

NRC Regulatory Highlights and Insights



Steve Garry, CHP

Sr. Health Physicist,
Radiation Protection and Consequences Branch
Division of Risk Assessment
Office of Nuclear Reactor Regulation

June 24, 2014

11:00 AM



Topics



- Groundwater inspection results ML14086A644
- Decomm Planning Inspections
- List of Leaks and Spills
- NUREG/CR-2907 Effluent Summary Reports
- RG 1.21 Electronic Data Submittal
- Cancer Study
- Individual vs. Member of the public (MOP)
- RG 4.13 revision for ANSI/HPS 13.37



Ground water – NEI-GPI inspection results



- TI-2515/185 Closure
 - Most plants completed missing elements
 - Use of CAP programs
 - Continued inspection under 71124.06
- 50.72(b)(2)(xi) reporting of leaks
 - New leaks must be reported
 - Violations if not reported



DPR and Inspections

NEI-GPI Groundwater



- DPR – Decomm Planning Rule (2012)
 - 10 CFR 20.1406 - minimize contamination
 - 10 CFR 20.1501 – requires subsurface surveys
 - RG 4.22 deems subsurface surveys are adequate if implementing NEI-GPI



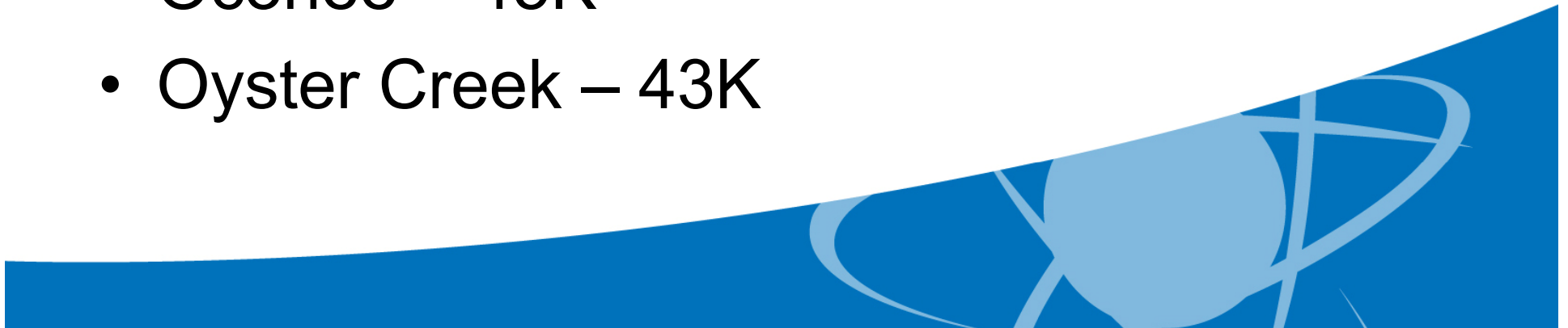
List of Leaks and Spills



- Update every 6 months
 - published on NRC web site
 - <http://www.nrc.gov/reactors/operating/ops-experience/tritium/sites-grndwtr-contam.html>
- Status
 - 45 sites have had > 20,000 pCi/L
 - 13 sites currently have > 20,000 pCi/L
- Public concern is independent of risk

Plants > 20,000 pCi/L

- Brunswick – 3.5M
- Dresden – 40K
- Hatch – 5M
- LaSalle – 97K
- North Anna – 53K
- Oconee – 45K
- Oyster Creek – 43K



List - continued

- Peach Bottom – 32K
- Quad Cities – 150K
- River Bend – 1.1M
- Salem – 436K

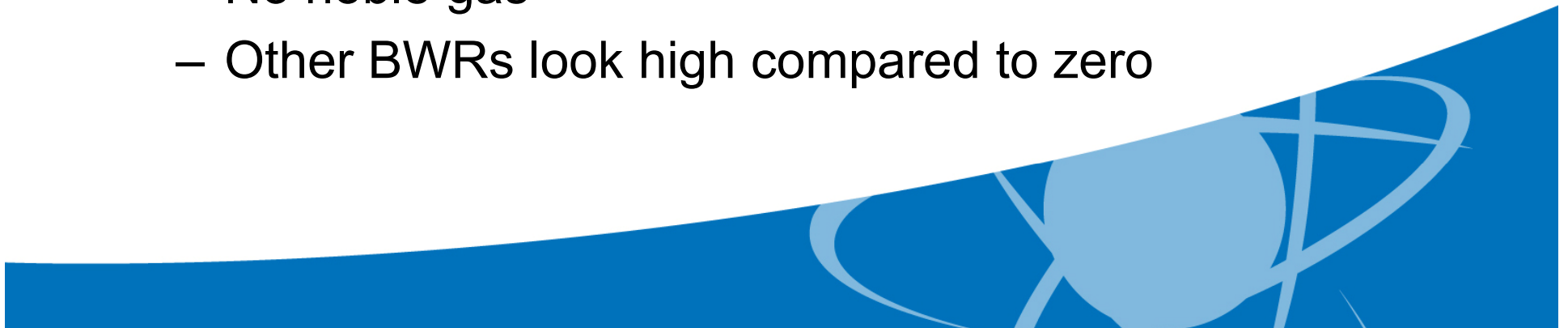


NUREG/CR-2907

Effluent Summary Reports



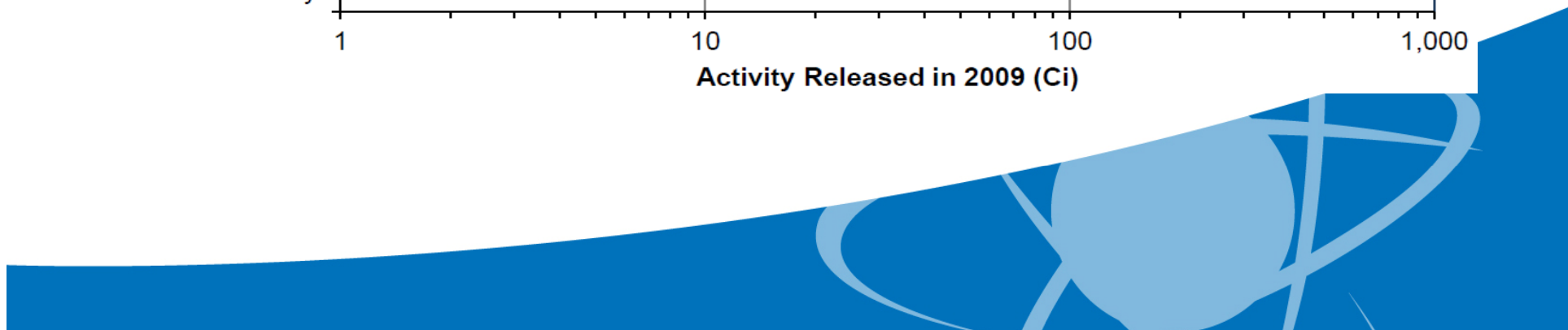
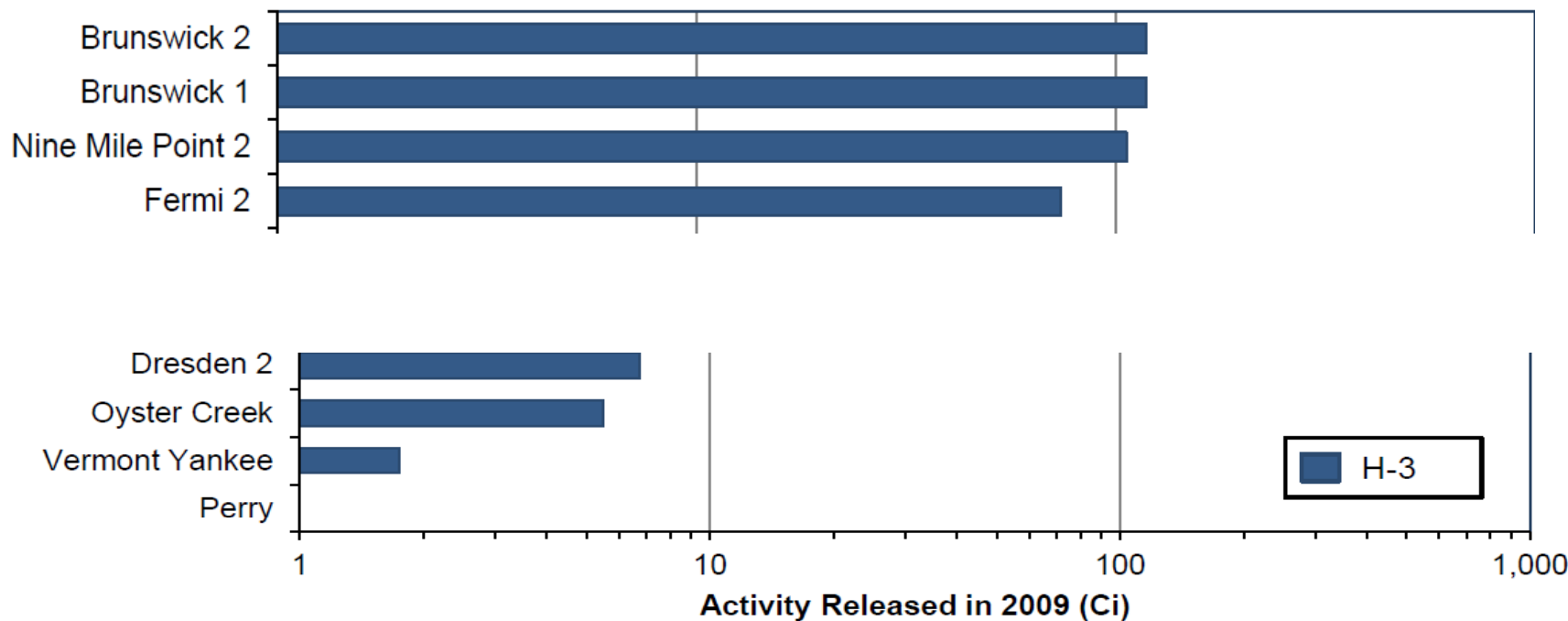
- Commission requested effluent summary reports
- Compares BWRs to BWRs
- Compare PWRs to PWRs
- Shows differences in effluent releases
- Some BWRs
 - No tritium
 - No noble gas
 - Other BWRs look high compared to zero



NUREG/CR-2907

(example 2009 data)

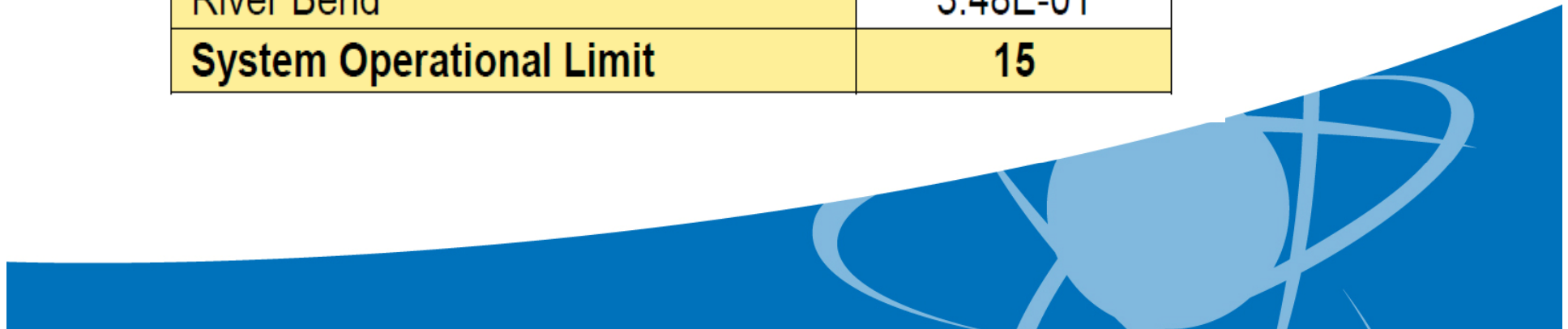
BWR Gaseous Releases — Tritium



BWR Example

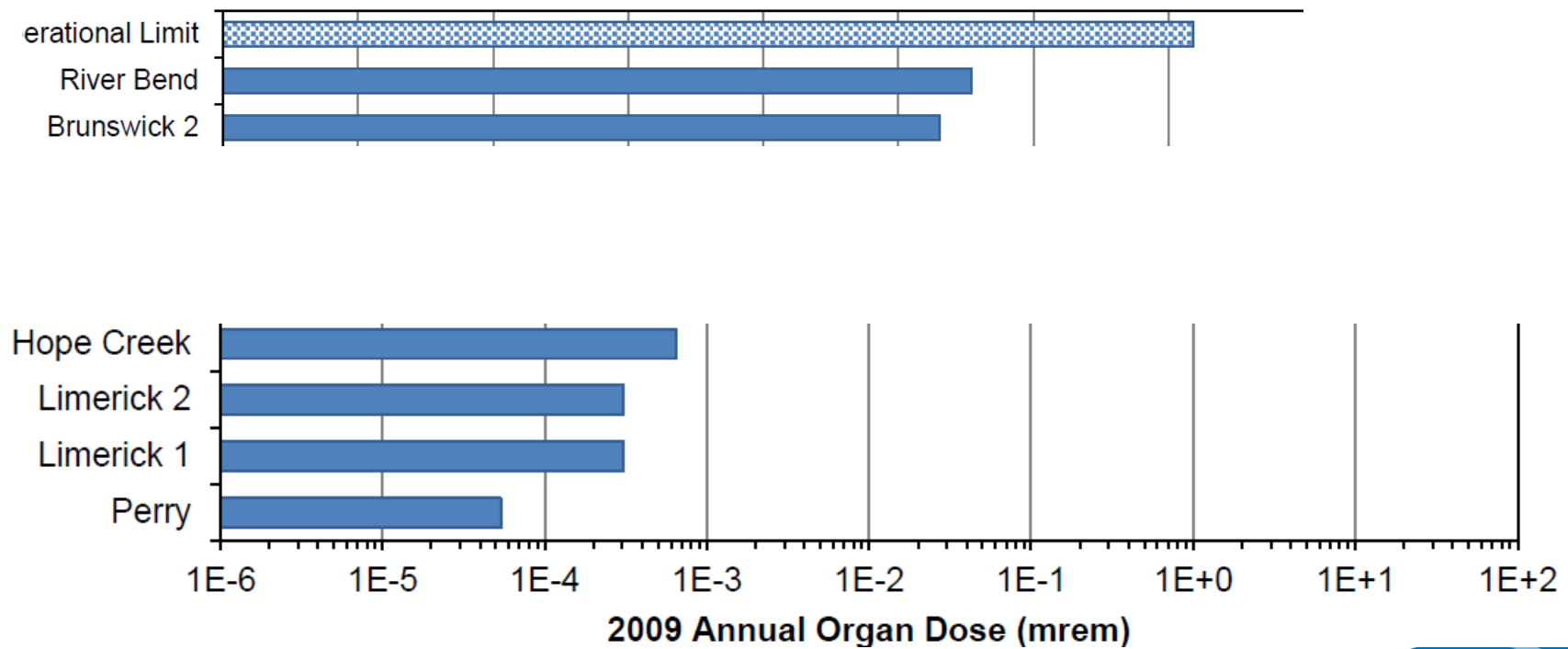
BWR Gaseous Effluents — Maximum Annual Organ Dose, 2009

BWR Facility	Annual Organ Dose (mrem)
Perry	5.33E-05
Limerick 1	3.03E-04
Limerick 2	3.03E-04
Hope Creek	6.51E-04
Brunswick 1	2.03E-01
Brunswick 2	2.03E-01
River Bend	3.48E-01
System Operational Limit	15



BWR graph

BWR Gaseous Effluents — Maximum Annual Organ Dose



RG 1.21 Reports

Electronic Data Submittal



- Oak Ridge (ORAU) contracted to:
 - Download and analyze RG 1.21 reports
 - Punch data into new data base
 - Generate graphs and tables
- Tedious, expensive process
- Opportunity to submit data electronically
- Not a requirement



Cancer Risk Study



- Phase I “evaluation” complete
 - Nat’l Academy of Science (NAS) can do the study.
- Phase II starting
- Started pilot studies September 2013 (2-3 year effort)
 - Dresden, Millstone, Oyster Creek, Haddam Neck , Big Rock Point, San Onofre, and Nuclear Fuel Services, TN
- NAS collecting RG 1.21 reports back to 1960s
- NAS will run dose calculations



“Individual” vs “Member of Public” (MOP)



- “Individual”
 - Appendix I and ODCMs – use the term “individual in the unrestricted area” (e.g., 3 mrem/yr)
- “MOP”
 - 10 CFR 20 - uses the term “MOP,” on-site or off-site; i.e., regardless of MOP’s location (100 mrem/yr)
 - EPA 40 CFR 190 – uses the term “member of the public” in the general environment (i.e., unrestricted area) (~25 mrem/yr)



Environmental Dosimetry



- “Direct” radiation monitoring
- Intended revision of RG 4.13
 - Adopts ANSI N13.37
 - Provides method of determining facility-related dose
 - Demonstrates compliance with 40 CFR 190
- Direct radiation components
 - Previously, N-16, short-term radwaste storage
 - Now, long-term:
 - Spent fuel storage
 - Rx Head and SG storage



Questions and Discussion

?