# Ecology's Comments on "Draft Tank Closure and Waste Management Environmental Impact Statement"

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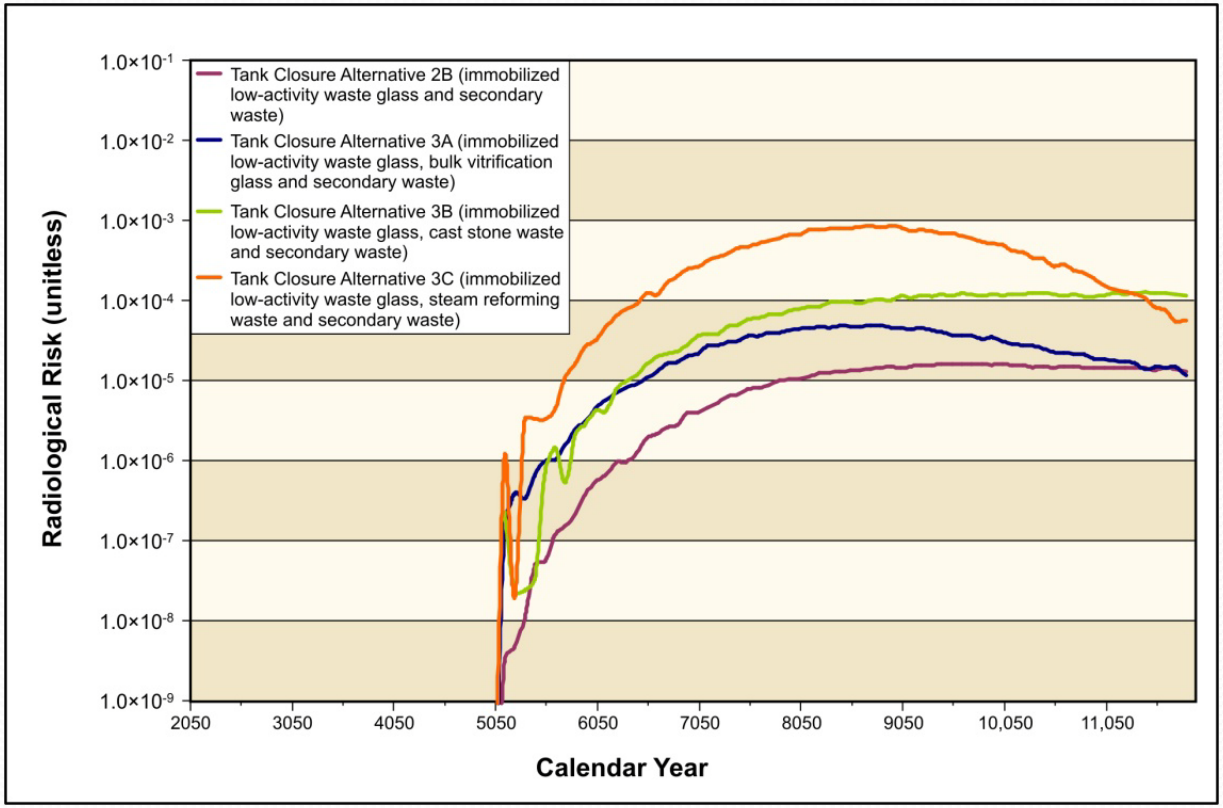
Nuclear Waste Program

- We want USDOE to vitrify all Low Activity Waste (second LAW plant) -- Alternative 2B.



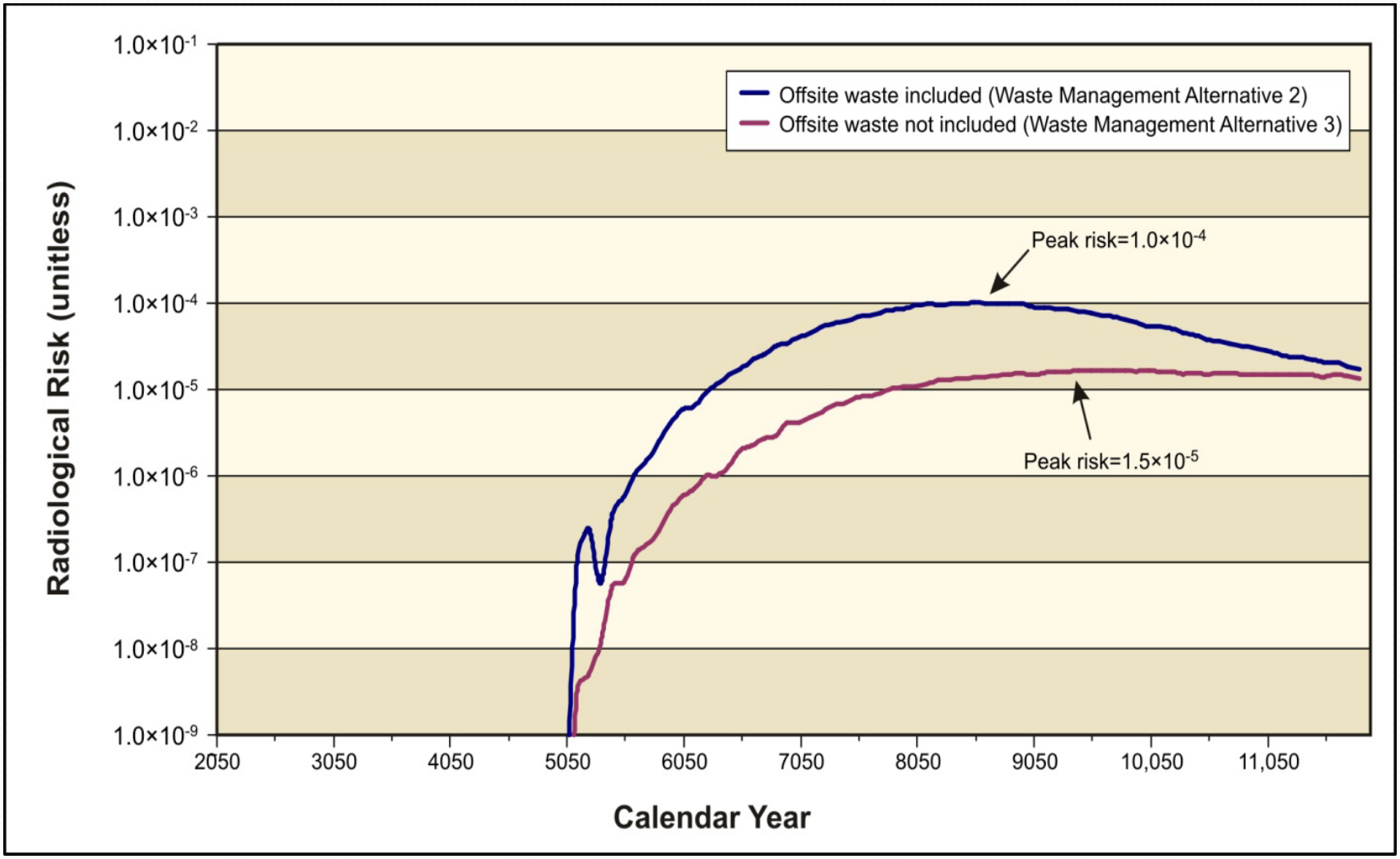

- For all glass options, most of the impacts come from secondary waste. Secondary waste causes significant groundwater impacts and needs robust mitigation to get below levels of concern.

# Peak Groundwater Results from Various Waste Forms and Secondary Waste

| | Glass | Glass and Bulk Vit | Glass and Cast Stone | Glass and Steam Reforming | Benchmark |
|---|---|---|---|---|---|
| iodine-129 (pCi/L) | 1.4 | 1.7 | 10.7 | 10.7 | 1 |
| technetium-99 (pCi/L) | 471 | 1,604 | 5,022 | 29,171 | 900 |
| chromium (mg/L) | 4 | 2 | 436 | 436 | 100 |
| nitrate (mg/L) | 14,243 | 14,381 | 50,234 | 14,512 | 45,000 |

- Results are without offsite waste inventory and impacts.
- On Vitrification option, most (all) contamination comes from secondary waste.

- Offsite waste disposal causes unacceptable environmental impacts.

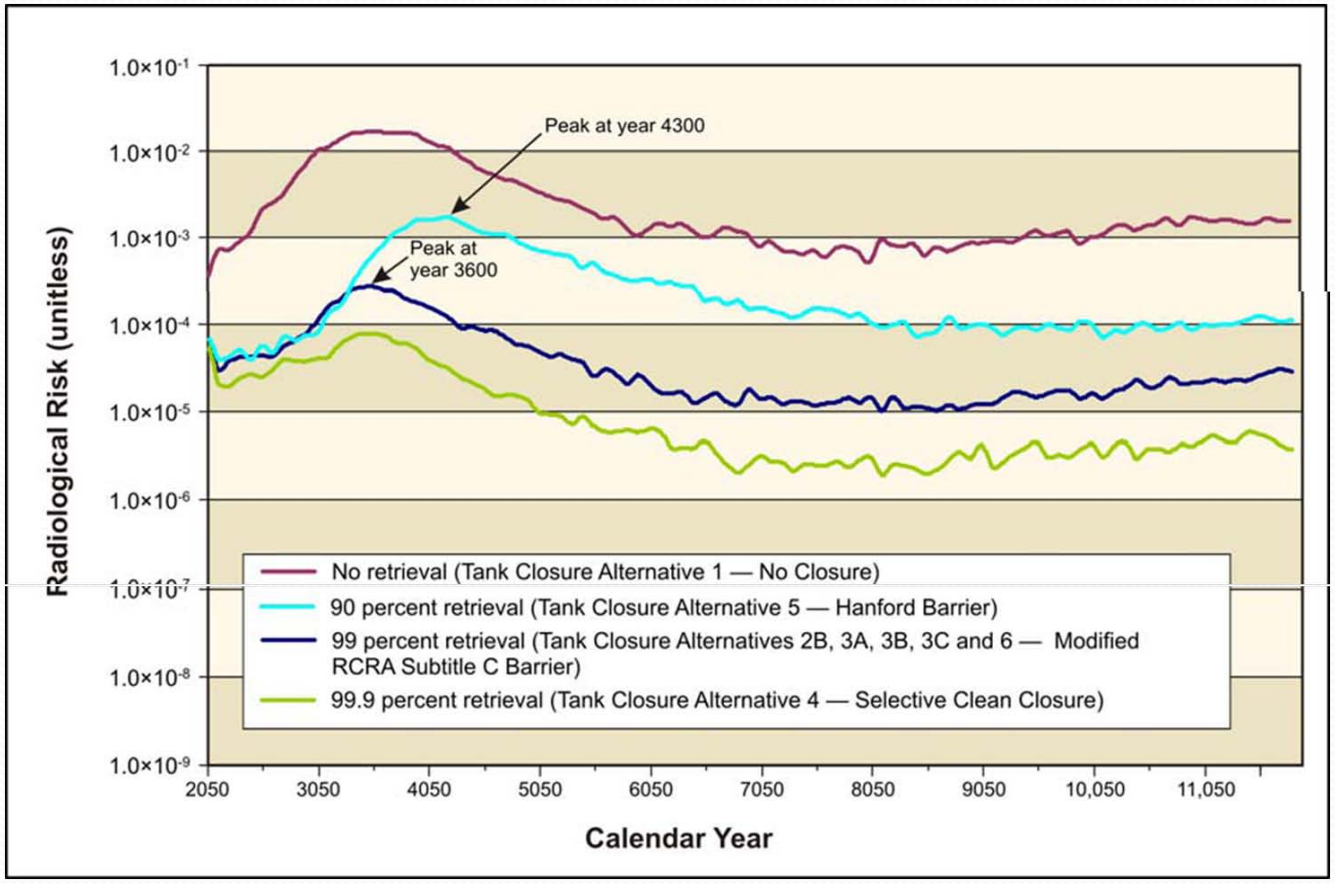


- Integrated Disposal Facility in 200 East is a better choice when considering impact to groundwater.

| | **Tank Closure Alternative 2B** | |
|---|---|---|
| Contaminant (picocuries per liter) | WM Alternative 2 (IDF-East) | WM Alternative 3 (IDF-East +IDF-West) |
| Technetium-99 | 2041 | 20,209 |
| Iodine-129 | 18.7 | 172.6 |

- About 17 pCi/l of Iodine and 1500 pCi/l of Technetium from offsite waste in East location

- Draft EIS indicates that greater than 99% retrieval makes a difference.



# Past Leaks Impacts

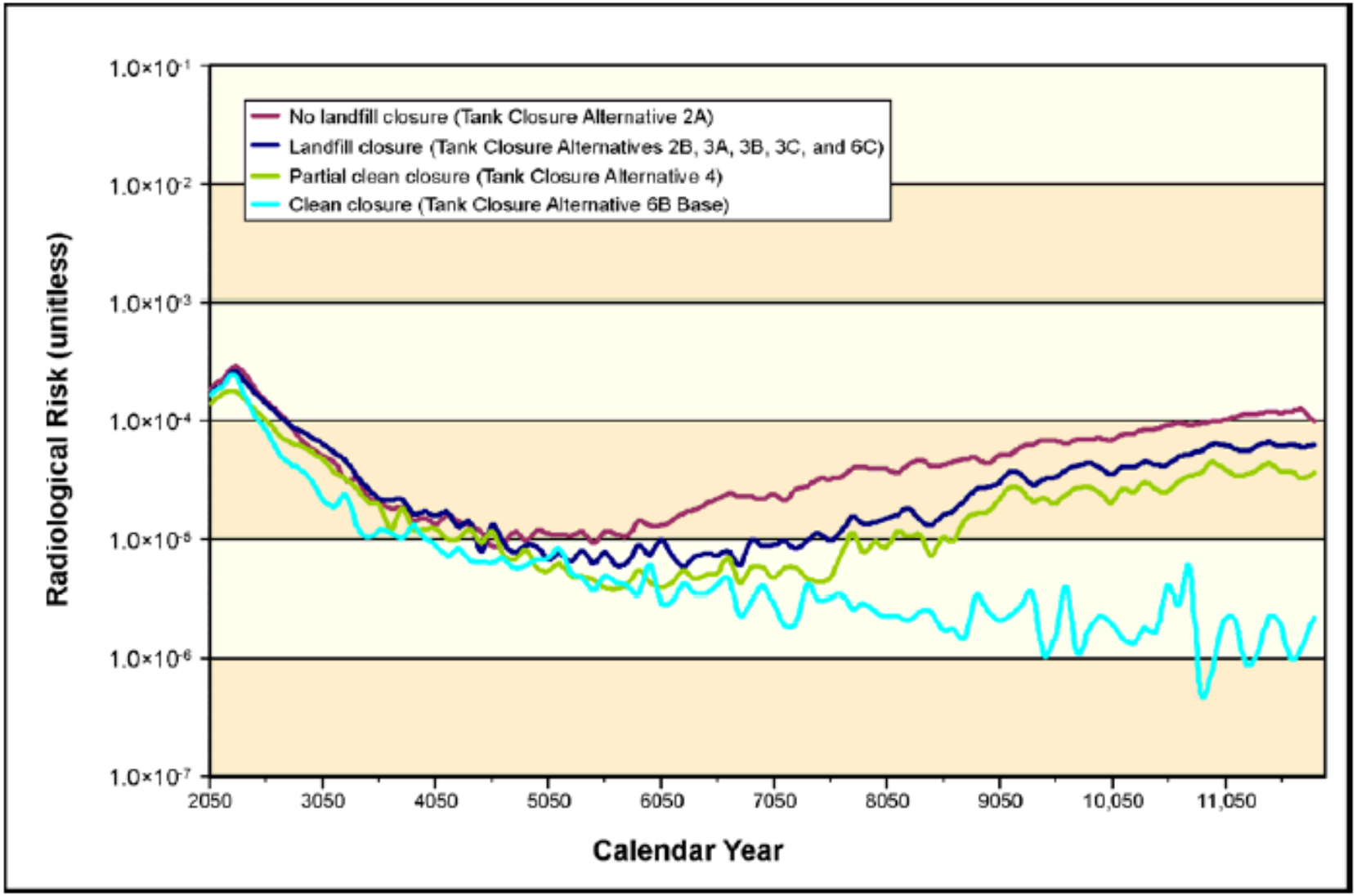



**Figure S–17. Lifetime Radiological Risk for the Drinking-Water Well User at the Core Zone Boundary due to Past Leaks at Single-Shell Tank Farms**

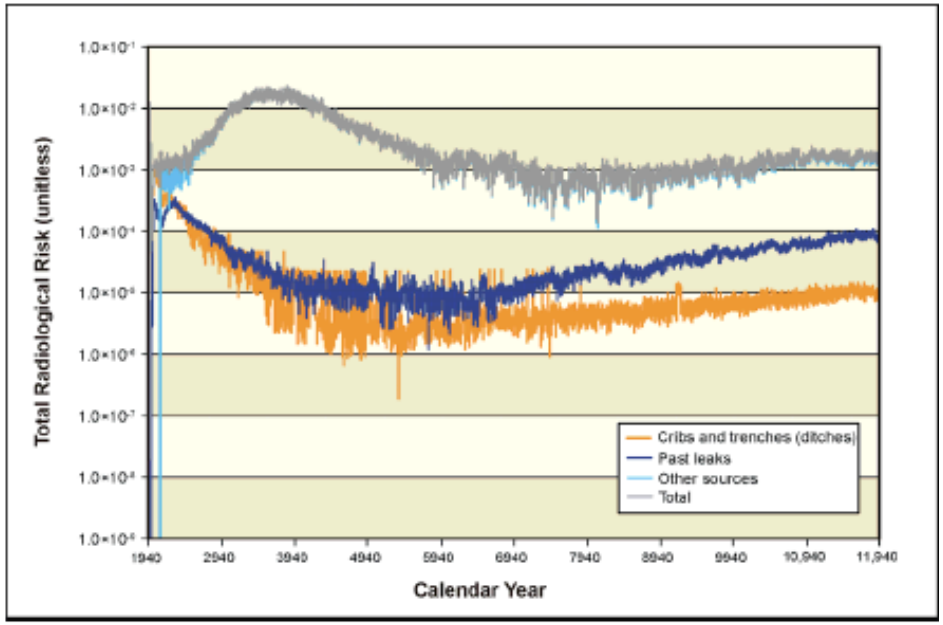



Figure 5–1285. Tank Closure Alternative 1 Time Series of Lifetime Radiological Risk for the Drinking-Water Well User at the Core Zone Boundary

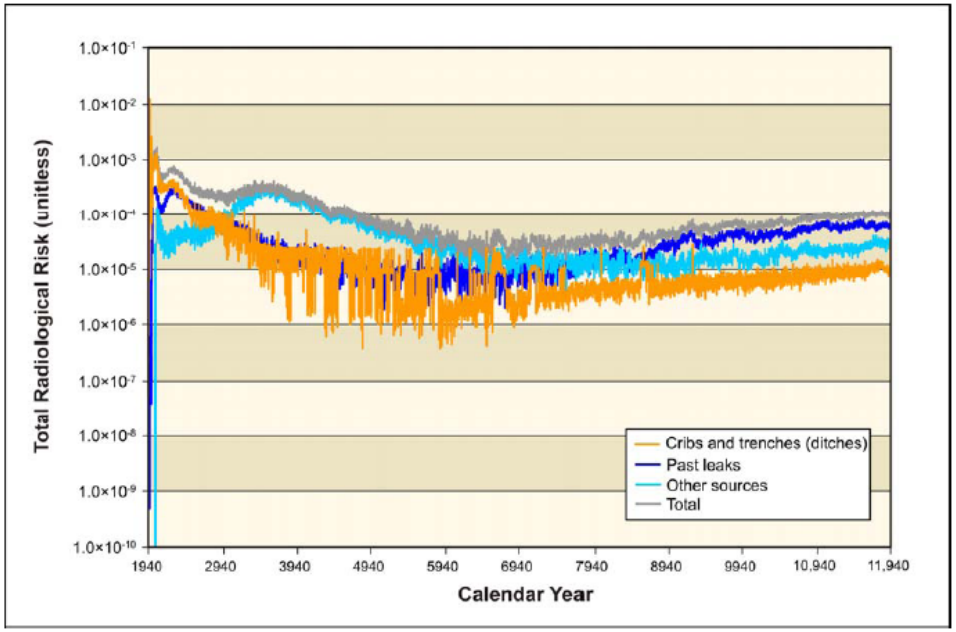



Figure 5–327. Tank Closure Alternative 2B Time Series of Radiological Risk for the Drinking-Water Well User at the Core Zone Boundary

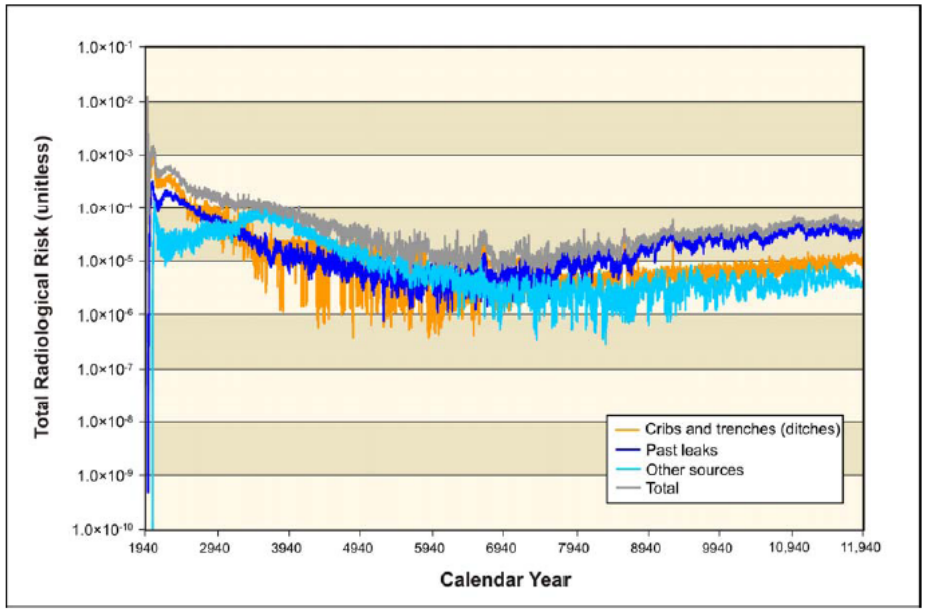



Figure 5–328. Tank Closure Alternative 4 Time Series of Radiological Risk for the Drinking-Water Well User at the Core Zone Boundary

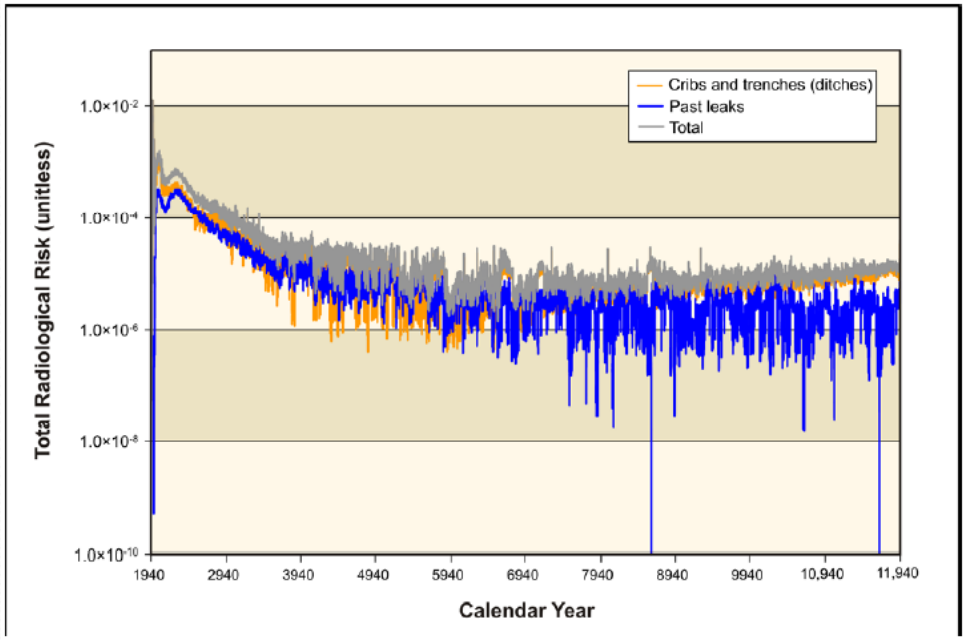



Figure 5–330. Tank Closure Alternative 6A, Base Case, Time Series of Radiological Risk for the Drinking-Water Well User at the Core Zone Boundary

# Comparison of Alternative Combinations Tank Farm Plus Landfill Impacts Combined

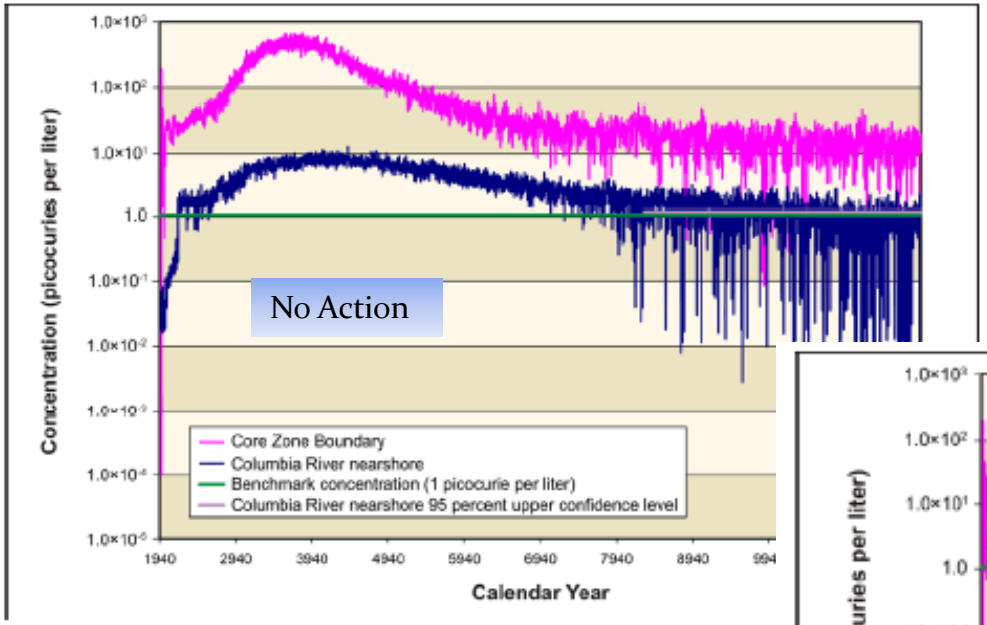
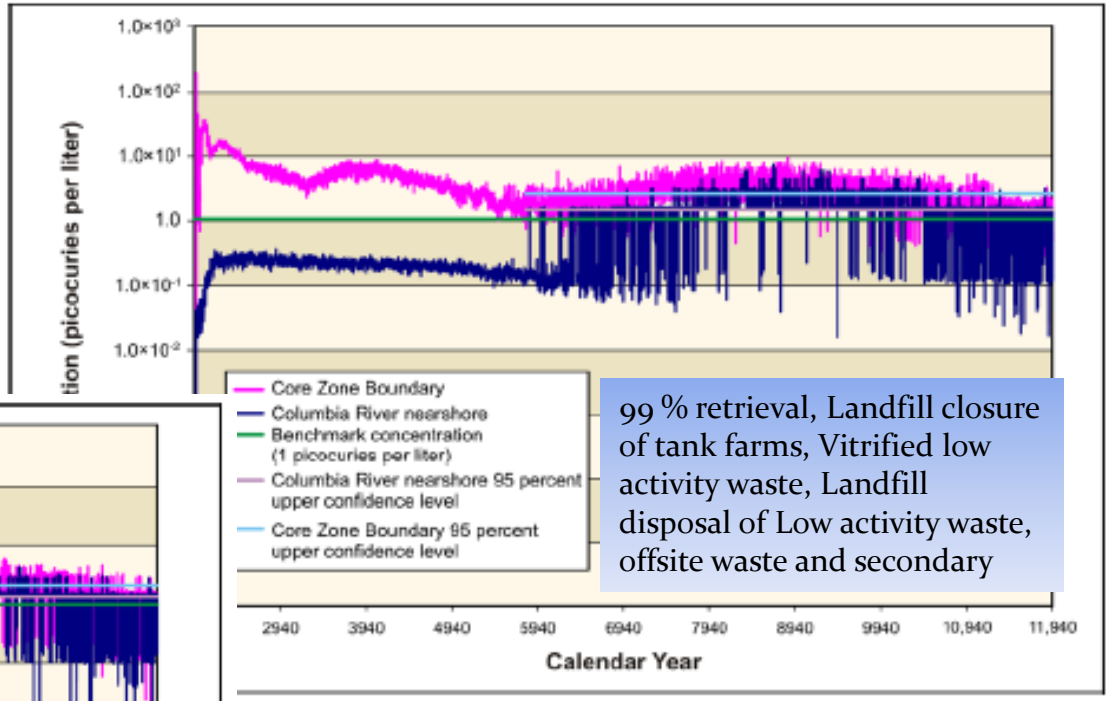



Figure 5–1192. Alternative Combination 1 Iodine-129 Concentration




23. Alternative Combination 2 Iodine-129 Concentration Versus Time

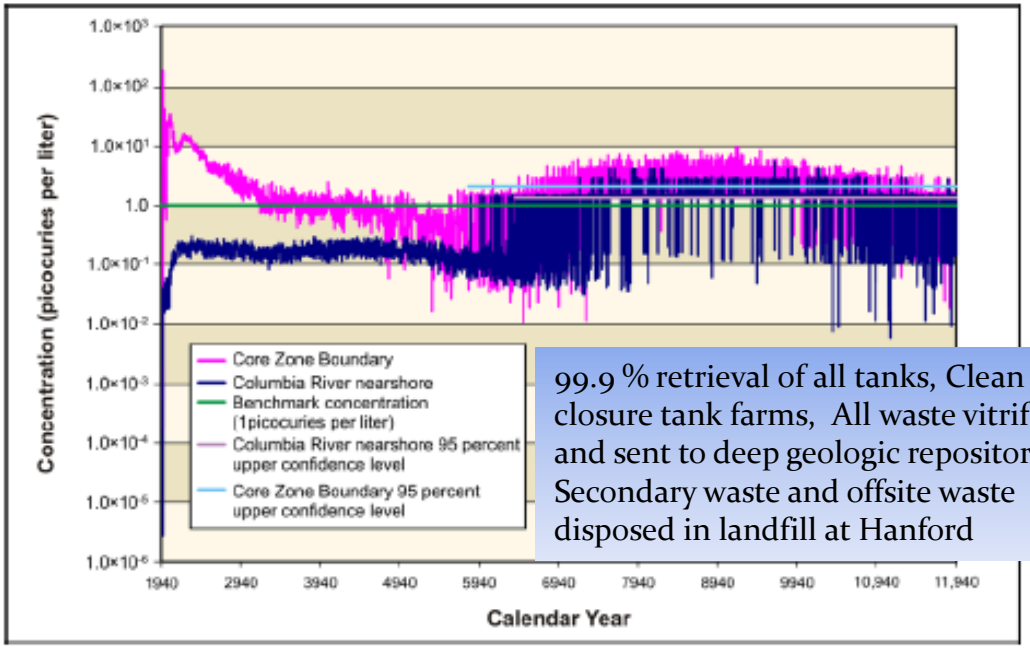



Figure 5–1255. Alternative Combination 3 Iodine-129 Concentration Versus Time

# Cumulative of All Hanford Waste with Alternative Combinations

## Hard News

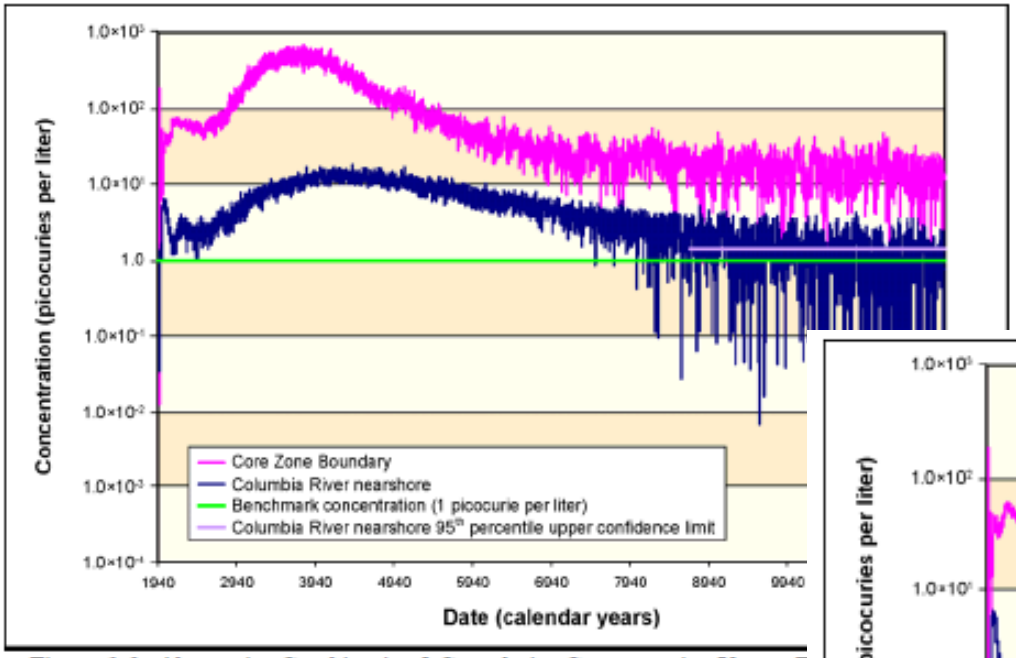
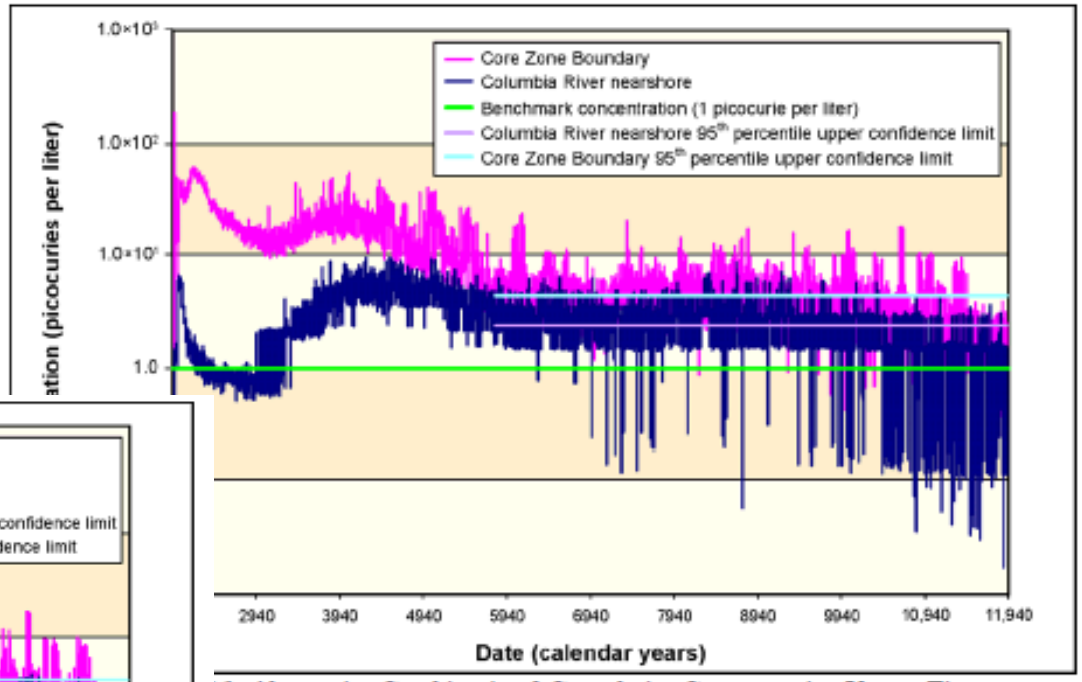



Figure 6–3. Alternative Combination 1 Cumulative Concentration Versus T




6. Alternative Combination 2 Cumulative Concentration Versus Time for Iodine-129

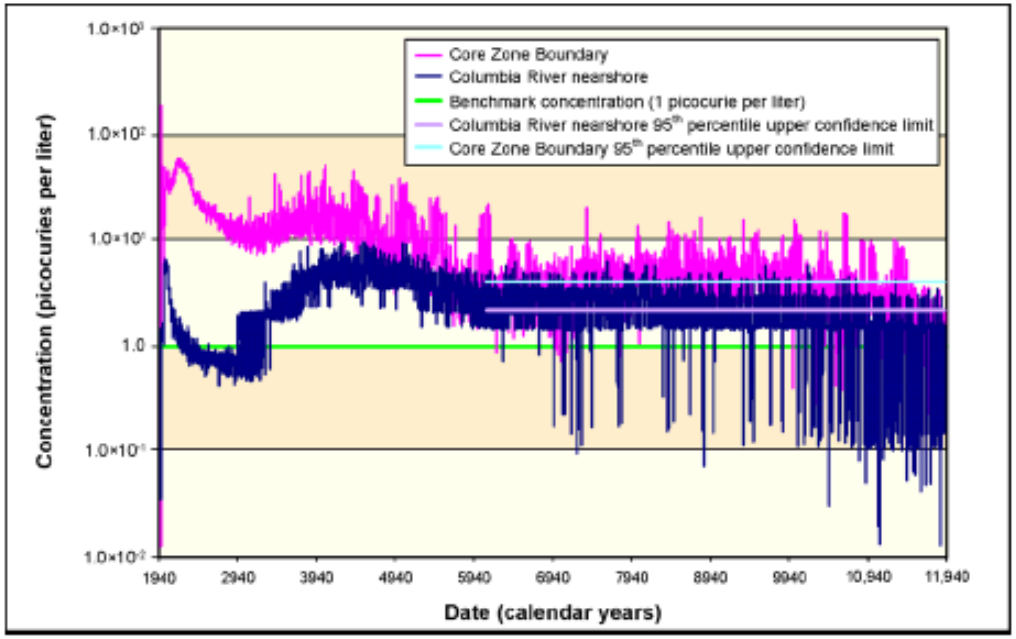



Figure 6–73. Alternative Combination 3 Cumulative Concentration Versus Time for Iodine-129

# Ecology's Letter

- Key Findings Ecology would like to highlight:
  - All the Low-Activity Waste must be in glass.
  - Secondary waste requires significant mitigation.
  - Offsite waste results in considerable groundwater contamination and should be significantly mitigated or not allowed to come to Hanford.
  - Ecology prefers the 200 East Area landfill location because we feel that it is more protective of human health and the environment.
  - For tank waste, we need to retrieve to the 99% level or more if possible.
  - If Landfill Closure is to be used, it will need to be augmented with significant corrective actions to the vadose zone, including the deep vadose zone, to avoid unacceptable future impacts.
    - Partial clean closure with significant vadose zone mitigation may be considered in individual tank farms.
  - To avoid recontamination of the groundwater and unacceptable future impacts, some past practice units in the Central Plateau will need more extensive remediation than was assumed in the Draft EIS.
    - The rest of Hanford's waste burden adds to future risk significantly. We must have better Hanford cleanup options.

# Ecology's Letter (cont.)

- We think the data gathering, modeling, and quality assurance were conducted in an adequate manner and the Draft EIS objectively analyzes and predicts the impacts of the reasonable alternatives and the cumulative inventory.
  - Overall, we note that the quality of the Draft TC&WM EIS analyses improved from those we reviewed in the Hanford Solid Waste EIS.
  - USDOE improved the quality assurance and quality control of the data that the EIS contractor used to analyze impacts to the groundwater.
  - USDOE improved the integration of analyses of all waste types that may be disposed in Hanford landfills.
    - This will address ongoing and proposed waste management activities in the Hanford Solid Waste Environmental Impact Statement.
  - USDOE improved the quality of the cumulative impact analyses to include wastes already adversely affecting the environment from past releases and disposal practices.

# Ecology's Letter (cont.)

- None of the TC&WM EIS alternatives bring impacts to acceptable cancer risk levels nor do they meet the safe drinking water standards.
  - However, the Draft EIS is helpful in pointing out the important fact that more effective cleanup is needed across the Central Plateau.

- We want to adopt all or part of this EIS to meet our SEPA requirements for content, so that we can take necessary permit actions to advance Hanford cleanup.

- However, we have issues with the Draft EIS "as is" because it lacks an analysis of how much the total Hanford mobile inventory should be reduced to be protective of the State's groundwater resources.
  - We are asking USDOE to develop an inventory reduction goal and discuss achievable mitigation measures to reach this goal in the Final EIS and include that information in the ROD.
  - This reduction goal would be the basis for specific mitigation measures discussed and committed to in the DOE Mitigation Action Plan.

# Ecology's Letter (cont.)

- The Mitigation Action Plan should be submitted to Ecology for review and comments.
  - The Mitigation Action Plan must identify distinct approaches for near-term impacts (50-100 years), mid-term impacts(1000 – 5000 years), and long-term impacts (7000 -10,000 years).
- When we issue a SEPA Determination of Significance and a Notice of Adoption, we will adopt the analyses contingent upon Ecology review and input into the DOE Mitigation Action Plan.
- We intend to establish enforceable conditions in permits and the TPA to ensure that the DOE completes mitigation measures.
  - We want to add enforceable milestones to the TPA for DOE to develop and maintain a cumulative impact assessment (risk budget) tool. Before any waste disposal plans or cleanup decisions become final, DOE would evaluate each action to determine its contribution to cumulative impacts.
  - Ecology will propose milestones for all land disposal facilities to require performance assessments.
- Ecology will put specific conditions in dangerous waste permits to mitigate past releases to soils and to inhibit releases in the future.
- Ecology, the USDOE, and the EPA are discussing a sensitivity scenario for the Final EIS.
  - That scenario will illustrate reduction of inventory through mitigation for inclusion in the Final EIS.
  - Ecology is encouraged by USDOE's willingness to develop this scenario.

# I Met A Man

Suzanne Dahl

2-25-10

I met a man
He spoke the truth
The hard truth

He bravely spoke through his pain
About his daughter
And horrors of cancer
How she died 31 months ago
She would have been 10 now

I met a man
He spoke the truth
The simple truth

He asked us to do our best
To clean up cancer agents
To clean up the mess man had made
So future children won't suffer

I met a man
I shook his hand – I felt his truth
I didn't let go

The simple truth was I was sorry for his loss
I told him, I too was a traveler on this childhood cancer journey
I spoke a parent's truth
No parent or child should have to endure the heart break of cancer

I met a man
We should all hear his truth
It is OUR truth