In 1998, INEEL contracts paid $1.4 million to the State of Idaho in Idaho sales taxes and an additional $0.9 million in Idaho franchise tax.

4.4 Cultural Resources

4.4.1 CULTURAL RESOURCE MANAGEMENT AND CONSULTATION AT INEEL

Cultural resources at INEEL include archaeological and historic resources, such as prehistoric camp sites and historic buildings and trails, as well as the plants, animals, physical locations, and other features of INEEL environment important to the culture of the Shoshone-Bannock Tribes and to national, regional and local history. Several Federal laws, which are described in Chapter 6, govern the protection of archaeological and historic resources on lands managed by Federal agencies. These and other laws also require consultations among Federal agencies, Native American tribes, the Idaho State Historic Preservation Office, and other interested parties where resources important to the tribes and others may be affected by proposed activities on Federal lands. To comply with these requirements, DOE developed a *Management Plan for Cultural Resources* (Miller 1995) that provides procedures for consultation and coordination with state and Federal agencies and the Shoshone-Bannock Tribes. DOE has also formalized its relationship with the Shoshone-Bannock Tribes in an "Agreement in Principle" (DOE 1998) that provides a formal framework for the consultation process with the Tribes. Through the NEPA review process, other interested parties are provided an opportunity to comment on activities that may impact archaeological and historic resources.

The DOE and INEEL Cultural Resources Management Office, which is staffed by contractor archaeologists and historic preservation specialists, consults regularly with representatives of the Shoshone-Bannock Tribes through meetings of the INEEL Cultural Resources Working Group. The INEEL Cultural Resources Working Group, formed in 1993, meets informally to share information, coordinate field work, and discuss cultural resource management issues at INEEL. The Cultural Resources Management Office and Tribal representatives provide expertise in compliance with historic preservation laws, archaeology, and anthropology, and the Tribal representatives bring the unique perspective of the contemporary Shoshone-Bannock culture to the management and interpretation of archaeological and historic resources at the INEEL.

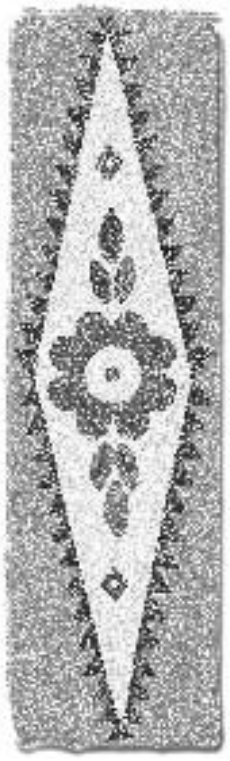
The archaeological and historic resources identified at INEEL represent the physical record of past cultures and provide only a partial understanding. A more complete understanding of past and present cultures can be attained by incorporating ethnographic information, historic accounts, and Native American oral histories. This approach, which is being developed by the INEEL Cultural Resources Working Group, allows the definition of cultural resources to be expanded to provide a more complete picture of the interrelationships between humans and the natural environment. This approach also provides the necessary background to understand the continuing importance of INEEL resources to the Shoshone-Bannock culture and to local communities, the state of Idaho, and the nation.

4.4.2 CURRENT STATUS OF CULTURAL RESOURCE INVENTORIES AT INEEL

Most of the cultural resource inventories completed to date at INEEL have been performed to comply with the requirements of the National Historic Preservation Act. The National Historic Preservation Act requires that, prior to implementing a project or activity, Federal agencies determine whether the project or activity could affect properties included in or eligible for inclusion in the National Register of Historic Places. This typically involves completing archaeological surveys of specific areas that would be disturbed or altered by the project or activity, and identifying and evaluating any historic properties that may also be affected. As a result, previous surveys have been concentrated near active facilities, covering approximately 7 percent of INEEL land area (Pace 1998).

Because of the high density of prehistoric sites on INEEL and the need to comply with cultural resource protection requirements in all Federal activities, DOE sponsored the development of a

predictive model to assist in planning cultural resource surveys and siting new INEEL projects (Ringe 1995). The predictive model does not take the place of field surveys required under the National Historic Preservation Act, but it helps identify areas where impacts to significant archaeological resources and increased compliance costs are most likely to occur. According to the model, high densities of resources are likely to be found along the Big Lost River and Birch Creek, in the Lemhi mountains, in the Lake Terreton basin, atop buttes, within craters and caves, and in a 1.75-mile wide zone along the edge of local lava fields.



As of January 1998, 1,839 archaeological sites had been identified at INEEL. Of these, approximately 94 percent were prehistoric and 6 percent were historic (i.e., representing the last 150 years). Over half the archaeological sites identified to date are potentially eligible for listing in the National Register of Historic Places. ***Pending*** formal significance evaluations, including archaeological testing and historic record searches, ***these*** sites are ***treated as*** potentially eligible for nomination to the National Register of Historic Places.

To gain a better understanding of the importance of INEEL's historic buildings and structures, DOE recently completed an inventory of all DOE-managed buildings on INEEL (Arrowrock Group 1998). DOE identified 217 buildings out of 516 surveyed as potentially eligible for listing in the National Register of Historic Places because of their association with Idaho's World War II activities and the nation's nuclear era, and in some cases, their design, material, and workmanship. At present, the Idaho State Historic Preservation Office is reviewing and drafting comments on the eligibility determinations (Braun 1998). Currently, the Experimental Breeder Reactor-I, the first nuclear reactor in the world to produce electric power, is the only historic property on INEEL that is listed on the National Register of Historic Places. The Experimental Breeder Reactor-I is also a National Historic Landmark (Pace 1998).

4.4.3 PALEONTOLOGICAL RESOURCES

Paleontological resources identified to date at INEEL include vertebrate and invertebrate animal, pollen, and plant fossils found in alluvial gravels along the Big Lost River, in caves and lava tubes, and in lake sediments. Twenty-four paleontological localities at INEEL have been identified in published data (Miller 1995). Recently, a horse fossil was identified in a gravel pit near the Central Facilities Area. Other vertebrate fossils have included mammoth and camel remains. These and other plant and animal fossils identified at INEEL provide information on past environmental and climatic conditions.

4.4.4 PREHISTORIC RESOURCES

4.4.4.1 Archaeological Record

Archaeological investigations completed to date in southeastern Idaho have yielded evidence indicating human use of the Eastern Snake River Plain for at least 12,000 years. Investigations at a cave approximately 2 miles from the INEEL boundary provided the earliest evidence of human occupation, which was radiocarbon-dated at 12,500 years before present (yr B.P.). Data from these and other investigations have allowed archaeologists to identify three distinct periods: the Early Prehistoric (15,000 yr to 7,500 yr B.P.), Middle Prehistoric (7,500 yr to 1,300 yr B.P.), and Late Prehistoric (1,300 yr to 150 yr B.P.). These periods are distinguished by major changes in the types of projectile points, weapons, and tools used for hunting and gathering. The archaeological record indicates that weapon technology evolved from large spear points to smaller points associated with atlatl (spear thrower) use, and finally to bow and arrow during these periods. Although the technology changes are significant, the archaeological record shows a relatively consistent lifestyle based on hunting large game and gathering plants throughout the entire span of human use (Miller 1995).

Four major cultural resource surveys conducted since 1979 in the vicinity of INTEC have identified six cultural resources within an area of approximately 600 acres surrounding the facility. Of these, three of the resources are isolated prehistoric artifacts and have been evaluated as ineligible for the National Register of Historic Places. Although the archaeological surveys indicate that the area near INTEC contains only limited evidence of prehistoric use, there is potential for Big Lost River gravels to contain buried prehistoric artifacts, as well as paleontological remains.

4.4.4.2 Early Native American Cultures

The prehistoric archaeological record does not make clear when the ancestors of the Shoshone and Bannock peoples arrived in southeastern Idaho; however, the Shoshone-Bannock Tribes believe that native people were created on the North American continent and, therefore, regard all prehistoric resources at INEEL as ancestral and important to their culture. Prehistoric sites are located throughout INEEL, and all demonstrate the importance of the area for aboriginal subsistence and survival.

The ethnographic studies completed by early anthropologists describe the seasonal migration of the Shoshone and Bannock peoples across the Eastern Snake River Plain (Miller 1995). After wintering along the Snake River Bottoms near present-day Fort Hall, groups would disperse in the spring to salmon (*tahwa agai*) fishing areas along the Snake River below Shoshone Falls and along the Lemhi River and other Salmon River tributaries, and to camas (*zoigah* or *yambi*) prairies near present-day Fairfield and Dubois. In late summer and early fall, these groups would migrate northeast and east to hunt bison (*bozhe'na*) on the plains east of the Rocky Mountains. The area now occupied by INEEL served as a travel corridor for these groups, with the Big Lost River, Big Southern Butte, and Howe Point serving as temporary camp areas providing fresh water, food, and obsidian for tool making and trade.

The Shoshone and Bannock peoples relied on the environment for all of their subsistence needs and depended on a variety of plants and animals for foods, medicines, clothing, tools, and building materials. Figure 4-*2* depicts plant species of cultural importance that occur on or near INEEL and provides the Shoshone and Bannock names for each.

The importance of plants, animals, water, air, and land resources in the Eastern Snake River Plain to the Shoshone and Bannock peoples is reflected in the sacred manner in which they view the resources. According to Turner et al. (1986):

> "for those who perceive the world through the Shoshonean language and culture, the Earth is alive and sentient... the Realm of the Sacred includes all living things: plants, animals, water, and even the mud."

The reverence for all things extends even to the names of places, as stated by a Shoshone-Bannock elder (Yupe 1998), "You can't say its name around it or there will be trouble like a storm. Its name is sacred."

Specific places in the Eastern Snake River Plain have sacred and traditional importance to the Shoshone-Bannock people, including buttes, caves, and other natural landforms on or near INEEL. These places are not named here, to protect the resources and to respect the Shoshone-Bannock view of those resources.

4.4.5 HISTORIC RESOURCES

Historic sites on INEEL reflect continued use of the Eastern Snake River Plain by Shoshone and Bannock peoples and also include sites associated with the Euroamerican settlement and development of the region. These sites include a portion of Goodale's (Jeffrey's) Cutoff transecting the southwestern corner of INEEL, which was used by settlers as an alternate route along the Oregon Trail in the 1850s. The Cutoff and other historic trails on INEEL (Figure 4-3) were also used for cattle drives and sheep drives to bring livestock from Idaho, Washington, and Oregon to shipping points in Wyoming. Many of the historic sites scattered across INEEL are remnants of camps used during cattle and sheep drives and seasonal movements to various pastures (Miller 1995).

CACTUS
wogwai'bi***

Opuntia polycantha is gathered for food. This common cactus grows abundantly throughout INEEL.

FIREWEED
bea sa nip*
ba ba sh ea cah**

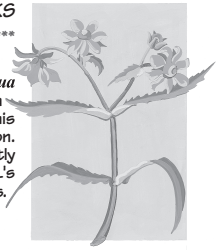
Many members of the ***Epilobium*** genus are used for food, medicine, and tools. They are common throughout INEEL.

TANSY MUSTARD
ah za*
a gah boe**

Several members of the genus ***Descurainia*** are used for food and medicine. They are common in disturbed areas around INEEL.

CHOKECHERRY
dongiape***

Prunus virginiana is gathered for food, medicine, tools, and fuel. It is a common tree found growing on buttes around INEEL.



BEGGAR'S TICKS
sohna***

Bidens cernua is gathered for a source of food. This flower is common. It grows abundantly throughout INEEL's disturbed areas.

INDIAN RICEGRASS
wai***

Oryzopsis hymenoides is harvested for food. This grass is common and abundant throughout INEEL.

LEGEND

* = Bannock plant name
** = Shoshone plant name
*** = plant name shared by both cultures

DESERT PARSLEY
do za***

Some members of the genus ***Lomatium*** are used for food or medicine. They are uncommon but are scattered along INEEL roadsides.

BALSAM ROOT
doyatsayaha'n***

A few members of the genus ***Balsamhorriza*** are used for food and medicine. They are common and scattered about the buttes around INEEL.

WILD ONION
ge'nga***

The ***Allium*** genus is collected for food, medicine, and dye. This onion is common throughout INEEL.

SERVICEBERRY
deambi, wi'yembi***

Some members of the ***Amelanchier*** genus are used for food, medicine, and tools. They are common on buttes throughout INEEL.

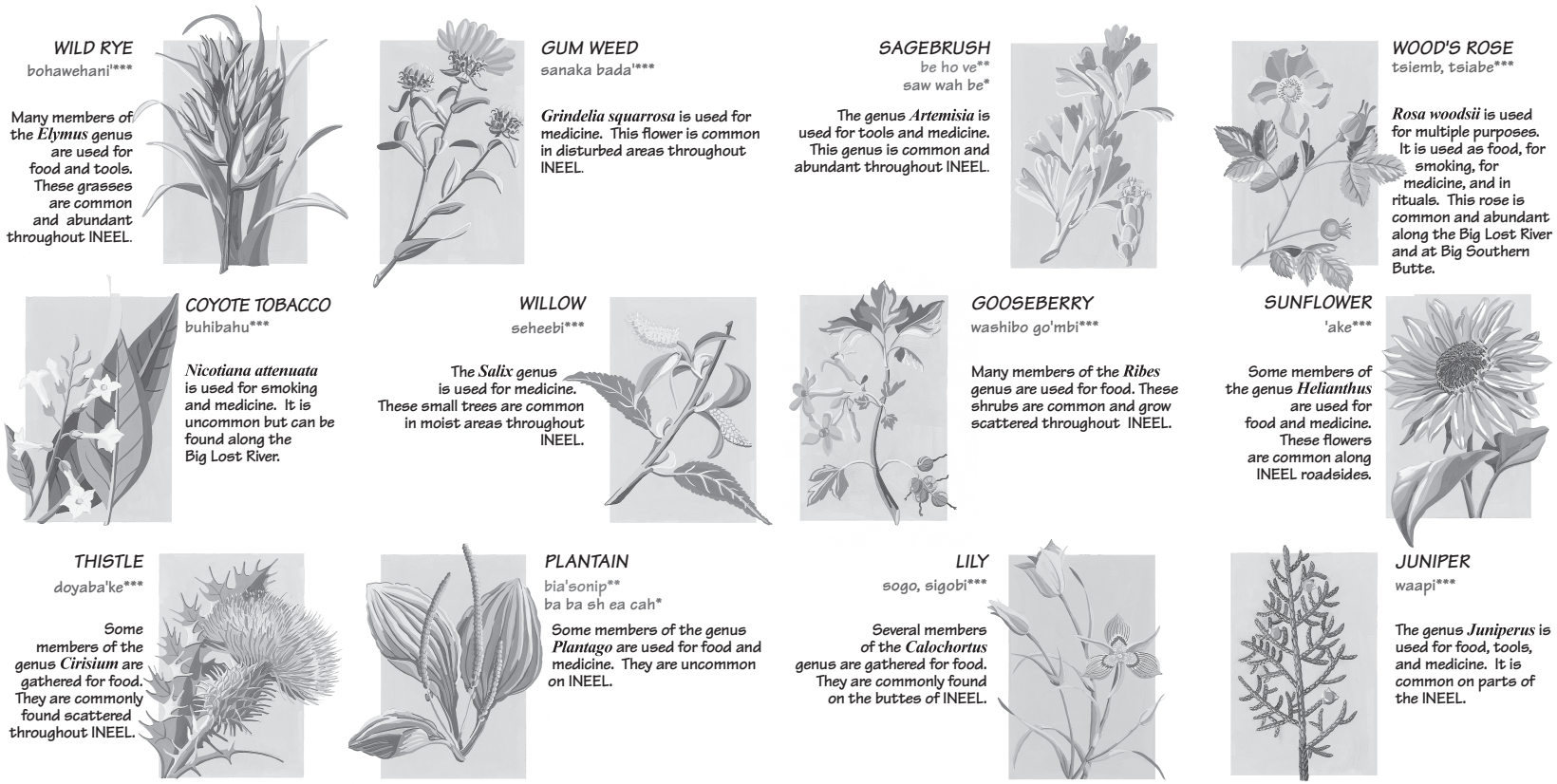
GOOSEFOOT
kah zo ne bah**
kah zo ne peh*

Many members of the genus ***Chenopodium*** are used for food. They are common and abundant throughout INEEL.

MINT
bagwana***

Some members of the ***Mentha*** genus are collected for medicine. These herbs are uncommon but are sometimes found growing along Big Lost River.

FIGURE 4-2. (1 of 2)
Plants used by the Shoshone-Bannock located on or near INEEL.



LEGEND

* = Bannock plant name

** = Shoshone plant name

*** = plant name shared by both cultures

FIGURE 4-2. (2 of 2)
Plants used by the Shoshone-Bannock located on or near INEEL.

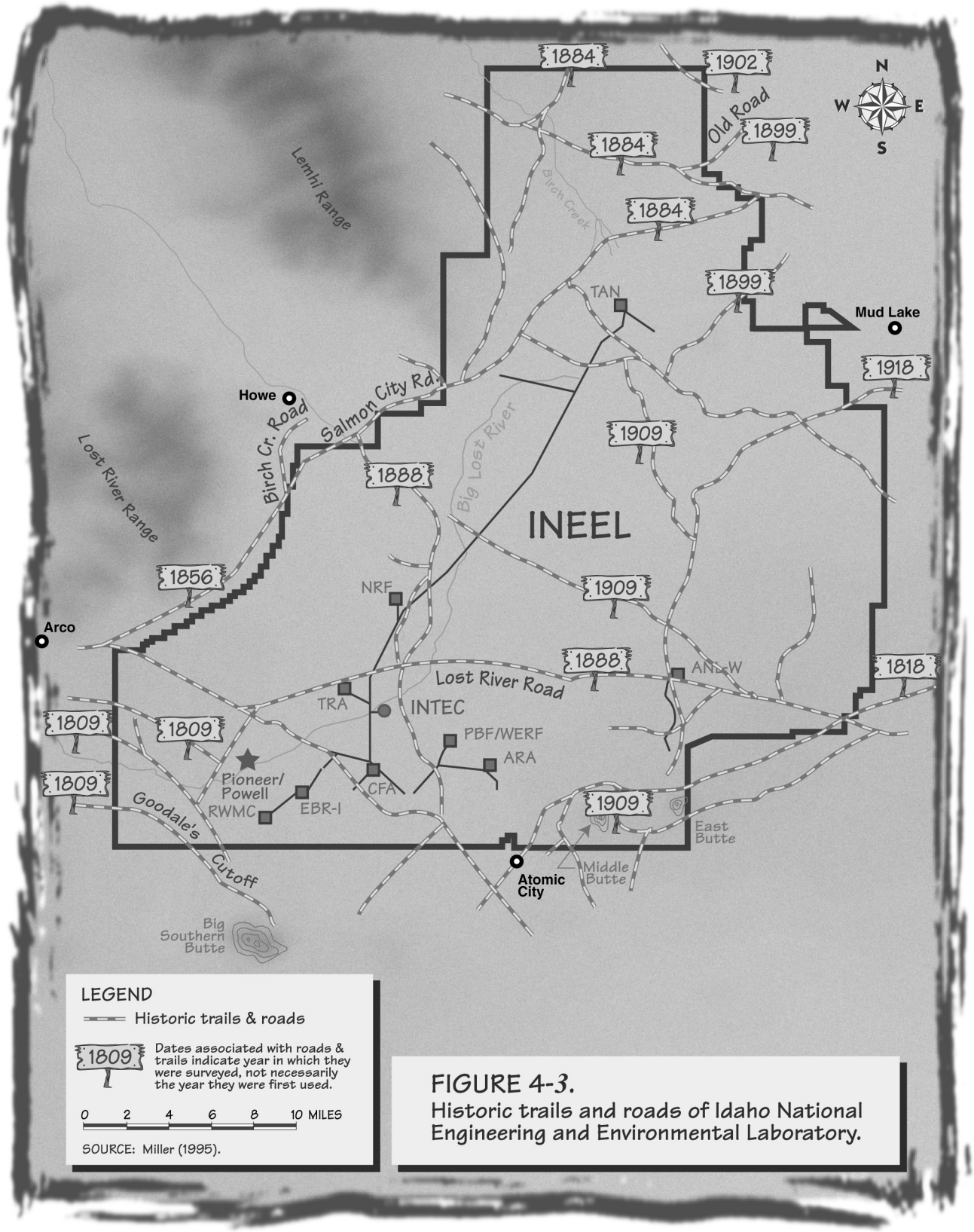


FIGURE 4-3.
Historic trails and roads of Idaho National Engineering and Environmental Laboratory.

Historic trails on INEEL became important stage and freight routes in the late 1800s to support mining boomtowns in central Idaho. Enterprising freight companies also established several new trails across INEEL. Freshwater springs at Big Southern Butte were an important stop for stage and freight lines. The completion of the Oregon short line railroad between Blackfoot and Arco in 1901 eventually made stage and freight lines obsolete (Miller 1995).

The INEEL includes historic sites associated with attempts to homestead and farm along the Big Lost River around the turn of the century. The Cary Land Act of 1894 and the Desert Reclamation Act of 1902 provided land and federal funding to develop irrigation systems in an effort to encourage homesteading. The Big Lost River Irrigation Project included a tract of land in the south-central portion of INEEL. However, the irrigation system was not able to deliver sufficient water and many of the small homesteads failed (Miller 1995).

Two historic sites near INTEC are representative of this period. One site contains a dugout shelter and a variety of domestic artifacts, and the other is a small historic dump that may be associated with the dugout shelter. Both these sites are potentially eligible for listing in the National Register of Historic Places. A third historic resource near INTEC is an isolated artifact and is considered ineligible for the National Register of Historic Places (Pace 1998).

The desert environment of INEEL saw little activity after the homestead period until World War II, when the U.S. Navy used what is now the Central Facilities Area to test-fire naval guns. INEEL lands were also used as a bombing range by the U.S. Army Air Corps during the war (Miller 1995).

In 1949, the National Reactor Testing Station, later to become INEEL, was established by the Federal government. INEEL has played a vital role in the development of nuclear power, with 52 "first of a kind" reactors constructed since 1949. Several INEEL historic sites help to document the early development of nuclear power and include the Experimental Breeder Reactor-I located near the Radioactive Waste Management Complex; the Materials Test Reactor located at the Test Reactor Area; S1W (Submarine, 1st Generation, Westinghouse), A1W (Aircraft, 1st Generation, Westinghouse), and S5G (Submarine, 5th Generation, General Electric) prototype reactor plants at the Naval Reactors Facility; and many other support facilities (Miller 1995).

INTEC, originally named the Idaho Chemical Processing Plant, was one of the first four facilities constructed at INEEL in the 1950s. INTEC played a key role in the early development of processes and facilities for managing nuclear fuels and wastes. Among the "first in the world" accomplishments at INTEC ***are*** the reprocessing of highly enriched pure uranium on a production scale and solidification (calcination) of liquid HLW on both plant and production scales. Historic sites important to U.S. nuclear development at INTEC include 38 buildings potentially eligible for listing in the National Register of Historic Places. These eligibility determinations have been reviewed by the State Historic Preservation Office (Braun 1998). Table 4-7 lists INTEC buildings and structures identified as potentially eligible for listing on the National Register of Historic Places.

Six INTEC structures proposed for demolition or modification have undergone State Historic Preservation Office reviews, and all were determined to be eligible for listing in the National Register of Historic Places. These structures include the Waste Calciner Facility (CPP-633), the two monitoring stations (CPP-709 and CPP-734), the Radium-Lanthanum Process Off-Gas Blower Room (CPP-631), the Underwater Fuel Receiving and Storage Building (CPP-603), and the CPP-603 Basin Sludge Tank Control House (CPP-648). Memoranda of Agreement with the State Historic Preservation Office are in place to ensure that any adverse impacts from alteration or demolition of these facilities are mitigated (Braun 1998).

The historic archaeological record at INEEL is important to descendants of pioneers who settled in the Eastern Snake River Plain, as well as to current and former DOE and INEEL employees and their families who played a role in the development of nuclear science and technology. The role of INEEL lands and facilities in national, regional, and local history continues to influence the cultural environment in eastern Idaho communities.

Table 4-7. INTEC buildings and structures potentially eligible for listing in the National Register of Historic Places.

	Building	Year built
CPP 601	Fuel Processing Building	1953
CPP 602	Laboratory and Office Building	1953
CPP 603	Fuel Receiving and Storage Building	1951
CPP 604	Waste Treatment Building	1953
CPP 605	Blower Building	1953
CPP 606	Service Building (Power House)	1953
CPP 608	Storage/Butler Building	1953
CPP 611	Pumphouse Deep Well Pump #1	1953
CPP 612	Pumphouse Deep Well Pump #2	1953
CPP 613	Substation #10	1953
CPP 616	Sewage Treatment Plant/Compressor	1953
CPP 617	Storage/Butler Building	1950s
CPP 619	Waste Control House	1955
CPP 620	Chemical Engineering Laboratory/High Bay Facility	1968
CPP 621	Chemical Storage Pumphouse	1955
CPP 627	Remote Analytical Facility/Hot Chemical Laboratory	1955
CPP 628	***Waste Storage*** Control House	1953
CPP 630	Safety and Spectrometry	1956
CPP 631	Inactive/L-Cell Off-Gas Blower Room	1957
CPP 633	Waste Calcining Facility	1960
CPP 634	Waste Storage Pipe Manifold Building (WM-185)	1958
CPP 635	Waste Storage Pipe Manifold Building (WM-187/188)	1960
CPP 636	Waste Storage Pipe Manifold Building (WM-189/190)	1965
CPP 637	Process Improvement Facility/Office/Laboratories	1959
CPP 638	Waste Station (WM-180) Shielded Tank Transfer Building	1968
CPP 639	***Waste Calcining Facility Blower Building***	1962
CPP 640	Headend Process Plant	1961
CPP 641	Westside Waste Holdup Tank Pumphouse	1961
CPP 642	Hot Waste Pumphouse and Pit	1958
CPP 646	Instrumentation Building-Bin Set 2	1966
CPP 651	Unirradiated Fuels Storage Facility[a]	1975
CPP 659	New Waste Calcining Facility and Substation #50 [a]	1978
CPP 666	Fluorinel Dissolution and Fuel Storage Facility; Fluorinel Dissolution Process Facility; Fuel Storage Area[a]	1978
CPP 684	Remote Analytical Laboratory[a]	1985
CPP 691	Fuel Processing Restoration Building[a]	1993

a. These buildings need to be reassessed with the State Historic Preservation Office.

4.4.6 NATIVE AMERICAN AND EUROAMERICAN INTERACTIONS

The influence of Euroamerican culture and loss of aboriginal territory and reservation land severely impacted the aboriginal subsistence cultures of the Shoshone and Bannock peoples. The Shoshone and Bannock cultures were initially affected by European colonization of the Americas through the introduction of the horse and subsequent migration of Euroamerican settlers into aboriginal territory. The horse brought profound changes to the Shoshone and Bannock cultures, including increased Plains Indian cultural influences. Settlers began establishing homesteads in the valleys of southeastern Idaho in the 1860s, increasing the conflicts with aboriginal people and providing the impetus for treaty-making by the Federal government (Murphy and Murphy 1986). The Fort Bridger Treaty of 1868 and associated Executive Orders designated the Fort Hall Reservation for mixed bands of Shoshone and Bannock people. A separate reservation established for the Lemhi Shoshone was closed in 1907, and the Indians were forced to migrate across the area now occupied by INEEL to Fort Hall. The Federal government attempted to convert the traditional semi-nomadic subsistence lifestyle of the Shoshone and Bannock to one based on farming. These efforts were hampered by a lack of water, and early 20th century irrigation projects provided little relief, as they mainly benefited non-Indians (Murphy and Murphy 1986).

The original Fort Hall Reservation, consisting of 1,800,000 acres, has been reduced to approximately 544,000 acres through a series of cessions to accommodate the Union Pacific Railroad and the growing city of Pocatello. Other developments, including the flooding of portions of the Snake River Bottoms by the construction of the American Falls Reservoir, have also reduced the Shoshone-Bannock land base (Murphy and Murphy 1986).

The creation of INEEL also had an impact on the Shoshone-Bannock subsistence culture. Land withdrawals initiated by the U.S. Navy during World War II and continued by the Atomic Energy Commission during the Cold War all but eliminated Tribal access to traditional and sacred areas until recent years. In addition, development of facilities at INEEL over the past 50 years has impacted cultural resources of importance to the Tribes, including traditional and sacred areas as well as artifacts.

4.4.7 CONTEMPORARY CULTURAL PRACTICES AND RESOURCE MANAGEMENT

The efforts of the Shoshone-Bannock Tribes to maintain and revitalize their traditional culture are dependent on having continuing access to aboriginal lands, including some areas on INEEL. DOE accommodates Tribal member access to areas on INEEL for subsistence and religious uses. Tribal members continue to hunt big game, gather plant materials, and practice religious ceremonies in traditional areas that are accessible on public lands adjacent to INEEL. In this respect, INEEL continues to serve as a travel corridor for aboriginal people as it has for centuries, although traditional routes have changed due to INEEL access restrictions. DOE recognizes the unique interest the Shoshone-Bannock Tribes have in the management of INEEL resources and continues to consult with the Tribes in a government-to-government relationship.

The maintenance of pristine environmental conditions, including native plant communities and habitats, natural topography, and undisturbed vistas, is critical to continued viability of the Shoshone-Bannock culture. Contamination from past and ongoing operations at INEEL has the potential to affect plants, animals, and other resources that tribal members continue to use. Excavation and construction associated with environmental restoration and waste management activities also have the potential to disturb archaeological resources as well as plant communities and habitats. Possible impacts associated with hazardous and radioactive waste shipments from INEEL through the Fort Hall Reservation are also a concern to the Tribes. The Shoshone-Bannock Tribes will continue to monitor these potential impacts because INEEL and surrounding lands will continue to play a key role in maintaining the Shoshone-Bannock cultural identity.