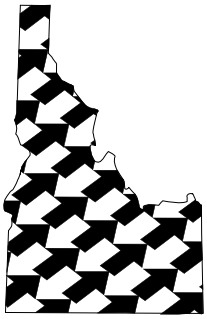

Citizens Advisory Board
Idaho National Engineering and Environmental Laboratory

Evaluation of Ecological Health at the Idaho National Engineering and Environmental Laboratory

The Idaho National Engineering and Environmental Laboratory (INEEL) Citizens Advisory Board (CAB) was asked for input by Environmental Restoration Program personnel with the U.S. Department of Energy's Idaho Operations Office and Region X of the U.S. Environmental Protection Agency. The two agencies are presently planning for the remedial investigations that will occur during implementation of the cleanup program for Waste Area Group 10 (WAG 10) at the INEEL.

Cleanup activities associated with WAG 10 will be initiated following completion of the cleanup program for all of the other WAGs. We understand that the intention is that WAG 10 will address contamination that does not fall within the boundaries of one of the other WAGs, residual contamination remaining after remedial and removal actions have been completed, and contamination of the aquifer. We further understand that the agencies expect to evaluate the overall health of the ecology at the INEEL as part of the WAG 10 process, and wanted advice on how to proceed with that effort.

One specific approach was mentioned as a possibility, that of using a "key indicator species." (We understand salmon have been used as a key indicator species for some portions of the cleanup program at Hanford.) We were also asked what timeframe should serve as the baseline for this evaluation, as certain factors regarding the ecology of the INEEL have changed since the site was first established 50 years ago. (For example, elk are now much more prevalent on the site than 50 years ago, likely because they face no pressures from hunting within site boundaries.)

We received presentations from individuals who have expertise in the site's ecology from the site contractor, the Environmental Science and Research Foundation, the Bureau of Land Management, and Idaho State University. Those presentations addressed how DOE conducts ecological risks assessments, sensitive species that are known to occur on the INEEL, methods for evaluating ecological health in high desert Sagebrush Steppe ecosystems, and what is known about the site based on monitoring data collected over the last fifty years. All of the presentations were informative and interesting.

We do not support the key indicator species concept as a way of assessing ecological health at the INEEL. Reasons include the following:

- It appears that no single species is appropriate to serve as an indicator of overall health at the INEEL. We understand that Sagebrush Steppe ecosystems are experiencing declines range wide for a variety of reasons, none of which are related to activities at the INEEL. We understand, for example, that populations of Sage Grouse have declined significantly throughout the intermountain West and that the decreases are not well understood. (Possible explanations include the introduction of predators, habitat fragmentation, and overall habitat loss.) Although Sage Grouse populations have declined on site as elsewhere, we are told that decline is not attributed to contamination at the site.

- We understand no single species known to occur on the INEEL is particularly susceptible to the contamination found at the INEEL. Salmon in the Columbia River, by contrast, are known to be sensitive to chromium, one of the primary contaminants of concern found at Hanford.

Having dismissed that concept, we lack the specific expertise within our membership to offer a credible alternative approach. We do offer four recommendations, however.

First, expertise can be found that would likely prove very helpful in developing a credible approach for evaluating ecological health. For example, researchers at Idaho State University have extensive data on the site's ecology and the expertise to interpret that data. Similarly, the Bureau of Land Management has developed methodological approaches for assessing the health of high desert Sagebrush Steppe ecosystems. **The INEEL CAB recommends DOE contract with a panel of qualified experts to provide consensus advice to those responsible for cleanup at WAG 10, support development of a credible approach, and oversee any evaluations that occur.**

Second, the Shoshone-Bannock Tribes have unique perspectives that should be addressed in developing an approach to evaluating ecological health. **The INEEL CAB recommends DOE define an appropriate role for the Tribes (through mechanisms consistent with the Tribes status) in advising decision-makers for cleanup at WAG 10, perhaps through an invitation to serve on the panel suggested above.**

Third, we note that presentations on methodology stressed the fact that ecosystems should be evaluated based on both physical and biological indicators. We were told, for example, that disturbances to the soil structure, nutrient cycle, and water cycle result in large impacts on habitats and the ability of those habitats to sustain natural vegetation and wildlife species. **The INEEL CAB recommends DOE evaluate the status of site habitats, as part of a high desert Sagebrush Steppe ecosystem, and the ongoing ability of those habitats to sustain historic plant and animal species. This evaluation should consider physical indicators of ecological health as well as native species of plants and animals.**

Fourth, we note that decisions made within the cleanup decision-making process are based primarily on consideration of the risks posed by contamination to human health and the environment. Little or no consideration is given the environmental impacts caused by the remedial alternatives. We understand that cleanup decision-making at the INEEL has not considered impacts of cleanup actions in determining which treatment technology should be employed. In some cases, however, implementation of the cleanup actions themselves may result in greater risk to the ecosystem (i.e., physical changes in habitat characteristics, alteration in surface or subsurface water flow) than the risk posed by the contamination itself. **Accordingly, the INEEL CAB recommends that DOE assess the ecological impacts of cleanup actions, in addition to assessing ecological risks associated with contamination, in evaluating the ecological health of the INEEL for WAG 10.**