

Idaho National Laboratory Cultural Resource Management Office Annual Report FY 2007

March 2008



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Laboratory operated by Battelle Energy Alliance*

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ABSTRACT

The Idaho National Laboratory (INL) Site is home to vast numbers and a wide variety of important cultural resources representing at least a 13,500-year span of human land use in the region. As a federal agency, the Department of Energy Idaho Operations Office has legal responsibility for the management and protection of those resources and has delegated these responsibilities to its primary contractor, Battelle Energy Alliance (BEA). The BEA professional staff is committed to maintaining a cultural resource management program that accepts the challenge of preserving INL cultural resources in a manner reflecting their importance in local, regional, and national history.

This annual report summarizes activities performed by the INL Cultural Resource Management Office (CRMO) staff during fiscal year 2007. This work is diverse, far-reaching and though generally confined to INL cultural resource compliance, also includes a myriad of professional and voluntary community activities. This document is intended to be both informative to internal and external stakeholders, and to serve as a planning tool for future cultural resource management work to be conducted on the INL.

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ACRONYMS

ACHP	Advisory Council on Historic Preservation
AEC	U.S. Atomic Energy Commission
AIP	Agreement In Principle
ANPG	Arco Naval Proving Ground
ARPA	Archaeological Resource Protection Act
BBWI	Bechtel Babcock & Wilcox Idaho
BLM	Bureau of Land Management
BEA	Battelle Energy Alliance
CFA	Central Facilities Area
CDRL	Contract Data Requirements List
CITRC	Critical Infrastructure Test Range Complex
CRM	Cultural Resource Management
CRMP	Cultural Resource Management Plan
CRMO	Cultural Resource Management Office
CWI	CH2M Hill/Washington Group International
DD&D	decontamination, deactivation, and demolition
DMS	data management system
DOE-ID	U.S. Department of Energy – Idaho Operations Office
DOI	Department of Interior
EBR I	Experimental Breeder Reactor I
ft	foot
FTE	full-time equivalent
FY	fiscal year
GIS	geographical information system
HAER	Historic American Engineering Record
HeTO	Heritage Tribal Office (Shoshone-Bannock)
ICP	Idaho Completion Project

in	inch
INEL	Idaho National Engineering Laboratory
INEEL	Idaho National Engineering and Environmental Laboratory
INL	Idaho National Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
ISMS	Integrated Safety Management System
ITD	Idaho Transportation Department
MOA	memorandum of agreement
MFC	Materials and Fuels Complex
NARA	National Archives and Records Administration
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRF	Naval Reactors Facility
NRHP	National Register of Historic Places
NRTS	National Reactor Testing Station
PA	Programmatic Agreement
PBF	Power Burst Facility
RTC	Reactor Technology Complex
RWMC	Radioactive Waste Management Complex
SHPO	State Historic Preservation Office
TRA	Test Reactor Area
USC	United States Code
WWII	World War II

INL CULTURAL RESOURCE MANAGEMENT OFFICE ANNUAL REPORT FY 2007

1. INTRODUCTION

The Idaho National Laboratory (INL) is the nation's premier nuclear research laboratory, a multi-program facility, and a National Environmental Research Park located in southeast Idaho under the jurisdiction of the Department of Energy, Idaho Operations Office (DOE-ID). The INL consists of an 890 square mile reserve located approximately 30 miles west of Idaho Falls and approximately 12 miles east of Arco, along with a number of administrative buildings and laboratories located in Idaho Falls. Management and operations at the INL Site are under the direction of the Battelle Energy Alliance (BEA), while they and other contractors and subcontractors such as CH2M Hill/Washington Group International (CWI) and Bechtel BWXT Idaho (BBWI) implement specific work scopes.

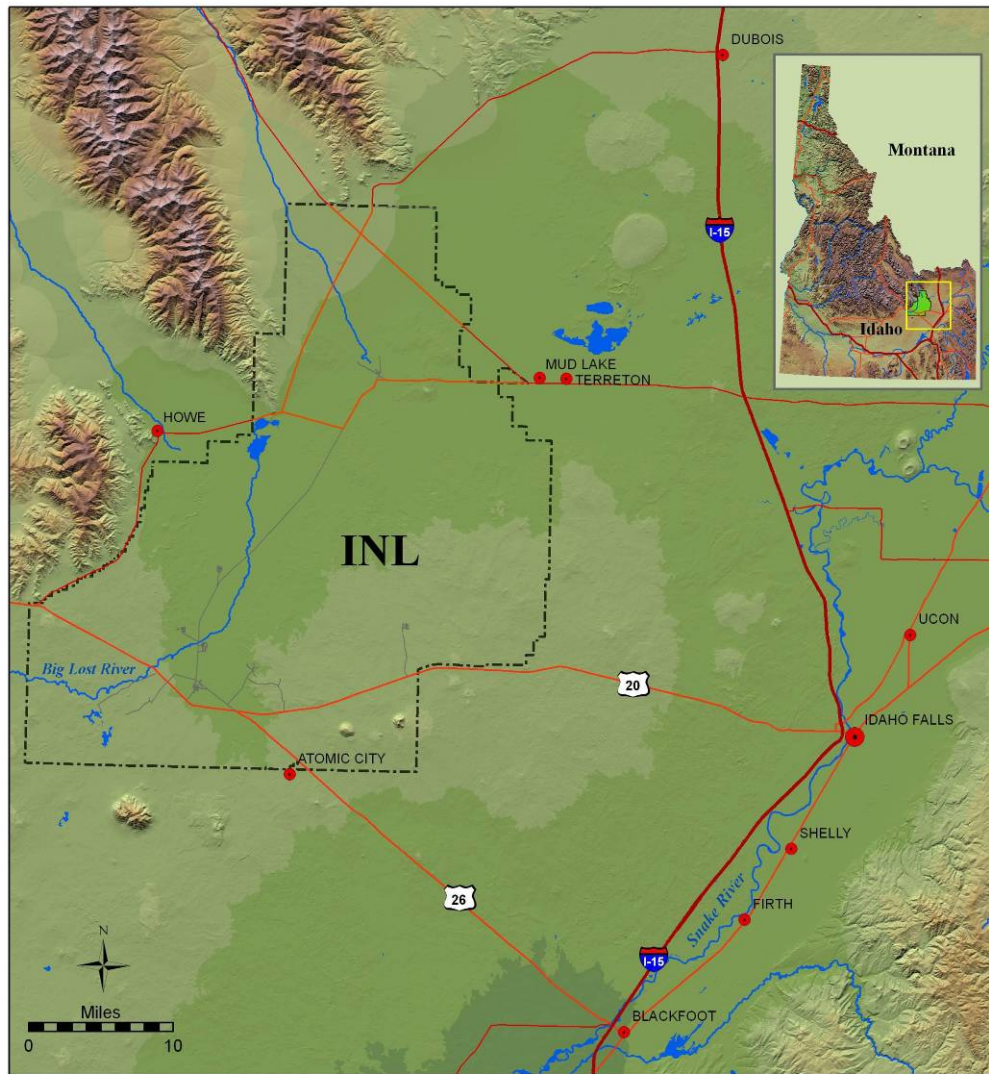


Figure 1. INL is located in southeastern Idaho.

DOE-ID and its contractors occupy eight main facility areas at the INL Site and several buildings in Idaho Falls. Over 200 DOE-ID owned historic buildings and several hundred other property types (eg. roads, manmade ponds, concrete abutments) have been identified within the eight facility areas. Bechtel Bettis operates a ninth INL facility, the Naval Reactors Facility (NRF), under the supervision of the DOE Office of Naval Reactors. The land between the facility areas is dotted with prehistoric and historic cultural resources dating back at least 13,500 years and natural and man-made features that are important to Native Americans and others.

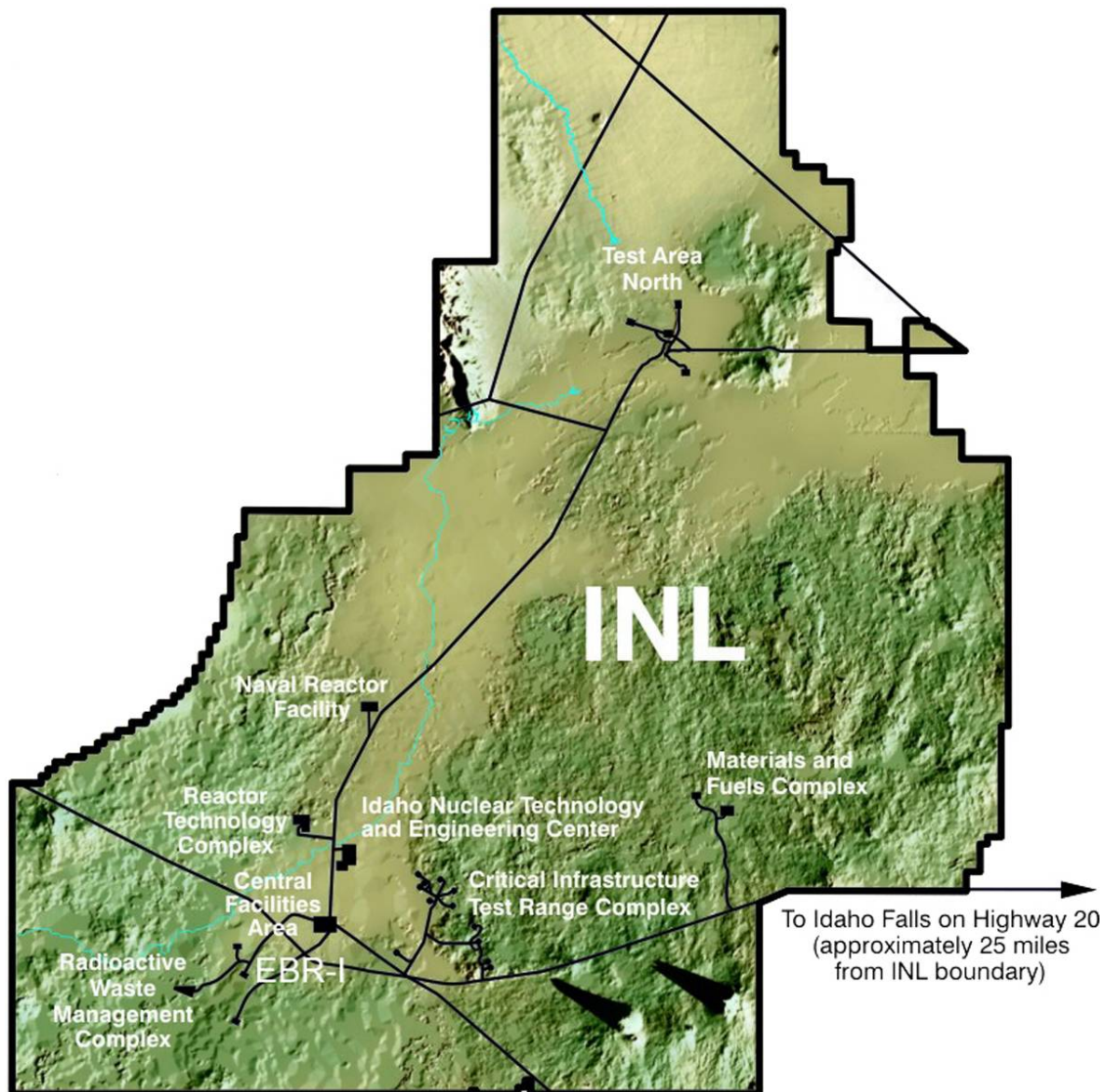


Figure 2. There are currently nine main facility areas at INL.

Cultural resource management (CRM) at the INL is conducted and coordinated by BEA's professional staff with general oversight provided by DOE-ID. As the centralized repository for cultural resource and historic INL archives and multi-disciplinary expertise, the INL Cultural Resource Management Office (CRMO) also assists other Site contractors with historic data searches, project reviews, and regulatory compliance. INL CRMO work balances the nuclear mission and new and existing projects with the need to cleanup the remnants of past activities and the need to protect irreplaceable cultural resources.

This summary of activities is an annual effort by the INL CRMO that satisfies a major requirement of the "INL Cultural Resource Management Plan" (CRMP) (DOE-ID 2007a) and the associated programmatic agreement between the DOE-ID, Idaho State Historic Preservation Office (SHPO), and Advisory Council on Historic Preservation (ACHP). The summary is intended for a diverse audience and to encourage awareness of and appreciation for INL cultural resources (cf. INL CRMO 2007a). Photographs taken by INL CRMO staff provide a visual context for many of the interesting activities discussed in the text. Ultimately, the document is intended to stimulate discussion resulting in the promotion and advancement of INL CRM program goals. Its completion in conjunction with an annual public tour of INL cultural resources and meeting with representatives of the Idaho SHPO, Shoshone-Bannock Tribes, National Park Service, and others is intended to encourage this active feedback.

2. SETTING

2.1 INL Landscape and Biota

The INL is an 890 square mile reserve located within the Great Basin Culture Area on the northern margins of the Eastern Snake River Plain (Nace et al. 1972), tucked against the foothills of the Beaverhead, Lemhi, and Lost River Ranges. Locally prominent landmarks such as Big Southern, Middle, East, Antelope, and Circular Buttes are volcanic in origin and tend to dominate a landscape that appears deceptively flat. In reality, the lava terrain features ridges and swales, playas, craters, buttes, and caves. The Big Lost River has created a broad and relatively flat floodplain that is bordered by the rugged basaltic terrain. Extensive gravel deposits and a multitude of channels characterize the floodplain and reflect a more active period in the River's history.

The broad trough of the Big Lost River is also known as the Pioneer Basin (Butler 1968). It is a closed topographic depression, fed by drainage systems that extend between Big Southern, Middle, and East Buttes to the south, and Mud Lake, the Big and Little Lost Rivers, and Birch Creek to the north. The central feature of the Basin is the Big Lost River itself, which enters the INL Site from the west, flowing in an easterly direction for about six miles before abruptly turning northward. Along the way the River winds through a broad alluvial plain interspersed with basalt outcrops and cut by numerous channels for some 25 miles before a combination of stream flow rates, gradient, and soil porosity cause it to disappear or sink into the Snake River Plain Aquifer in a low area at the base of the Lemhi Mountains. The Little Lost River and Birch Creek also terminate in natural "Sink" areas at the northeastern end of the Pioneer Basin.



Figure 3. View of the Buttes across Pioneer Basin.

The Big Lost River has endured significant natural and artificial modifications during its long history and natural channels that may have held water during times of greater effective moisture remain dry today due to cyclic drought combined with large-scale irrigation projects initiated in the early 20th century. The "inks" have also been affected by climate change and historic irrigation practices. Today they are seasonal wetlands that remain dry most years, but in the past during cooler and wetter conditions, they were part of a major inland lake known as Lake Terreton.

Lake Terreton was a shallow freshwater lake that dominated the northern reaches of the Pioneer Basin spreading over hundreds of square kilometers



Figure 4. When filled with water, the Sinks are a modern remnant of Pleistocene Lake Terreton.

(Butler 1970, Gianniny et al. 2002, Ostenaar 1999) at the end of the Pleistocene, about 13,000 years ago. On lands now within the boundaries of INL, greater effective moisture and reliable flows from Birch Creek and the Big and Little Lost Rivers fed a western sub-basin of the Lake approximately 90 square miles in extent. Farther to the east, Camas and Beaver Creeks sustained an eastern sub-basin known today as Mud Lake, located roughly 20 miles northeast of the INL. The cooler and wetter conditions that sustained Lake Terreton during the Pleistocene geological period also favored local rivers and numerous smaller playas that dot the landscape. Plants like grasses and rushes flourished under these conditions. Warming and drying trends since the end of the Pleistocene have resulted in changes in the relative percentages of each plant species but virtually all species that existed then still exist today (Davis and Bright 1983).

Throughout INL history, water has been central in human land-use choices. Surface features like the streams, rivers, and large seasonal wetlands created at the “sinks” have attracted animals and human hunter-gatherers, farmers, and ranchers with the lure of moisture in the cold desert environment. During cooler and moister climatic intervals from 22,000 – 11,000 years ago and possibly as recently as 720 years ago, hunter-gatherers were drawn to the resources offered by Lake Terreton. As conditions have dried in historic times, Lake Terreton has been reduced to a series of discontinuous semi-seasonal marshland playas and local rivers flow only on a seasonal basis. Water diversions of many kinds, including simple hand-dug ditches and carefully engineered canals have been created across the INL desert during historic times to deliver the precious water to hopeful settlers on homestead claims systematically established throughout the Pioneer Basin from the late 1800s through approximately 1925. During this period of settlement, surface water became increasingly scarce and recurrent cycles of drought, soil porosity, and upstream irrigation, strongly affected these local habitations, leading to abandonment of most. INL CRMO research is filling in many of the details of the lives of the hunter-gatherers and pioneers who lived on these arid lands, and the inevitable cycles of boom and bust linked intimately to water in the cold desert. In modern times, the extensive aquifer that underlies the region has become accessible through enhanced technology and new needs based in scientific endeavor.



Figure 5. Concrete diversion on the dry Big Lost River, built ca 1910.



Figure 6. Wild onion and prickly pear cactus in bloom.

Modern biotic communities on the INL are similar to those found in other cool desert environments within the Great Basin Culture Area. Plant species vary according to altitude from shadscale steppe to sagebrush and grass dominated communities to higher altitudes dominated by juniper along the slopes of the larger buttes and the mountain foothills. Various native grasses, low shrubs, and forbs are present in virtually all plant communities (Anderson et al 1996). In addition to large scale climatic changes, human activity, most notably within historic times, has affected INL vegetation. Agricultural attempts have left visible field scars and have introduced non-native crop species.

Range fires and roads have destroyed native vegetation and provided pathways for invasive species such as cheatgrass. Riparian plant communities, dominated by willow, wild rose, and large cottonwood trees, existed until relatively recent times, but they have generally not survived modern cycles of drought and upstream water diversion.

Toward the end of the Pleistocene a number of large faunal species such as mammoth and camel became extinct and during more recent times, species such as bison have also disappeared from the Snake River Plain and INL region. Modern INL faunal communities consist of terrestrial vertebrate species such as pronghorn, deer, elk, coyote, and fox, along with numerous small mammals such as rabbits, mice, voles and ground squirrels. In 2007, badgers and badger dens were noted in several locations across the INL Site. Reptilian species include a number of lizard species, the most abundant of which is the sagebrush lizard. Four species of snake are known to inhabit the area as well. These include the gopher snake, the western garter snake, the desert striped whipsnake, and western rattlesnake (Sehman and Linder 1976). Avian species are largely migratory, although sage grouse reside in the area year-round. During wet years, the “sink” areas provide a temporary haven for many species of migratory waterfowl. Birds of prey, including owls, hawks, eagles, and falcons (Craig and Trost 1976) also occupy the INL area on a seasonal basis.



Figure 7. Sagebrush Lizard.

2.2 INL Culture History

The Pioneer Basin and surrounding lava uplands are part of the northern Great Basin culture area and a stage on which at least 13,500 years of human history has played out in an intimate relationship



Figure 8. Great Basin culture area.

with the natural environment. The wide variety of hunting implements and plant processing tools found on the INL attests to the ways in which human hunting and gathering populations adapted to changing conditions over time. Different technologies and foraging strategies were adopted as needed, enabling people to live in and productively use the seemingly bleak high desert environment. Following initial European exploration roads and trails were established and with the arrival of the railroad, a period of more focused settlement and landscape changes to support an agrarian lifestyle began. Water has always been a limiting factor in permanent settlement of the region, and overestimates of abundance combined with regular cycles of drought condemned most of these nineteenth and early twentieth century settlement attempts to failure. In modern times, the basic transportation infrastructure established by hopeful farmers and irrigation developers along with discovery of the Snake River Plain Aquifer, a vast source of

underground water, enabled the U.S. government to establish one-of-a kind facilities at what is now known as the INL. Initially, these activities were devoted to wartime (World War II) efforts and later the lands became host to ground-breaking scientific research.

2.2.1 Prehistoric Uses

The relationship between aboriginal hunting and gathering populations and the INL landscape has the deepest roots of all human endeavors in the region, enduring for more than 13,000 years without fundamental change. Tangible evidence of this long term land use is ubiquitous, though not randomly distributed on the landscape. The subtleties expressed in the archaeological record are reflective of slight changes through time in the types of resources utilized and the manner in which they were taken. At the end of the last Ice Age, or the Pleistocene, for example, settlement and subsistence appear to have been strongly tied to rivers and marshes, including the marshy edges of Lake Terreton (Marler 2004; see Section 6). Water continued to play an important role in settlement and subsistence choices later during the dryer conditions of the Holocene (approx. 11,500 years ago) and during a wetter interval when Lake Terreton may have partially filled (Bright and Davis 1982, Mark and Thackray 2002), high vantage points appear to have been intentionally utilized, perhaps because of the commanding view that they provided of the surrounding area.

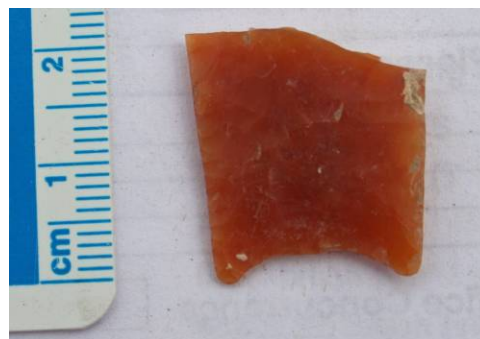


Figure 9. 12,000 year-old spear point fragment found on the banks of the Big Lost River.

Throughout the lengthy period of prehistoric use, the overall lifeway of hunting and gathering appears to have remained consistent as reflected by artifact assemblages recorded at more than 2,400 archaeological sites found during cultural resource inventories. To date, approximately 9 % of the Site has been surveyed for archaeological resources. A predictive model developed to facilitate long-term project planning and ongoing protection of this legacy have provided estimates of as many as 75,000 additional prehistoric archaeological locations that could exist within the INL Site boundaries (Ringe 1995, Plager et al. 2004).

2.2.2 Historic Uses

Since the early 1800s, Euro-American presence has been felt on what is now the INL Site. Initially, land-use was light and transient, perhaps much like that of the early Native American occupants. Like those earlier people, the first Euro-American occupants were intent on resource extraction. However, unlike the earlier inhabitants, whose focus was on food to sustain life, some Euro-Americans trapped beaver and other animals for monetary purposes. In 1852, Goodale's Cutoff was established as a northern extension of the Oregon Trail; an alternate route to reach the rich resources of the Oregon Territory. Still, this was transient activity, and the human imprint on the landscape remained modest.

Between 1860 and 1880, Goodale's Cutoff came to be used to trail cattle and eventually sheep, from western ranges in Oregon, Washington, and Idaho to eastern markets. During this same time period the mining industry in the mountains of Central Idaho boomed and a number of wagon and stage roads between growing towns and cities along the Snake River and the mining camps of the interior were established. Many of these roads, including a portion of Goodale's Cutoff, crossed the INL Site and, in fact, several are still in use today. By the early 1880s, a number of ranching operations were underway at the north end of the INL near Howe and around the Big and Little Lost Rivers and the Birch Creek Sinks.

Cattle were routinely herded across the Site from these areas to summer range near Big Southern Butte (DOE-ID 2007a; Gerard 1982).

While Euro-American settlement began near the INL Site in the early 1800s, it wasn't until passage of the Carey Land Act in 1894, and particularly the Desert Reclamation Act in 1902, that homesteading efforts on these arid lands began in earnest. Most of these homesteads were located along the Big Lost



Figure 10. Cast iron stove discovered during a 2007 field survey.

River and in the Mud Lake region. Between 1905 and 1920 a number of water-control projects including the Mackay Dam and numerous irrigation canal systems were established here. The town of Powell was established adjacent to the Oregon Shortline railroad and the Big Lost River near what is now the Radioactive Waste Management Complex (RWMC) in the southwest corner of the INL and a second townsite, known as McCullum, was planned some distance to the north. An extensive irrigation system extends and radiates from the Big Lost River across the entire INL. Overgrown and barely discernible field scars are also associated with the irrigation features.

Although irrigation projects in the Mud Lake area were successful, irrigation efforts and associated homesteading activities associated with the Big Lost River failed and were essentially abandoned by the mid-1920s. Soil porosity and upstream water use contributed significantly to this failure. In addition to roads and canal systems, artifacts from the 1800s and early 1900s include stagecoach stations and remnants of homesteading activity such as foundations, domestic items, and children's toys that give insight into the daily lives of the early pioneers. Over 100 historic archaeological sites have been recorded from this period with hundreds more awaiting identification and recordation. At many of these sites, careful INL CRMO research has enriched the archaeological evidence by the discovery of associated archival materials including official homesteading and irrigation company records, family photographs and documents, and interviews with ancestors of the early pioneers (see Section 6).

2.2.3 Arco Naval Proving Ground

With the outbreak of World War II (WWII), Pocatello, Idaho, was selected as a location to construct an ordnance plant with a mission to reline and test Pacific Fleet naval armament. Shortly after plant construction was completed, the Arco Naval Proving Ground (ANPG) was established on core lands that would eventually become the INL Site, to test the relined guns. Beginning late in 1942, testing began and during the course of the War, all manner of ship weaponry, from anti-aircraft guns firing 3-in. rounds to the main battleship 16-in. guns were test-fired at the ANPG. The latter fired 2,800-pound test rounds from the Scoville railroad siding (now the Central Facilities Area [CFA]) as far as 20 miles to the north.

After the end of WWII, the ANPG continued its mission to test various kinds of conventional explosive ordnance. The tests were designed to explore storage and transport methods to minimize the potential for sympathetic explosions. Artifacts remaining from the WWII period are concentrated at CFA, south of Highway 20 near the buttes and the Big Lost River, and in a wide firing fan that extends to the northeast. At CFA, resources include buildings like the brick bungalow that once served as quarters for an Officer and his family, structures like concrete gun mounts and an 8-ft. thick concussion wall with an observation tower that looms above, equipment like the gantry crane that unloaded all manner of weaponry and ordnance, and a landscape of roads, trees, and flowerbeds. In outlying areas, concrete targets, small observation towers, craters, and unexploded ordnance reflect work activities while discarded domestic items from extensive trash dumps provide unique insight into the lives of ordnance workers and their families.



Figure 11. CFA structural assessment in progress.

2.2.4 National Reactor Testing Station

In 1949, the newly established U.S. Atomic Energy Commission (AEC) selected the ANPG as the location to build and test nuclear reactors. Land transfers between the Department of Defense and the AEC were concluded, private properties were acquired, and the National Reactor Testing Station (NRTS) was established. Later that year, and again in the early 1950s, additional land was acquired that brought the facility close to its current 890 square miles. The purpose of the NRTS was to provide an isolated location where prototype nuclear reactors could be designed, built, and tested. The Site was renamed the Idaho National Engineering Laboratory (INEL) in 1974, and renamed again in 1997 as the Idaho National Engineering and Environmental Laboratory (INEEL). In February of 2005 it became the Idaho National Laboratory (DOE-ID 2007a).

Since its establishment, 52 “first-of-a kind” reactors and associated support structures have been constructed at the NRTS/INEL/INEEL/INL. Ground-breaking research fundamental to the development of nuclear power generation and nuclear propulsion has been conducted at the nine facilities that remain active today and at others that have undergone decontamination, deactivation, and demolition (DD&D). In 1966, in recognition of one aspect of the INL’s scientific heritage, Experimental Breeder Reactor I was recognized as a National Historic Landmark and listed in the National Register of Historic Places. Present and future Laboratory missions include development of the next generation of nuclear technology for power reactors, development and testing of national security technologies, and maintenance and expansion of a multi-program national research laboratory role. To meet these goals, INL Site facilities were consolidated into three main areas including the Reactor Technology Complex (formerly the Test Reactor Area), the Materials and Fuels Complex (formerly Argonne National Laboratory-West), and the Research and Education Complex (REC), a group of offices and laboratories in Idaho Falls. Environmental cleanup, including a significant DD&D effort, is another important current mission with ongoing effects to historically significant INL properties.

INL building inventories include over 200 properties that are historic, including Experimental Breeder Reactor I (EBR I), INL's only National Historic Landmark, and others like the Materials Test



Figure 12. President Johnson dedicates EBR I a National Historic Landmark during ceremonies at CFA in 1966.

Reactor, considered to be “signature” properties in the history of the DOE. Most INL buildings have been modified and used for a variety of projects and programs through the years, but still retain historical significance. Indeed, change has been a constant in the architectural history of the Laboratory, perhaps as a partial reflection of the focus on function over style, the process of scientific discovery itself, and the fundamental role that INL facilities have filled in the advancement of nuclear research (Braun 2006a).

Today, many historic buildings have been demolished or are soon to be demolished. Prior to demolition, photographic and documentary evidence are assembled, often in Historic American Engineering Record (HAER) reports, to preserve an archival record of the important scientific achievements that have occurred (see Section 9). The INL CRMO curates many of these records in a newly developed INL Archival Center that is assuming increasing importance for researchers. Indices are also being developed to facilitate access to important

archival records stored elsewhere (i.e. photographs, technical reports). INL is also home to important nuclear era artifacts, which include items such as prototype nuclear-powered jet engines, a lead shielded locomotive, control panels, scale models, and others. The Visitors Center at Experimental Breeder Reactor I is home to many of these items.

2.2.5 Contemporary Resources and Values

Tangible evidence of the past such as lithic artifacts, prehistoric campsites, historic trails, homesteads, World War II and pioneering nuclear-era buildings, structures, and archives such as those described above comprise one form of cultural resources at the INL. A second, equally important form is more ethereal and less easily defined. These resources generally consist of cultural and natural places, landscapes, viewsheds, select natural resources, and sacred areas or objects that have importance for Native Americans and others such as the descendents of early pioneers and homesteaders. Ongoing consultation with these groups is facilitating the identification and protection of these less tangible cultural resources.



Figure 13. Some INL stakeholders value the undeveloped views along Goodales Cutoff as it crosses INL.

3. PROGRAMMATIC FRAMEWORK

A myriad of federal laws, regulations, and directives require federal agencies, like the DOE, to consider cultural resources in their ongoing operations. These requirements are broadly encapsulated in three primary federal laws; the National Environmental Policy Act of 1969 (NEPA 1969), the Archaeological Resource Protection Act of 1979 (ARPA 1979), and the National Historic Preservation Act of 1966 (NHPA 1966), as amended, and their implementing regulations. Summaries of all applicable requirements are provided in the INL CRMP (DOE-ID 2007a).

Some elements of the INL CRMO compliance responsibility are prescriptive, for example the routine completion of archaeological surveys to identify cultural resources that may be impacted by proposed INL “undertakings” on INL lands or reviews of proposed modifications to INL buildings (NEPA, NHPA Section 106). Other elements allow more latitude, for example the requirement that all federal agencies, including DOE-ID at the INL, assume responsibility for all historic properties under their jurisdiction, not only those lying in the path of proposed development (NHPA Section 110) and requirements for conducting public outreach and education about archaeology (ARPA).

The substantive requirements of the pertinent legal drivers are streamlined and tailored to meet the unique needs of the INL and are presented in the INL CRMP (DOE-ID 2007a). Reviewed and approved by the Idaho SHPO, Advisory Council on Historic Preservation, National Park Service, and Shoshone-Bannock Tribes, this document includes standards for identification, evaluation, and protection of all types of INL cultural resources. Regular updates ensure its continued relevancy. A Programmatic Agreement between the DOE-ID, Idaho SHPO, and Advisory Council on Historic Preservation implements and legitimizes the CRMP. Within the CRMP, historic contexts and research designs have been developed to guide Section 110 activities and public outreach and education. Broad conceptual themes such as: prehistoric settlement and subsistence, early historic exploration and discovery, fur trapping and trading, emigration, transportation, homesteading and irrigation, agriculture, ranching, ordnance testing, nuclear reactor testing, cold war weapons and military applications, commercial power reactor safety and design, chemical reprocessing, and remediation of waste provide the primary contexts under which research is conducted. For archaeological sites, problem domains such as: chronology, settlement and subsistence, cultural relationships, demography, environment, technology, and data recovery techniques are also addressed.

The INL CRMP (DOE-ID 2007a) is an efficient means to maintain compliance with regulatory drivers and implement DOE policies and procedures. The processes developed in the Plan are designed to balance historic preservation with the fulfillment of primary INL missions as well as the need to clean up the environment while maintaining focus on the intent of the regulatory drivers, which is to preserve the important heritage contained within the INL Site boundaries. The Plan strives to create a balance between the past, present, and future. Every year, the INL CRMO prepares this summary report describing the tasks completed toward the general goals contained within the CRMP (cf. INL CRMO 2007a). The high level summaries that follow provide DOE-ID, regulators, the Tribes, stakeholders, and interested parties with an opportunity to reflect on progress and provide direct feedback for future activities. This interaction is critical to ensure that the CRM program remains focused on INL cultural resources’ stewardship for the benefit of present and future generations.

4. INL CULTURAL RESOURCE PROGRAM PERSONNEL

The INL CRM program is comprised of three entities: DOE-ID, the INL CRMO, and the Shoshone-Bannock Tribes' DOE Program. DOE-ID's Environmental Technical Support Division takes responsibility for general oversight of CRM activities through a designated Cultural Resources Coordinator. This individual is assisted by DOE-ID's Tribal Liaison Officer from the Public Affairs Office, who in turn has lead responsibility for coordinating communications and interactions with the Shoshone-Bannock Tribes. The Tribal Liaison Officer also manages the DOE-ID funded Tribal DOE Program based at Fort Hall.



Figure 14. Teresa Perkins and Robert Gallegos, DOE-ID (Bob Pence not shown).



Figure 15. Clayton Marler, Julie Braun, Dino Lowrey, Hollie Gilbert, and Brenda Pace, INL CRMO.

DOE-ID and the INL CRMO maintain a close cooperative relationship with the Shoshone-Bannock Tribes per a written Agreement in Principle (AIP) (DOE-ID 2007b). The Tribal DOE Program is overseen by a Program Director, who has broad responsibilities that include, among other things, implementation of the AIP through oversight of INL environmental programs, transportation safety, and cultural resource management. Technical specialists in the Shoshone-Bannock Heritage Tribal Office (HeTO) interact directly with INL CRMO staff and participate in many activities, providing valuable assistance and a unique holistic perspective that facilitates protection of both tangible and intangible INL cultural resources.

DOE-ID entrusts execution of its cultural resource program and policies along with regulatory compliance oversight to the INL CRMO. The CRMO staff is comprised of BEA personnel who are qualified professionals in the fields of archaeology, history, architectural history, historic preservation, and sociology. CRMO staff also assist other INL contractors (e.g., CWI, BBWI, NRF) in execution of cultural resource compliance for projects at the INL Site.



Figure 16. Caroline Boyer Smith, Willie Preacher, and LaRae Buckskin, Shoshone-Bannock HeTO (JoEtta Buckhouse and Patty Johnson not shown).

5. CULTURAL RESOURCE MANAGEMENT OFFICE ACTIVITIES

5.1 Funding

In FY 2007, there were three types of funding that supported INL CRM work. “Direct” project funding is provided by specific projects or programs to support compliance with Section 106 of the NHPA. “Indirect,” or overhead funding, was provided to accomplish crosscutting archaeological management activities not associated with specific projects and to address the full range of regulatory drivers associated with archaeology. For the first time, DOE-ID provided direct funding to support discrete tasks associated with the INL Archive Center and Historic INL Architectural compliance. In FY 2007, the ICP contractor, CH2M Hill/Washington Group International (CWI), funded approximately .25 full-time employee (FTEs) to support cultural resource milestones associated with accelerated cleanup while the INL contractor, Battelle Energy Alliance (BEA), provided indirect funding for approximately 2.2 FTEs (General and Administrative, Overhead) and direct project funding for 0.5 FTEs. DOE direct funding supported approximately 2 FTEs. The balance of this report describes activities associated with these funding sources.

5.2 Approach

Cultural resource management on the INL is a dynamic process with some short-term goals and activities being accomplished each year in support of the overarching management goals of identification, evaluation, and resource protection and preservation as described in the INL CRMP. As specific tasks are accomplished or goals achieved, they might be dropped from the list while others might become ongoing activities. New goals and tasks are added in response to changing conditions at the INL Site and within the regulatory framework that drives compliance activities, and in consideration of comments and advice from stakeholders.

There are ten long-term goals for the INL CRM program with a variety of ongoing and recurring tasks associated with each goal.

Goal 1: Identify and Manage INL Cultural Resources

- Task 1. Inventory and record INL cultural resources.
- Task 2. Seek and maintain preservation partners.
- Task 3. Reevaluate and update program requirements.
- Task 4. Maintain program files and records.
- Task 5. Conduct oral histories and interviews.

Goal 2: Evaluate INL Properties for Historic Significance

- Task 1. Conduct research to develop and update prehistoric and historic contexts required to identify themes and establish the relative importance of specific resources.
- Task 2. Evaluate INL properties against National Register of Historic Places (NRHP) criteria.

- Task 3. Prepare NRHP nominations and associated documentation.

Goal 3: Monitor the Condition of INL Cultural Resources

- Task 1. Establish the baseline condition of, and choose monitoring points at, select INL cultural resources.
- Task 2. Assess the condition of select INL cultural resources, including at a minimum, EBR I, Aviator's Cave, Prickly Cave, and the WERF burial.

Goal 4: Protect INL Cultural Resources

- Task 1. Participate in legal and regulatory reviews of INL policies and procedures to ensure integration and maximize effectiveness of overall regulatory compliance.
- Task 2. Develop and update historic structures preservation plans.
- Task 3. Respond to the unanticipated discovery of cultural resources.
- Task 4. Review, approve, and archive external investigator permits and oversee subcontracts.
- Task 5. Establish and maintain the INL Archive Center.
- Task 6. Develop and implement specific site protection and stabilization plans, as needed.

Goal 5: INL Artifact Curation

- Task 1. Prepare pre-1942 artifacts in INL interim storage and associated documentation for accessioning into an accredited curatorial facility.
- Task 2. Ensure the security of artifacts and associated documentation in interim INL storage.
- Task 3. Review and approve requests for use of INL artifact collections.
- Task 4. Prepare for and participate in an annual inspection of curatorial facilities, as required by DOE-ID.

Goal 6: Stakeholder Involvement/Public Outreach

- Task 1. Participate in educational outreach programs such as the INL Speakers Bureau.
- Task 2. Coordinate and conduct public and employee tours of cultural resource sites.
- Task 3. Present information on INL cultural resources and prehistoric and historic contexts.
- Task 4. Host and conduct annual stakeholder meeting/tour to report on previous fiscal year activities and seek input.

- Task 5. Participate in professional events (i.e., conferences, meetings).
- Task 6. Publish peer-reviewed articles.

Goal 7: Interact with Native Americans

- Task 1. Comply with cultural resource-related stipulations in the Agreement-in-Principle between DOE-ID and the Shoshone-Bannock Tribes.
- Task 2. Participate in monthly Cultural Resource Working Group meetings.
- Task 3. Invite HeTO participation in archaeological fieldwork.

Goal 8: Conduct Work Safely

- Task 1. Conform to Integrated Safety Management System (ISMS) requirements.
- Task 2. Inspect and conduct equipment maintenance regularly.

Goal 9: Maintain Professional Qualifications and Relationships

- Task 1. Identify and attend training to enhance/maintain skills.
- Task 2. Establish and maintain memberships and seek leadership positions in professional societies and organizations.
- Task 3. Interact with other cultural resource professionals (i.e., State Historic Preservation Office, National Park Service, professionals at other DOE labs).

Goal 10: Activities Reports/Plans

- Task 1. Complete the annual report of activities conducted during the previous fiscal year.
- Task 2. Complete the annual Department of Interior (DOI) questionnaire for the previous fiscal year (Contract Data Requirements List [CDRL] F.45).
- Task 3. Complete the annual monitoring report for the previous fiscal year (CDRL F.46).
- Task 4. Complete quarterly reports to the Shoshone-Bannock HeTO.
- Task 5. Update the INL Cultural Resource Management Plan, as needed (CDRL F.47).
- Task 6. As requested by DOE-ID, prepare an NRHP nomination package for a significant INL cultural resource and submit it to DOE-ID (CDRL F.48).

5.3 FY 2007 Highlights

Each year performance measures in the form of specific milestones related to the general activities discussed above are selected to guide work activities and gauge programmatic effectiveness. In FY 2007, the CRMO successfully completed all formal deliverables including the following:

- Update to the “INL Cultural Resource Management Plan” (DOE/ID-10997 Rev. 2);
- Annual Site Monitoring Report (INL/EXT-07-13446);
- INL input to the annual Secretary of the Interior’s Questionnaire on the Federal Archaeology Program (Pace 2008) Web page for links to these annual reports - <https://homer.ornl.gov/nuclearsafety/nsea/oepa/cultural/>);
- Annual report on INL CRMO activities (INL/EXT-07-12134);
- Twelve tours of select INL archaeological sites;
- Annual stakeholder meeting;
- Final Fuel Reprocessing Complex (INTEC) Historic American Engineering Record report (Pace, Braun and Gilbert 2006); and
- National Register of Historic Places nomination package for Aviator’s Cave.

Field activities in FY 2007 were dominated by a few larger archaeological inventories completed to assess the potential impacts of ground disturbing projects under Section 106 of the NHPA (see Section 9), NHPA Section 110 surveys (see Section 6), and routine monitoring of particularly sensitive localities (see Section 10). The most interesting Section 106 work of the year involved areas that had never been intensively surveyed for cultural resources. A variety of previously unknown prehistoric and historic archaeological sites were documented in a proposed new robot training range and within firebreaks created in an area scarred by a summer range fire.

Section 110 field surveys in FY 2007 involved the recording of newly discovered resources from both prehistoric and historic time periods and provided opportunities for INL CRMO staff to conduct professionally stimulating research. The diverse inventories and refined classifications resulting from these projects are beneficial to the CRM program as a whole and the resulting publications and presentations at professional conferences enhance the professional standing of the INL. Tribal counterparts were also involved in the recording of many of these resources. The sharing of information between INL CRMO staff and tribal counterparts helps to refine the holistic view of cultural resources that is central to CRM at the INL and addressed in law, regulation, and DOE policy (see Section 8).

Preservation of INL’s modern history was furthered in FY 2007 by continued development of the INL Archive Center, where important archival materials such as photographs, engineered drawings, and key documents will reside and be made available for researchers. Large inventory and assessment projects were also brought to completion for two key INL facilities, the Test Reactor Area (TRA - now known as RTC) and the Fuel Reprocessing Complex located at the facility now known as INTEC, but previously designated as the Chemical Processing Plant. Detailed Historic American Engineering Record reports for several of INL’s important historic scientific programs and facilities (Test Area North, Waste Calcining Facility, Power Burst Facility, etc.) were also published and distributed to historians and stakeholders (see Section 9).

As in previous years, INL CRMO participation in tours and various educational events proved to be enjoyable for all (see Section 7). Notable events and activities for the year included two well-attended public tours of INL cultural resource locations (see Section 7).

6. NHPA SECTION 110 PROJECTS

Section 110 of the National Historic Preservation Act (NHPA) directs federal agencies to identify, evaluate, and nominate historic properties for which they have responsibility to the National Register of Historic Places and to manage those properties in a manner that considers their protection and preservation. The purpose of NHPA Section 110 is to provide statutory emphasis as well as intellectual guidance to establish a program whose aim is not only to protect resources but also to achieve enhanced understanding of human history.

In addition to meeting compliance requirements and research goals, a common thread through all of the INL CRMO Section 110 projects is a commitment to partnerships. Developing synergistic relationships with fellow INL scientists along with students and researchers from regional museums and universities enriches thought, creativity, and intellectual rigor. These relationships help clarify the current regionally important research questions, and in return the INL provides a unique, relatively well-protected “outdoor laboratory” and extensive archives with which to seek ways to answer those questions.



Figure 17. Section 110 survey of INL rock structures.

The archaeological sites, historic architectural properties, traditional cultural areas, sacred Native American sites, natural resources, and INL facilities that define the INL landscape are integrated aspects of larger human systems adapted to the high-desert landscape of southeastern Idaho that have been operational for at least the past 13,500 years. CRMO Section 110 projects are selected to address broad questions about how humans have used this landscape, how and why land-use has changed through time, and the role of technology in the changes that have occurred. In FY 2007, INL CRMO Section 110 projects included four emphasis areas: human riparian and marshland adaptations in the high desert, historic Euro-American settlement patterns and site characterization, historic architectural resources of the Materials and Fuels Complex (MFC), and the INL Archive Center.

6.1 Human Riverine and Lacustrine Adaptations

Understanding how natural environmental systems have changed through time and how human systems adapt to those changes, either by changing lifestyles or by changing the environment itself (intentional or inadvertent) is becoming increasingly important in the 21st Century. This 5-year Section 110 project is intended to explore specific human adaptations to relatively resource-rich aquatic environments in the eastern Snake River Plain high desert. Of particular interest is understanding if, and how land and resource-use may have changed through time in response to changing environmental conditions. Previous research (Marler 2004) has shown statistically significant changes in archaeological site distribution from the Late Pleistocene to the Early Holocene. Multiple, likely interrelated explanations for these changes exist but certainly Holocene warming trends and declining effective atmospheric moisture affected diet breadth, land use decisions and mobility patterns. Research goals include efforts to determine if additional patterned changes can be discerned from the archaeological

record throughout the Holocene and reciprocally, to explore the extent to which archaeological site distribution data can help us understand changing paleo-environments.

FY-2007 Section 110 archaeological survey was designed to contribute to this project by building on previous work, conducted over the previous four years, to complete a survey of some 20 km of Big Lost River shoreline. During the course of the 2007 project approximately 12 km of river bank was surveyed resulting in the identification of 38 archaeological sites with an age range of some 12,500 years. Field survey will be completed in FY 2008 and, in FY 2009, these data will be combined with information from previous Section 110 surveys as well as relevant archived data from all past INL surveys in GIS format to develop a final report, enter data into the Archaeology database, support research goals, and to help design future survey work.

Future goals may also include site assemblage comparative studies to determine, among other things, if there is a distinctive “wetland toolkit”. For example, are ground stone tools suitable for plant or seed processing more commonly found along playa or river shorelines than elsewhere? Intuitively the answer is “yes” but additional data are needed to confirm this. Eventually the research focus may also be expanded to include exploration of the subsistence role that the multitude of small playas that exist on the INL may have played.



Figure 18. Sonny Alvarez, summer intern, and LaRae Buckskin, Shoshone-Banock HeTO, assist with fieldwork.

In addition to research, this project is intended to provide training opportunities for students and to help build/maintain lasting collaborative relationships with regional museums, universities and the Shoshone Bannock Tribes. In past years the project benefitted from the participation of Idaho State University archaeological field schools. In 2007 the Shoshone Bannock Heritage Tribal Office (HeTO) played a vital role, providing daily assistance with fieldwork. A Shoshone Bannock summer intern also participated and once trained, became a valuable contributor. To sustain this project, future plans include submittal of a proposal to fund a pilot project in association with the Museum of Idaho to develop an educational program for younger students as well as interested adults. Relevant locations will be selected for intensive survey and participants will be trained in field survey and site recordation.

6.2 Historic Sites Identification and Reevaluation

Historic archaeology undertaken by INL CRMO staff involves fieldwork of two very different types. One takes place among rock foundations, crumbling cisterns, domestic trash, and other material remains left on the desert landscape. The other takes investigators to regional archives, often housed in the basements and back rooms of local county seats or state offices, or in microfiche collections housed at local libraries. When investigators successfully tap both sources of information, a rich and often detailed description of this period of INL history, complete with the real human stories, is possible.

In an effort to locate and reevaluate historic sites, INL CRMO staff have been conducting systematic investigations of county, state and federal archives to gather new information on early homesteading and agricultural development of INL lands. The results of this endeavor revealed that several hundred homesteads were filed within the boundaries of the INL. Historic sites at the INL

recorded as homesteads, contain evident features such as foundations, cisterns and ditches, while sites containing less distinctive artifacts such as cans and broken glass have been interpreted as simple trash scatters. During FY 2007, research continued in order to compare the results of archival research with the previously recorded trash scatters to determine if some might be homesteads. Ultimately, the goal of this research is to develop criteria for correctly classifying and recording INL historic sites in the future.

In FY 2007 fifteen previously recorded sites were reassessed. These sites were selected based on amounts and types of artifacts and features previously noted. Formerly recorded site types included trash dumps, can scatters, campsites, sheep camps, probable homesteads, and homesteads. Based on this sample group, and knowledge of known homesteads, criteria are being established for a more accurate interpretation of historic sites. Preliminary findings indicate that artifacts associated with homesteads include a large number of used/extracted nails, window pane glass, and molded and lumbered wood. These artifacts can be indicative of a homestead even when structural remains (e.g., foundations, cisterns) are not present. Larger domestic artifacts such as stoves and stove piping as well as dense scatters of cans and domestic glass might also indicate the location of a homestead. Of the fifteen sites re-assessed in FY 2007, five sites that were previously recorded as trash scatters were determined to be homesteads. Continuation of this research is planned for FY 2008.

The INL now occupies what was certainly a well-traveled, if not strategic, location in between burgeoning towns along the Snake River to the south and mining boom towns in the mountains to the north during the period of late 19th and early 20th century settlement. The Big Lost River on and near the INL also served as a critical source of water for thirsty stages, freighters, and settlers, human and animal alike. Many of the trails created during this period are still identifiable on INL lands. One important trail, Goodale's Cutoff, which is a northern spur of the Oregon Trail, has been nominated to the National Register by a the Bureau of Land Management (BLM). Others like the "Lost River Road" and "Old Wagon Road" may also be eligible. As part of an ongoing evaluation of the significance and integrity of INL historic trails, in FY 2007 the INL CRMO traveled approximately 105 miles of eight historic INL trails, recording five new historic archaeological sites and documenting features of the trails themselves (e.g. swales, ruts, rock scrapes, visible artifacts, impacts, overall conditions).

In collaboration with the INL Summer Internship Program, the CRMO focused research efforts on four linear basalt structures. These impressive rock features, visible from several miles away all share a similar form. They were made from locally available basalt rocks, sometimes slightly modified and stacked in two long linear rows reaching heights of almost two meters and lengths of up to 95 meters long. Pine poles were placed in between the two rows of basalt at three meter intervals and wooden lath fencing was stretched between these poles for the length of the structure, thus increasing their height.



Figure 19. Cistern associated with INL homestead.

Literature searches and interviews with BLM personnel suggest that these structures were snow fences constructed in the 1930s by the Civilian Conservation Corp (CCCs) under Roosevelt's New Deal Program. These fences were constructed perpendicular to prevailing winds in low lying areas or playas for optimal snow collection. In the spring when snow melted, these structures provided much needed water for area livestock. The lack of domestic debris in proximity to these fences suggests that the CCCs worked from a base camp some distance away and were probably trucked to the four different fence construction locations. After 70 plus years, these features are still standing, leaving testament to the craftsmanship of their construction.



Figure 20. Historic snow fence on INL.

6.3 Historic MFC Structures

Archaeological surveys near the MFC have been conducted in the past in response to activities such as wildfire suppression and revegetation and new construction; however, structures within the MFC boundaries were not under DOE-ID jurisdiction until February 2005. At that time, Argonne National Laboratory – West became the Materials and Fuel Complex (MFC) and management changed from DOE-Chicago to DOE-Idaho. As a result of these changes and DOE-ID's contract with BEA, the INL CRMO staff became responsible for the management of all MFC cultural resources. The first step in identifying the resources was completed in FY 2007 through inventory of all MFC buildings and other structures and their inclusion in the FY 2007 update to the INL CRMP. In FY 2008, MFC buildings and structures will be evaluated for their historical significance using methodologies and strategies outlined in the "INL Cultural Resource Management Plan" (DOE-ID 2007a) and used to evaluate all other INL historic architectural properties.

6.4 INL Archive Center

DOE-ID has broad responsibility under federal law (Federal Records Act of 1950, as amended, 36 CFR Part 1220) for managing federal records related to INL. Among the INL collections are permanent records of enduring historic value (reports, photographs, architectural drawings, maps, etc.) related to the history and development of INL, itself. Collections of information related to INL cultural resources are also significant. The newly established INL Archive Center is helping DOE-ID to meet legal requirements and fulfill stewardship responsibilities for the important intellectual legacy that these records represent. Some efforts in the Archive Center are ongoing, such as data entry of archaeological information collected from cultural resources in the field, updates to geographical information system (GIS) coverages, and quality reviews of information already entered into the INL CRMO Data Management System.

In FY 2007, efforts were initiated to more effectively preserve, catalog, and make INL's own historical legacy, as documented in reports, drawings, photographs, and other media, available to researchers. As a first step in this process, an INL CRMO staff member initiated a professional development program leading toward certification as a professional archivist by attending the "Modern Archives Institute," sponsored by the U.S. National Archives and Records Administration (NARA).

The image displays four architectural elevations of a building, labeled 'WEST ELEVATION', 'SOUTH ELEVATION', 'EAST ELEVATION', and 'NORTH ELEVATION'. Each elevation shows the building's profile with various structural elements, materials, and dimensions. The drawings are oriented horizontally, with the building's facade facing the viewer. The elevations are separated by vertical lines, and each has its own set of dimensions and labels. The 'WEST ELEVATION' and 'EAST ELEVATION' show the building's profile with a central entrance and a large window. The 'SOUTH ELEVATION' and 'NORTH ELEVATION' show the building's profile with a central entrance and a large window. The drawings include structural details, material specifications, and a title block with project information.

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SOUTH ELEVATION

EAST ELEVATION

NORTH ELEVATION

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ILLINOIS

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THE RUTH COMPANY
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7. STAKEHOLDER AND PUBLIC OUTREACH

As a federal agency, DOE-ID is required by a number of statutes, primarily the NHPA, to manage INL cultural resources in a spirit of stewardship for the citizens of the United States and to provide those citizens with information about their cultural resources and opportunities to become aware of and involved in their preservation and management. Systematic planning for public participation in INL cultural resource management helps to ensure that such information sharing and participation takes place routinely and productively and that public interests regarding resource preservation and interpretation are considered as the Laboratory executes its primary missions. The list of potential stakeholders is as varied as the resources themselves, including such diverse groups as local historical societies, museum associations, Oregon Trail enthusiasts, INL employees and retirees, historical and scientific researchers, Native American tribes, and the general public. Because of the government-to-government relationship between DOE-ID and the Shoshone-Bannock Tribes, tribal outreach and participation are discussed separately in Section 8.

During FY 2007, communication strategies were implemented through a variety of tours, presentations, publications, educational events and participation in local and regional archaeological and historic preservation activities. All are briefly outlined in the following sections.

7.1 Tours

Tours have proven to be one of the most effective and enjoyable public outreach tools for INL CRMO staff and participants alike. In FY 2007, twelve tours to INL cultural resource locations were provided to such diverse individuals and groups as Bureau of Land management (BLM) National Director, Jim Caswell, the Idaho Leadership Academy, Shoshone-Bannock tribal elders, Central High



Figure 22. FY 2007 tour participants seek some shade at the Juniper Bends site.

School students, the Idaho Falls Chamber of Commerce, Sons of the Utah Pioneers, the new DOE-ID Cultural Resources Management Coordinator, Robert Gallegos, and three separate tours for students and teachers from the Museum of Idaho/Stoller Rocky Mountain Adventure program. In addition, the annual public tour was conducted in May as a part of Idaho Archaeology and Historic Preservation Month activities. The tour filled up quickly with over 400 persons requesting one of the 48 available seats. Due to the extensive public interest in INL archaeology, a second successful public tour was held in mid-September.

7.2 Presentations and Publications

Groups requesting and receiving presentations in FY 2007 were as diverse as those requesting tours. INL CRMO staff visited schools, community groups, and INL organizations as part of an ongoing program to share information about INL cultural resource management activities as well as knowledge about the cultural resources themselves. In FY 2007, hundreds of interested INL employees and retirees, tribal members and elders, and members of the public were reached through these efforts. Groups who were provided with presentations in FY 2007 included members of the BEA Leadership Management Team and their support personnel, the Shoshone-Bannock Tribal Council, Girl Scout troops, local elementary, middle and high school students, including those housed in a Pocatello detention center, Idaho State University graduate students, BEA and CWI employees, the Nature Conservancy, Utah State University field school students, the Rexburg Senior Citizens, a local women's Philanthropic Educational Organization, and the Eastern Idaho Community Leaders group. Presentation topics ranged from INL archaeology, history, and resource management to careers in these disciplines and safety in the field.

In addition to community outreach, INL CRMO staff also actively participated in professional activities in FY 2007. In this context, individual CRMO staff research projects were presented at the 30th Great Basin Anthropological Conference in Las Vegas and the 49th Idaho Academy of Sciences Conference in Idaho Falls. Brenda Pace collaborated with L.S. Henrikson, Anthropology Professor at the University of California-Bakersfield, on the former and, on the latter, presented her own research in "Prehistoric Rock Structures at the Idaho National Laboratory." Peer reviewed conference proceedings were also published by Pace and Julie Braun including "Prehistoric Rock Structures of the INL" (Pace 2007), "Geophysical Investigations of Archaeological Resources in Southern Idaho" (Pace et al. 2007), and "American Material Culture: Investigating a World War II Trash Dump" (Braun 2007). Other FY 2007 publications included a variety of technical reports, including a Historic American Engineering Record (HAER) report for fuel reprocessing facilities at INTEC (Pace, Braun, and Gilbert 2006) and program status reports such as the annual report for FY 2007 monitoring activities (INL CRMO 2007b) and yearly input to the Secretary of Interior on INL's portion of the federal archaeology program (Pace 2008). Some INL CRMO staff members also fill important roles as peer reviewers and in FY 2007, they provided feedback on four articles submitted to professional journals by non-INL authors and several articles, papers, and abstracts submitted by INL authors.

7.3 Professional Associations

INL CRMO staff members individually conduct a variety of professional activities and serve in numerous capacities in local, regional, and national organizations. For example, individual memberships are maintained in various professional groups such as the Society for American Archaeology, the Society for Historical Archaeology, the Society for Industrial Archaeology, the Idaho State Historical Society, the Idaho Professional Archaeological Council, the Idaho Archaeological Society, the Idaho Falls Historic Preservation Commission, the Oregon-California Trails Association, Phi Alpha Theta Chi-Rho Chapter, and the Bonneville County Historical Society/Museum of Idaho. CRMO staff complete the majority of these efforts individually, on their own time.

In addition to general memberships, INL CRMO staff members have also been appointed, invited, and/or elected to positions in several professional organizations, including several leadership roles:

- Chair, Museum of Idaho Board
- Chair, Idaho Falls Historic Preservation Commission
- Vice Chair/Secretary, Bureau of Land Management Resource Advisory Council

- Registered Professional Archaeologist
- Charter Member, Idaho Professional Archaeological Council
- Member, Idaho Falls Historic Preservation Commission
- Member, Idaho Historic Sites Review Board
- Member, Preservation Action National Board
- Member, DOE-HQ Historic Preservation Executive Committee
- Adjunct Faculty, Idaho State University

7.4 Preservation Partnerships

The INL CRMO is involved in a variety of productive partnerships with federal and state agencies, community organizations, and universities. CRMO staff members often volunteer their time to support research and public outreach activities. The reciprocal relationships developed through these efforts enhance INL CRMO abilities and help to maintain a network of professional contacts of value to the conduct of CRM on the INL.

During FY 2007, INL CRMO staff continued their long-standing commitment to enhanced K-12 education through participation in local “Career Days” events, informational presentations to school groups, and field tours. One highlight of the year involved ongoing INL CRMO participation in a



Figure 23. Rocky Mountain Summer Science Adventure students and teachers visit Middle Butte Cave.

productive partnership with the Museum of Idaho and INL’S Environmental Surveillance, Education, and Research program, coordinated by S.M. Stoller Corporation. For the fourth straight year, these groups have cooperated in supporting the “Rocky Mountain Summer Science Adventure. This innovative field-oriented experience is designed to bring hands-on science education to middle and high school students and teachers. INL provides a unique outdoor classroom for learning about southeastern Idaho’s cold desert and during day-long field tours and on-site lectures on regional geology, paleontology,

archaeology, and history, participants were challenged to learn about and experience archaeological resources along with the natural environment in which they are found.

Public access to the INL is limited and facilities like the Visitors Center at EBR I (open daily from Memorial Day through Labor Day) and the Big Lost River Rest Area along U.S. Highway 20/26 (open year-round) provide important interfaces for education and information exchange. Records indicate that an average of nearly 14, 000 people visit the interpretive displays at EBR I annually and the number of visitors to the nearby Rest Area is likely much higher. In FY 2007, INL CRMO staff was instrumental in a multi-disciplinary partnership to install new interpretive signs during rehabilitation of the Rest Area. Participants included several INL organizations (e.g., Communications, Roads and Grounds, Cultural Resources), S. M. Stoller Corporation, DOE-ID, Idaho Transportation Department, Idaho Department of Environmental Quality, CWI, and the National Oceanic and Atmospheric Administration. The visually striking and informative signs developed by this partnership showcase INL's natural environment, long history of Native American occupation, historic endeavors related to homesteading and agricultural development, participation in activities related to World War II, significant contributions to the history of nuclear science and technology, and current missions.



Figure 24. Newly installed interpretive signs at the Lost River Rest Area on Hwy 20/26.

Finally, INL CRMO staff volunteered time to assist Melvyn Green, owner of Melvyn Green and Associates, Inc., with completion of structural assessments of several historic buildings located on the Ft. Hall Indian Reservation. The assessment was completed at the direction of the Tribal Council and request of the Ft. Hall HeTO and Facilities organizations and was intended as the first step in listing some or all in the National Register of Historic Places. Such listing would enable the Tribes to apply for preservation grants to restore the buildings and reuse them for community activities. For example, the old hospital is proposed for use as a recreation hall and gathering place for youths and elders alike.

7.5 Nominations

Section 110(a)(2) of the National Historic Preservation Act requires that each federal agency shall establish a program to locate, inventory, and nominate to the National Register of Historic Places all eligible properties under that agency's ownership or control. In accordance with this mandate, a Contract Deliverables Requirements List, or CDRL, was established in the Cultural Resource Management 2007 work package to prepare a nomination for Aviator's Cave.

When it was first discovered (in modern times) it appeared that Aviator's Cave had remained completely untouched since the last human occupants departed hundreds of years ago. This, along with the remarkable preservation of perishable artifacts within the cave and the extensive array of cultural materials around the cave exterior led to a determination that this site is eligible for listing on the National Register of Historic Places. As such, a nomination package for Aviator's Cave was developed with its

significance falling under Criterion D (CFR 60.4) because the property yielded, and is likely to yield, information important in prehistory.

Perishable materials from Aviator's Cave, mostly from test excavations conducted in the early 1990s include a variety of cordage, sagebrush matting, strips of hide with fur still attached, sage bark



Figure 25. Aviator's Cave, photo looking southeast

matting, fletching feathers, bone awls, bone beads, dentalia shells, basketry fragments, carved wood, sinew strips, knotted sagebrush bark, burned and unburned bone, arrow shafts, a portion of a bow shaft, and porcupine quills. Compound tools such as snare rigging, and a gorge hook device constructed with cordage, a hollowed-out reed, carved wooden splinter and a tuft of fur, were also present. Lithic materials include drills, scrapers, ground stone, retouched flakes, shaft straighteners, pipe fragments, hammerstones and several varieties of arrow points. Finally, the cave is of special importance to contemporary Shoshone-Bannock people who embrace

traditional cultural values and who monitor the cave's condition annually.

8. NATIVE AMERICAN PARTICIPATION

As a federal agency, DOE-ID recognizes its trust responsibility to the Shoshone-Bannock Tribes and in the spirit of that responsibility has entered into an Agreement in Principle (AIP) with them (DOE-ID 2007b). The AIP defines working relationships between the Shoshone-Bannock Tribes and DOE-ID and fosters a mutual understanding and commitment to engender confidence that activities being conducted at the INL protect the health, safety, environment, including cultural resources of importance to the Tribes. To aid with implementing cultural resource aspects of the AIP, a Cultural Resources Working Group (CRWG) comprised of representatives from the Shoshone-Bannock HeTO, DOE-ID, and the INL CRMO was established in 1993. It was the first of its kind within the DOE complex and its regular CRWG meetings enable issues and opportunities to be addressed in an environment of mutual respect and learning. Tribal input is sought for new and ongoing projects and a standing invitation is extended to comment on, visit, observe, and/or assist in INL CRMO field activities. The holistic view of cultural resources and cooperative spirit encouraged in this group are designed to enhance understanding and appreciation of all types of cultural resources, both within the INL community and the Tribes. For more detail on the relationship between the INL and the Tribes, and detailed working procedures, see Appendix B of the INL CRMP (DOE-ID 2007a).

During FY 2007 the CRMO staff participated in all scheduled CRWG meetings and HeTO staff was otherwise informed of INL activities pertinent to cultural resources through preparation and transmittal of quarterly activity reports. HeTO staff also regularly participated in NHPA Section 106 and 110 archaeological surveys and resource monitoring. In these projects, tribal partners from the HeTO are welcome additions to field crews and their participation helps to expedite fieldwork completion while also providing opportunities to express thoughts and ideas that go beyond the "stones and bones" of archaeology and into the more holistic concept of cultural resources as required by law and supported by the CRWG.

In FY 2007 Heritage Tribal Office staff were routinely invited to participate in the INL CRMO monitoring program. On more than a dozen occasions HeTO staff joined in non-project related monitoring trips to important sensitive sites and locations, providing valuable suggestions and interpretations. For example, as a result of monitoring work at Aviator's Cave, footprints will be brushed clean after all future visits and, as a result of HeTO recommendations, monitoring visits to Prickly Cave will be increased from once to twice per year. Discussions held during a visit to the Big Lost River Sinks and the adjacent Lemhi Mountain Range foothills have resulted in greater understanding of the traditional importance of the area.

In addition to their participation in the monitoring program the HeTO played a significantly expanded role in section 110 surveys conducted in 2007 relative to that of previous years. The area targeted for Section 110 survey in 2007 had a particularly high site density with many large and complex sites (see section 6.1 for details on survey results). Shoshone Bannock personnel participated in surveys on a daily basis, often comprising the entire field crew. They provided much needed help with site identification, site boundary determination, mapping and recording. Finally, they provided important insights related to site function along with information on the traditional use of locally available resources. It is hoped that FY-2008 Section 110 surveys will have the same level of Tribal participation.

9. NHPA SECTION 106 PROJECT REVIEWS

The INL is an active facility where thousands of work orders for projects ranging from lawn care to new facility construction are processed each year. Detailed procedures are in place to evaluate the environmental consequences of all activities, large or small. Under company procedures and the INL CRMP, cultural resource reviews are an integral part of the environmental review process and are completed to assess impacts to all cultural resources and to develop recommendations for protection and/or mitigation, when necessary. The goal of the cultural resource review is to determine if the proposed project will affect properties that are eligible for the National Register, if they are Category 1, 2, 3, or Signature properties based on their relative historic importance, and determine appropriate levels of standard mitigation and/or consultation necessary to establish new mitigation measures, as outlined in the INL CRMP. The process used to make this determination includes archive and record searches and survey.

A review is prompted whenever a project is proposed that meets one or more of the following basic thresholds:

- Ground disturbance outside the boundaries of fenced INL facility areas or more than 50 feet from existing buildings or landscaped areas in unfenced areas
- Ground disturbance within or around the former Power Burst Facility (PBF), now designated as the Critical Infrastructure Test Range Complex (CITRC)
- Activities within known or suspected zones of Native American sensitivity and/or high archaeological resource density
- Demolition, major structural or landscape modification, permanent closure of extant buildings and structures, and/or removal of original equipment, features, or records
- Activities that may affect the Experimental Breeder Reactor I National Historic Landmark building and grounds

FY 2007 reviews for projects affecting historic architectural resources are summarized in Section 9.1. Non-architectural project reviews are presented in Section 9.2.

9.1 Historic Architectural Reviews

The INL contains various property types that are elements of, or have features that contribute to, the overall landscape and understanding of the INL's recent World War II and pioneering nuclear history (1942 - 1970). In contrast to the near single focus on mitigating DD&D work conducted in recent years, in FY 2007 CRMO staff were also involved in conducting architectural reviews for the rehabilitation of existing structures for reuse, installation of new equipment and/or removal of old equipment. The primary focus of FY 2007 project reviews was the removal or demolition of historic properties and consolidation of INL facilities to three campus areas. Due to the nature of the cleanup work and the fact that INL remains an active scientific and technical facility; such activities have impacted, or will impact, historic INL architectural properties (i.e. buildings, structures, equipment, original program and project data).

Seventeen project reviews were conducted in FY 2007 for proposed activities that involved twenty-one properties, of which six were completely removed through DD&D. Although consultation was

initiated for some of these properties in prior years, the CRMO staff provided the history and results of this consultation to DOE-ID and contractor project managers, advised them on whether or not compliance had been achieved in the cases where mitigation was required, and completed or oversaw completion of mitigation activities, when necessary. In the FY 2007 review process, seven properties or activities were exempted from the cultural resource review process, twenty-two involved activities at historic properties, and one property has yet to be evaluated (Table 1). For those activities at historic properties determined to be adverse, mitigation was completed or is in the process of being completed as required by Programmatic Agreement PA) following direction outlined in the INL CRMP or through stipulations contained in existing Memoranda of Agreement (MOA) with the Idaho SHPO.

Table 1. Historic architectural project reviews completed in FY 2007.

Project Number	Project Name	Property Category	Review Status
07-01	Removal of the ZPPR Compressor	Category 1	PA-Exempt Activity
07-02	Disposition of ETR Sodium Panels	Artifact	PA – stored at EBR I
07-03	Replacement of a walkway atop and external to several buildings (i.e., CPP-646, CPP-647, CPP-747)	N/A	PA – In kind replacement: no adverse impact.
07-04	EBR I light bulb display on loan in DOE-HQ Forrestal Building	Artifact	PA-loan only: no adverse impact.
07-05	TAN-607A demolition	Signature Property; eligible	Consultation completed; MOA in place; mitigation completed
07-06	Review of OU 3-14 Proposed Plan for Tank Farm Soil and Groundwater	Exempt	PA-Exempt Property
07-07	TRA-609 Partial demolition/remodel	Category 3	PA-building photographed and architectural/engineering drawings archived
07-08	CPP-601, 603, 627, and 640	Signature properties; Categories 2 and 3	Consultation completed; MOA in place; mitigation completed
07-09	Lab hood relocation from CF-689 to CF-666	Category 3	PA-photographs taken and archived
07-10	Installation of Weapons Aiming And Surveillance Platform (WAASP) remote operated	Category 2	PA-Prior to the removal of original equipment, large-format black and white photographs will be taken.

Project Number	Project Name	Property Category	Review Status
	weapons system (ROWS)		Large-format black and white photographs will also be taken in the event modification will change the footprint of historic properties MFC-774 or MFC-775: ongoing
07-11	Removal old, above-ground cable between PBF-612 and the old control room, PBF-619	N/A	PA – exempt activity
07-12	Install a fire suppression system in TRA-660	Category 2	PA – large format black and white photographs completed and archived.
07-13	PBF-620 demolition	Category 1	PA- HAER No. ID-33-F, Power Burst Facility and SPERT I at the Idaho National Laboratory, (ICP/EXT-05-00768) was completed in 2005 and approved by the National Park Service; mitigation completed
07-14	TRA-615 Meteorological Instrument Building removal	Exempt	PA-review completed
07-15	TRA-608 and TRA-609 upgrades	Category 3	PA-35mm photographs completed and archived
07-16	Idaho Falls’ Historic Buildings	Various	No specific project planned-property categories and requirements provided for all IF buildings
07-17	TRA-630 Catch Tank System Closure	Exempt	PA-review completed
07-18	TAN-629 Ventilation System upgrade	Signature Property	PA-activity exempt; review completed.
07-19	Installation of the metal waste form (MWF) furnace in Hot Fuel Examination Facility (MFC-785)	Eligible: Category-TBD	PA-activity exempt; review completed, category determination ongoing.
07-20	EBR I Septic System Replacement	Signature Property	PA-no above ground features impacted; review completed.
07-21	Reactivation of Pressurized Water Loop 2A in TRA-670 (ATR)	Category 1	PA-activity exempt; review completed.

Project Number	Project Name	Property Category	Review Status
07-22	Repaint exterior of CF-668 Communications Building	Category 3	PA-activity exempt; review completed
07-23	CFA World War II buildings cedar shingles oiled	Signature Properties	Positive impact; review completed.
07-24	CFA-601, CFA-612, PER-612, PER-613, TRA-604, and EBR-I minor roof repairs.	EBR I – Signature CFA-601 – Category 3; CFA-612- ineligible; TRA-604- Category 2.	PA-in kind replacement; positive impact; review completed.
07-25	TAN-607 Non-Time Critical Removal Action	Signature Property	PA- HAER No. ID-33-E, Test Area North at the Idaho National Laboratory, (INEEL/EXT-04-02536) was completed in 2004 and approved by the National Park Service; mitigation completed
07-26	Removal of ZPPR IV reactor from MFC-775	Category 1	Reactor is not original and was installed after INI POS. ZPPR III is on display in EBR I. ZPPR IVn removal will not impact the NRHP eligible building (MFC-775).
07-27	Modifications to PBF-632 Office Building	Exempt	PA-constructed in 1981 and not exceptionally significant; review completed.
07-28	Install and operate a hydraulic shuttle irradiation system (HSIS) and reactivate an Irradiation Test Vehicle (ITV) in the Advanced Test Reactor	Category 1	PA-activity exempt; review completed.
07-29	Military training activities at PBF-609, PBF-612, and PBF-613	Category 1	No potential for structural impacts; review completed.
07-30	Procurement / Installation of Deep Well (DW) 4 Emergency Diesel Generator near TRA-670	Exempt	PA- activity exempt; review completed.

Mitigation activities conducted in FY 2007 included the completion and distribution of a final HAER report for fuel reprocessing facilities located at INTEC, formerly known as the Idaho Chemical Processing Plant. The Fuel Reprocessing Facility (CPP-601) is a DOE “Signature” nuclear property and it, along with its support structures, is eligible for listing in the National Register of Historic Places. In addition to the historical narrative, mitigation for the removal of these facilities included the completion of large-format photographs for Category 2 structures and 35mm photographs for Category 3 structures. INL HAER reports are archived among other significant scientific documents and manuscripts in permanent collections at the U. S. Library of Congress. They are also distributed to a wide variety of organizations and individuals (i.e., professional historians and colleagues in the DOE complex, universities with nuclear programs, elected officials, tribes, and local libraries).

Other activities related to INL historic architectural properties in FY 2007 included the completion of a condition assessment and letter report on several World War II structures located at CFA. The report narrative and table describe assessment findings and future recommendations for the structures’ ongoing preservation and maintenance needs (Braun 2006b).



Figure 25. Historic WW II structure at CFA.

9.2 Other Cultural Resource Reviews

In FY 2007, 33 INL projects involving ground disturbance were screened for potential impacts to non-architectural cultural resources (Table 2, Note: see Section 6.0 for discussion of project # BEA-07-32: Section 110 projects). Resources of concern in these reviews were archaeological sites from the prehistoric and historic periods, historic trails, and less tangible Native American and stakeholder values and concerns. All projects in FY 2007 were located on INL lands at various locations across the desert site.



Figure 26. FY 2007 survey in the Twin Buttes Burn.

Table 2. Non-architectural project reviews completed in FY 2007.

Project #	Project Name	INL CRMO Activities	Acres Surveyed	Cultural Resources Identified
BEA-2007-01	Idaho Cleanup Project (ICP) General DD&D	Archive Review – no historic properties	None	None
BEA-2007-02:	Integrated Waste Treatment Unit Activities at the Idaho Nuclear Technology and Engineering Center (INTEC)	Archive Review – no historic properties	None	None
BEA-2007-03:	Road T-16 Improvements	Field Survey – no effect to identified historic properties	28 acres	Historic homesteads noted near the road, but not formally recorded

Project #	Project Name	INL CRMO Activities	Acres Surveyed	Cultural Resources Identified
BEA-2007-04:	Cleanup of Power Burst Facility (PBF) Areas PBF-33 and PBF-34	Archive Review with Field Monitoring – no effect to historic properties	None	None
BEA-2007-05:	Advanced Mixed Waste Treatment Project Yurt and Trailers	Archive Review – no historic properties	None	None
BEA-2007-06:	Enlarged Drive-By Test Range	Field Survey – no historic properties	10 acres	None
BEA-2007-07:	Cell Tower North of INTEC	Field Survey – no historic properties	15 acres	None
BEA-2007-08:	Vadose Zone Research Park Expansion	Archive Review – no historic properties	None	None
BEA-2007-09:	PER-620 Grading at PBF	Archive Review with Field Monitoring – no effect to historic properties	None	None
BEA-2007-10:	Wireless Test Bed Powerline near Test Area North	Field Survey – no historic properties	1 acre	None
BEA-2007-11:	Big Lost River Trenches	Field Monitoring – no adverse effect to historic properties	None	None
BEA-2007-12:	Unmanned Ground Vehicle Test Range	Field Survey – historic properties identified	400 acres	16 resources
BEA-2007-13:	Aurora Test at INTEC Substation	Archive Review – no historic properties	None	None
BEA-2007-14:	FY 2007 Ordnance Surveys	Archive Review and Field Monitoring – no adverse effect to historic properties	None	None
BEA-2007-15:	Instrumentation Cable Cleanup at PBF	Field Survey – no historic properties	8 acres	None
BEA-2007-16:	FY 2007 Long Term Ecological Surveys	Archive Review – no historic properties	None	None
BEA-2007-17:	Offroad Access between PBF and INTEC	Archive Review – long term recommendations	None	none
BEA-2007-18:	National Security Test Range Developments	Field Survey – no historic properties	2 acres	None
BEA-2007-19:	Gamma Spec Calibration Pad at Materials and Fuels Complex (MFC)	Field Survey – no historic properties	1 acre	None
BEA-2007-20:	Critical Infrastructure	Archive Review – no	None	None

Project #	Project Name	INL CRMO Activities	Acres Surveyed	Cultural Resources Identified
	Test Range Complex Accelerator Signs	historic properties		
BEA-2007-21:	Reactor Technology Complex Parking Lot Expansion	Field Survey – no historic properties	5 acres	None
BEA-2007-22:	Tank Removal at Central Facilities Area and PBF	Archive Review and Field Monitoring – no historic properties	None	None
BEA-2007-23:	Radioactive Waste Management Complex (RWMC) Fire System Upgrade	Archive Review – no effect to historic properties	None	None
BEA-2007-24:	Beacon Test Site East of MFC	Field Survey – no historic properties	5 acres	None
BEA-2007-25:	RWMC Remote Handled Waste Disposition Project	Archive Review – no historic properties	None	None
BEA-2007-26:	Firing Range Fan Expansion at CFA and MFC	Archive Review – long term recommendations	None	None
BEA-2007-27:	2007 Fire Prevention (mowing)	Archive Review – no historic properties	None	None
BEA-2007-28:	EBR-I Well Maintenance	Field Survey – no historic properties	5 acres	None
BEA-2007-29:	New MFC Guard Post	Field Survey – no historic properties	25 acres	None
BEA-2007-30:	Twin Buttes Fire	Field Survey – historic properties identified	56 acres	10 resources
BEA-2007-31:	INTEC Batch Plant Improvements	Archive Review and Field Monitoring – no historic properties	None	None
BEA-2007-32:	Section 110 (Big Lost River, historic residential sites, historic snow fences, historic trails)	See Section 6.0	See Section 6.0	See Section 6.0
BEA-2007-33:	Cell Tower at Drive-By Test Range	Archive Review – no historic properties	None	None
BEA-2007-34:	New Lights at the Puzzle	Archive Review – no historic properties	None	None

Archive reviews were completed for all of the projects listed in Table 2 and in many cases (61 %) they demonstrated that the proposed activities were located within areas that had already been intensively surveyed for archaeological resources. In most of these cases, the proposed projects could be completed with no impacts to known resources of National Register significance either because the original surveys resulted in no resources recorded or because identified resources were clearly outside the areas of potential effect for the work. In six cases, ground disturbance was located in or near the boundaries of known cultural resources and monitoring was completed to ensure that adverse effects did not occur.

When the archive reviews completed in FY 2007 revealed adequate previous survey coverage and no danger of impacts to known cultural resources, recommendations for “clearance” were issued through the INL CRMO via e-mail notes archived as records in permanent project files. Standard stipulations requiring work to stop in the event of any unanticipated discovery of cultural materials were included with each recommendation. A few of the archive searches for FY 2007 projects resulted in recommendations for future work. In these cases, projects were not scheduled for immediate completion and were located in areas that had never been surveyed for cultural resources or in areas where cultural resources are known to exist. Early involvement of the INL CRMO in project activities is beneficial to the projects, helping to prevent surprises and misunderstandings in the later stages of project execution.

Field surveys were necessary for 39 % of FY 2007 projects proposed for areas on the INL that had never been surveyed for cultural resources or in areas that were originally surveyed more than ten years ago. Approximately 561 acres were intensively examined during these project surveys and a wide variety of cultural resources were identified or re-identified and recommended for avoidance or other protective measures. For internal tracking purposes, INL CRMO Section 110 efforts are assigned a yearly project number. In FY 2007, this number was BEA-07-32. For details on the results of this work, please refer to Section 6.0.

The largest project-related field survey of FY 2007 was completed in a relatively remote, undeveloped area to assess the potential impacts of a proposed training range for unmanned ground vehicles. Numerous archaeological sites were identified in this 400 acre project area (16 total), including several turn of the 19th Century homesteads and a variety of other resources representing Native American hunting and gathering. The INL CRM Office continues to work with project managers to ensure that these sensitive sites are not adversely impacted by the proposed future off-road activities of the unmanned vehicles.

Drought conditions in eastern Idaho may have contributed to the severity of a large 9,500 acre range fire on the INL in FY 2007. In a second sizeable archaeological survey project, approximately 56 acres of fire-breaks were surveyed within and around the burned area and ten sensitive archaeological sites were identified. Work to complete this assessment of the impacts of fire-fighting efforts and protect the identified resources during future rehabilitation and revegetation are planned to continue into FY 2008.



Figure 27. Southeast Boundary Cave was "rediscovered" after surrounding junipers burned away in the Twin Buttes Fire.

Several smaller project surveys less than 28 acres in size also contribute to the totals reported in this section. Proposed activities included road improvements, cellular towers, various test pads, parking lot expansions, and miscellaneous cleanup activities. No sensitive archaeological resources were threatened by these smaller undertakings.

Shoshone-Bannock Tribal representatives received summary reporting of all archive searches completed in FY 2007, visited some of the project areas, and provided valuable assistance in Section 110 surveys (see Section 6.0) and project and site monitoring. No special tribal concerns were voiced for any of the FY 2007 INL CRMO archive searches or project-specific field surveys, recommendations, or monitoring. Project plans were modified in all cases to avoid all of the archaeological resources identified. Cultural resource clearance recommendations issued for these projects also included a reminder of the requirements to stop work if any cultural materials were unexpectedly encountered. No test excavations were completed on the INL in FY 2007, nor were any cultural materials unexpectedly encountered.

10. SITE AND PROJECT MONITORING

A detailed description of the INL CRMO monitoring program is located in Appendix L of the INL CRMP (DOE-ID 2007a) and a more detailed account of FY 2007 activities can be found in the INL Cultural Resource Monitoring Report for FY 2007 (INL CRMO 2007b). Monitoring enables the INL CRMO to document if the integrity of known resources is being compromised by natural processes, unauthorized activities, or inadvertently by INL projects. By identifying impacts to cultural resources in this manner, actions to avert further deterioration can be initiated and federal stewardship responsibilities fulfilled.

Specific cultural resources are chosen for monitoring based on feedback from DOE-ID, the Shoshone-Bannock Tribes, and INL stakeholders. The INL CRM archives, which include documentation of over 2,200 archaeological resources and more than 200 historic architectural properties on the INL, are also consulted for appropriate candidates for yearly monitoring. Both DOE-ID and the Shoshone-Bannock Tribes are often directly involved in fieldwork during the monitoring activities at these sensitive locations and other stakeholders, such as the Idaho State Historic Preservation Office (SHPO), participate occasionally. Certain resources, like Middle Butte, Prickly, and Aviators Caves, sensitive localities inside the Power Burst Facility (now Critical Infrastructure Test Range Complex-CITRC), and the Experimental Breeder Reactor I National Historic Landmark, are monitored every year. Others, such as historic homesteads and some archaeological sites are also visited routinely because of their location in highly visible areas where trespassing has been a problem in the past.

Each year INL CRM staff also conducts surveillance of various INL projects. This work is done under direct project funding and may be related to a specific INL Environmental Checklist or other environmental guidance. Monitoring of projects that involve ground disturbance within the boundaries of the Power Burst Facility (PBF) complex (now known as the Critical Infrastructure



Figure 28. Cultural Resource monitoring in progress at the National Security Test Range.

Test Range Complex-CITRC), where Native American human remains have been discovered in both primary and secondary contexts, is also routine and required by company procedures (BEA's LWP-8000, CWI's MCP-3480). This level of cultural resource oversight ensures that any new discoveries of human remains are managed appropriately.

In FY 2007, 40 localities were monitored: two locations of heightened Shoshone-Bannock tribal sensitivity, four caves, three butte/craters, twelve prehistoric archaeological sites, two historic stage stations, nine historic homesteads, a portion of Goodale's Cutoff of the Oregon Trail, a portion of historic trail T-16, one World War II dump, four buildings from the World War II period, and Experimental Breeder Reactor I, a scientific facility that is designated as a National Historic Landmark and public Visitors Center. Although some impacts were documented, no significant adverse effects that would threaten the National Register eligibility of any resource were observed at any location.

Several INL project areas were also monitored in FY 2007. This included direct observation of ground disturbing activities within the Power Burst Facility (PBF, now designated as the Critical Infrastructure Test Range Complex – CITRC), backfilling operations associated with trenches along the Big Lost River, and geophysical surveys designed to pinpoint subsurface unexploded ordnance in the vicinity of the Naval Ordnance Disposal Area. Surprise checks were also made to three ongoing INL projects (National Security Test Range, Wireless Test Bed, Concrete Batch Plant) to ensure compliance with INL CRM Office recommendations to avoid impacts to cultural resources. Surveillance of these projects will continue to ensure that activities are being conducted in compliance with recommendations to protect cultural resources.

In one notable FY 2007 monitoring effort, archaeological and tribal observers were on hand as a series of backhoe trenches excavated at several locations along the Big Lost River were backfilled and rehabilitated. These efforts should halt ongoing erosion and weed incursion in this archaeologically and tribally sensitive area and satisfy the stipulations of a National Environmental Policy Act Environmental Assessment and Memorandum of Agreement between DOE-ID, the Idaho State Historic Preservation Office, and Advisory Council on Historic Preservation (DOE-ID 2002). Care was taken by project personnel during backfilling and revegetation to avoid additional impacts, particularly at trenches that were originally excavated into sensitive archaeological deposits or near sensitive historic features.



Figure 29. Geotextile fabric is removed from the surface of 10-BT-2189 at the BLR-8 trench area.

At the Saddle trench area, this included two prehistoric archaeological sites (10-BT-2192, 10-BT-2193), the Powell Stage Station (10-BT-2194), and the T-2 stage road. At the BLR-8 trench area, one large prehistoric archaeological site (10-BT-2189) was of concern. A variety of artifacts remain at the surface at all of the trench locations. Geotextile fabric originally placed beneath the backdirt piles at the BLR-8 area to protect sensitive surface deposits worked well to protect some sensitive surface areas adjacent to the trenches. Efforts on the part of all project personnel to limit ground disturbance to previously impacted areas also helped to avoid new impacts. Cultural features like the T-2 stage road and old bridge abutments at the Powell Stage Station, located less than

20 meters from a trench, were also protected from new impacts.

Investigations into impacts observed and documented in FY 2007 are ongoing in FY 2008. In one instance, ground disturbance associated with routine maintenance of power poles was observed. Type II impacts were documented at two archaeological sites as a result (10-JF-88 and 10-JF-135). Impacts consisted of heavy vehicle access and probable grading of sandy surface soils and previously installed gravel pads to the base area of power poles within the site areas. Ongoing consultation in FY 2008 will address these activities and ensure that INL CRMO is invited to provide feedback on future maintenance of this nature. In the second finding, Type II impacts were documented at Prickly Cave (10-BT-2037) late in the year. At this time, monitors discovered that sensitive materials had been transported out of the protection of the Cave interior and deposited at ground surface. Preliminary evidence indicates that animals were the culprits in this Type II impact and that it occurred fairly recently as the materials appeared unharmed physically. No evidence of unauthorized human or INL project activity was observed. Due to the elevated sensitivities related to this location, an expanded investigation will be completed in FY 2008 to develop appropriate remediation.

11. FISCAL YEAR 2008 ACTIVITIES

At the time of this writing, FY 2008 work is well underway and many tasks have already been completed. Listed below are specific FY 2008 tasks organized in accordance with the broad goals outlined in Section 5.

Goal 1: Identify and Manage INL Cultural Resources

- Task 1. Conduct two interviews of former INL employees.
- Task 2. Complete surveys associated with 5-year human riverine/lacustrine adaptations project.
- Task 3. Enter all FY08 site forms into INL cultural resources database.
- Task 4. Revisit and re-record, if appropriate, select Euro-American sites.
- Task 5. Continue research on INL rock structures.
- Task 6. Update INL geographical information system files and server and continue quality control activities including resolution with Archaeology database.
- Task 7. Perform direct project-related cultural resource reviews (i.e., survey, reports)

Goal 2: Evaluate National Register Eligibility of INL Properties for

- Task 1. Evaluate MFC historic buildings using NRHP criteria.
- Task 2. Prepare nominations for CFA World War II structures.

Goal 3: Monitor the Condition of INL Cultural Resources

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- Task 1. Visit, assess condition, and complete monitoring forms for Middle Butte, Aviator's, and Prickly Caves, the WERF burial, EBR-I and CFA World War II buildings (CF-606, CF-607, CF-613, and CF-632) and implement protective actions as necessary. Maintain monitoring files and database.
- Task 2. Identify project areas to monitor for potential impacts to INL cultural resources.

Goal 4: Protect INL Cultural Resources

- Task 1. Initiate organization of INL archival materials (i.e. documents, film, photographic negatives, architectural drawings, etc.) gathered to date.
- Task 2. Review approximately ten compliance, procedural, and planning documents to integrate appropriate INL cultural resource management information.

Goal 5: INL Artifact Curation

- Task 1. Inventory and ensure artifacts in temporary storage at the INL CRMO are ready for formal accessioning into IMNH. Transport artifacts to IMNH repository.
- Task 2. Organize and participate in a visit to the Idaho Museum of Natural History to assess condition and security of INL artifacts.
- Task 3. Determine curation-related activities to be performed by the Idaho Museum of Natural History.
- Task 4. Input legacy site forms into the Archaeology database and continue ongoing quality control.

Goal 6: Stakeholder Involvement/Public Outreach

- Task 1. Participate in at least two educational events or tours.
- Task 2. Coordinate and conduct a stakeholder meeting/public tour of archaeological sites for Idaho Archaeology and Historic Preservation Month.
- Task 3. Track the number of tours and visitors on each tour and tour evaluations.
- Task 4. Publish peer-reviewed articles.

Goal 7: Interact with Native Americans

- Task 1. Assist DOE-ID counterpart in preparation of the annual presentation of INL cultural resource management activities to the Tribal Business Council and attend presentation to answer questions.
- Task 2. Facilitate and participate in monthly Cultural Resource Working Group meetings.

- Task 3. Facilitate and encourage HeTO participation in archaeological fieldwork.

Goal 8: Conduct Work Safely

- Task 1. Conform to ISMS requirements.
- Task 2. Inspect equipment regularly.

Goal 9: Maintain Professional Qualifications and Relationships

- Task 1. Participate in training toward professional archivist certification.
- Task 2. Attend Society for American Archaeology meeting in March.
- Task 3. Meet with the Idaho SHPO to present annual report of activities and to discuss upcoming activities.

Goal 10: Activities Reports/Plans

- Task 1. Complete an annual report of activities conducted during FY 2007.
- Task 2. Complete quarterly reports to Shoshone-Bannock HeTO.
- Task 3. Complete annual Department of Interior (DOI) questionnaire (Contract Data Requirements List [CDRL] F.45).
- Task 4. Complete annual monitoring report (CDRL F. 46).
- Task 5. Prepare a nomination package for submittal to DOE-ID as requested (CDRL F.48).
- Task 6. Complete Section 110 report on Human Riverine and Lacustrine Adaptations.

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