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Decontamination and Decommissioning

Observations and Lessons Learned

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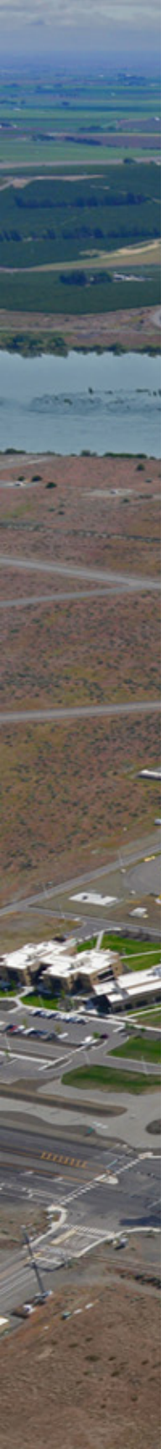
RAMP User Group Meeting

October 30, 2019



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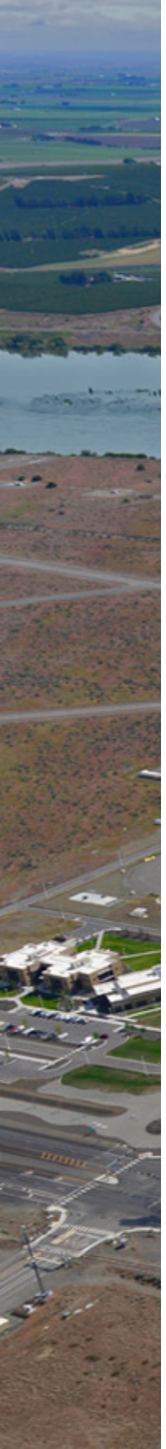

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The Requirements

- NRC has established that a site will be considered acceptable for unrestricted use if the residual radioactivity that is distinguishable from background radiation results in a maximum dose to individuals that does not exceed 25 mrem per year and is also ALARA.
- NRC describes a conservative screening approach in NUREG-1757 (using the DandD code).
- RESRAD can be used to:
  - Validate that NUREG-1757 cleanup criteria meet the site-specific dose requirement (25 mrem/yr)
  - Demonstrate the cleanup criteria are ALARA
  - Calculate site-specific cleanup criteria
- Ready to perform decontamination or decommissioning and perform a final status survey (MARSSIM) to demonstrate compliance with the cleanup criteria, right!
- Oh, if it were only that easy!

Other Stakeholders

- Achieving regulatory compliance is not always enough…perhaps, it is rarely enough.

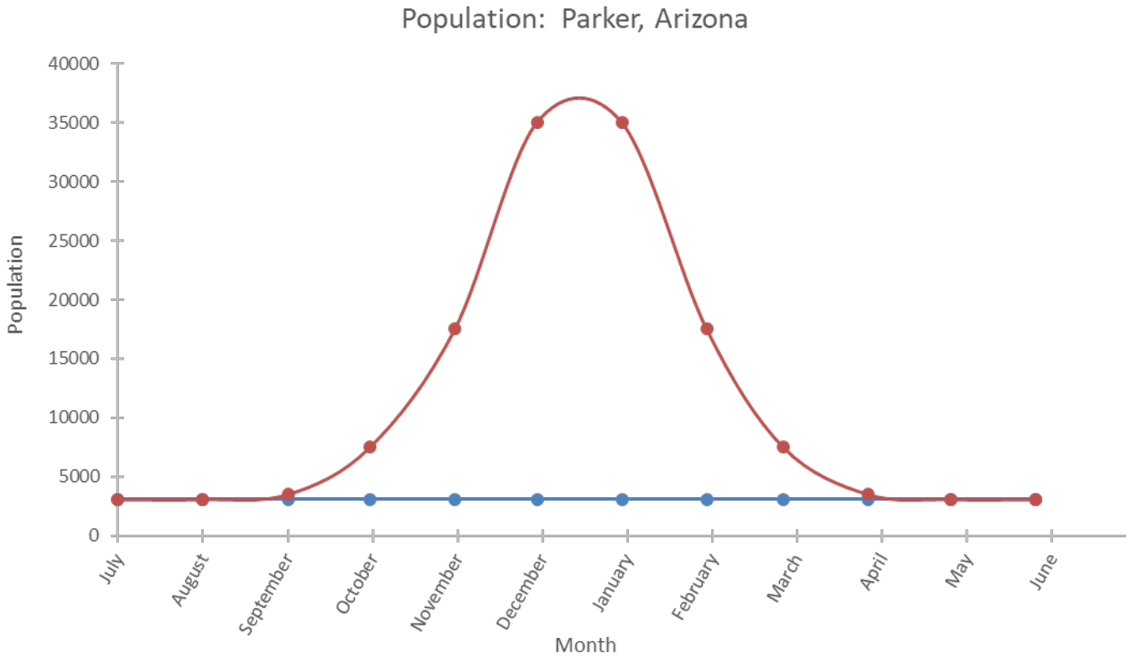
- Other Stakeholders:
  - Building owner
  - Building operator
  - Building leasee
  - Land owner
  - Insurance providers
  - Contractors
  - State and federal regulators
  - Federal Agencies
  - Neighbors
  - Special interest groups
  - LLW disposal site or landfill
  - Politicians

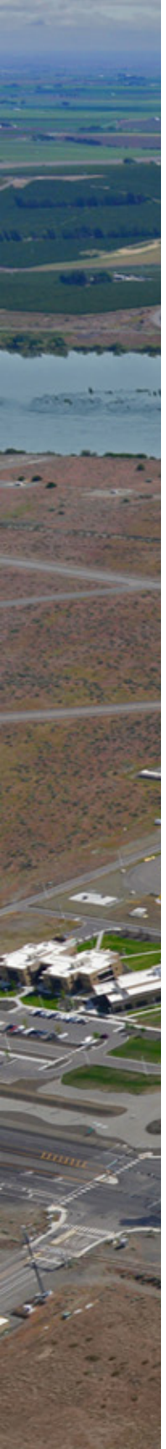
Harborview Research & Training Facility
Seattle, Washington

Know the Environment

- Facility for regenerating granular activated carbon in Parker, Arizona
- Parker, Arizona
  - Census population: 3,083
- Ready to run the models and write the report, right!
- Population with “snowbirds” added
- Lesson – Understand the environment you are modeling

Colorado River (Parker, Arizona)





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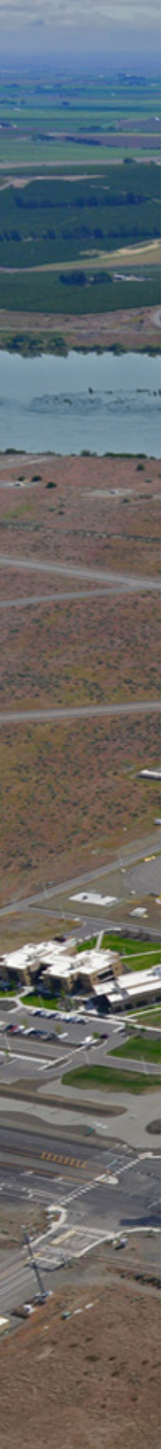
Know the Facility

- Facility for regenerating resins in Roseville, Minnesota

- “As-Built” drawings reviewed
- Process documents reviewed
- Conducted phone interviews with facility manager
- Ready to run the models and write the report, right!

- Result of site visit: The facility had grown to include a 2nd processing line that had implemented a different chemical reprocessing approach and expanded capacity.

- Lesson – You or someone from your team should visit the site.



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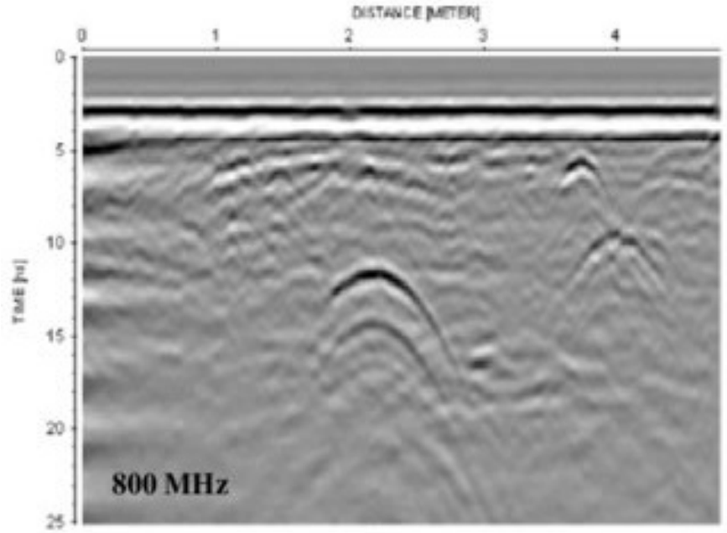
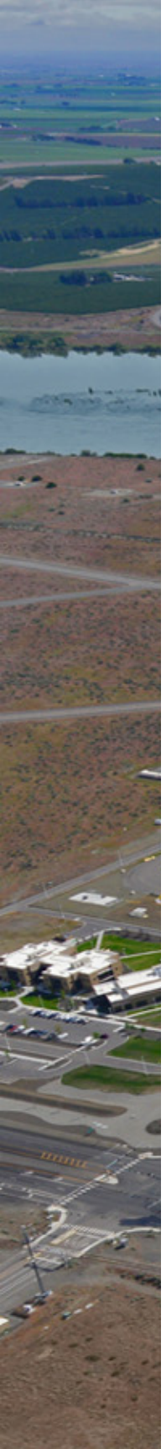
Know the Process

- ^{85}Kr Source Removal in Rochester, Minnesota
  - Reviewed documentation
  - Interviewed former manager and workers
  - Prepared work instruction, radiation safety plan, ES&H plan
  - Coordinated with NRC
  - Scheduled waste shipper, concrete cutter, GPR specialist
  - Ready to deploy, right!



GPR Image of Concrete

- GPR specialist located “exact” position and depth of source
- Removal begins, but source was not where it was expected
- Lesson – Ask the question…what if?
- Lesson – Understand limitations and uncertainties, then prepare contingencies!



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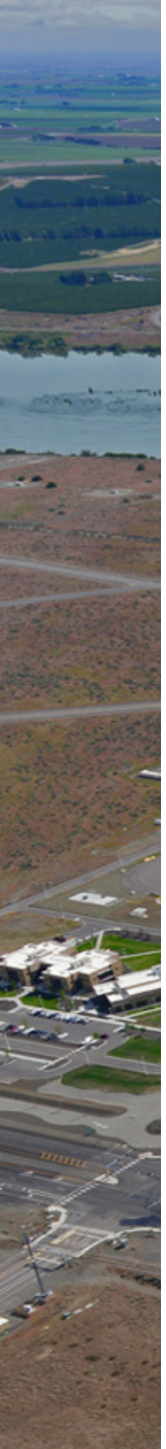
The Model is “Conservative”

- Decommissioning of Plutonium Finishing Plant at Hanford Site (Richland, Washington)
  - Reviewed detailed Work Plan
  - Met with management, safety and engineering teams
  - Visited site
  - Developed models to determine dose at restricted access boundary
- Reality – worksite activities varied from the Work Plan
  - Result was predicable to the modelers, but not to management
- Lesson – When stating a “model is conservative”, be clear about what that means to you!

Plutonium Finishing Plant at Hanford Site (Richland, Washington)



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Conclusions

- Know the regulatory requirements, but also understand the:
  - Stakeholder requirements,
  - Environment,
  - Facility,
  - Processes, and
  - Model to be used and its limitations

- Questions?

- Thanks for your attention!

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Thank you