



QUESTIONS AND ANSWERS FROM NOVEMBER FULL BOARD MEETING

- **Can we distinguish where the online participants are from during committee meetings?**
 - No, it is strictly anonymous; we can only see how many participants are joining online.
- **Is trichloroethylene biodegradable?**
 - Yes. Trichloroethylene (TCE) is biodegradable. In order for biodegradation to occur, certain microbes must be present and conditions must be conducive for the microbes to thrive. One approach to implementing bioremediation that has been used at Savannah River Site (SRS), is to add nutrients to TCE contaminated groundwater to stimulate the growth of naturally occurring microbes, which in turn biodegrade the TCE.
- **What are the human specifications for the new international model used for the environmental report?**
 - The recommendations of the International Commission on Radiological Protection (ICRP) have formed the basis for national and international standards of radiological protection. The ICRP provides recommendations and guidance on protection against risks associated with exposure to ionizing radiation from artificial sources widely used in medicine, general industry and nuclear enterprises, and from naturally occurring sources. These recommendations are published periodically with the most recent being provided in ICRP Publication 103, *The 2007 Recommendations of the International Commission on Radiological Protection* and supporting publications. The ICRP general principles of radiological protection for proposed and continuing practices have been adopted almost universally and DOE has implemented the recommendations through Orders such as Department of Energy (DOE) Order 458.1 "*Radiation Protection of the Public and the Environment.*"
 - SRS has developed a set of behavioral parameters for a reference person specific to the Site which are used to determine dose to members of the public in compliance with DOE Order 458.1. The SRS-specific reference and typical person usage parameters are documented in the *Site Specific Reference Person Parameters and Derived Concentration Standards for the Savannah River Site* (SRNL-STI-2013-0015) which is attached. Section 5.0 of this report details the reference person parameters used at SRS.
- **What is the chemical composition of the dye used in the SDU testing water and why is this particular dye used?**
 - The SDU 6 red dye is Bright Dyes FWT Red 200 liquid. It contains Rhodamine ($C_{28}H_{31}ClN_2O_3$). Rhodamine is the same color as the rhododendron, a flowering shrub which is a very deep glowing red or pink. The FWT dye is approved for use by the EPA and is the most often used visually. The FWT dye is relatively unreactive chemically, biodegradable, and safe for the environment. The FWT dye is resistant to absorption on most suspended matter in fresh water. The FWT dye stands out more clearly against background fluorescence.
- **How many curies are in the tanks once the tanks have been grouted?**
 - Answer is found on page 20 of the SRS CDWA 2015 (a copy of which is attached for reference).
- **Who is the SRNL point of contact for scholarships?**
 - Connie Yung, 803-725-9032

- **What universities are being reached out to for the SRNL scholarships?**
 - Only one university has been given the scholarships, the University of South Carolina Aiken (USCA)
- **Were there any self-disclosures for FY 2015?**
 - No, there were no self-disclosures from either SRNS or SRR
- **How much were the fines for missed deadlines?**
 - \$150M+
- **What are the models used for flooding predictions at SRS?**
 - The SRNS Dam Safety Engineer (DSE) relied on the Weather Center for rainfall predictions.

The DSE has a water level model developed for L-Lake. It is an Excel spreadsheet that balances water input and output to estimate a water level. It's been in use for several years and it is fairly accurate. However, water balance is a very complicated equation and some constants are still being refined.

A part of the equation for looking at the effects of a storm is the adding in of surface runoff. Surface runoff is the flow of water that occurs when excess stormwater flows over the earth's surface. This occurs because the soil is saturated to full capacity and the rain arrives more quickly than soil can absorb it. Surface runoff is a major component of the calculating lake levels.

Ground saturation (and rainfall effect) is the most difficult to get a handle on. The DSE used a high soil saturation level for the predicted storm effect. It all worked out pretty well for L-Lake.

The same calculation was tried for Par Pond, but that system is considerably more complex. Par Pond has a larger watershed (area of land where all of the water that is under it or drains off of it goes into the same place), more feeder ponds, and canals. Predictions were made, but were not as accurate as with L-Lake.

As of Monday, 10-05-2015 (after the storm), the SRS Lake level were as follows:

	Lake level: Monday, 10-05-2015 (after the storm)	Normal Pool	Maximum Pool
Par Pond	199.69 inches	201.0 inches	207.7 inches (7 inch buffer)
L-Lake	190.10 inches	190.0 inches	195.0 inches (5 inch buffer)

SRS was not negatively affected by the storm.

- **What is the information on dam maintenance and inspection?**
 - With one exception, the dams on SRS are under the jurisdiction of the Federal Energy Regulatory Commission (FERC). The one exception is the dam on the Phytoremediation Pond. That dam is actually under SCDHEC oversight through the Mixed Waste Management Facility (MWMF) RCRA Permit .

Under FERC control, SRS has two high hazard dams - PAR Pond and Steel Creek (L-Lake) - and several low hazard dams - Dam 2, Dam 4, Dam 5, Pond B Dam, and Pond C Dam. (Prior to its recent removal, we also had the New Fire Pond Dam.) All of the dams except the Steel Creek (L-Lake) Dam are part of the PAR Pond system.

FERC personnel conduct a dam inspection at SRS annually.

One other piece of information - DOE, FERC, and SRNS personnel communicated prior to the recent storm event in the first of October (the 1000 year storm event), to verify the status of the PAR Pond and Steel Creek (L-Lake) Dams, looking for any potential problems that could result from the storm. Although SRS did not receive the heavy rain amounts that fell on other parts of the state, the Site was prepared.

- **What percentage of treated tank farm waste will be in the form of low level salt waste?**
 - Most of Site's tank farm waste will be immobilized within two waste forms: glass, which will contain about 99 percent of the radioactivity, and cement-like grout, which will contain most of the volume. The highly radioactive, insoluble tank sludge is sent to the Defense Waste Processing Facility (DWPF) to be turned into glass. Soluble salts, primarily sodium nitrate (similar to fertilizer), must be treated to remove radionuclides contained in the salt solution which is sent to SPF.
- **What is the life expectancy of the saltstone disposal unit?**
 - The SDUs are designed for a 25 year operational life. Once the process of capping the Saltstone Disposal Facility begins the SDUs transition from their operational life to that governed by the Saltstone Disposal Facility Performance Assessment, which stretches out to 10,000 years.
- **What are the three flammable components of antifoam?**
 - The three flammable components that are generated in small quantities from degradation of the antifoam are listed below:
 - 1) hexamethyldisiloxane, (HMDSO)
 - 2) trimethylsilanol (TMS)
 - 3) Propanal