Radiological Environmental Monitoring Program

NH DPHS Radioanalytical Chemistry Laboratory

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Radiological Chemistry Lab Mission

- To implement independent environmental surveillance and perform radioanalysis of environmental and food samples to assure the well being of the citizens of NH
- Since 1984 NH DPHS has been monitoring radiation levels in food and environmental samples collected near Seabrook Station and at more distant control locations
Radiological Environmental Monitoring

- Dairy (milk, water, cattle feed etc.)
- Seafood (fin-fish, lobsters, mussels etc.)
- Beach/Ocean sediment
- Ocean water
- Air filters
- Deposition wipes
- Thermoluminescent Dosimeters
- EPA’s RADNet monitoring

Approximately 700 samples are being analyzed each year.
<table>
<thead>
<tr>
<th>Media</th>
<th>Site</th>
<th>Frequency</th>
<th>Gross Alpha</th>
<th>Gross Beta</th>
<th>Gamma Spec</th>
<th>Tritium</th>
<th>TLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Particulate Air/Deposition wipe</td>
<td>2</td>
<td>Monthly</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Surface/Ocean Water</td>
<td>2</td>
<td>Monthly</td>
<td>-</td>
<td>-</td>
<td>✔️</td>
<td>✔️</td>
<td>-</td>
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<tr>
<td>Ground Water</td>
<td>4</td>
<td>Quarterly</td>
<td>✔️</td>
<td>✔️</td>
<td>-</td>
<td>✔️</td>
<td>-</td>
</tr>
<tr>
<td>Sediments</td>
<td>3</td>
<td>Twice-Yearly</td>
<td>-</td>
<td>-</td>
<td>✔️</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Vegetation</td>
<td>4</td>
<td>Twice-Yearly</td>
<td>-</td>
<td>-</td>
<td>✔️</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Milk</td>
<td>4</td>
<td>Monthly/Quarterly</td>
<td>-</td>
<td>-</td>
<td>✔️</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Marine Biota</td>
<td>3</td>
<td>Twice-Yearly</td>
<td>-</td>
<td>-</td>
<td>✔️</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Direct Gamma</td>
<td>40</td>
<td>Quarterly</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>USEPA RadNet: Air, Water</td>
<td>1</td>
<td>Twice-weekly</td>
<td>✔️</td>
<td>✔️</td>
<td>✔️</td>
<td>-</td>
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</tr>
</tbody>
</table>
Seabrook Station Sampling Locations

Seacoast Network

10 Mi Radius
Sampling Sites for Seabrook Station

- Hampton (air, wipe, TLD, sand, water)
- Kensington (air, wipe, TLD, dairy)
- Hampton Falls (TLD)
- Seabrook (TLD)
- South Hampton (air, wipe, TLD)
- Exeter (TLD)
- North Hampton (TLD)
- Portsmouth (TLD)
- Stratham (TLD, dairy)
- Lee (TLD, dairy)
- Rye (TLD)
- South Hampton (TLD)
Seabrook Offshore Sampling
(marine biota, sand, water)
Conclusion

No activity greater than the normal and expected background levels was detected with the exception of the detection of Iodine -131 in rainwater collected in Concord following the Fukushima nuclear accident in March, 2011.

Regulatory Agency: USNRC, USEPA, USFDA, NH Rules for the Control of Radiation

<table>
<thead>
<tr>
<th>Annual Radiation Dose Limits</th>
<th>Agency</th>
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</thead>
<tbody>
<tr>
<td>Radiation Worker - 50 mSv</td>
<td>(NRC, &quot;occupationally&quot; exposed)</td>
</tr>
<tr>
<td>General Public - 1 mSv</td>
<td>(NRC, member of the public)</td>
</tr>
<tr>
<td>General Public - 0.25 mSv</td>
<td>(NRC, D&amp;D all pathways)</td>
</tr>
<tr>
<td>General Public - 0.10 mSv</td>
<td>(EPA, air pathway)</td>
</tr>
<tr>
<td>General Public - 0.04 mSv</td>
<td>(EPA, drinking-water pathway)</td>
</tr>
</tbody>
</table>
References


Code of Federal Regulations, Title 10, Part 20, Section 20.1301 Dose Limits for Individual Members of the Public.

Code of Federal Regulations, Title 10, Part 20, Appendix B to Part 20—Annual Limits on Intake (ALIs) and Derived Air Concentrations (DACs) of Radionuclides for Occupational Exposure; Effluent Concentrations; Concentrations for Release to Sewerage.

LB523 FDA/FERN Screening for Alpha-Beta Radioactivity in Foods, US FDA.


New Hampshire Rules for the Control of Radiation, Section He-P 4021.21 Permissible Levels of Surface Contamination.