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Cultural Resource Investigations for the Resumption of Transient Testing of Nuclear Fuels and Material at the Idaho National Laboratory

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ABSTRACT

The U. S. Department of Energy (DOE) has a need to test nuclear fuels under conditions that subject them to short bursts of intense, high-power radiation called 'transient testing' in order to gain important information necessary for licensing new nuclear fuels for use in U.S. nuclear power plants, for developing information to help improve current nuclear power plant performance and sustainability, for improving the affordability of new generation reactors, for developing recyclable nuclear fuels, and for developing fuels that inhibit any repurposing into nuclear weapons. To meet this mission need, DOE is considering alternatives for re-use and modification of existing nuclear reactor facilities to support a renewed transient testing program. One alternative under consideration involves restarting the Transient Reactor Test reactor (TREAT) located at the Materials and Fuels Complex (MFC) on the Idaho National Laboratory (INL) Site in southeastern Idaho.

This report summarizes cultural resource investigations conducted by the INL Cultural Resource Management (CRM) Office in 2013 to support environmental review of activities associated with the Resumption of Transient Testing (RTT) project and associated restart of the TREAT reactor at the INL. These investigations were completed in order to identify and assess the significance of cultural resources within areas of potential effect associated with the proposed action and determine if the RTT project would affect significant cultural resources or historic properties that are eligible for nomination to the National Register of Historic Places. No archaeological resources were identified in the direct area of potential effects for the project, but one archaeological resources was confirmed within a zone of potential indirect effects (10-BM-223). In addition, two of the buildings proposed for modifications and three of the buildings that will be integral to TREAT reactor operations and transient testing are evaluated as historic properties, eligible for listing on the National Register of Historic Places. These include the TREAT Reactor Building (MFC-720) and the original Reactor Control Building (MFC-721) proposed for modifications and the Fuel Conditioning Facility (FCF, MFC-765), Hot Fuels Examination Facility (HFEF, MFC-785),and Advanced Test Reactor (ATR, TRA-670) proposed for operational support within their originally established research functions. The proposed modification/re-use and continued ongoing use of these historic properties is consistent with original missions related to nuclear reactor testing and is expected to result in no adverse effects to their historic significance. Cultural resource investigations also involved communication with representatives from the Shoshone-Bannock Tribes to characterize cultural resources of potential tribal concern.

This report provides a summary of all cultural resources inventoried and assessed within the defined areas of potential effect for the resumption of transient testing at the INL. Based on these analyses, proposed activities would have no adverse effects on historic properties within the APEs that have been defined. Other archaeological resources and cultural resources of potential concern to the Shoshone-Bannock Tribes that are located outside of the APEs are also discussed with regard to potential indirect impacts. The report concludes with general recommendations for measures to reduce impacts to all identified resources.

CONTENTS

FIGURES

TABLES

ACRONYMS

ACHP	Advisory Council on Historic Preservation
AIP	Agreement in Principle
ANL-W	Argonne National Laboratory-West (former designation for MFC)
APE	area of potential effects
ATR	Advanced Test Reactor
BP	before present (years)
BM	Bingham (county)
CFR	code of federal regulations
CPP	Chemical Processing Plant (former designation for INTEC)
CRM	cultural resource management
CRWG	cultural resources working group
DOE-ID	Department of Energy-Idaho Operations Office
FDP/FAST	Fluorinel Dissolution Process/Fluorinel Dissolution Process and Storage Facility
GIS	geographic information system
GPS	global positioning system
HeTO	Heritage Tribal Office (Shoshone-Bannock Tribes)
HFEF	Hot Fuel Examination Facility
INL	Idaho National Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
MFC	Materials and Fuels Complex
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRC	Nuclear Regulatory Commission
NRHP	National Register of Historic Places
RTT	Resumption of Transient Testing
SHPO	State Historic Preservation Office
TRA	Test Reactor Area (former designation for the ATR Complex)
TREAT	Transient Test Reactor
U.S.	United States

Cultural Resource Investigations for the Resumption of Transient Testing of Nuclear Fuels and Material at the Idaho National Laboratory

1. INTRODUCTION

The Idaho National Laboratory (INL) is an 890 square mile federal reserve covering portions of five counties on the northeastern edge of the Snake River Plain in southeastern Idaho (Figure 1). INL lands and facilities are under the jurisdiction of the U.S. Department of Energy, Idaho Operations Office (DOE-ID) and have been set aside since the 1940s to support science and engineering in nuclear energy and other disciplines (DOE-ID 2013a, Stacey 2000). The Laboratory has also been designated a National Environmental Research Park, dedicated to the study of the environmental impacts of energy research (Irving 1993), and a portion of the land has been set aside as a Sagebrush Steppe Ecosystem Reserve. Cultural resources including historic and prehistoric archaeological sites, historic architectural properties (i.e., buildings, structures, and objects serving human needs), and areas of importance to the Shoshone-Bannock Tribes and others are numerous across the Laboratory and are managed in accordance with the DOE-ID's Cultural Resource Management (CRM) Plan (DOE-ID 2013a).

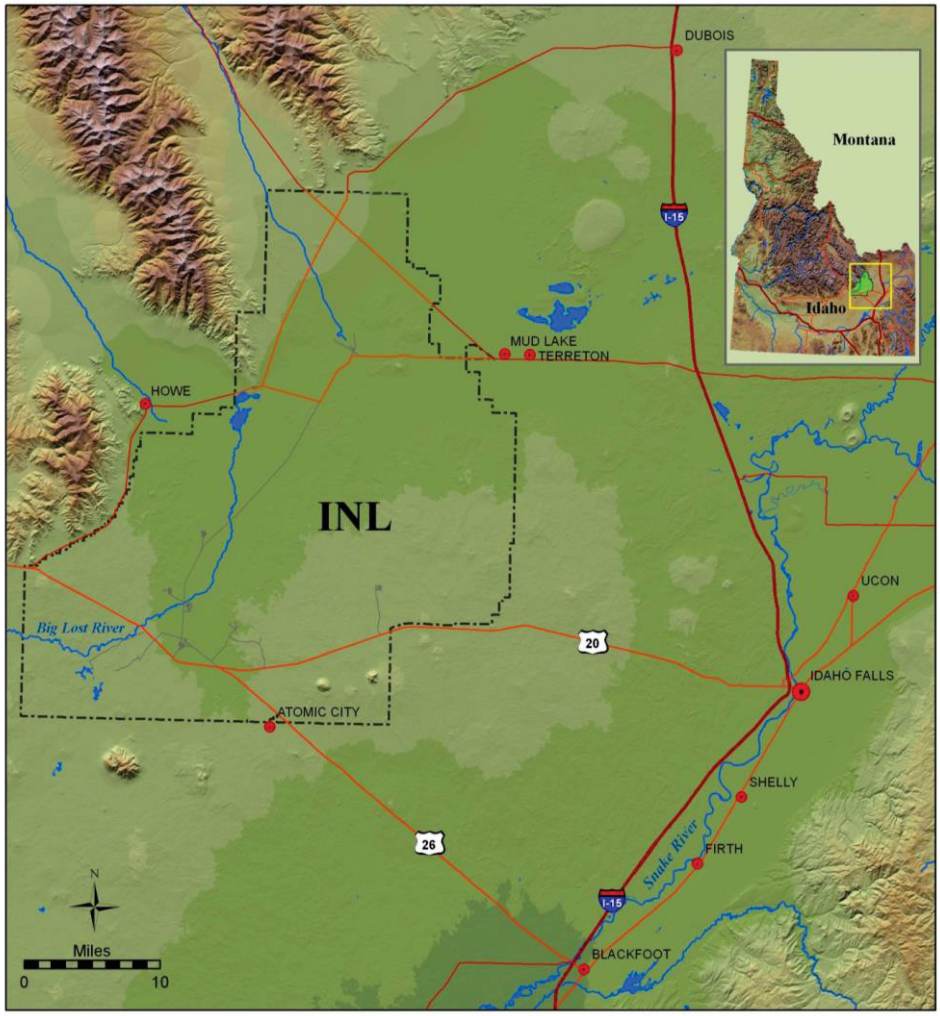

Figure 1. General location of the Idaho National Laboratory.

There are currently eight main operational facility areas at the desert Laboratory (Figure 2) and one research and education complex in Idaho Falls. The Materials and Fuels Complex (MFC), formerly known as Argonne National Laboratory-West (ANL-W), is the easternmost of INL's desert facilities. The MFC and ANL-W have a long history of successful research on nuclear fuels. Current proposed activities at the MFC are designed to resume important research and testing of nuclear fuels and materials to support licensing of new nuclear fuels for use in U.S. nuclear power plants (DOE-ID 2013b). This report documents archival research and field investigations to identify cultural resources located in the areas of potential effect (APEs) for direct and indirect impacts related to the proposed research and testing associated with the Resumption of Transient Testing (RTT) project (DOE-ID 2013b) and support evaluations under the National Environmental Policy Act (NEPA) and National Historic Preservation Act (NHPA). Recommendations for future strategies to avoid any adverse impacts to identified cultural resources are also included, with particular attention to resources eligible or potentially eligible for nomination to the National Register of Historic Places (NRHP). The document is presented in a specific format preferred by the Idaho State Historic Preservation Office (Idaho SHPO 1995) and required by the INL CRM Plan (DOE-ID 2013a).

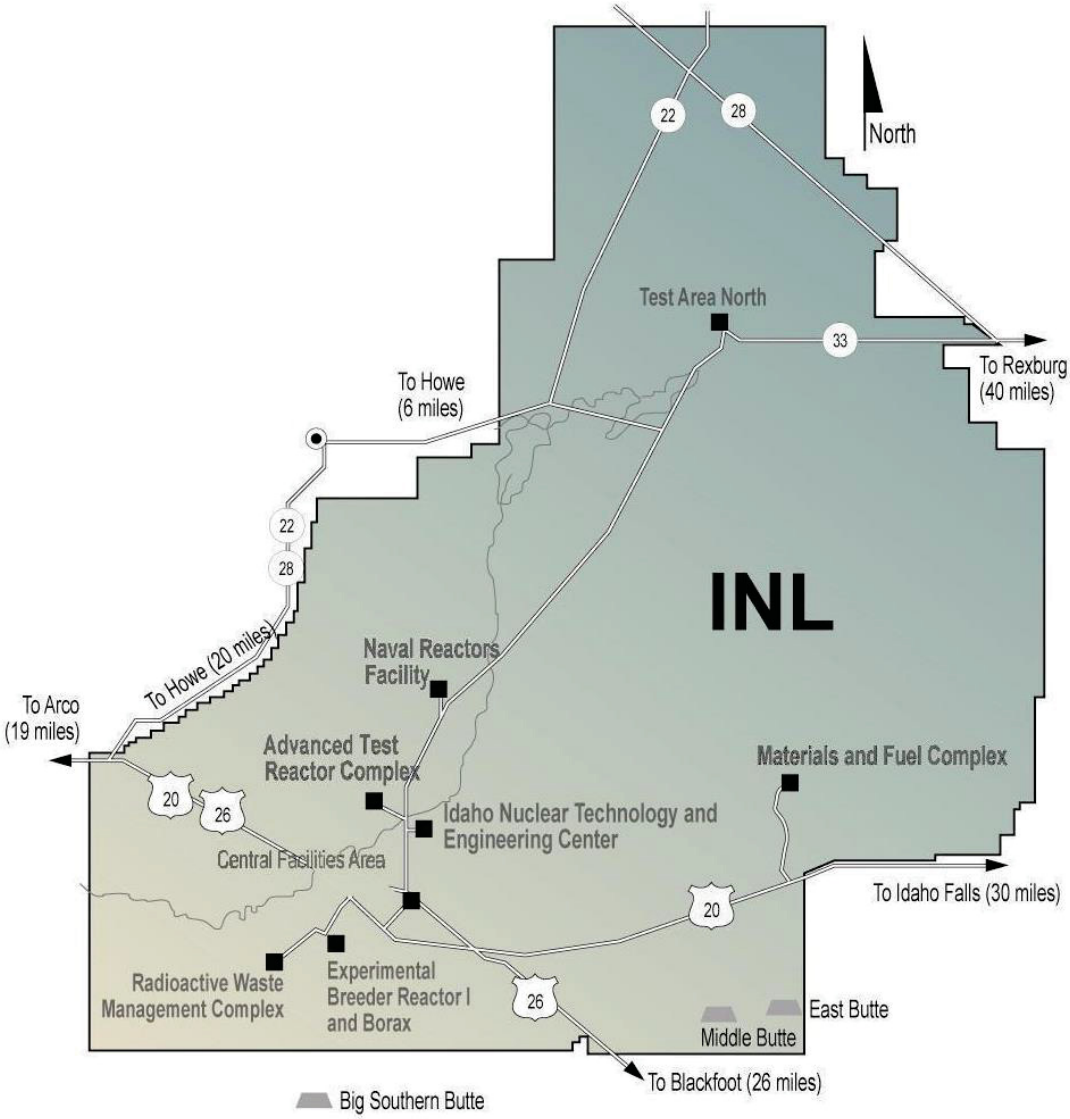

Figure 2. Location of the Materials and Fuels Complex at the Idaho National Laboratory.

2. PROJECT DESCRIPTION

The Department of Energy has a need to test nuclear fuels under conditions that subject them to short bursts of intense, high-power radiation. This activity is called 'transient testing' and it is the first step in the process to license new nuclear fuels for use in U.S. nuclear power plants. Nuclear fuel and reactor licensing authorities such as the U.S. Nuclear Regulatory Commission (NRC) require information about fuel behavior under extreme conditions to determine if a fuel is safe for use. Developing and designing modern fuel systems for nuclear power plants relies on computer modeling to simulate the behavior of fuels under operating and accident situations. Observing how the tests actually affect the fuel provides information essential to guiding the development and validation of these computer models. Transient testing would also develop information to help improve current nuclear power plant performance and sustainability, make new generation reactors more affordable, develop recyclable nuclear fuels, and develop fuels that cannot be used to make nuclear weapons. These studies require a nuclear reactor capable of providing the needed short bursts of high-energy radiation and testing equipment with the appropriate instruments for experiments in detecting changes in fuel behavior.

Transient testing at the MFC on the INL would involve transfers of the nuclear fuel or other test materials between the Advanced Test Reactor (ATR, TRA-670), the Fuel Conditioning Facility (FCF, MFC-765), the Hot Fuel Examination Facility (HFEF, MFC-785), the Fluorinel Dissolution Process/Fluorinel Dissolution Process and Storage Facility (FDP/FAST, CPP-666), and the Transient Test Reactor (TREAT, MFC-720) for assembly, irradiation, examination, and analysis. The TREAT facility was specifically designed in the 1950s for transient testing of nuclear reactor fuels and served as a principal reactor safety testing facility in the U. S. for 35 years, performing thousands of experiments on thermal and fast reactor fuels (http://www.inl.gov/ research/transient-reactor-test-facility/). Since 1994, it has been on non-operational standby status.

A resumption of transient testing at TREAT facilities would require DOE to complete safety upgrades to the TREAT Reactor Building (MFC-720) and replace or refurbish reactor components and other internal systems (mechanical, electrical, data) to restart the reactor. Upgrades would also be necessary at support facilities such as the original Reactor Control Building (MFC-721), which currently serves as an office building. Cabling between the TREAT Reactor Building (MFC-720) and the original Reactor Control Building (MFC-721) would be replaced, resulting in some soil disturbance along the 0.5 mile-long buried cable route. A second Reactor Control Building (MFC-724) that was built in 1979 and idled in the 1990s may be removed and the TREAT Guardhouse (MFC-722) and Warehouse (MFC-723), also currently in stand-by status may be re-opened for uses in keeping with their original roles. Fuel transfer and analyses needed to support the RTT project would be accomplished with existing operational systems and components located at FCF (MFC-765), HFEF (MFC-785), ATR (TRA-670), and FDP/FAST (CPP-666).

2.1 Anticipated Impacts

Activities that disturb soil and vegetation or that substantially alter important features of known historic buildings could result in direct impacts to cultural resources. In addition to possible direct impacts, there is also some potential for undesirable indirect effects to cultural resources. For example, human activity is likely to increase during soil disturbing activities and operations, and any archaeological resources or natural resources of potential tribal concern located near operational facilities or other project areas may be subject to unauthorized collection or impact by off-road vehicle use and other small soil disturbing activities that commonly occur around active developed areas. Resident and migratory birds and animals of tribal concern may also be temporarily disturbed and noxious and invasive weeds may increase to the detriment of native species. Temporary visual impacts associated with soil disturbing activities (fugitive dust) and plant operations may also occur.

2.2 Areas of Potential Effect

There are two direct areas of potential effect (APEs) defined for the RTT project. For archaeological and tribal cultural resources, the direct APE encompasses approximately 14 acres and includes the existing TREAT facilities and the parking lots and gravel aprons that surround them, the buried cable route that extends from the TREAT Reactor Building (MFC-720) to the original Reactor Control Building (MFC 721), and the narrow strip of land between the buried cable and Harrison Blvd., where staging, laydown, and temporary parking areas may occur (Figure 3). For historic architectural properties, the direct APE includes all existing buildings that would be subject to modification to support the resumption of transient testing, including the TREAT Reactor Building (MFC-720), the original Reactor Control Building (MFC-721, currently serving as an office building), the idled Reactor Control Building (MFC-724), the TREAT Guardhouse (MFC-722), and the TREAT Warehouse (MFC-723), as shown in Figure 4. As shown in Figures 5, 6, and 7, the Fuel Conditioning Facility (FCF, MFC-765), Hot Fuel Examination Facility (HFEF, MFC-785), the Advanced Test Reactor (ATR, TRA-670), and the Fluorinel Dissolution Process/Fluorinel Dissolution Process and Storage Facility (FDP/FAST, CPP-666) are also included in the direct APE for historic architectural properties, although the project does not propose any change in the function or use of these operating facilities.

The indirect APE for archaeological and tribal cultural resources is located within approximately 100 meters of the defined direct APE (Figure 3). No indirect effects are anticipated for historic buildings because those proposed for modification and use are located within established industrial footprints. Potential visual impacts were considered for the RTT project, but no detailed analyses were completed because no new structures would be built, potential construction impacts would be minor and temporary, and no vapor plumes or other visual elements would be created during operations.

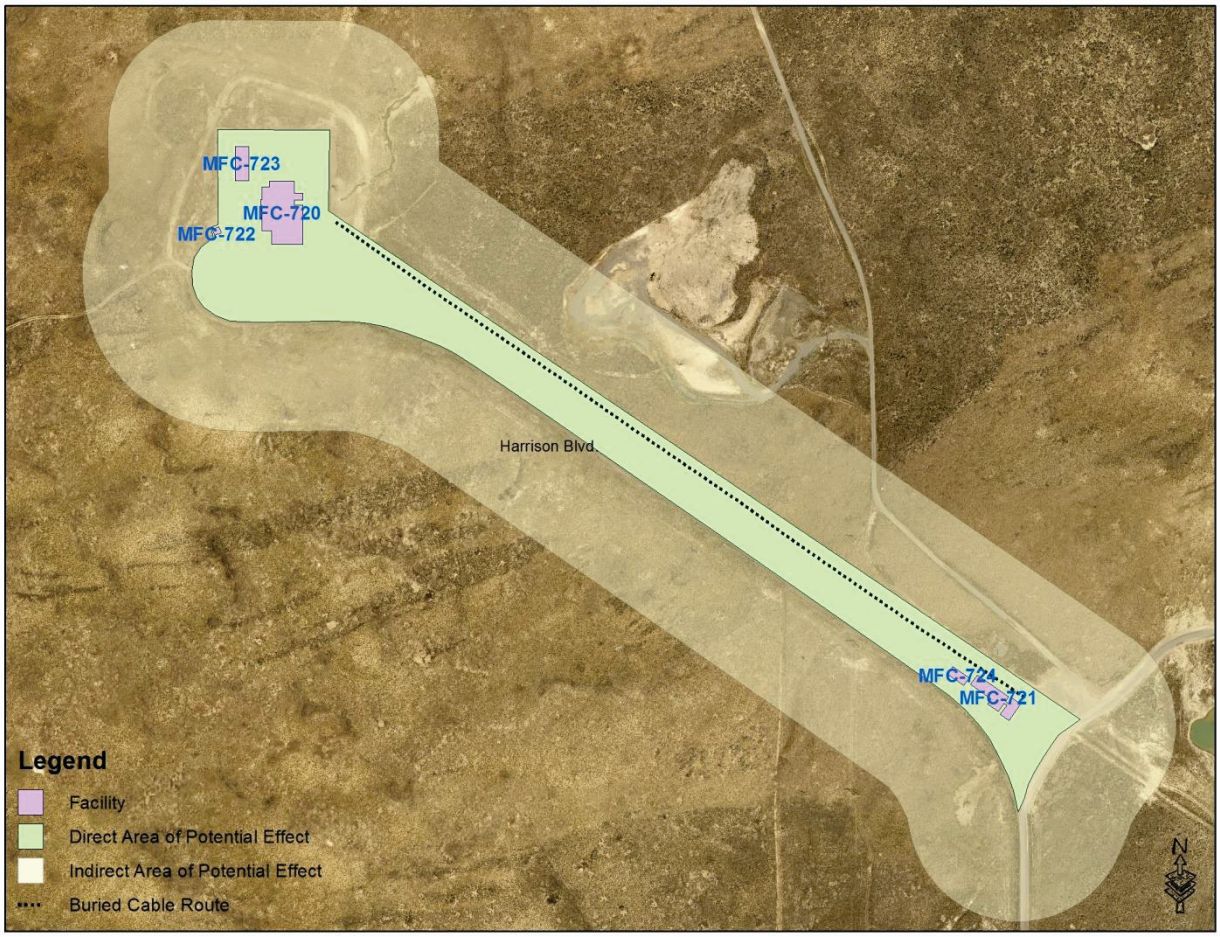

Figure 3. Direct and Indirect areas of potential effect for archaeological and tribal cultural resources for the RTT project.

Figure 4. Direct area of potential effects (TREAT facilities) for buildings for the RTT project.

Figure 5. Direct area of potential effects (Fuel Conditioning Facility and Hot Fuel Examination Facility) for buildings for the RTT project.

Figure 6. Direct area of potential effects (Advanced Test Reactor) for buildings for the RTT project.

Figure 7. Direct area of potential effects (FDP/FAST) for buildings for the RTT project.

2.3 Landowners

Nearly all of the lands within the boundaries of the INL Site are under the jurisdiction of the U.S. Department of Energy, Idaho Operations Office (DOE-ID) with the assistance of DOE-ID's prime operations contractor, Battelle Energy Alliance (BEA) and other project-specific contractors. An area of approximately seven square miles surrounding the Naval Reactors Facility is administered by DOE's Office of Naval Reactors. Within INL grazing areas, DOE-ID shares administrative responsibility with the Bureau of Land Management, which issues and administers permits for these activities. The proposed RTT project is located on lands under the sole jurisdiction of DOE-ID.

3. STATEMENT OF OBJECTIVES FOR INVESTIGATIONS

The cultural resource investigations reported herein were conducted to satisfy three basic and interrelated goals:

- Identify all cultural resources within anticipated direct and indirect APEs for the proposed RTT project and complete initial assessments of NRHP eligibility;
- Conduct a preliminary assessment of the potential effects of proposed construction and operation on any identified cultural resources;
- Develop recommendations for strategies to ensure that effects to identified cultural resources are not adverse when construction plans are finalized.

3.1 Cultural Resource Investigation Standards

All cultural resource investigations completed by the INL CRM Office must meet the Secretary of the Interior's standards under 36 CFR Part 800, as well as the tailored requirements outlined in the INL CRM Plan (DOE-ID 2013a). DOE-ID agreements with the Shoshone-Bannock Tribes and between DOE-ID, the Idaho SHPO, and the Advisory Council on Historic Preservation (ACHP) form the foundation for the INL CRM Plan.

In general, under the INL CRM Plan, soil disturbing projects at the INL are preceded by cultural resource archive searches, NRHP eligibility assessments, archaeological reconnaissance-level surveys in previously examined areas, and/or intensive archaeological surveys in areas that have never been systematically inventoried for cultural resources. Representatives from the Shoshone-Bannock Tribes are invited to participate in INL field surveys and assist in the identification and assessment of resources that may be of traditional, cultural, or religious importance to them. If project impacts to identified archaeological resources are unavoidable, DOE-ID initiates consultation with the Idaho SHPO, Shoshone-Bannock Tribes, and other stakeholders as appropriate to evaluate options to minimize or mitigate any adverse effects.

INL structures must also be inventoried and evaluated for their NRHP eligibility prior to the initiation of projects that may impact them. Proposed modifications to, or demolition of, historic INL architectural properties are evaluated for potential impact based on the nature of the proposed changes and the relative historic significance of the properties within four established categories (Signature Properties, Category 1, Category 2, and Category 3). According to the guidelines established in the INL CRM Plan (DOE-ID 2013a), some routine INL activities such as internal reconfiguration, in-kind replacement, and safety-related retrofits are exempted from cultural resource review (Table 1). Historic architectural properties constructed after INL's defined period of historic significance (1942 - 1970) are also exempted and not considered eligible for nomination to the National Register except in rare cases when they exhibit exceptional significance. If proposed activities will involve Signature Properties or the Experimental Breeder Reactor I National Historic Landmark, consultation between DOE-ID, the Idaho SHPO, and if they choose to participate, the Advisory Council on Historic Preservation, is initiated and when necessary, mitigation is completed based on the results of consultation. Proposed activities involving Category 1, 2, and/or 3 structures do not typically require project-specific consultation and when necessary, mitigation is conducted according to standard and previously agreed on, property-based methodologies outlined in the CRM Plan (DOE-ID 21013a).

Archive and records searches, archaeological field investigations, tribal interactions, and historic architectural property inventories and assessments are designed to identify all cultural resources in the APEs defined for any proposed INL Site project.

Table 1. INL activities exempt from cultural resource review and consideration (DOE-ID 2013a:55).

Activity Type	Description
1. Emergency response	Activities declared by the appropriate INL official, U.S. president, a tribal government, or the governor of a state as necessary to safeguard human health and the environment during declared disasters, emergencies, or national security threats (including EBR-I).
2. Routine maintenance activities	Activities that include, but are not limited to, normal custodial services; electrical and plumbing installation or repair; repair of fire suppression systems, alarms, or communication systems; moving or assembly of interior furnishings; resurfacing of road, sidewalk, and parking areas; routine decontamination (through such activities as wiping down with rags, using strippable latex, and minor vacuuming, but excluding scabbing) of the surfaces of equipment, rooms, or other interior surfaces.
3. Replacement in kind	Replacement of fixtures or components of a property, such as matching paint with existing or similar paint color, refinishing materials with existing or similar colors, or replacing or installing carpeting with water-soluble glue. This exemption includes refinishing with products that have improved safety, environmental, or health considerations over the existing or original, as long as the color of the refinishing product is similar to or matches the existing original color.
4. Energy conservation measures	Activities that include, but are not limited to, modifications to heating, ventilation, and air conditioning systems; insulation to roofs, crawl spaces, walls, and floors; and caulking and weather stripping that are not visible or do not significantly alter or detract from those qualities that make the property eligible for nomination to the NRHP.
5. Security systems	Installation, maintenance, or repair of security systems, including computer security, detection, monitoring, surveillance, and alarm systems.
6. Safety systems	Installation, maintenance, and repair or modification of personnel safety systems and devices within the built environment, such as radiation monitoring devices; emergency exit lighting systems; protective additions to electrical equipment; improvements to walking and working surfaces; and installation of protective railings, guards, or shielding.
7. Asbestos abatement	Removing or fixing asbestos for safety and health concerns, including lagging, insulating, painting, pipe and duct work, and panel removal. None of these activities may cause structural modifications or alter character-defining features. Asbestos abatement activities strictly associated with the DD&D of properties and that result in permanent, significant structural modification or alteration of the property are not included in this exemption.
8. Internal reconfiguration of active laboratories	Changes to the internal configuration of active laboratories or other existing experimental or testing properties within the built environment to accommodate new experiments or tests.
9. Ground disturbance within fenced facility perimeters	Modifications to the ground surface within existing facilities (TAN, EBR-I, WRRTF, NRF, RTC, INTEC, RWMC, MFC) or within 50 ft of existing buildings in unfenced facility areas (CFA, ARA, BORAX). All activities under this exemption are subject to the INL Timeout and Stop Work Authority (see Appendix A) should cultural resources be unexpectedly encountered at any time. This exemption does not apply to the CITRC facilities.

3.2 Description of Area Investigated

Proposed activities associated with the RTT project are concentrated at developed facility areas on the INL. The MFC is a focus of the project, including the FCF (MFC-765) and HFEF (MFC-785) inside the main facility complex as well as the TREAT Reactor Building (MFC-720) and associated support buildings (MFC-721, MFC-722, MFC-723, MFC-724), located on the northwestern edge of the MFC along an existing paved roadway, Harrison Blvd. The ATR Reactor (TRA-670) located at the ATR Complex approximately 14.5 miles to the west of the MFC and FDP/FAST (CPP-666) located at Idaho Nuclear Technology and Engineering Center (INTEC) approximately 12 miles west of MFC, are also integral to the RTT project. A number of cultural resource investigations have been conducted in the RTT project areas at MFC, INTEC, and the ATR Complex over the past three and a half decades. A summary of these previous investigations is provided in Section 5.0.

In 2013, to supplement earlier investigations and obtain a full assessment of potential impacts associated with the proposed RTT project, new archaeological field investigations were focused in areas of proposed soil disturbance and direct impact along the buried cable route and around facility perimeters. The exterior portions of existing buildings were also examined anew and previous inventories and assessments were consulted. FDP/FAST (CPP-666) was reassessed for its historic significance and all previously recorded archaeological sites located within 100 meters of the TREAT facilities were revisited and assessed. Analyses of possible visual impact were considered, but not completed because no lasting visual impacts are anticipated from construction or operation during the RTT project.

Through these efforts, it is likely that all of the cultural resources present within the project APEs currently being considered (Figures 3 – 7) have been identified. Representatives from the Shoshone-Bannock Tribe's Heritage Tribal Office (HeTO) were invited to assist in the identification of tribally significant cultural resources in the APEs and per guidelines established in the INL CRM Plan (DOE-ID 2013a), open invitations were extended to participate in all archaeological investigations.

4. LOCATION AND SETTING

The proposed RTT project is primarily located at the MFC in the eastern portion of the INL, a few miles north of U.S. Highway 20. Project operations would also involve facilities located at INL's ATR Complex and INTEC. The legal location for the proposed project components at the MFC is in the southern half of Section 11, the northern half of Section 14, and the northern half of Section 13, T3N, R32E,Bingham County, Idaho. The ATR Complex is located in Section 14, T3N, R29E, Butte County, Idaho, and INTEC is located in Section 19, T3N, R30E, Butte County, Idaho. Figure 2 illustrates the general location of the MFC, ATR Complex, and INTEC and Figures 3 – 7 depict the project APEs in more detail.

4.1 Environmental Setting

The INL is located in the high cool desert environment of the northeastern Snake River Plain. Aeolian, alluvial, and lacustrine sediments of varying thicknesses overlie basaltic lava flows within the 890 square mile Laboratory complex. The Big Lost River flows in a northeasterly direction from the southwestern corner of the INL to eventually terminate in a series of natural wetland sinks near the foothills of the Lemhi Mountains. An extensive floodplain follows the course of the river and in the vicinity of the sinks a myriad of channels is cut into the now-dry bed of Pleistocene Lake Terreton. Vegetation is generally sparse and dominated by a community of low shrubs like sage and rabbitbrush, a wide variety of grasses and forbs, and occasional juniper trees. Many animals make their homes in this sagebrush grassland including pronghorn, deer, elk, coyotes, badgers, and rabbits, and many varieties of birds, rodents, reptiles, and insects.

The MFC, where most of the RTT project activities are located, is situated in an area dominated by low-relief volcanic landforms (Figure 8). Basaltic pressure ridges, intermittent drainage channels, and

small, closed basins add slight variation to the generally flat terrain. Exposures of basalt bedrock are common along ridge tops and aeolian sands have accumulated on the lee sides of some of these ridges, particularly where range fires have burned. Elevations average 5,120 ft. Plant life is typical of INL as a whole, dominated by low shrubs (sagebrush, rabbitbrush), various grasses, and forbs.

Figure 8. Typical environmental setting around the INL and MFC.

4.2 Cultural Setting

Human populations have occupied the INL region of the northeastern Snake River Plain for at least 13,000 years. For much of this time, the area was utilized by prehistoric hunting and gathering populations. These aboriginal Native Americans appear to have repeatedly travelled through the high cool desert on a seasonal basis employing different technologies to adapt to changing environmental conditions. It is likely that game animals, useful plants, and obsidian toolstone resources were the primary regional attractions.

The cultural chronology of this lengthy span of prehistoric occupation is divided into three major periods as illustrated in Figure 9. The earliest known occupants during the Early Prehistoric Period (13,000 - 7,500 years before present [BP]) were big game hunters who utilized a spear technology to hunt now-extinct forms of large fauna (i.e., mammoth, camel, bison, horse). During the Middle Prehistoric Period (7,500 - 1,300 years BP), groups of hunter-gatherers employed an atlatl (spear thrower) technology and ranged widely in pursuit of modern forms of bison, deer, mountain sheep, and other big game. Evidence also suggests that plant foods may have gained increased importance in the economy. A proliferation of artifact styles indicates that this was a time of some cultural reorganization and mobility, perhaps stimulated by the onset of warmer and dryer climatic conditions.

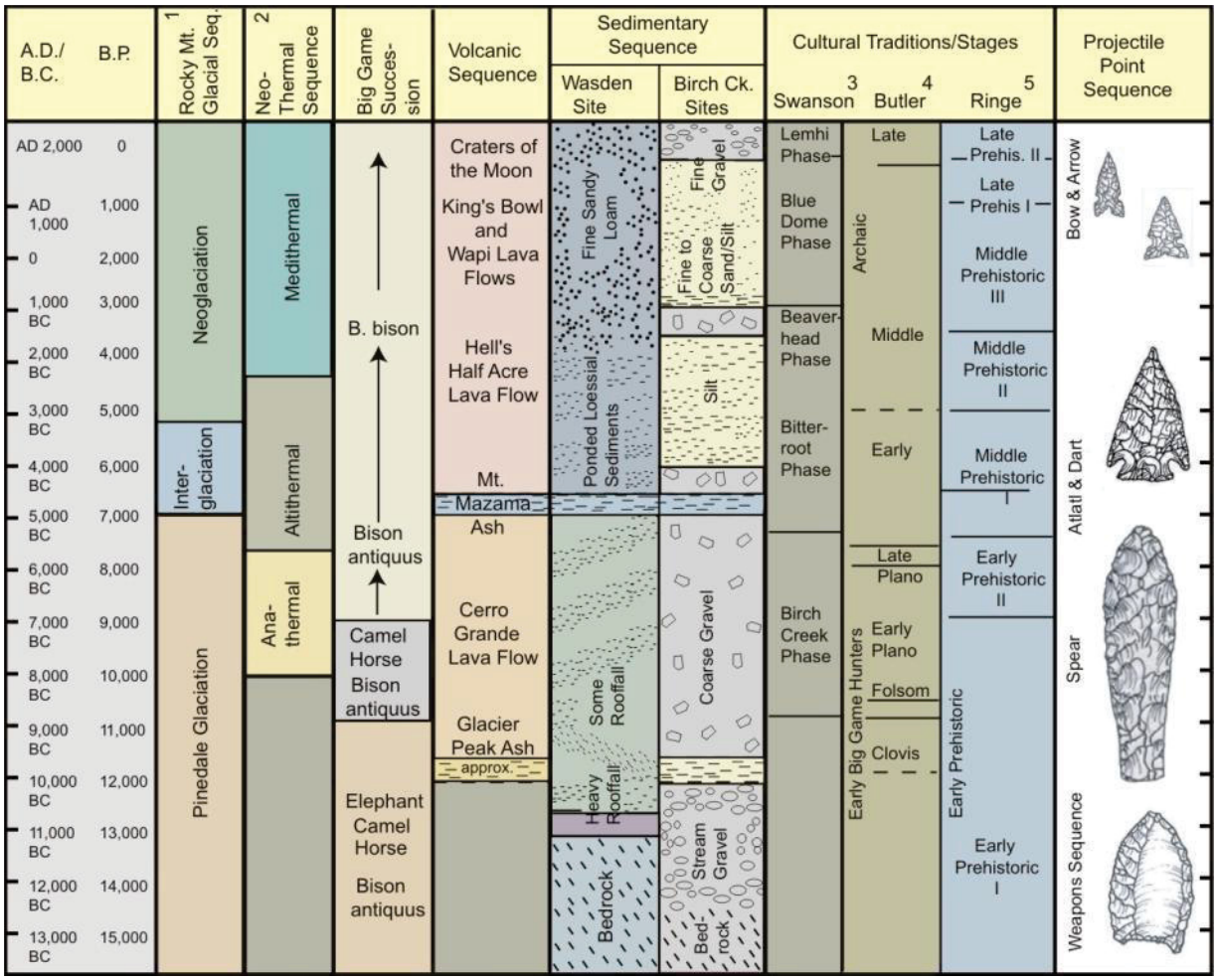

Figure 9. INL prehistoric cultural chronology.

The Late Prehistoric Period (1,300 - 150 years BP) is marked by adoption of the bow and arrow, and aboriginal ceramics also appear as diagnostic time markers. Like their predecessors, Late Prehistoric populations were actively hunting and gathering throughout the region, and there is some evidence that groups appear to have been regionally specialized on resources such as salmon, mountain sheep, bison, and camas roots, with trade networks operating to distribute these goods throughout the region. The nomadic hunting and gathering lifestyle of the Late Prehistoric Period continued in southeastern Idaho even after the introduction of European trade goods and domestic horses.

Within the last 150 years, emigrants began to pass through the region along a northern spur of the Oregon Trail (Goodale's Cutoff). Soon thereafter, early homesteaders sought to harness the waters of the Big Lost River and transform sagebrush flats into green pastures. Hundreds of settlers were encouraged by various federal laws like the Homestead Act of 1862, Desert Land Act of 1877, and Carey Land Act of 1894 to file claims for INL lands at this time (circa 1878 - 1930), and a massive system of canals and ditches was constructed to irrigate the newly created fields. Wagon and freight road networks and railways also developed to support the new settlements.

Few of the early settlers in the INL area were able to "prove-up" on their claims and by 1930 most of the homesteads were abandoned and the land reverted back to federal control. By the early 1940s, the remote and largely uninhabited federal lands that remained became attractive to the U.S. government for establishment of the Arco Naval Proving Ground to test fire large battleship guns and other ordnance

during World War II and conduct other post-war ordnance-related research in the form of explosives and transportation tests. After this initial period of military use, the U.S. Atomic Energy Commission designated the land as the National Reactor Testing Station (NRTS), and it became the Nation's primary testing ground for an emerging nuclear research program after 1949, with pioneering research on nuclear power, reactor design, and nuclear propulsion. Facilities across the INL have filled important roles in the historic development of nuclear power since that time, ultimately influencing nearly every power reactor in the world particularly in regard to design and safety (Stacey 2000). The Transient Reactor Test Facility (TREAT) was one such facility.

In 1949, the Atomic Energy Commission established the NRTS in the remote high desert of eastern Idaho when the danger of testing nuclear reactors near densely populated areas was recognized. Argonne became one of its first customers, responsible for the first breeder reactor, known as Experimental Breeder Reactor I (EBR I). EBR I was located in the southwest corner of the NRTS south of U.S. Highway 20/26 and achieved many world firsts in its active lifetime. The achievements included meeting its primary goal to produce new fuel from U-238 and its secondary goal to produce usable amounts of electricity. In 1955, EBR I again made history when an operator error resulted in an unintended core meltdown. Scientists took this as an opportunity to study the damaged core and continue safety tests that had begun at NRTS in 1953 with the first Boiling Water Reactor Experiment (BORAX-I). Between 1953 and 1964, five BORAX experiments were conducted and resulted in a greater understanding of the safety parameters of boiling water reactors and other test reactors at NRTS.

Although initially located near EBR I, Argonne's reactor activities soon expanded to an area located near the NRTS' eastern boundary and north of the highway. The area was called Argonne National Laboratory-West (ANL-W). In 1958, construction began at ANL-W on two new reactors, a second breeder reactor, appropriately named Experimental Breeder Reactor II (EBR II) and TREAT. EBR II was a compact plant intended to generate electricity and recycle its own fuel. The goal of TREAT was to better understand how fast reactor cores would act during a meltdown and to improve upon the design of them, fuel elements, and fuel assemblies. The reactor also tested candidate fuels for EBR II and its successor after EBR II was reconfigured and renamed the Integral Fast Reactor (IFR) in the early 1980s (Stacy 2000). The research required to achieve the reactors' goals and to solve the myriad of challenges that arose from EBR II, TREAT, IFR and later reactors and provide infrastructure to support an expanding labor force required a network of structures. In 2005, DOE-ID assumed responsibility for ANL-W from DOE-Chicago and the facility was renamed the Materials and Fuels Complex (MFC). The TREAT Reactor Building (MFC-720) was constructed in 1959 and the original Reactor Control Building (MFC-721, now serving as an office building) in 1958. The TREAT Guardhouse (MFC-722) and the TREAT Warehouse (MFC-723) were built in 1980, and a later Reactor Control Building (MFC-724) in 1979.

5. PREVIOUS CULTURAL RESOURCE INVESTIGATIONS

All cultural resource investigations completed at INL are preceded by checks of an active archive of past projects and resource inventories. This important archive includes a variety of supporting documentation as well as the following specific records:

- Reports of reconnaissance-level archaeological surveys completed before 1984
- Reports of intensive archaeological surveys completed after 1984, including site forms
- Reports of archaeological test excavations conducted on INL lands, including field notes
- Archaeological sensitivity maps with predicted resource densities (Ringe 1995, Holmer et al. 2002)
- Maps and survey notes from government-sponsored land surveys of INL lands, ca 1884 - 1949
- Historic aerial photos of INL lands taken in 1949

- Reports of architectural surveys of all DOE-ID owned INL buildings (Arrowrock 1997)
- Historic and current plot plans of INL buildings and facility areas
- INL CRM Plan (DOE-ID 2013a)
- Microsoft Access and geographical information systems (GIS) maps and databases with information specific to the archaeological sites and historic architectural properties identified at INL.

All of these sources of information were consulted prior to and during the 2013 field work for the RTT project and to support the preparation of this report and input to the Environmental Assessment (DOE-ID 2013b).

5.1 Summary of Previous Investigations

Archaeological investigation of the MFC (then ANL-W) area began in 1975 with completion of a series of small surveys to support facility developments through approximately 1984 (e.g. small facilities, fiber optic lines, security roads, etc.) A full listing of these projects is found in the INL CRM Plan, Appendix J (DOE-ID 2013a:353-383). In 1988, approximately 700 acres surrounding MFC, which were designated as the ANL-W Administrative Boundary at that time, were surveyed for archaeological resources (Ringe and Holmer 1988) in support of long term land use planning. This survey resulted in the recording of twelve archaeological sites, one of which is located within 100 meters of the TREAT facility (10-BM-223), and 22 isolated artifact locations. Subsequent consultation with the Idaho State Historic Preservation Office confirmed that the twelve identified sites, including 10-BM-223, are potentially eligible for nomination to the National Register of Historic Places and that the isolates are not eligible. Archaeological surveys have also been completed for several recent developments in the vicinity of MFC and the RTT project area including an examination of a new 80-acre sewage treatment plant (Pace et al. 2010) to the northeast of MFC, where one previously recorded archaeological site was re-evaluated and one previously unidentified prehistoric isolate was identified; and a new 9-acre construction landfill immediately to the north of the RTT project area, where no cultural resources were observed.

Historic architectural investigations began at INL in 1993 and a comprehensive survey of all DOE-ID buildings was completed in 1997 (Arrowrock 1997). In this original survey, ATR (TRA-670) was identified as being eligible to the NRHP and FDP/FAST (CPP-666) was thought to be architecturally important and, though built in 1983, well outside of the defined INL Historic Period of Significance (1942 – 1970), it was identified for further research and assessment to determine if it meets the standards of exceptional significance required for recent properties evaluated under the NHPA (Arrowrock 1997).

In 2006, soon after MFC management was transferred from DOE-Chicago to DOE-ID, the INL CRM program staff initiated a basic inventory and assessment of MFC buildings to determine their historic significance. The survey resulted in the documentation of 127 total buildings. Within this total, 87 buildings were determined to be ineligible for nomination to the National Register of Historic Places, 37 were assessed as eligible due largely to their original construction during the INL's Historic Period of Significance (1942 - 1970) and through their association with the nation's pioneering nuclear era. The remaining three buildings inventoried at MFC were evaluated as eligible to the National Register for exceptional significance, even though they are not yet 50 years of age. Over the past seven years, many historic structures at MFC have undergone, or are undergoing, deactivation, decontamination, and demolition (DD&D). The adverse impacts that have result were mitigated following guidelines established in the INL CRM Plan (DOE-ID 2013a). All of the MFC buildings associated with the RTT project (MFC-720, MFC-721, MFC-722, MFC-723, MFC-724, MFC-765, MFC-785) were identified and evaluated during the initial 2006 survey (DOE-ID 2013a).

Additional details on the previously recorded archaeological site and historic buildings located within the RTT project area are included in Section 7.0, Section 8.0 and Appendix C of this report.

5.2 Evaluation of Previous Investigations

Since 1984, archaeological surveys of INL lands have been intensive and conducted according to the standards currently outlined in the INL CRM Plan (DOE-ID 2013a). Prior to this time, INL archaeological surveys were not necessarily intensive and documentation may not meet current standards. Previous surveys in and around the MFC have been of intensive levels. However, some were completed more than ten years ago. Under the INL CRM Plan, areas that were originally surveyed more than ten years ago are subject to new archaeological reconnaissance when new ground-disturbing projects are proposed.

Typically, the areas that are examined during this later reconnaissance include previously recorded resources, areas of recent erosion or disturbance (e.g., burned areas, recent project activities), and topographic situations that have yielded archaeological resources in the past (e.g., abandoned drainage channels, lava outcrops). Randomly placed intensive survey transects may also be examined as part of reconnaissance-level surveys of previously examined areas. This policy helps to ensure that all archaeological resources with visible surface remains are documented. The 2013 archaeological fieldwork conducted in the direct and indirect APEs for the RTT project confirms the intensity and validity of the original surveys and indicates that all NRHP-eligible archaeological resources that exist in the project area have been identified.

The initial surveys of INL buildings that began in 1993 relied on approved methodologies and historic contexts that continue to be integral to the INL CRM Plan (DOE-ID 2013a). The results of these surveys remain valid today.

5.3 Known or Expected Themes, Time Periods, and Historic Contexts

Tables 2 and 3 provide lists of regional themes and time periods (Idaho SHPO 1995) and INL-specific historic contexts (DOE-ID 2013a) that have been documented within the archaeological and architectural record in the vicinity of the MFC, ATR, and INTEC during previous surveys and building inventories over the past three decades.

Table 2. General themes and time periods documented in the project area.

THEMES		TIME PERIODS
[x] Archaeology	[x] Military	[x] Prehistoric
[x] Agriculture	[ ] Mining	[x] Historic Native American
[ ] Architecture	[x] Native Americans	[x] Exploration: 1805 - 1860
[ ] Civilian Conservation Corps	[ ] Politics/Government	[x] Settlement: 1855 - 1890
[x] Commerce	[ ] Public Land Management	[x] Statehood: 1890 - 1904
[ ] Communication	[x] Recreation/Tourism	[x] Statehood: 1904 - 1920
[ ] Culture and Society	[x] Settlement	[x] Interwar: 1920 - 1940
[ ] Ethnic heritage	[ ] Timber	[x] Pre-Modern: 1940 - 1958
[ ] Exploration/Fur Trade	[x] Transportation	[x] Modern: 1958 - present
[x] Industry	[x] Other: Irrigation, INL History	

Table 3. INL-specific historic contexts documented in the project area.

[x] Prehistoric Native American: 15,000 – 150 BP	[x] Ordnance Testing, Naval Proving Ground: 1942 – 1949	[x] Nuclear Reactor Testing, Development: 1955 – 1970
[x] Historic Native American: 150 BP - present	[ ] Ordnance Testing, Vietnam War: 1968 – 1970	[x] Post Nuclear Reactor Research: 1971 – present
[x] Euro American Contact/ Settlement: 1805 - 1942	[x] Nuclear Reactor Testing, Establishment: 1949 – 1971	[ ] Remediation of Nuclear Waste: 1971 – present

5.4 Expected Prehistoric and Historic Land Use and Site Density

Previous archaeological investigations in the vicinity of MFC (cf. Ringe and Holmer 1988, Pace et al. 2010) provide a solid basis for anticipating the nature and extent of archaeological resources in and around the RTT project area. In addition, these investigations provide a unique record of the dynamic nature of surface soils in this area.

Although recent surveys indicate that none of the archaeological sites originally recorded during intensive survey of the ANL-W Administrative Boundary in 1988 appear to have been completely covered by loose surface soils and no new archaeological sites have been revealed through deflation, the character of the exposed surfaces do appear to have changed over the past three decades. Direct comparison of chipped stone tool artifact distributions is complicated because 1988 survey protocols involved nearly complete collection and subsequent curation of nearly all stone tools encountered. However, 1988 descriptions of the density and distributions of stone tool manufacturing debris and nondiagnostic artifacts that were not collected do often differ from more recent observations. These slight differences are due to the ongoing effects of fire, wind, snow melt, desiccation and cracking, and animal burrowing. In the RTT project area particularly, fire and subsequent wind erosion have significantly changed the character of surface soils and altered the visibility of artifacts at 10-BM-233, the previously recorded site located nearby.

Due to the historic importance of the INL to the nation's nuclear pioneering era, it is not surprising that a number of significant historic buildings have been identified at MFC, ATR, INTEC, and elsewhere across the Laboratory. Full building inventories and evaluations have been completed for all of the INL buildings, including those located at MFC, ATR, and INTEC. Therefore additional historic buildings are not likely to be identified.

5.5 Known or Expected Resources

The inventory of known previously recorded archaeological resources in the vicinity of MFC includes short term hunting camps, lithic scatters, and isolated artifact locations from the prehistoric period (12,000 – 150 years before present [BP]). Although not formally documented at this time, other resources that are of traditional, cultural, and sacred importance to local tribal people from the Shoshone-Bannock Tribes may also be located in the area. Archaeological resources dating to historic times (50 – 150 BP) have also occasionally been found in the area. The known historic archaeological inventory includes trash scatters, historic trails, and isolated artifact locations.

Only one previously recorded prehistoric archaeological site, designated as 10-BM-223, was confirmed to be located in the indirect APE. Additional details on this site are included in Section 7.0, Section 8.0, and Appendix C of this report. In 1988, it was described as follows:

> "10BM223: Essentially undisturbed single component short term camp with evidence of a buried cultural feature. The site could yield additional information on subsistence activities during the Late Prehistoric II Subperiod. Avoidance is recommended until testing is conducted to determine the nature and extent of subsurface materials." (Ringeand Holmer 1988:142).

In 1997, 154 INTEC (then Idaho Chemical Processing Plant) buildings and 89 ATR Complex (then Test Reactor Area) buildings were inventoried and evaluated for their historic importance. Of those, 27 INTEC buildings were determined to be eligible to the NRHP and 4 required further research and reassessment. At ATR, 46 buildings were identified as eligible to the NRHP and none required further research and reassessment. In 2006, 127 MFC buildings underwent evaluation, 40 were identified as eligible to the NRHP, and none required further research and reassessment (DOE-ID 2013a). Eligible buildings associated with the RTT project include MFC-720, MCF-721, MFC-765, MCF-785, CPP-666, and TRA-670.

6. METHODS OF INVESTIGATION

All work during the 2013 cultural resource investigations of the RTT project was performed in a manner consistent with formal and informal standards and guidelines issued by the Idaho SHPO, the Advisory Council on Historic Preservation, the National Park Service, and Department of Interior, as outlined in DOE-ID's CRM Plan (DOE-ID 2013a).

6.1 Historic Structures Assessment Techniques

INL CRM staff utilized information provided by RTT project personnel to identify potential changes to historic structures associated with the project. Informal field assessments and archival research were conducted to confirm the existing integrity of all historic structures identified in the direct APE and ensure that existing documentary materials were up-to-date. Original determinations of NRHP eligibility were re-evaluated and compared against standards within the INL CRM Plan to determine the possible effects of the proposed RTT project activities. No significant changes were documented through this process of analysis.

6.2 Archaeological Field Techniques

The archaeological field survey tactics employed during the project were designed to provide intensive visual coverage of the current ground surface to ensure that all archaeological resources with visible surface remains were identified. Although portions of the 14-acre direct APE and the indirect APE, defined as a zone within 100 meters of the direct APE, had been previously surveyed, both of these areas were intensively examined in 2013. These intensive surveys involved systematic pedestrian transects with surveyors walking no more than 20 meters apart in skirmish line fashion. Transects were oriented according to existing roads and facility perimeter fences. A hand-held global positioning system (GPS) unit with sub-meter accuracy was used to navigate to the single previously recorded archaeological site, and GPS data were also collected to pinpoint and update the locational information for this resource. Field work in all areas was facilitated by trouble-free access on existing roads and unrestricted ground visibility.

In general, when cultural materials are encountered during an intensive survey transect, previous survey records (site forms, maps, field notes) are consulted to determine if the newly discovered artifacts are associated with a known site or isolate location. At all newly discovered artifacts, careful searches (3 – 5 meter survey intervals) are conducted to ascertain the current boundaries of the resource and to pinpoint temporally or functionally diagnostic artifacts, artifact concentrations, cultural features, or areas of post-depositional disturbance. If the newly discovered artifacts fall within or near the original boundaries of a previously recorded site or isolate location, monitoring forms are completed to document the location and current condition of the resource and note any new discoveries. When single unmodified flakes or nondiagnostic historic artifacts (i.e. fragmentary cans, wire) are identified in areas where no previously recorded resources are present, notations are made on field maps and notes, but no formal site recording forms are prepared. Occurrences of 2 – 9 flakes or cans or 1 – 9 diagnostic artifacts in areas where no previously recorded resources are present were classified as "isolate locations" and are formally recorded. Formal recording was also completed for "sites" (> 10 artifacts of any age within 100 meters or any number of items within an active geologic setting).

Only one previously recorded archaeological site was investigated during the RTT project archaeological surveys in 2013 (10-BM-223). An INL-tailored site monitoring form was used to document the current condition of this resource (Section 7.0, Section 8.0, and Appendix C). No artifacts were collected for permanent curation during the 2013 surveys.

6.3 Areas Not Examined

The entire 14-acre direct APE for archaeological resources and associated 100 meter-wide zone of potential indirect effects were intensively surveyed in 2013. Documentary materials previously assembled for all historic structures associated with the RTT project were also examined and re-evaluated. No possible project areas or records remained unexamined.

6.4 Native American Involvement

INL complies with and follows federal and state laws and regulations, DOE policies, and INL-specific management plans that define how DOE-ID and its contractors will interact with Native Americans. More specifically, DOE-ID recognizes its trust responsibility to the Shoshone-Bannock Tribes, whose aboriginal lands include the INL. In the spirit of that responsibility, DOE-ID has entered into an Agreement in Principle (AIP) with the tribal Business Council and governing body (DOE-ID 2007). In addition to defining a broad range of interests and working relationships, the AIP devotes particular attention to the management of INL cultural resources. Broadly, its intent is to foster confidence on the part of the Shoshone-Bannock Tribes that INL cultural resources are managed in a spirit of protection and stewardship. To achieve this, the AIP provides for routine tribal participation in new and ongoing INL projects with an open invitation to comment on, visit, observe, and/or assist in cultural resource management investigations. This interaction occurs during regularly scheduled INL Cultural Resources Working Group (CRWG) meetings, when project information is provided to tribal representatives and invitations to participate in cultural resource investigations are extended.

6.5 Project Personnel

All archaeological field work during the 2013 field investigation was conducted by INL CRM Office personnel: Brenda R. Pace, Julie Braun Williams, and Christina Olson with the assistance of John Irving from INL's Environmental Support organization. All historic building assessments were completed by Julie Braun Williams. Carolyn Smith and Romeila Martinez from the Shoshone-Bannock Tribes Heritage Tribal Office participated in a tribal tour.

6.6 Dates of Fieldwork

Fieldwork was conducted in April of 2013.

6.7 Problems Encountered

No problems were encountered.

7. RESULTS

In 2013, all direct and indirect APEs for the RTT project were intensively surveyed for archaeological resources and all buildings proposed for modification/re-use or continued use within the direct APE for the project were evaluated. Detailed information on the archaeological survey results, historic building assessments, and communications with Shoshone-Bannock tribal representatives are provided in the Sections to follow. The discussion includes a list of all known cultural resources within direct APEs for the RTT project and a summary of NRHP eligibility. These evaluations are then carried forward into Section 8.0 of the report, where assessments of effect for cultural resources confirmed inside the direct APEs associated with the proposed action are presented and potential indirect and cumulative impacts to

other nearby resources are considered. INL CRM site recording and monitoring forms with detailed documentation of all resources are provided in Appendix C.

7.1 Archaeological and Tribal Cultural Resources

Archaeological surveys in 2013 revealed no sensitive archaeological resources within the direct APE for the RTT project. One previously recorded prehistoric archaeological site (10-BM-223) was identified within the indirect APE. This resource was evaluated as potentially eligible for nomination to the National Register when initially recorded in1988 and is evaluated similarly today. Widespread soil movement associated with repeated range fires nearby have covered the majority of surface artifacts with a variable layer of silty sand that may help to protect the site from future disturbances.

Specific Native American cultural resources have not been officially documented by the Shoshone-Bannock Tribes in the direct or indirect APEs for the RTT project. However, tribal representatives from the Shoshone-Bannock Tribe's Heritage Tribal Office toured the project area in April of 2013 and expressed concerns with regard to protection of the previously recorded prehistoric archaeological site in the indirect APE (10-BM-223) as well as more general concerns about disturbances to elements of the natural environment (plants, animals).

7.2 Historic Buildings

The RTT project will be focused on nine INL buildings; seven are located at the MFC, one is located at the ATR Complex, and another at INTEC. All of these properties were included in previous architectural surveys of DOE-ID buildings and the assessment of potential effects for the RTT project involved a re-evaluation of existing inventory records as well as limited field examination of structures proposed for direct modification as a result of the project. The TREAT Reactor Building (MFC-720), the original Reactor Control Building (MFC-721, now serving as an office building), and FCF (MFC-765) are eligible for listing on the NRHP because they were built during INL's historic period of significance (1942 - 1970) and for their association with INL's pioneering nuclear era. In addition, despite being less than 50 years old and constructed in 1972, the HFEF (MFC-785), which is located within the main facility perimeter at MFC, is exceptionally significant for its association with INL's pioneering nuclear era and is therefore eligible for listing on the NRHP. The ATR (TRA-670) is clearly eligible for listing on the NRHP for its importance in nuclear history. Other structures at MFC and INTEC, including the TREAT Warehouse (MFC-723), a more recent Reactor Control Building (MFC-724), the TREAT Guardhouse (MFC-722), and the Fluorinel Dissolution Process/Fluorinel Dissolution Process and Storage Facility (CPP-666) are not eligible for listing on the NRHP because they were constructed after 1970 and are not of exceptional significance.

7.3 Summary of Cultural Resources Identified in Project APEs

Field and archival investigations have confirmed that five historic buildings are located in the direct APE for the RTT project. No archaeological sites were identified in the direct APE but one previously recorded archaeological site was re-identified in the indirect APE. No specific resources of tribal concern have been identified at this time. Table 4 provides a summary of the identified resources.

Table 4. Archaeological resources identified in direct and indirect APEs for the RTT project.

SITE NO.	DESCRIPTION	RELATIONSHIP TO PROJECT	2013 OBSERVATIONS
MFC-720	TREAT Reactor Building	Direct APE	NRHP-eligible (Category 1)
MFC-721	Original TREAT Control Building	Direct APE	NRHP-eligible (Category 2)
MFC-722	TREAT Guardhouse	Direct APE	Ineligible

SITE NO.	DESCRIPTION	RELATIONSHIP TO PROJECT	2013 OBSERVATIONS
MFC-723	TREAT Warehouse	Direct APE	Ineligible
MFC-724	Reactor Control Building	Direct APE	Ineligible
MFC-765	Fuel Conditioning Facility	Direct APE	NRHP-eligible (Category 2)
MFC-785	Hot Fuel Examination Facility	Direct APE	NRHP-eligible (Category 2)
ATR-670	Advanced Test Reactor	Direct APE	NRHP-eligible (Category 1)
CPP-666	FDP/FAST	Direct APE	Ineligible
10-BM-223	Prehistoric Campsite	Indirect APE	Potentially NRHP-eligible - Very light scatter of flakes with recent covering of silty sand masking many artifacts originally noted in 1988; test excavation needed to fully assess research potential and eligibility

7.4 Resources Noted But Not Recorded

Based on tribal involvement in the 2013 fieldwork, it is likely that contemporary Native American cultural resource values are also located in the general project area, but the Shoshone-Bannock Tribes have not pinpointed these resources at this time.

7.5 Summary of Important Characteristics and National Register Eligibility of Identified Resources

The archaeological resource identified (10-BM-223) within the indirect APE for the RTT project contributes to the overall base of knowledge of prehistoric human use of the northeastern Snake River Plain and has the potential to reveal additional information from buried cultural deposits. It is therefore evaluated as potentially eligible for nomination to the National Register pending test excavations to fully evaluate research potential.

Specific Native American cultural resources within the area of potential effect and values associated with natural resources in the area have not been pinpointed. However, communication with tribal representatives has confirmed general concerns centered on protection of the identified archaeological site (10-BM-223), as well as natural resources in the area, which continue to fill important roles in tribal heritage and ongoing cultural traditions. Resources of traditional cultural importance can be eligible for nomination to the National Register.

Historic buildings located in the RTT project area represent important activities directly associated with established historic contexts for INL's pioneering nuclear era. Preservation and documentation of these important activities and the historic architectural properties that supported them is essential to a complete record of INL's significant historic accomplishments. All nine of the buildings located in direct APEs have contributed some information to an understanding of the historic development of the INL through the process of inventory and evaluation. Buildings that are not NRHP-eligible (MFC-722, MFC-723, MFC-724, CPP-666) are unlikely to yield any additional information and are not contributory to INL's historic nuclear era. The five buildings that are eligible for listing on the National Register (MFC-

720, MFC-721, MFC-765, MFC-785, TRA-670) are significant through their association with the nation's pioneering nuclear era. Although HFEF (MFC-785) was built after INL's period of historic significance, the facility has clearly contributed to ongoing nuclear missions at the MFC and due to exceptional significance, is also eligible for listing on the National Register.

8. CONCLUSIONS AND RECOMMENDATIONS

The discussion to follow provides a synthesis of identified resources, potential impacts, and recommendations for avoiding adverse impacts during the proposed RTT project.

8.1 Summary of Investigations

Cultural resource investigations completed in 2013 to assess the potential impacts of the proposed RTT project included cultural resource archive searches, intensive archaeological field surveys, inventories and assessments of historic buildings, and communication with Shoshone-Bannock tribal representatives. As a result of these activities, nine buildings were identified in the direct APE for the project and one archaeological site was identified in the indirect APE for the project. Five of the identified buildings and the archaeological site located in the indirect APE are historic properties eligible for nomination to the NRHP. Feedback from representatives from the Shoshone-Bannock Tribes indicates that this archaeological site may also be of importance in tribal history and culture and suggests that native plants and animals in the general area are of tribal importance.

8.2 Potential Threats to Identified Resources

Activities that disturb soil and vegetation could result in direct impacts to archaeological resources and natural resources of tribal importance. However, field surveys in 2013 demonstrated that no archaeological resources are located in the direct APE and project activities in this area should pose no direct threat to archaeological resources. Adverse impacts to resources that are important to the Shoshone-Bannock Tribes are also unlikely given the absence of archaeological resources and small area of likely ground disturbance.

Although direct impacts will not occur, there is some potential for undesirable indirect and cumulative effects to cultural resources that are located outside of the defined direct APE for the RTT project in the indirect APE. For example, human activity is likely to increase during soil disturbing activities and operations, and any archaeological resources or natural resources of potential concern located within the indirect APE may be subject to unauthorized collection or impact by off-road vehicle use and other small ground disturbing activities that commonly occur around active developed areas. Resident and migratory birds and animals of tribal importance may also be temporarily disturbed and noxious and invasive weeds may increase to the detriment of native species.

DOE-ID's Environmental Assessment for the RTT project (DOE-ID 2013b) outlines activities that would result in modifications to historic buildings within the TREAT facility area. For the Restart Operating phase of the project, activities would be concentrated at the TREAT Reactor Building (MFC-720) and the original Reactor Control Building (MFC-721). The following specific restart operating activities are proposed that could impact TREAT facility historic properties:

- Repair or replace major TREAT reactor systems and subsystems as determined necessary to ensure safe and efficient operation of the reactor (MFC-720).
- Replace existing cabling from the TREAT Facility to the reactor control building if necessary (MFC-720, MFC-721).
- If required, move reactor controls to original reactor control building (MFC-721).
- Perform preventative/corrective maintenance on and/or replace pumps, compressors, sensors, electrical connections, and other reactor support equipment, as necessary (MFC-720, MFC-721)

- Perform corrective maintenance on, and/or replace: reactor control rods drives, fuel motion monitoring device (hodoscope), blowers, diesel generators, uninterruptable power supplies, and casks, as necessary (MFC-720)
- Install new radiation monitoring equipment (MFC-720)
- Perform seismic/structural upgrades as necessary to meet current applicable seismic requirements (MFC-720).

Operation of the upgraded TREAT facility would include additional activities, maintenance, and possible upgrades involving historic buildings identified in the direct APE for the RTT project: MFC-720, MFC-721, MFC-765, MFC-785, and TRA-670. The operational activities proposed for these NRHP-eligible properties do not involve structural changes, nor are any new experiments or processes proposed that are outside the normal range of experimental work that is being, or has been, conducted at these buildings over many years. The following operational activities are proposed for the historic properties:

- Perform routine maintenance of equipment in the TREAT Reactor Building and original Reactor Control Building (MFC-720 and MFC-721)
- Perform experiments at the TREAT Reactor Facility (MFC-720 and MFC-721), HFEF (MFC-785), FCF (MFC-765)
- If necessary, pre-irradiate nuclear fuel or material in ATR (TRA-670) or other reactor (under their own operating requirements and conditions)
- Transport the desired nuclear fuel or material test samples to HFEF
- Prepare test assemblies in HFEF
- Transport test assemblies to TREAT Reactor Building
    - If necessary, perform pre-test radiography
    - Perform transient testing
    - If necessary, perform post-test radiography
- Transport irradiated test assemblies back to HFEF
    - Disassemble the test assemblies
    - Perform post-test examination of nuclear fuel and materials
    - Dispose of experiment residual materials.

8.3 Assessment of Effects to Identified Cultural Resources

The RTT project is expected to have no effect on archaeological resources. The single archaeological site located in the indirect APE (10-BM-223) is located in an area that should remain undisturbed during project activities. Periodic monitoring should ensure that it is not subject to adverse effects from unauthorized visitation or soil disturbance. No resources of particular importance to the Shoshone-Bannock Tribes have been specifically identified in the project area.

The INL CRM Plan (DOE-ID 2013a) provides a list of activities that are exempted from cultural resource review (Table 1) and all of the activities as described in the lists of restart and operating activities proposed and listed in Section 8.2 at the TREAT Reactor Building (MFC-720) and Original Control Building (MFC-721) are exempted. Activities proposed at NRHP eligible properties at ATR (TRA-670), FCF (MFC-765), and HFEF (MFC-785) are operational only, will not involve modification, and do not have the potential to impact these historic properties.

Therefore, cultural resource investigations within the direct and indirect APEs support a finding of no adverse effects to historic properties under the NHPA and no adverse impacts to any known resources of cultural significance under NEPA.

8.4 Recommendations for Additional Protective Measures

There are a number of activities that must continue or be initiated to support the findings of no adverse effect presented in this report and to reduce the likelihood of adverse indirect impacts to sensitive resources. These include:

- Initiate consultation, as necessary, with the Idaho State Historic Preservation Office and implement recommendations if provided;
- Continue communication and initiate government-to-government consultation, as necessary, with the Shoshone-Bannock Tribes to identify and assess Native American cultural resources and concerns;
- In the event activities are added, substantial changes are made to those presently listed, or another property or properties (i.e., buildings, areas outside of facility fences) are added, evaluate or reevaluate impacts to cultural resources.
- Monitor the prehistoric archaeological site located in the indirect APE (10-BM-223) and implement protective measures if warranted;
- Minimize any areas of soil or vegetation disturbance, manage weeds, reseed and revegetate with native species, and practice good housekeeping to stabilize soil, prevent the spread of noxious and invasive species, and reduce disturbances to plant and wildlife species important to the Shoshone-Bannock Tribes
- Exercise INL Timeout/Stop Work Authorities (Laboratory Wide Procedures [LWP]-14002) and contact the INL CRM Office immediately if cultural artifacts or remains are unexpectedly discovered during project activities.

9. CURATION

Upon completion of the project, all prehistoric artifacts and documentation (i.e. site recording forms, monitoring forms reports, field notes, etc.) will be curated at the Earl Swanson Archaeological Repository located in the Idaho Museum of Natural History on the Idaho State University campus in Pocatello, Idaho. In the interim between field collection and permanent curation, all artifacts are kept in secure temporary storage at the INL CRM Office in Idaho Falls, Idaho. A comprehensive permanent archive of historic structures' documentation, including both hard copy and electronic data, is maintained by the Idaho SHPO and at the INL CRM Office in Idaho Falls, ID.

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Appendix A

Key Information

Appendix A
Key Information

A. Project name: Resumption of Transient Testing at the Idaho National Laboratory

B. Project number: INL CRM Office BEA-2013-11

C. Agency name: Battelle Energy Alliance INL CRM Office for the Department of Energy Idaho Operations Office

D. Report author: Brenda R. Pace and Julie B. Williams

E. Principal Investigator: Brenda R. Pace

F. Report date: June 2013

G. Counties: Bingham and Butte Counties

H. Legal locations and Project/Survey Acreage:

LEGAL LOCATION	AREA OF POTENTIAL EFFECT	SURVEY COVERAGE
MFC: southern 1/2 Section 11, northern 1/2 Section 14, and northern 1/2 Section 13, T3N, R32E, Bingham County, Idaho. ATR Complex: Section 14, T3N, R29E, Butte County, Idaho.	~14 acres (direct APE) ~40 acres (indirect APE) 7 INL buildings (direct APE)	~50 acres archaeological MFC built environment ATR Complex built environment

Appendix B

Certification of Results

Appendix B
Certification of Results

CERTIFICATION OF RESULTS:

I certify that this investigation was conducted and documented according to Secretary of Interior's Standards and Guidelines and the INL Cultural Resource Management Plan and that this report is complete and accurate to the best of my knowledge.

(*original signed by Brenda R. Pace*)

Signature of Principal Investigator Date

Appendix C

Historic Sites Inventory and Monitoring Forms

Appendix C
Historic Sites Inventory and Monitoring Forms

This Appendix includes the following forms and photographs:

- Monitoring Form for archaeological site 10-BM-223
- Historic Sites Inventory Forms and photographs for:
    - TREAT Reactor Building (MFC-720)
    - Original Reactor Control Building (MFC-721)
    - TREAT Guardhouse (MFC-722)
    - TREAT Warehouse (MFC-723)
    - Reactor Control Building (MFC-724)
    - Fuel Conditioning Facility (MFC-765)
    - Hot Fuel Examination Facility (MFC-785)

The original site recording form for 10-BM-223 was completed and provided to the Idaho SHPO in 1988 and the Historic Sites Inventory Form for the Advanced Test Reactor (TRA-670) and FDP/FAST (CPP-666) was completed and provided to the Idaho SHPO in 1997. These original forms are not included in this report.

Idaho National Laboratory
Cultural Resource Management Office
Field Monitoring Form

Monitor Number: BRP-13-01 **Date:** April 2, 2013
Monitor Name(s): Brenda R. Pace, Julie Braun Williams, Christina Olson
Area(s) monitored: 10-BM-223
Reason for monitoring: Re-identify site area to facilitate avoidance during proposed restart of the Transient Test Reactor (TREAT) and associated facilities.

Findings: Type 1 X Type 2 _____ Type 3 _____ Type 4 _____
Impact Agents: Repeated range fires over the site area and in the vicinity have removed established shrub vegetation and increased erosion and aeolian re-deposition of silty sand throughout the area. Artifacts originally noted at the site during original recording in 1988 appear to be largely covered by an extensive dune-like deposit of sandy soil. Firebreaks have been established in the vicinity, but appear to have missed the majority of artifacts.
Significance of Impact: Impacts are not significant, undisturbed cultural deposits remain and may be protected by the new deposit of soil.

Cultural Materials observed? Yes X No ____
If yes, describe: Many of the artifacts observed in 1988 are now covered by a recent deposit of aeolian sandy soil. In 2013, the visible surface inventory included only five obsidian flakes. No diagnostic stone tools or evidence of cultural features is currently evident on the surface, though these materials were observed during the original recording in 1988.
Cultural Materials collected? Yes _____ No X
If yes, describe: No collection.

Did the disturbance or impact extend into undisturbed areas? Yes _____ No X
If yes, explain: N/A

Work Halted? Yes _____ No X
If yes, explain: N/A

Notifications: None required under Type I Finding
Primary contacts: N/A
Date contacted: N/A
Contact Method: ____ **E-mail** ____ **Phone** ____ **Official correspondence, CCN:** _____

Recommendations: Site is located in an undeveloped area surrounding the TREAT facility where new development or project activities are unlikely. New aeolian soils are also covering and possibly providing some protection to artifacts. As activities at the TREAT facility are re- established, overall levels of activity in the area will increase. The site should be periodically monitored for evidence of soil disturbance (i.e., offroad vehicle use, mowing) as well as unauthorized visitation and/or artifact collection. This is also consistent with tribal concerns raised during a general tour of the area on April 17, 2013.

General Comments: Updated GPS coordinates are on file.
Sketch? _____Yes X No #of items 0
Photo? _____Yes X No #of items 0
Description: None

IDAHO HISTORIC SITES INVENTORY: INL HISTORICAL CONTEXT
Idaho State Historic Preservation Office

This form documents a building at Idaho National Laboratory. It assesses its eligibility for the National Register of Historic Places.

PROPERTY DATA

*Property Name/Area/Bldg. Number Transient Test Reactor: ANL/MFC-720
*USGS Map Reference Little Butte SW Quadrangle 7.5
*Township 3 Range 32 Section 11, SE 1/4 of NE 1/4 of SW 1/4, Boise Meridian
UTM: zone 12 365220 easting 4828805 northing
*County Butte Acres Less than one acre City 30 miles west of Idaho Falls *Address Idaho National Laboratory
Historic Context Science/Engineering: Nuclear Testing
*Property Type: Building *Total # features
*Associated bldgs./structures TREAT Complex
*Construction Date 1959 Estimated Construction Period
Style No Style Plan Flat roof; irregular with 82 foot highbay
*Condition Good *Moved: Yes __ When
*Materials Steel frame with metal panel walls, corrugated sheet metal siding and roof. Floor is reinforced concrete.
*Original Use Govt/research reactor *Current Use Standby

NATIONAL REGISTER RECOMMENDATION: (check all that apply)

X Individually eligible __ Not eligible
X Contributing in a potential district __ Noncontributing
__ Multiple property study X Historical significance
__ Significant person X Historic landscape
__ Architectural/artistic values __ Not evaluated

Comment
*Recorded by J.B. Williams *Phone (208) 526-0926
*Address P.O. Box 1625 MS 3710 Idaho Falls, Idaho 83415
*Project/Report Title Resumption of Transient Testing at TREAT
Survey Report # ____ Reconnaissance X Intensive __ *Date 6/11/2013

FIELD NOTES/ADDITIONAL INEEL INFORMATION

Other name(s) N/A
Access restrictions due to contamination __ yes
Square footage of building 22,945
Future plans Reuse
Historian's type classification Research reactor
Historian's recommendation for mitigation upon finding of adverse impact: Full HAER

Additional comment page attached __ yes

Other notes:

IHSI #
REV #
SITS #

TREAT Reactor Building ANL-720 looking south

IDAHO HISTORIC SITES INVENTORY: INL HISTORICAL CONTEXT
Idaho State Historic Preservation Office

This form documents a building at Idaho National Laboratory. It assesses its eligibility for the National Register of Historic Places.

PROPERTY DATA

*Property Name/Area/Bldg. Number Transient Test Reactor Original Control Building: ANL/MFC-721
*USGS Map Reference Little Butte SW Quadrangle 7.5
*Township 3 Range 32 Section 14, NW 1/4 of NE 1/4 of NE 1/4, Boise Meridian
UTM: zone 12 365885 easting 4828345 northing
*County Butte Acres Less than one acre City 30 miles west of Idaho Falls *Address Idaho National Laboratory
Historic Context Science/Engineering: Nuclear Testing
*Property Type: Building *Total # features
*Associated bldgs./structures TREAT Complex
*Construction Date 1958 Estimated Construction Period
Style No Style Plan Flat roof; irregular; one-story
*Condition Fair *Moved: Yes __ When
*Materials Masonry exterior walls, built up roof. Floor is reinforced concrete.
*Original Use Govt/control building *Current Use Standby

NATIONAL REGISTER RECOMMENDATION: (check all that apply)

__ Individually eligible	__ Not eligible
X Contributing in a potential district	__ Noncontributing
__ Multiple property study	X Historical significance
__ Significant person	X Historic landscape
__ Architectural/artistic values	__ Not evaluated

Comment
*Recorded by J.B. Williams *Phone (208) 526-0926
*Address P.O. Box 1625 MS 3710 Idaho Falls, Idaho 83415
*Project/Report Title Resumption of Transient Testing at TREAT
Survey Report # ____ Reconnaissance X Intensive __ *Date 6/11/2013

FIELD NOTES/ADDITIONAL INEEL INFORMATION

Other name(s) N/A
Access restrictions due to contamination __ yes
Square footage of building 6,670
Future plans Reuse
Historian's type classification control building
Historian's recommendation for mitigation upon finding of adverse impact: Large format photograhs

Additional comment page attached __ yes

Other notes:

IHSI #
REV #
SITS #

TREAT Control Building ANL-721

IDAHO HISTORIC SITES INVENTORY: INL HISTORICAL CONTEXT
Idaho State Historic Preservation Office

This form documents a building at Idaho National Laboratory. It assesses its eligibility for the National Register of Historic Places.

PROPERTY DATA

*Property Name/Area/Bldg. Number Transient Test Reactor Guard Station: ANL/MFC-722
*USGS Map Reference Little Butte SW Quadrangle 7.5
*Township 3 Range 32 Section 11, SE 1/4 of NE 1/4 of SW 1/4, Boise Meridian
UTM: zone 12 365185 easting 4828800 northing
*County Butte Acres Less than one acre City 30 miles west of Idaho Falls *Address Idaho National Laboratory
Historic Context Science/Engineering: Nuclear Testing
*Property Type: Building *Total # features
*Associated bldgs./structures TREAT Complex
*Construction Date 1980 Estimated Construction Period
Style No Style Plan Flat roof; rectangular; one-story
*Condition Excellent *Moved: Yes __ When Materials Reinforced concrete, bullet proof glass and doors.
*Original Use Govt/Security *Current Use Standby

NATIONAL REGISTER RECOMMENDATION: (check all that apply)

__ Individually eligible
__ Contributing in a potential district
__ Multiple property study
__ Significant person
__ Architectural/artistic values
X Not eligible
X Noncontributing
__ Historical significance
__ Historic landscape
__ Not evaluated

Comment
*Recorded by J.B. Williams *Phone (208) 526-0926
*Address P.O. Box 1625 MS 3710 Idaho Falls, Idaho 83415
*Project/Report Title Resumption of Transient Testing at TREAT
Survey Report # ____ Reconnaissance X Intensive __ *Date 6/11/2013

FIELD NOTES/ADDITIONAL INEEL INFORMATION

Other name(s) N/A
Access restrictions due to contamination __ yes
Square footage of building 323
Future plans Reuse
Historian's type classification: support building
Historian's recommendation for mitigation upon finding of adverse impact: N/A

Additional comment page attached __ yes

Other notes:

IHSI #
REV #
SITS #

TREAT Guard Station

IDAHO HISTORIC SITES INVENTORY: INL HISTORICAL CONTEXT
Idaho State Historic Preservation Office

This form documents a building at Idaho National Laboratory. It assesses its eligibility for the National Register of Historic Places.

PROPERTY DATA

*Property Name/Area/Bldg. Number Transient Test Reactor Warehouse: ANL/MFC-723
*USGS Map Reference Little Butte SW Quadrangle 7.5
*Township 3 Range 32 Section 11, SE 1/4 of NE 1/4 of SW 1/4, Boise Meridian
UTM: zone 12 365200 easting 4828855 northing
*County Butte Acres Less than one acre City 30 miles west of Idaho Falls *Address Idaho National Laboratory
Historic Context Science/Engineering: Nuclear Testing
*Property Type: Building *Total # features
*Associated bldgs./structures TREAT Complex
*Construction Date 1980 Estimated Construction Period
Style No Style Plan Shed roof; rectangular; one-story; 2 overhead doors
*Condition Good *Moved: Yes ___ When Materials Prefabricated steel frame with metal siding and roof; concrete floor.
*Original Use Govt/Storage *Current Use Standby

NATIONAL REGISTER RECOMMENDATION: (check all that apply)

__ Individually eligible	_X_ Not eligible
__ Contributing in a potential district	_X_ Noncontributing
__ Multiple property study	__ Historical significance
__ Significant person	__ Historic landscape
__ Architectural/artistic values	__ Not evaluated

Comment
*Recorded by J.B. Williams *Phone (208) 526-0926
*Address P.O. Box 1625 MS 3710 Idaho Falls, Idaho 83415
*Project/Report Title Resumption of Transient Testing at TREAT
Survey Report # ____ Reconnaissance X Intensive __ *Date 6/11/2013

FIELD NOTES/ADDITIONAL INEEL INFORMATION

Other name(s) N/A
Access restrictions due to contamination __ yes
Square footage of building 4,040
Future plans Reuse
Historian's type classification: support building
Historian's recommendation for mitigation upon finding of adverse impact: N/A

Additional comment page attached __ yes

Other notes:

IHSI #
REV #
SITS #

TREAT Warehouse ANL-723

IDAHO HISTORIC SITES INVENTORY: INL HISTORICAL CONTEXT
Idaho State Historic Preservation Office

This form documents a building at Idaho National Laboratory. It assesses its eligibility for the National Register of Historic Places.

PROPERTY DATA

*Property Name/Area/Bldg. Number Transient Test Reactor Control Building: ANL/MFC-724
*USGS Map Reference Little Butte SW Quadrangle 7.5
*Township 3 Range 32 Section 14, NW 1/4 of NE 1/4 of NE 1/4, Boise Meridian
UTM: zone 12 365840 easting 4828365 northing
*County Butte Acres Less than one acre City 30 miles west of Idaho Falls *Address Idaho National Laboratory
Historic Context Science/Engineering: Nuclear Testing
*Property Type: Building *Total # features
*Associated bldgs./structures TREAT Complex
*Construction Date 1979 Estimated Construction Period
Style No Style Plan Shed roof; rectangular; one-story
*Condition Excellent *Moved: Yes ___ When Materials Prefabricated metal with concrete foundation, wood interior framing, sheet rock and wood floors.
*Original Use Govt/Security *Current Use Standby

NATIONAL REGISTER RECOMMENDATION: (check all that apply)

__ Individually eligible X Not eligible
__ Contributing in a potential district X Noncontributing
__ Multiple property study __ Historical significance
__ Significant person __ Historic landscape
__ Architectural/artistic values __ Not evaluated

Comment
*Recorded by J.B. Williams *Phone (208) 526-0926
*Address P.O. Box 1625 MS 3710 Idaho Falls, Idaho 83415
*Project/Report Title Resumption of Transient Testing at TREAT
Survey Report # ____ Reconnaissance X Intensive __ *Date 6/11/2013

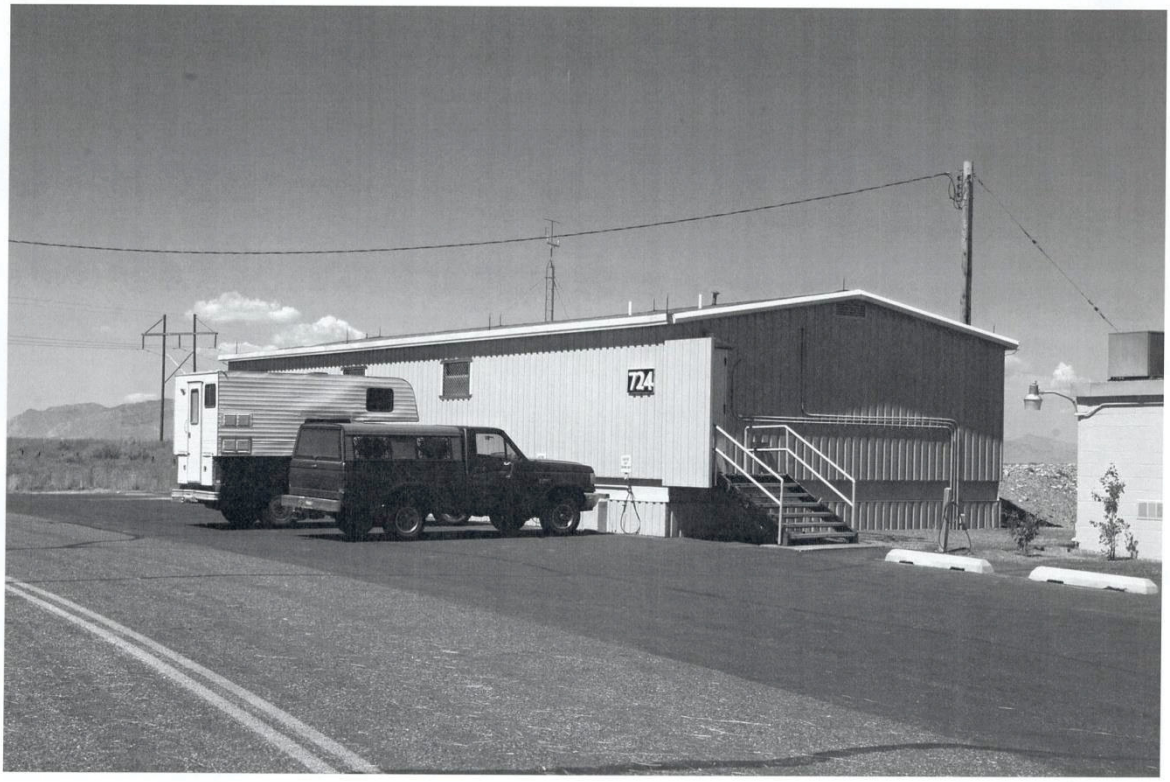
FIELD NOTES/ADDITIONAL INEEL INFORMATION

Other name(s) N/A
Access restrictions due to contamination __ yes
Square footage of building 1,680
Future plans Remove
Historian's type classification: control building
Historian's recommendation for mitigation upon finding of adverse impact: N/A

Additional comment page attached __ yes

Other notes:

IHSI #
REV #
SITS #



TREAT Control Building ANL-724

IDAHO HISTORIC SITES INVENTORY: INL HISTORICAL CONTEXT
Idaho State Historic Preservation Office

This form documents a building at Idaho National Laboratory. It assesses its eligibility for the National Register of Historic Places.

PROPERTY DATA

*Property Name/Area/Bldg. Number Fuel Conditioning Facility ANL/MFC-765
*USGS Map Reference Little Butte SW Quadrangle 7.5
*Township 3 Range 32 Section 13, SE 1/4 of NW 1/4 of NW 1/4, Boise Meridian
UTM: zone 12 366325 easting 4828025 northing
*County Butte Acres Less than one acre City 30 miles west of Idaho Falls *Address Idaho National Laboratory
Historic Context Science/Engineering: Nuclear Testing
*Property Type: Building *Total # features
*Associated bldgs./structures EBR II Complex
*Construction Date 1963 Estimated Construction Period
Style No Style Plan Shed roof; rectangular; one-story
*Condition Excellent *Moved: Yes ___ When Materials: Steel frame with metal panel walls, corrugated sheet metal siding and roof; interior cells of concrete; three floors including basement; reinforced concrete floors; concrete walls up to first floor; pumice block sill walls; steel roof deck covered by built up roofing; concrete roof over cells.
*Original Use Govt/Nuclear Fuel Recycling *Current Use Operating
NATIONAL REGISTER RECOMMENDATION: (check all that apply)

__ Individually eligible	__	Not eligible
X Contributing in a potential district		Noncontributing
__ Multiple property study	X	Historical significance
__ Significant person	X-	Historic landscape
__ Architectural/artistic values	__	Not evaluated

Comment
*Recorded by J.B. Williams *Phone (208) 526-0926
*Address P.O. Box 1625 MS 3710 Idaho Falls, Idaho 83415
*Project/Report Title Resumption of Transient Testing at TREAT
Survey Report # ____ Reconnaissance X Intensive __ *Date 6/11/2013
FIELD NOTES/ADDITIONAL INEEL INFORMATION

Other name(s) N/A
Access restrictions due to contamination __ yes
Square footage of building 51,385
Future plans Continued use
Historian's type classification: reactor support/hot cells
Historian's recommendation for mitigation upon finding of adverse impact: Large format photographs

Additional comment page attached __ yes

Other notes:

IHSI #
REV #
SITS #

Fuel Conditioning Facility ANL-765

IDAHO HISTORIC SITES INVENTORY: INL HISTORICAL CONTEXT
Idaho State Historic Preservation Office

This form documents a building at Idaho National Laboratory. It assesses its eligibility for the National Register of Historic Places.

PROPERTY DATA

*Property Name/Area/Bldg. Number Hot Fuels Examination Facility: ANL/MFC-785
*USGS Map Reference Little Butte SW Quadrangle 7.5
*Township 3 Range 32 Section 13, SE 1/4 of NW 1/4 of NW 1/4, Boise Meridian
UTM: zone 12 366345 easting 4828105 northing
*County Butte Acres Less than one acre City 30 miles west of Idaho Falls *Address Idaho National Laboratory
Historic Context Science/Engineering: Nuclear Testing
*Property Type: Building *Total # features
*Associated bldgs./structures TREAT Complex
*Construction Date 1972 Estimated Construction Period
Style No Style Plan Irregular; four floors including basement; high bay
*Condition Excellent *Moved: Yes ___ When Materials Steel framed with metal panel walls, corrugated sheet metal siding and roofing interior cells of concrete; reinforced concrete floors; concrete walls up to first floor; steel roof deck covered by built up roof.
*Original Use Govt/Hot cells *Current Use Operating

NATIONAL REGISTER RECOMMENDATION: (check all that apply)

__ Individually eligible	__ Not eligible
X Contributing in a potential district	__ Noncontributing
__ Multiple property study	X Historical significance
__ Significant person	X Historic landscape
__ Architectural/artistic values	__ Not evaluated

Comment
*Recorded by J.B. Williams *Phone (208) 526-0926
*Address P.O. Box 1625 MS 3710 Idaho Falls, Idaho 83415
*Project/Report Title Resumption of Transient Testing at TREAT
Survey Report # ____ Reconnaissance X Intensive __ *Date 6/11/2013

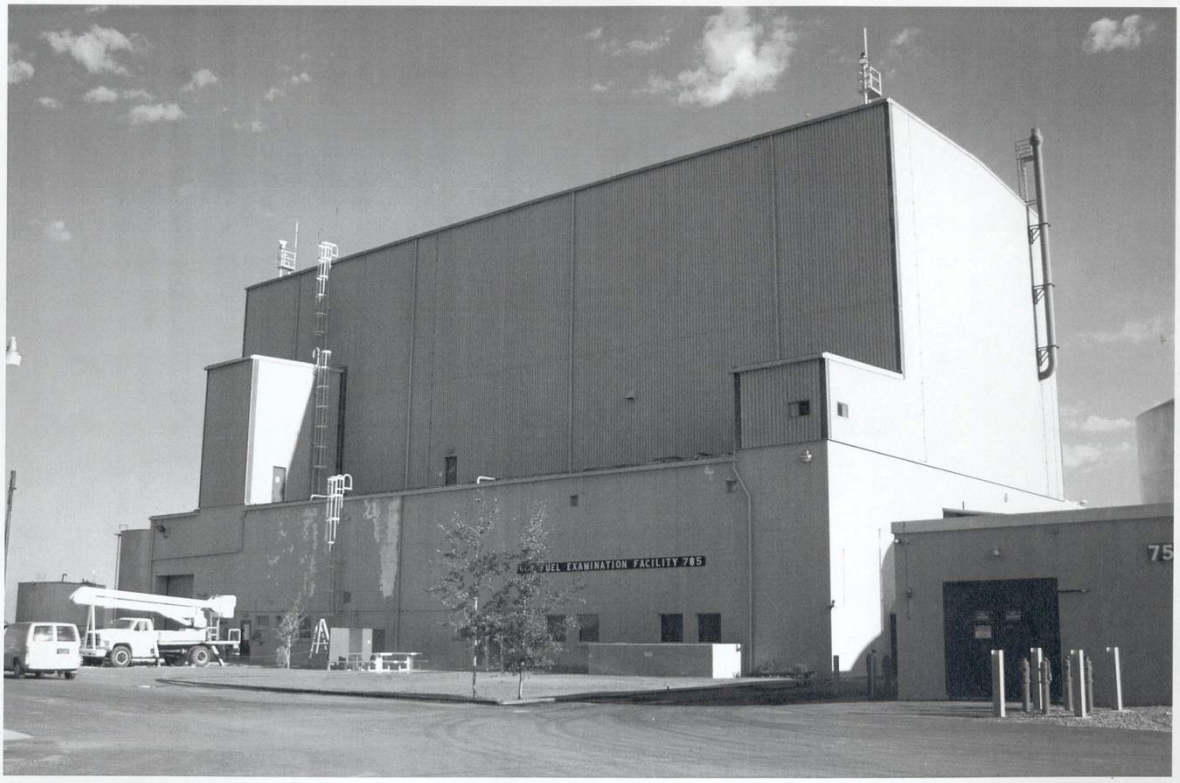
FIELD NOTES/ADDITIONAL INEEL INFORMATION

Other name(s) N/A
Access restrictions due to contamination __ yes
Square footage of building 61,081
Future plans Remove
Historian's type classification: Process building
Historian's recommendation for mitigation upon finding of adverse impact: Large format photographs

Additional comment page attached __ yes

Other notes:

IHSI #
REV #
SITS #



Hot Fuel Examination Facility (HFEF) ANL-785

IDAHO HISTORIC SITES INVENTORY: INL HISTORICAL CONTEXT
Idaho State Historic Preservation Office

This form documents a building at Idaho National Laboratory. It assesses its eligibility for the National Register of Historic Places.

PROPERTY DATA

*Property Name/Area/Bldg. Number Advanced Test Reactor: TRA-670
*USGS Map Reference Circular Butte 3 SW Idaho
*Township 1N Range 29E Section 14, SW 1/4 of SW 1/4 of NE 1/4, Boise Meridian
UTM: zone 12 341360 easting 4827790 northing
*County Butte Acres Approx. 3 acres City 40 miles west of Idaho Falls *Address Idaho National Laboratory
Historic Context Science/Engineering: Nuclear Testing
*Property Type: Building *Total # features
*Associated bldgs./structures ATR Complex
*Construction Date 1964 Estimated Construction Period 1964-1967 Style No Style
Plan Rectangle; mixed height; flat roof.
*Condition Excellent *Moved: Yes __ When
*Materials Reinforced concrete foundation. Walls are of aluminum sheeting on a steel frame with insulation between the sheets. Composition roof on steel deck. High bay section equivalent to 4 stories.
*Original Use Govt/nuclear reactor *Current Use Operating
NATIONAL REGISTER RECOMMENDATION: (check all that apply)

X Individually eligible	__ Not eligible
X Contributing in a potential district	__ Noncontributing
__ Multiple property study	X Historical significance
__ Significant person	X Historic landscape
__ Architectural/artistic values	__ Not evaluated

Comment
*Recorded by J.B. Williams *Phone (208) 526-0926
*Address P.O. Box 1625 MS 3710 Idaho Falls, Idaho 83415
*Project/Report Title Resumption of Transient Testing at TREAT
Survey Report # ____ Reconnaissance X Intensive __ *Date 6/11/2013
FIELD NOTES/ADDITIONAL INEEL INFORMATION

Other name(s) N/A
Access restrictions due to contamination __ yes (hazardous operations)
Square footage of building 140,694
Future plans Maintain and upgrade as necessary
Historian's type classification Reactor /Test Experiment
Historian's recommendation for mitigation upon finding of adverse impact: Full HAER

Additional comment page attached __ yes

Other notes:

IHSI #
REV #
SITS #

Advanced Test Reactor TRA-670

IDAHO HISTORIC SITES INVENTORY: INL HISTORICAL CONTEXT
Idaho State Historic Preservation Office

This form documents a building at Idaho National Laboratory. It assesses its eligibility for the National Register of Historic Places.

PROPERTY DATA

*Property Name/Area/Bldg. Number Fluorinel Dissolution Process/Fluorinel Dissolution Process and Storage Facility; CPP-666
*USGS Map Reference Circular Butte 3 SW Idaho
*Township 3N Range 30E Section 19, NW 1/4 of NW 1/4 of SW 1/4, Boise Meridian
UTM: zone 12 343760 easting 4825940 northing
*County Butte Acres Less than one acre City 40 miles west of Idaho Falls *Address Idaho National Laboratory
Historic Context Science/Engineering: Nuclear Testing
*Property Type: Building *Total # features
*Associated bldgs./structures CPP Complex
*Construction Date 1983 Estimated Construction Period ____Style No Style
Plan Rectangle; mixed height; flat roof.
*Condition Excellent *Moved: Yes __ When
*Materials Reinforced concrete foundation. Walls are of aluminum sheeting on a steel frame with insulation between the sheets. Composition roof on steel deck.
*Original Use Govt/waste management *Current Use Operating
NATIONAL REGISTER RECOMMENDATION: (check all that apply)

__ Individually eligible	X Not eligible
__ Contributing in a potential district	X Noncontributing
__ Multiple property study	__ Historical significance
__ Significant person	__ Historic landscape
__ Architectural/artistic values	__ Not evaluated

Comment
*Recorded by J.B. Williams *Phone (208) 526-0926
*Address P.O. Box 1625 MS 3710 Idaho Falls, Idaho 83415
*Project/Report Title Resumption of Transient Testing at TREAT
Survey Report # ____ Reconnaissance X Intensive __ *Date 6/11/2013
FIELD NOTES/ADDITIONAL INEEL INFORMATION

Other name(s) N/A
Access restrictions due to contamination __ yes (hazardous operations)
Square footage of building 152,388
Future plans Maintain and upgrade as necessary
Historian's type classification Reactor /Waste Management
Historian's recommendation for mitigation upon finding of adverse impact: N/A

Additional comment page attached __ yes

Other notes:

IHSI #
REV #
SITS #

Fluorinel Dissolution Process/Fluorinel Dissolution Process and Storage Facility
CPP-666