



## Department of Energy

Idaho Operations Office  
1955 Fremont Avenue  
Idaho Falls, ID 83415

March 8, 2011

**SUBJECT: Final Environmental Assessment for the Idaho National Laboratory Stand-Off Experiment Range and Finding of No Significant Impact**

Dear Interested Party:

The U.S. Department of Energy (DOE) has completed the Final Environmental Assessment (EA) for the Idaho National Laboratory Stand-Off Experiment (SOX) Range and determined that a Finding of No Significant Impact (FONSI) is appropriate. The draft EA was made available for 38-day public review and comment period on December 22, 2010. DOE considered all comments made on the draft EA when developing the final EA and in making its determination. A Public Comment and Response section has been included as Appendix B of the final EA.

The FONSI and final EA can be accessed on the DOE website at [www.id.doe.gov](http://www.id.doe.gov). Thank you for your interest in this important endeavor.

Sincerely,

A handwritten signature in black ink, appearing to read "Richard B. Provencher".

Richard B. Provencher  
Manager

Enclosures

**U.S. DEPARTMENT OF ENERGY  
FINDING OF NO SIGNIFICANT IMPACT FOR THE IDAHO NATIONAL  
LABORATORY STAND-OFF EXPERIMENT RANGE ENVIRONMENTAL  
ASSESSMENT**

**Agency:** U. S. Department of Energy (DOE)

**Action:** Finding of No Significant Impact (FONSI)

**Summary:** DOE prepared an Environmental Assessment (EA), DOE/EA-1882, for the Idaho National Laboratory (INL) Stand-Off Experiment (SOX) Range. The objective of the EA was to evaluate the potential environmental impacts of creating and operating the SOX Range. The EA evaluated two alternatives: (1) the proposed action, and (2) a 'No Action' alternative. The SOX Range will be used to perform research and development using linear particle accelerators (linacs) with a maximum energy of 60 Mega (million) electron volts (MeV) and a current of 100 microamperes. This research is necessary to develop active interrogation systems capable of detecting nuclear and explosive materials at greater standoff distances than currently possible. In support of this research DOE will construct a small building, establish the necessary utility services, construct a down range road, fence a portion of the area, and make associated site improvements as described in the EA. Typical activities that will occur at the SOX Range include installing, assembling, and operating electron linacs and involve about four to twelve people and three vehicles.

DOE reviewed several possible on-site alternatives and determined the only reasonable alternative was to construct and operate the SOX Range on the INL Site just north of Test Area North. DOE did not consider off-site locations because no off-site location satisfied the site selection criteria.

**Selected Action:** DOE has decided to implement Alternative 1 as described in the EA. DOE considered the analysis in the EA and public comments received on the draft EA before making its decision. The analysis in the EA indicates the impacts of implementing Alternative 1 are not significant.

**Analysis:** Based on the analyses in the EA, the selected action will not have a significant effect on the human environment within the meaning of the National Environmental Policy Act (NEPA). The term "significantly" and the significance criteria are defined by Council on Environmental Quality Regulations for implementing NEPA at 40 CFR 1508.27. The significance criteria are addressed below and referenced to the applicable corresponding analysis in the EA.

1) **Beneficial and adverse impacts [40 CFR 1508.27 (b)(1)]:** The selected action establishes a capability to conduct outdoor linac operations at higher power and greater standoff distances. The SOX Range will enable research and development of active interrogation systems capable of detecting nuclear and explosive materials at greater standoff distances. Improving the ability to detect such materials at a distance directly supports critical national and homeland security missions. While there will be some impact to cultural and biological resources, the analysis (Section 4.0, pp. 12-23) indicates there will be no significant impact from implementing the selected action. The selected action provides national and homeland security benefits while minimizing the impact to the public, workers, and the environment.

**2) Public health and safety [40 CFR 1508.27 (b)(2)]:** The primary public health and safety issue is the potential for radiological exposure due to activation of naturally occurring elements in the air along the beam path and from X-rays and neutrons produced by the operation of linacs at the SOX Range. The EA analyzed the impact of linac operations up to 60 MeV and 100 microamperes (Section 4.1, pp. 13-22) and concluded that public dose will be insignificant (less than 1% of the regulatory limit). In addition, the risk to workers will be managed and mitigated in accordance with the INL Radiation Protection Program. The design and location of the SOX Range as well as implementing the specific operational controls (Table 2, p. 10) further reduce the likelihood of any adverse impacts to public health and safety. Other activities are routine industrial type in nature and will be conducted in accordance with INL institutional health and safety programs. These do not represent any unique hazards to public health and safety.

**3) Unique characteristics of the geographical area [40 CFR 1508.27 (b)(3)]:** The INL Site has been a federal reservation with restricted public access since the mid-1940s. As a result of this restricted access unique characteristics include a well-preserved cultural resources record within the boundary of the INL Site and the largest remnant of undeveloped, un-grazed sagebrush steppe ecosystem in the Intermountain West (Section 3.0, pp. 11-12). The selected action maximizes the use of previously disturbed areas, and specific operational controls (Table 2, p. 10) will be implemented to help DOE preserve and conserve the unique characteristics of the INL Site.

**4) Degree to which effects on the quality of the human environment are likely to become highly controversial [40 CFR 1508.27 (b)(4)]:** The analysis indicates implementing the selected action will not adversely impact the quality of the human environment. Information gained through consultation with various entities with expertise in resource management and public comment indicates the proposed action is not highly controversial. Formal comments were received from two interested parties (Appendix B of the EA). These inputs, as well as feedback from informational briefings demonstrated a high level of support for proposed activity. DOE considered the comments received in its decision making. DOE responses to those comments can be found in Appendix B.

**5) Uncertain or unknown risks on the human environment [40 CFR 1508.27 (b)(5)]:** The analysis indicates no uncertain or unknown risks on the human environment will result from implementing the selected action.

**6) Precedent for future actions [40 CFR 1508.27 (b)(6)]:** The selected action does not set a precedent for future action that may have significant effects, or represent a decision in principle about a future consideration.

**7) Cumulatively significant impacts [40 CFR 1508.27 (b)(7)]:** The analysis indicates the selected action, when combined with past, present and reasonably foreseeable future actions, will result in little additional impact on cultural and biological resources of the INL Site (Section 4.1.5, pp. 21-22; Section 4.3, p. 23). The project has the potential to affect cultural and biological resources by its activities, which include road construction and use, removing vegetation and disturbing soil, and other disruptive activities. However, from a cumulative impact perspective, the incremental amount is not significant. The area of greatest impact occurs within the fenced portion of the SOX Range (previously disturbed) and the Extended Range. This area amounts to about 0.6% of the INL Site's 569,600 acres. Considering the widely spread nature of INL facilities and that most of the site remains pristine, cumulative impacts to cultural artifacts, sage-grouse, pygmy rabbits, and other resources is low.

The selected action will result in cumulative radionuclide emissions to the maximally exposed individual (MEI) from all operations at the INL Site of less than 0.09 mrem/yr (normal operations) and less than 0.17 mrem/yr (maximum operations). An MEI is a member of the public with the greatest potential for exposure located outside the INL site boundary. For either operational scenario the cumulative effective dose equivalent will remain far below the 10 mrem/yr regulatory limit.

8) **Effect on cultural or historical resources [40 CFR 1508.27 (b)(8)]:** The proposed action could cause minor direct and indirect impacts on the cultural resources and archaeological sites. Operational controls will be implemented before and during project activities to minimize the potential for adverse impacts to cultural resources in the area (Table 2, p. 10).

9) **Effect on threatened or endangered species or critical habitat [40 CFR 1508.27 (b)(9)]:** The analysis indicates no threatened or endangered species or critical habitat will be adversely impacted by the selected action. The selected action will have minimal impact on species of concern and will slightly increase the amount of habitat fragmentation in the area. Operational controls (Table 2, p. 10) will be implemented to minimize impacts to those resources.

10) **Violation of Federal, State, or Local law [40 CFR 1508.27 (b)(10)]:** None of the actions identified in the selected alternative violate federal, state or local laws.

**Determination:** Based on the analysis presented in the attached EA, I have determined that the selected action does not constitute a major federal action significantly affecting the quality of the human environment. Therefore, preparation of an environmental impact statement is not required.

Issued at Idaho Falls, Idaho on this 8 day of March, 2011.



Richard B. Provencher  
Manager, Idaho Operations Office

Copies of the EA and FONSI are available from: Tim Jackson, Office of Communications, MS-1203, Idaho Operations Office, U. S. Department of Energy, 1955 Fremont Avenue, Idaho Falls, Idaho, 83415-1203, or by calling (208) 526-8484.

For further information on the NEPA process contact: Jack Depperschmidt, NEPA Compliance Officer, MS-1216, U. S. Department of Energy, 1955 Fremont Avenue, Idaho Falls, Idaho, 83415-1216, (208) 526-5053.