An Overview of the SRS Environmental Report for 2009

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Savannah River Nuclear Solutions, LLC
November 16, 2010

SRS Citizens Advisory Board
Purpose

To provide the CAB and public with an understanding of the SRS Environmental Report Results for 2009, the continual record of environmental excellence at SRS.
Environmental Monitoring Purpose

• Characterize and quantify contaminants

• Demonstrate compliance with applicable standards

• Calculate radiation exposures to the public

• Assess the effects, if any, on the local environment
For 2009, the radiation dose to the public living near SRS was well below DOE’s 100-millirem/mrem/year standard.

Savannah River Site’s 2009 air and water releases, as well as all potential radiation doses from the site, were well below applicable regulatory standards.

Downriver water consumer was well below EPA’s 4-mrem/year standard.
Maximally Exposed Individual (MEI)

- Dose is expressed using a hypothetical maximally exposed individual using both airborne and liquid pathways.
- For airborne releases
  - Lives at the SRS boundary 365 days per year
  - Consumes milk, meat, and vegetables produced at that location
- For liquid releases
  - Lives downriver of SRS (near River Mile 118.8) 365 days a year
  - Drinks 2 liters of untreated water per day from the Savannah River
  - Consumes 19 kilograms per year of Savannah River fish
  - Spends majority of time on or near the river
Exposure Pathways

- Airborne Effluents
  - Breathing Air
  - Depositing on Crops

- Liquid Effluents
  - Swimming
  - Eating Fish
  - Eating Crops
  - Drinking Water
  - Drinking Milk
  - Eating Meat
  - Eating Grass

- Uptake by Water Plants
- Uptake by Fish
## 2009 Dose Summary

<table>
<thead>
<tr>
<th>All values are mrem</th>
<th>Standard</th>
<th>SRS Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>DOE All-Pathway</td>
<td>100</td>
<td>0.12</td>
</tr>
<tr>
<td>EPA Clean Air Act</td>
<td>10</td>
<td>0.04</td>
</tr>
<tr>
<td>EPA Drinking Water</td>
<td>4</td>
<td>0.02</td>
</tr>
<tr>
<td>Annual Background</td>
<td>360</td>
<td></td>
</tr>
</tbody>
</table>
## 2009 Monitoring Results Summary

<table>
<thead>
<tr>
<th>Drinking Water Dose</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Beaufort-Jasper (Chelsea), South Carolina</td>
<td>0.02 mrem</td>
</tr>
<tr>
<td>Beaufort-Jasper (Purrisburg), South Carolina</td>
<td>0.02 mrem</td>
</tr>
<tr>
<td>Savannah, Georgia</td>
<td>0.02 mrem</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Individual Dose</th>
<th>2008</th>
<th>2009</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>0.08 mrem</td>
<td>0.08 mrem</td>
</tr>
<tr>
<td>Air</td>
<td>0.04 mrem</td>
<td>0.04 mrem</td>
</tr>
<tr>
<td>Total (MEI)</td>
<td>0.12 mrem</td>
<td>0.12 mrem</td>
</tr>
</tbody>
</table>
Air Pathway Highlights

- Dose estimate consistent with 2008 levels.
- Tritium oxide (80%) and Iodine-129 (10%) were primary contributors.
- Major pathways:
  - Inhalation 41%
  - Vegetation Consumption 39%
  - Meat and Milk Consumption 17%
Water Pathway Highlights

• Dose estimate consistent with 2008 levels

• Major Dose Contribution:
  – 61% from Cs-137, primarily from fish consumption
  – 17 % from tritium, mainly from water consumption
  – 14% from unspecified alpha emitters
2009 Special-Case Doses

- **Sportsman Dose**
  - 30-mrem Annual Limit
  - Fish
    - 0.35 mrem (maximum, Lower Three Runs bass)
  - Deer/Hogs
    - 8.4 mrem (maximum onsite deer/hog hunter)
    - 1.5 mrem (maximum offsite deer hunter)
    - 0.2 mrem (maximum offsite hog hunter)
Compliance Status

• No Notice of Alleged Violation issued during 2009
Closing Comments

- SRS has a comprehensive environmental monitoring program.
- The site’s airborne and liquid releases to the environment show a long-term decrease.
- For 2009, the radiation dose to the
  - public living near SRS was 0.12 mrem, well below DOE’s 100-mrem/year standard
  - downriver water consumer was 0.02 mrem, well below EPA’s 4-mrem/year standard
Contact Information

- The report is available on the web at:

- To inquire about the report, contact:
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