



Department of Energy  
Richland Operations Office  
P.O. Box 550  
Richland, Washington 99352

OCT 29 2013

13-HAB-0027

Mr. S. E. Hudson, Chair  
Hanford Advisory Board  
Enviroissues Hanford Project Office  
713 Jadwin, Suite 4  
Richland, Washington 99352

Dear Mr. Hudson:

HANFORD ADVISORY BOARD (HAB) JUNE 7, 2013, CONSENSUS ADVICE #270,  
"300 AREA REMEDIAL INVESTIGATION/FEASIBILITY STUDY (RI/FS) AND  
PROPOSED PLAN (REV. 0)"

Thank you for advice #270 on the 300 Area RIFS and Proposed Plan (Rev. 0). The U.S. Department of Energy (DOE) appreciates the HAB's comments and advice and its continued interest in the cleanup work at Hanford.

Below are the responses to the points in your advice:

**Advice Point #1:** The Board advises DOE and EPA to undertake a treatability test to determine the effectiveness of uranium sequestration. Upon a successful test result, the Proposed Plan for a record of decision would be better informed and would be done in a more timely and cost-effective manner. If the test is not successful, the Board advises the agencies to continue to work with the Board on a path forward.

**Response:** Sufficient information is available from laboratory and field tests to have reasonable confidence that uranium can be precipitated as the mineral autinite and the uranium plume will attenuate within guidelines established in Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA). Therefore, a treatability test is not necessary to select and deploy the preferred alternative, "Enhanced Attenuation" (Alternative 3a as described in the 300 Area Proposed Plan).

"Enhanced Attenuation" is, fundamentally, a decision relying primarily on natural processes including advection/dispersion/diffusion to attenuate the uranium plume. "Enhancement" to the attenuation of the plume is provided by treating a targeted high-concentration area that has been determined to be the most significant source of uranium to the recalcitrant uranium plume in groundwater. An attenuation-based decision will work as there is a finite uranium source continuing to feed the groundwater plume. The conceptual model of the 300 Area uranium plume is both physically and geochemically complex, and is highly dynamic in response to the variable river stage, but adequately described to make a remedial decision.

The concentration of the uranium plume is relatively low and the size is relatively small; the uranium plume generally does not exceed 3X the drinking water standard and occupies only a portion of the 300 Area (0.5 km<sup>2</sup>) exceeding drinking water standards. The impact to the Columbia River is negligible and localized to the area of plume upwelling into the river. The uranium flux to the river is relatively small, an order of magnitude less than the uranium flux from three local irrigation return flumes and represents <4% of the uranium flux from the downstream addition provided by the Yakima River. The groundwater impacted by the uranium plume is not a current or future drinking water source. The City of Richland provides potable water to the area. The area impacted by uranium in the underlying aquifer is owned by the United States and the land will continue to be utilized by the Pacific Northwest National Laboratory for nuclear research activities for at least the next 25 years requiring access limitations. Given these conditions, the predicted time for attenuation of the plume (even with minimal success in deploying the uranium sequestration technology) is acceptable for meeting groundwater restoration goals established in the National Contingency Plan (40 CFR 300.430(a)(1)(iii)(F)). Institutional controls to prevent unacceptable exposure from groundwater consumption will be put in place until standards are met. Protectiveness of the decision will be verified by monitoring and evaluated in periodic remedy protectiveness reviews.

**Advice Point #2:** The Board advises DOE and EPA to communicate its plan for detecting and determining the effectiveness of uranium sequestration using polyphosphate injection in the 300 Area.

**Response:** The design details for deployment of the selected alternative will be provided in the remedial design/remedial action (RD/RA) work plan that is expected to be available six months after the record of decision is signed. The RD/RA Work Plan is a "primary document" as defined in in Section 9.0 of the Hanford Federal Facility Agreement and Consent Order. This designation requires regulatory review and approval and the draft document will be available to the Hanford Advisory Board. One of DOE's goals in the deployment of this technology is to determine the technology's potential application in other areas. As such, there are conceptual plans to sample the subsurface to determine the effectiveness of the technology.

**Advice Point #3:** The Board advises DOE and EPA to consider implementation of the phosphate technology for future cleanup actions on the Hanford Site if the technology is determined to be effective in removing uranium from groundwater.

**Response:** DOE agrees; if the technology is determined to be effective, it will be considered for further deployment.

Mr. S. E. Hudson  
13-HAB-0027

-3-

OCT 29 2013

Thank you again for your advice on this subject. If you have any questions, you may contact me or Kim Ballinger at (509) 376-6332.

Sincerely,

A handwritten signature in cursive script, appearing to read "Matt McCormick".

Matt McCormick  
Manager

OCE:KSB

Enclosure

cc w/encl: See page 4

Mr. S. E. Hudson  
13-HAB-0027

-4-

OCT 29 2013

cc w/encl:

C. B. Alexander, EM-3.2  
M. D. Bellon, Ecology  
D. A. Faulk, EPA  
J. A. Frey, RL/ORP-DDFO  
M. A. Gilbertson, EM-10  
T. Gilley, Enviroissues  
S. Hayman, Enviroissues  
J. A. Hedges, Ecology  
W. M. Levitan, EM-10  
K. W. Smith, ORP  
S. G. Van Camp, EM-23  
M. Zhu, EM-11  
Administrative Record  
Environmental Portal  
The Oregon and Washington  
Congressional Delegations

U.S. Senators (OR)

J. Merkley  
R. Wyden

U.S. Senators (WA)

M. Cantwell  
P. Murray

U.S. Representatives (WA)

N. Dicks  
R. Hastings  
J. Herrera Beutler  
R. Larsen  
J. McDermott  
C. McMorris Rodgers  
D. Reichert  
A. Smith

State Senators (WA)

J. Delvin  
M. Hewitt

State Representatives (WA)

L. Haler  
B. Klippert