

DOE-ID NEPA CX DETERMINATION

Idaho National Laboratory

SECTION A. Project Title: National Security and Infrastructure Protection Research and Development

SECTION B. Project Description and Purpose:

This overarching (OA) environmental checklist (EC) updates and replaces EC INL-05-002, "Critical Infrastructure Protection (CIP) Program." This OA EC addresses ongoing and future research and development (R&D) activities and training exercises and simulations conducted as part of Idaho National Laboratory's (INL's) National Security and Infrastructure Protection Programs through 2017. The National Security and Infrastructure Protection Program at INL provides a program and areas across the INL to conduct a wide variety of training exercises and simulations and R&D related to communications, facility design and management, security, and other activities associated with national security and infrastructure protection. The R&D is bench-scale, small-scale, or pilot-scale in nature and often conducted to demonstrate proof-of-concept.

The National Security and Infrastructure Protection Program is comprised of numerous facilities and related structures to conduct testing, evaluation, R&D, and various training exercises to address vulnerabilities associated with national security and specific infrastructure.

The National Security and Infrastructure Protection Program is comprised of a series of sub-areas or test beds. These areas are dedicated to specific types of national security and infrastructure testing needs. The National Security and Infrastructure Protection Program includes the following:

- Contraband Detection R&D: Activities for contraband R&D take place at multiple sites at INL's desert site and other INL laboratory locations. INL has developed various sensors and detectors to assist in early detection of contraband and other materials. Real world vulnerabilities and risk assessments are modeled, tested, and validated at INL.
- Cyber Security R&D: This R&D effort seeks to protect industrial computer control systems, communications, and the systems that they link. INL maintains multiple layers of firewalls, intrusion detection systems, hybrid systems, and encryption links for network operating environments.
- Electrical Power Grid R&D: Power Grid R&D efforts use a variety of INL facilities, structures, and support systems dedicated to aggressive testing when the risks to other facilities and operations are not acceptable. These areas are used to test and process vulnerability information for secure power lines, real-time grid monitoring and control, and rapid electrical service recovery.
- Incident Response Technology R&D and Training: Incident Response Technology R&D and Training at INL offers training expertise and optimal training environments to military units, law enforcement, and National Guard Weapons of Mass Destruction Civil Support Team. A mobile training team also delivers classroom training, hands-on exercises, and scenario-based field exercises. Training for weapons of mass destruction (WMDs) is delivered through a combination of classroom training, practical exercises and scenario based field exercises. Additionally, INL Special Response Teams and other specialized groups utilize areas at INL for force-on-force training.
- Live Fire Test Range: The Live Fire Test Range includes facilities, structures, and support systems for Protective Force training and operations at the INL Site. Certain projects use explosives at INL ranges designated and cleared for explosive work such as the Mass Detonation Area (MDA) and Live Fire Range. Testing at the MDA and Live Fire Range occurs within approved parameters. Other explosive material is limited to devices typically used during force-on-force exercises.
- Next Generation Wireless (NGW) R&D: NGW R&D represents large-scale, independent, end-to-end testing of next generation communication infrastructure such as cellular phone systems, land mobile radios, emergency communications systems, and wireless local area network (WLAN) systems. The R&D supports commercial and government efforts and operates under INL's status as a National Telecommunications Information Administration test station, which allows R&D activities to use most frequencies of interest for testing purposes in coordination with a local spectrum manager acting for the Chief Information Officer (CIO) at the Department of Energy Idaho Operations Office (DOE-ID). Three test sites, including monopole tower structures, have been constructed across 16 square miles at the Central Facilities Area (CFA) as part of the National Security and Infrastructure Protection Program and are provisioned with various wireless telecommunications equipment, test equipment and modeling/simulating tools.
- Physical Security R&D: Testing for Physical Security activities could take place at a number of INL facilities. Physical security is incorporated into areas used by the National Security and Infrastructure Protection Program, because these systems rely heavily on physical security such as people, weapons, physical or virtual barriers, sensors, sophisticated instrumentation, protective materials, and other administrative procedures. INL conducts R&D on state-of-the-art physical security systems and tests new and current systems to address system vulnerabilities that could affect people and infrastructure.
- Portable Isotopic Neutron Spectroscopy (PINS) R&D: PINS R&D involves a non-destructive chemical assay technology used by the U.S. military and foreign military units to identify and verify the contents of actual or suspect chemical warfare munitions. In addition to chemical warfare agents, the instrument can identify explosive substances, smoke generating chemicals, and practice munition fills. PINS employs neutron radiation from a small radioisotopic source as a probe of an item's fill. The chemical elements inside the item are revealed by their characteristic neutron-induced gamma-ray signature, measured by a gamma-ray spectrometer, usually a high-resolution high purity germanium (HPGe) spectrometer. The system computer then infers the fill compound or mixture from the chemical elements detected and their relative abundance. PINS demonstrations, research and development, and operator training are conducted with simulant chemicals inside replica munitions at the laboratory in Idaho Falls. Tests with actual chemical warfare agents are not conducted at IF-675.

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- Smart Grid Test Bed (SGTB): The SGTB allows users (smart grid developers or utilities) to install and interconnect smart grid equipment and systems on electrical power distribution networks that have the capability to selectively operate at various voltages.
- Supervisor Control and Data Acquisition (SCADA): The purpose of the SCADA R&D is to conduct tests to mitigate impacts to critical infrastructure and aggressively recover from attacks involving cyber or physical threats. The SCADA R&D combines efforts in security administration and governance, standards, industry alliances, education and awareness, modeling, vulnerability assessment of United States (U.S.) utilities, and R&D.
- Water Security Test Bed (WSTB): The WSTB is designed to allow the study of intentional or accidental contamination of water and piping systems from a variety of radiological, biological and chemical contaminants. The WSTB simulates the diurnal flow demand of a typical water distribution system. The WSTB also includes sensing and detection hardware, cyber security (SCADA) testing, first responder group exercises and sampling and protocol evaluation and assessment for water distribution systems.

Other INL communications assets which support the National Security and Infrastructure Protection Program include the following:

- Shared space at the Howe Peak and East Butte Radio Transmission Facilities
- Digital Land Mobile Radio Test Equipment
- WLAN Test Equipment
- Wireless Metropolitan Area Network (WMAN) Test Equipment
- Outdoor Antenna Test Range Area
- Anechoic Radio Frequency Chambers
- Electronic and radiofrequency equipment across the INL Site and laboratories located in Idaho Falls
- High-speed fiber connectivity
- Mobile Test Platforms commonly referred to as Cellular on Wheels (COWs).

This EC gives overarching coverage to projects conducted as part of the National Security and Infrastructure Protection Program. Each individual project must complete a secondary EC and receive approval on the EC from the project manager, the Environmental Support and Services (ES&S) National Environmental Policy Act (NEPA) Technical Lead (NTL), and the R&D Program Environmental Lead (PEL) to verify the scope, environmental aspects, and work activities are covered under this overarching EC.

R&D activities include, but are not limited to the following:

- Conducting non-intrusive measurements of INL Site infrastructure systems
- Designing and building security systems and methodologies followed by testing through force-on-force exercises
- Designing, building, and testing mock-ups of infrastructure and process systems such as tanks and piping systems
- Designing, building, and testing electronic equipment related to infrastructure protection and testing
- Designing, writing, and testing software to support infrastructure testing and protection and other security-related activities
- Testing explosives and uses for explosives (as limited below)
- Designing, building, and testing non-intrusive detection and measurement equipment related to chemical, biological, and nuclear materials
- Researching active interrogation methods using electronic and physical means, including, but not limited to, accelerators, X-rays, and radioactive sources
- Training emergency responders
- Installing and using antenna and repeater systems
- Testing next generation communication infrastructure
- Conducting tests to mitigate impacts to critical infrastructure and research methods to recover from attacks involving cyber or physical threats
- Conducting R&D on state-of-the-art physical security systems
- Assessing real-world vulnerabilities through modeling, testing, and validating systems
- Conducting tests to enhance the capacity to protect special nuclear material, heavy weapons, and use of explosive breaching techniques
- Conducting force-on-force exercises.

Project activities would use explosives at INL ranges designated and cleared for explosive work, including the MDA and Live Fire Range. Project personnel conducting tests at the MDA and Live Fire Range, or other areas on the INL Site, would stay within the parameters and conditions found in previously approved environmental checklists, including this and future ECs. Other explosive material would be limited to devices of the magnitude typically used during force-on-force exercises. The use of these explosives may be used at other areas such as the Critical Infrastructure Test Range Complex (CITRC) or the power line testing area in addition to the MDA and the live fire range subject to appropriate approval of project-specific ECs.

Non-intrusive measurements would likely include, but not be limited to, placing sensors on INL infrastructure. Mock-up facilities would likely be small enough to fit inside buildings or would use open land.

Activities not covered by this overarching EC include, but may not be limited to, the following:

1. Actions that change the scope or mission of a facility
2. Actions that cause a significant increase in environmental impacts

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3. Actions for which a specific and/or separate categorical exclusion is specified in 10 CFR 1021, Appendix B to Subpart D
4. Actions that remove or disturb sagebrush anywhere on the INL Site
5. Actions that disturb any type of vegetation within the Sage-grouse Conservation Area
6. Actions that require preparation or modification of a permit
7. Actions that require preparation of a Stormwater Pollution Prevention Plan
8. Actions that would occur within 1 km of a sage-grouse lek.

This EC gives overarching coverage for those activities described and that fall under categorical exclusion B1.2 or B3.6 (i.e., "Training exercises and simulations" and "Small-scale research and development, laboratory operations, and pilot projects." Each project approved under this overarching EC must meet the conditions of the Categorical Exclusions (CXs) established in 10 CFR 1021 Appendix B to Subpart D, items B1.2 or B3.6.

SECTION C. Environmental Aspects or Potential Sources of Impact:

Air Emissions

Project activities conducted under this overarching EC may require completion of an Air Permitting Applicability Determination (APAD).

Project activities have the potential to generate fugitive dust.

Emissions may also be generated during maintenance activities such as operation of fuel burning equipment (e.g., portable generators), use of maintenance products that contain hazardous constituents, and disturbance of contaminated soils.

Radiological emissions have the potential to occur as part of program activities

Asbestos releases could occur if projects are conducted without proper controls.

Discharging to Surface-, Storm-, or Ground Water

Routine project activities may discharge wastewater through sewer and septic systems.

Most CIP Program activities occur outside the storm water corridor; however, some activities associated with the CIP Program may take place at other INL locations that may be within the storm water corridor. Project personnel would consult with the PEL to review each activity to determine if the activity is within the storm water corridor in order to minimize impacts to the floodplain.

Disturbing Cultural or Biological Resources

Project activities have the potential to disturb biological and cultural resources.

Generating and Managing Waste

Maintenance and operational activities may generate a variety of waste. It is anticipated that the following types of waste could be generated:

- Hazardous wastes have the potential to be generated during the conduct of project activities and by using hazardous chemicals to clean or decontaminate equipment and systems. Hazardous metal waste (e.g., lead, electronics, brass, metal containing paints, etc.) may also be generated.
- Industrial (non-hazardous, non-radioactive) waste includes typical maintenance wastes such as boxes, wood, wiring, paper, insulation, and some metals.
- Asbestos waste may be generated.
- Low-level radioactive waste from personal protective equipment (PPE) and project activities.

Releasing Contaminants

Project activities may take place within Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites subject to remediation and/or institutional controls.

Though unexpected, chemical use has the potential to result in spills and releases.

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Using, Reusing, and Conserving Natural Resources

Project personnel would use every opportunity to recycle, reuse, and recover materials and divert waste from the landfill when possible.

SECTION D. Determine Recommended Level of Environmental Review, Identify Reference(s), and State Justification: Identify the applicable categorical exclusion from 10 Code of Federal Regulation (CFR) 1021, Appendix B, give the appropriate justification, and the approval date.

For Categorical Exclusions (CXs), the proposed action must not: (1) threaten a violation of applicable statutory, regulatory, or permit requirements for environmental, safety, and health, or similar requirements of Department of Energy (DOE) or Executive Orders; (2) require siting and construction or major expansion of waste storage, disposal, recovery, or treatment or facilities; (3) disturb hazardous substances, pollutants, contaminants, or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)-excluded petroleum and natural gas products that pre-exist in the environment such that there would be uncontrolled or unpermitted releases; (4) have the potential to cause significant impacts on environmentally sensitive resources (see 10 CFR 1021). In addition, no extraordinary circumstances related to the proposal exist that would affect the significance of the action. In addition, the action is not "connected" to other action actions (40 CFR 1508.25(a)(1)) and is not related to other actions with individually insignificant but cumulatively significant impacts (40 CFR 1608.27(b)(7)).

References: 10 CFR 1021, Appendix B, B1.2 "Training exercises and simulations" and B3.6 "Small-scale research and development, laboratory operations, and pilot projects."

Justification: Project activities are consistent with 10 CFR 1021, Appendix B, B1.2 "Training exercises and simulations (including, but not limited to, firing-range training, small-scale and short-duration force-on-force exercises, emergency response training, fire fighter and rescue training, and decontamination and spill cleanup training) conducted under appropriately controlled conditions and in accordance with applicable requirements;" and B3.6 "Siting, construction, modification, operation, and decommissioning of facilities for small-scale research and development projects; conventional laboratory operations (such as preparation of chemical standards and sample analysis); and small-scale pilot projects (generally less than 2 years) frequently conducted to verify a concept before demonstration actions, provided that construction or modification would be within or contiguous to a previously disturbed or developed area (where active utilities and currently used roads are readily accessible). Not included in this category are demonstration actions, meaning actions that are undertaken at a scale to show whether a technology would be viable on a larger scale and suitable for commercial deployment."

Is the project funded by the American Recovery and Reinvestment Act of 2009 (Recovery Act) Yes No

Approved by Jack Depperschmidt, DOE-ID NEPA Compliance Officer on: 11/28/2016