June 07, 2002

Patrick Sobotta
ERWM Director
Nez Perce Tribe
P.O. Box 385
Lapwai, ID 83540

Re: Your letter of May 28, 2002, to Tom Carpenter, commenting on my draft report,
"Hanford Radioactivity in Salmon Spawning Grounds
- quality, extent, and some implications,"

Mr. Sobotta:

Your expedient publication of the Nez Perce review of my draft report has served the public concern for the health of salmon spawning in the Hanford Reach.

I reply here to two of your issues: (1) Laboratory certifications and public confidence in results. (2) The origin of europium-152 in the Hanford Reach riverbed and its significance. I hope to clarify these two issues now, before the June 10th public meeting of the Hanford Scenarios Task Force on the topic of the Hanford Reach river corridor. I'll address other issues in my final report for which you have provided helpful review comments; thank you.

(1) Laboratory certifications and public confidence in results.
You commented that radiological analyses should only be conducted at an EPA approved, independent laboratory. However, the basic requirement for *scientific study* is for replicatability of results rather than for approvals or certifications.

I have adhered to that scientific requirement in my technical study by archiving samples so they can be re-analyzed by any critic and by describing my sampling method and providing precision (GPS) locations of my sample collections in Table 1 of my draft report at <**www.radioactivist.org**>. Anyone who doubts my analytical results, you are free to check out the radiological facts directly.

(2) The origin of Eu-152 in the Hanford Reach riverbed and its significance.
You say the source of the Eu-152 that I've reported in the riverbed is naturally occurring europium in Columbia River water having been irradiated when it passed through Hanford's old nuclear reactors. That possibility was addressed in the U.S. Fish and Wildlife Service, Upper Columbia River Basin Field Office, October 1999 Assessment Plan: "Hanford Site 100 Area Assessment Plan, Vol. 1: Columbia River Aquatic Resources, <**www.hanford.gov/boards/nrtc/100apfin.doc**>, p.52. The Assessment Plan explained the presence of Eu-152 in deeper sediments behind McNary Dam, downstream of Hanford, by the fact that radionuclides readily adsorbed onto fine silts and clays that settled to the bottom of the quiescent pool above the dam.

As that Assessment Plan explained, "There are few areas within the Hanford Reach where fine silts and clays are deposited in the mainstream of the river." The mainstream of the Columbia River through the Hanford Reach is too turbulent for the fine particles that had passed through the old reactors to settle to the bottom of the river. The physics of the situation therefore demands a different explanation for the Eu-152 found in the Hanford Reach riverbed from the Eu-152 found in McNary Dam pool sediments.*

The actual pattern of Eu-152 in the riverbed turns out to be most interesting. I found ***no*** concentrations of Eu-152 immediately downstream of ***any*** of the old Hanford reactor outfalls; see Table 1 of my draft report. If the Eu-152 in the riverbed had entered the river from the old reactor outfalls, as you say, then I would have found more Eu-152 just downstream of at least a few of the old reactor outfalls.

I tracked the Eu-152 in the riverbed back upstream to its source point in the middle of the river, downstream of D-Reactors intake and upstream of D-Island:
upstream of D-Reactors outfalls

I found no Eu-152 in the riverbed near any of the old reactors that are farther upstream: B-, C-, KE-, KW-, or N-Reactor.

Based on my finding of the upstream end of the Eu-152 pattern in the riverbed, I predicted that I could find remnants of whatever structure the old Atomic Energy Commission could have used to transport solid radioactive waste into the middle of the river and dump it there. That prediction led me to search a few hundred meters of Hanford shoreline, downstream of D-Reactors intake and led to my discovery of the remains of the old Wahluke ferry crossing, upstream of the D-Reactors outfalls.

Such predictions-and-confirmations are at the heart of science.

Based only on the early radiological indications from my reported work, Tom Carpenter of the Government Accountability Project, had requested all Hanford documents related to waste disposal from Hanford's old thorium-to-uranium-233 production campaigns. To its credit, the Department of Energy produced a list of over 50,000 relevant document titles. See, for example, HAN-53744, 2/15/54; HW-78100, 6/27/63, p.23; U-233-Thorium Program Letter - Chemistry Department, 7/15/65. I sketched Hanford's U-233 production history in Appendix 1 of my draft report, as gleaned from hundreds of documents I selected for review on the basis of their titles.

Those documents revealed that still semi-secret uranium-233 production, primarily for mini-nuclear weapons, was a main Hanford operation for much of the facility's history.

The fact that still-secret U-233 production is the source of solid radioactive waste labeled by Eu-152 in the Hanford Reach riverbed is important. It means Hanford is still unwilling to probe its old, but still-secret weapons material production practices, such as solid radioactive waste dumping directly into the Columbia River. It means government agencies are still unwilling to monitor U-233-related radioactivity in the riverbed in a

meaningful way. (Notice that U-233 is not even mentioned in the above-referenced <**www.hanford.gov/boards/nrtc/100apfin.doc**>.)

What this might or might not mean for salmon that spawn in the Hanford Reach National Monument is not yet known.

Hoping this clarifies two of the controversial issues you raised,
(signed original)
Norm Buske
The RadioActivist Campaign
<**search@igc.org**>

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* I've not yet located your Gregory Gibbons' Masters' thesis reference.

fyi: The give-and-take of this controversy are posted at
<**www.radioactivist.org**>.

ec:
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