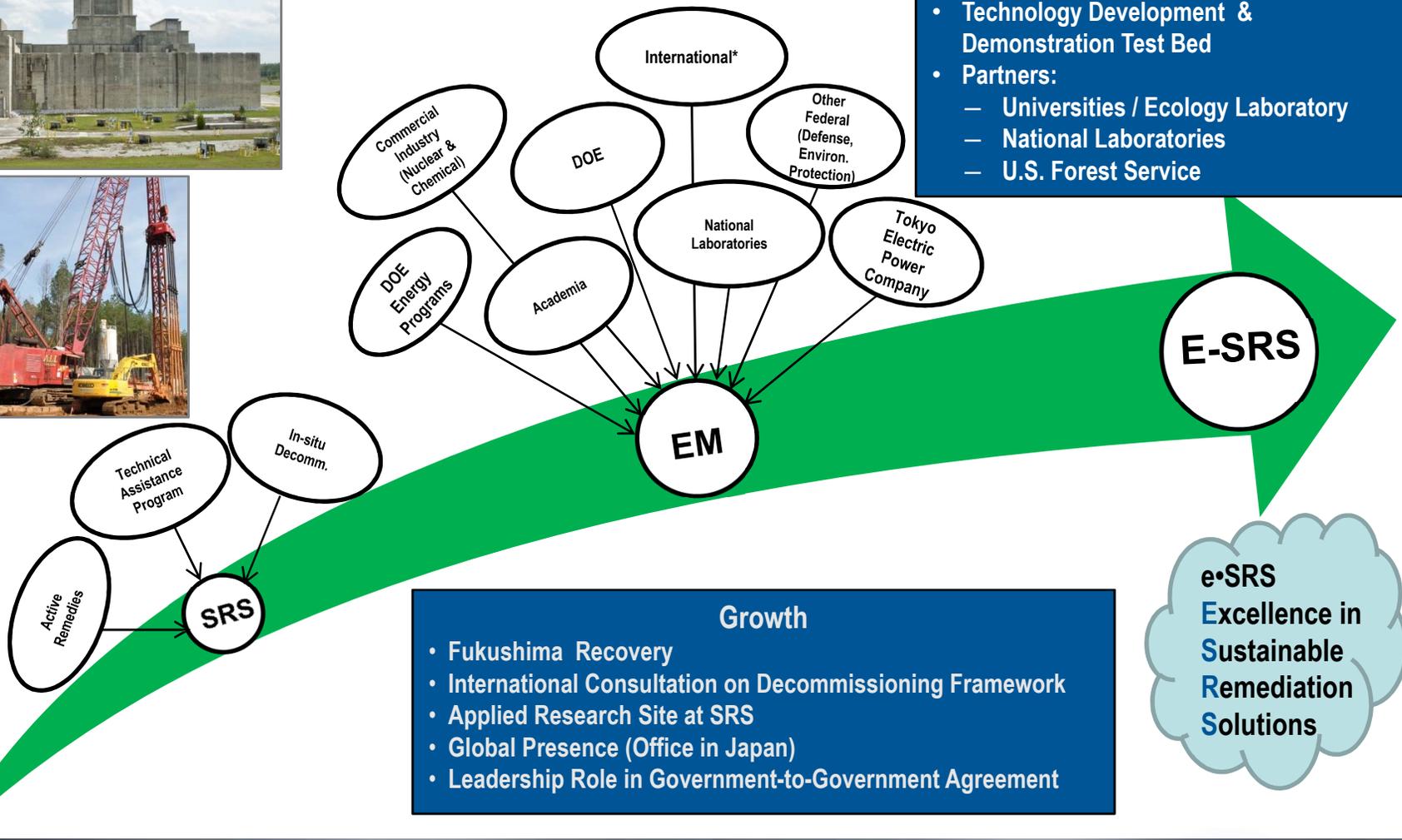
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Strategic Initiative: Develop and Deploy Next Generation Clean-up Technologies

Today



Vision

- EM Strategic & Technical Authority
- International Technical Ambassador
- Technology Development & Demonstration Test Bed
- Partners:
 - Universities / Ecology Laboratory
 - National Laboratories
 - U.S. Forest Service

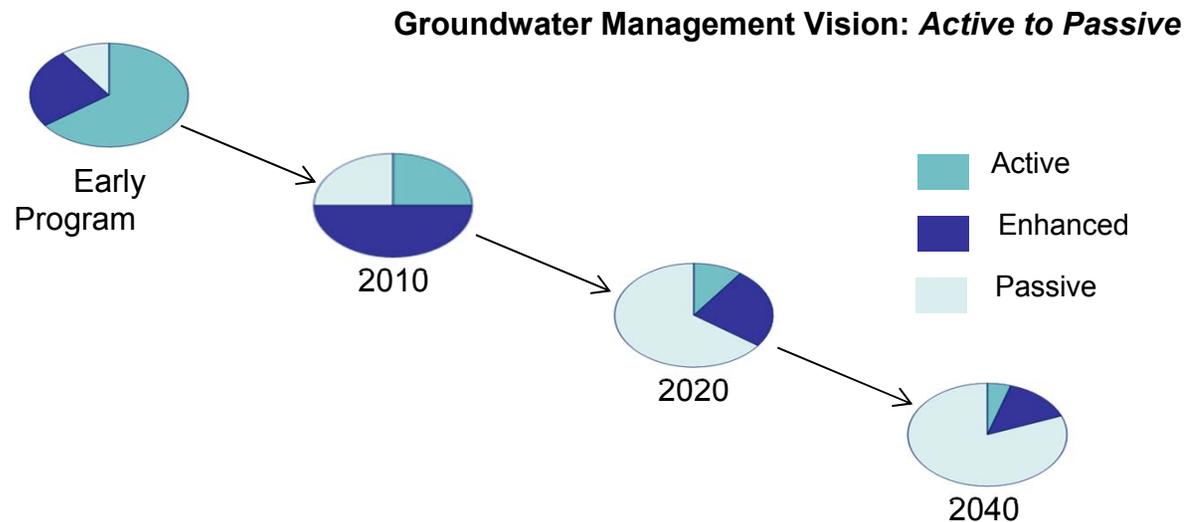
Growth

- Fukushima Recovery
- International Consultation on Decommissioning Framework
- Applied Research Site at SRS
- Global Presence (Office in Japan)
- Leadership Role in Government-to-Government Agreement

e•SRS
 Excellence in Sustainable Remediation Solutions

1: Active-to-passive Clean-up Transition

- **Why? Successful history using highly aggressive source zone methods, then timely transition to low energy, effective technologies**

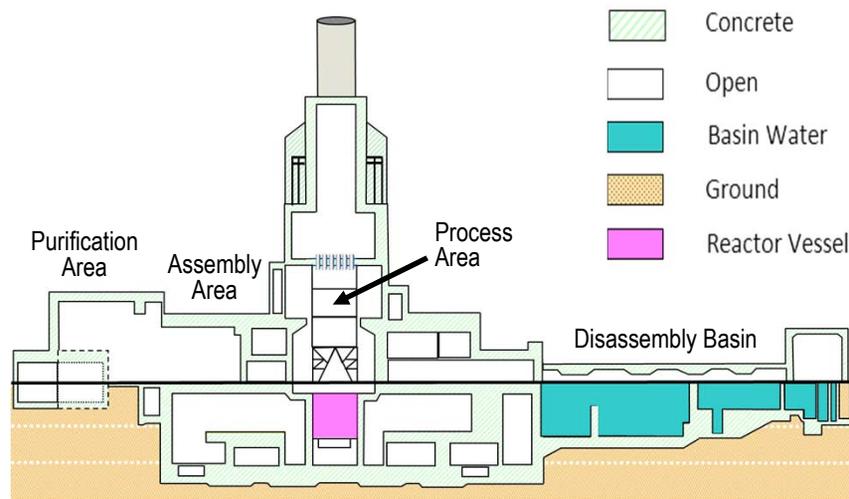


- **Part of our core expertise and mission**
 - T Area: initially Pump & Treat, deployed Edible Oil to work in conjunction with bioremediation, implemented sensors to monitor degradation of contaminant in the field
 - F-Area Groundwater: Barrier Walls and Base Injection implemented to replace Pump and Treat

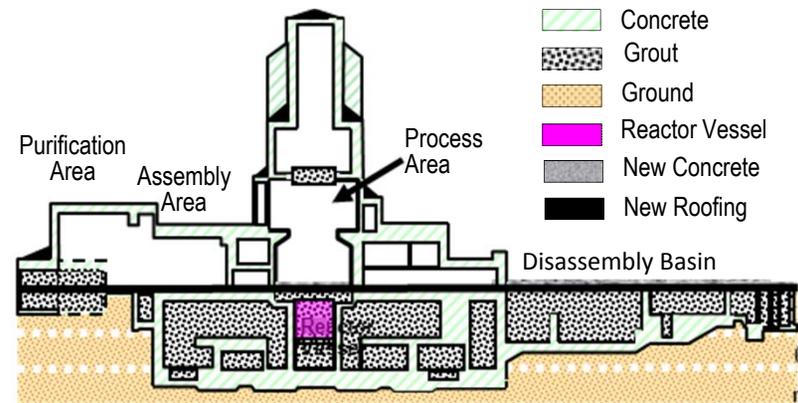


2: In-situ Decommissioning Science/Approaches

- **Why? Successful design of grout formulas to reduce hazard & enable placement in challenging field conditions**
 - Mixture that can be placed under water and will “set up” or “cure”
 - Chemical properties of grout matched to contaminants of concern and physical interaction with materials within structures
 - Highly flowable grout formula without sacrificing strength



P Reactor before decommissioning



P Reactor after decommissioning



3: Long-term Monitoring Strategies

- **Why? Successful integration of traditional monitoring with inexpensive technology to get ahead of the problem**
 - Optimize sample collection with mobile & remote electronic platforms
 - Simultaneously improve performance of monitoring system & lower cost
 - Efficient & effective monitoring focuses on early warning of variations from predicted behavior
 - Approach of monitoring controlling variables will be effective at both data-rich and data-poor sites
- **Part of our core expertise and mission**
 - Well optimization study streamlines the site well network by reducing number of wells & analytes without compromising quality
 - Using science & technology, supplement traditional contaminant concentrations with inexpensive measurements of boundary conditions (e.g., meteorology) & controlling geochemical master variables (pH and redox)
 - Increases ability to start the data collection to inform clean-up planning decisions



4: Advanced Remediation Technology

- **Why? Successful development & deployment of cost effective remediation approaches – National & International**

	SRS Success	Fukushima Support
Active to Passive	Initially Pump & Treat; Install reactive barrier; implant sensors in area(s) of interest	Groundwater Bypass approach implemented
In-situ Decommissioning	3 reactors	Develop & deploy grout to stop water leakage between reactor and turbine buildings, off gassing considerations
Long-term Monitoring	Blend of typical & rapid data collection techniques	Place sensors & electronically send data to offsite receivers Develop & deploy analytical laboratories (e.g. mobile initially converts to modular over time)

- **Recent International successes**
 - Tokyo Electric Power Company Work for Others
 - Savannah River National Laboratory staff assignment to Japan as an Embassy Science Fellow



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We welcome your questions and comments.



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