

Revised Study Plan
Boundary Hydroelectric Project (FERC No. 2144)

Study No. 24
Cultural Resources Study

Seattle City Light

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Study No. 24 – Cultural Resources Study

1.0 INTRODUCTION

Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies having the authority to license any undertaking to take into account the effect of the undertaking on historic properties. Because the relicensing of non-federal hydroelectric projects is conducted by a federal agency, the Federal Energy Regulatory Commission (FERC), the relicensing process is considered an undertaking and the NHPA and its implementing regulations are applicable. Historic properties are any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP). Archaeological sites include both prehistoric and historic-period sites 50 years of age or older. Traditional cultural properties (TCPs) are associated with the cultural practices or beliefs of a living community that are rooted in that community's history and are important in maintaining the continuing cultural identity of the community.

The Cultural Resources Study will document historic properties within the Boundary Project's Area of Potential Effect (APE), seek to identify potential TCPs within the Project APE through consultation, evaluate the NRHP eligibility of historic properties within the APE, and assess the potential effect of any Project-related impacts.

The Cultural Resources Study inventory and evaluation will utilize results from the following studies:

- Erosion Study (see Attachment 2, Study No. 1 of this RSP)
- Dispersed Recreation Use, Access, and Condition Analysis (a component of the Recreation Resources Study; see Study No. 21)
- Assessment of Factors Affecting Aquatic Productivity in Tributary Habitats (see Study No. 14)
- Bat Surveys and Cave Mapping (see Study No. 20)

Data from these studies applicable to historic properties will be incorporated into this study.

2.0 STUDY PLAN ELEMENTS

2.1. Nexus between Project Operations and Effects on Resources

Impacts to historic properties typically result from activities that occur in the vicinity of the resource. Buried archaeological deposits could be affected by ground-disturbing or erosion activities. Adverse impacts to above-ground resources, such as historic structures (e.g., cabins and/or mining and logging features), can result from demolition, partial removal of structural elements, the addition of new features, and changes in the surrounding historical context of a resource. Erosion of the shoreline caused by Project operation could potentially expose buried cultural resources, impair data recovery, or affect native species or natural environments that have traditional value. Project-related recreational use could also have the potential to affect

cultural resources. Vandalism can occur wherever public access to sites is permitted. Acts of vandalism range from artifact collection to unauthorized excavation of cultural deposits or traditional cultural properties. Ground-disturbing activities such as road building or major improvements may result in the exposure of previously unidentified cultural deposits or may cause damage to previously recorded historic properties. Potential Project effects listed here are not intended to imply that each conceivable effect necessarily will occur or that there may not be other effects that have yet to be considered.

2.2. Agency Resource Management Goals

USDA Forest Service (USFS)

The USFS Colville National Forest (CNF) Land Resource and Management Plan provides direction for Cultural Resources (Forest Plan 4-37). Additionally, the CNF has a plan for cultural resources management inventories in the Forest (Kramer 2002). The Inventory Design for Heritage Resources provides a systematic method for historic properties inventory. Further, it complies with the 1997 Programmatic Agreement among the USFS, Advisory Council on Historic Preservation (ACHP), and Washington State Historic Preservation Officer (SHPO). The USFS Boundary Hydroelectric Project Existing Information Analysis for cultural resources work (USFS 2000) indicates that the resource inventory for the Project is incomplete, and that Project operation could be causing shoreline erosion, which could expose any artifacts that could be present and necessitate archaeological monitoring and/or protection measures. The USFS has recommended that a plan for archaeological inventory of the Project fluctuation zone and the APE be developed, and that it include a method to gather information on the Kalispel Tribe's traditional use concerns.

U.S. Bureau of Land Management (BLM)

The BLM inventories, evaluates, and manages historic properties according to the standards described in 36 CFR 800. Inventory and management efforts are documented within the BLM's Northeast Lands Data Project (NELDP).

2.3. Study Goals and Objectives

The goal of the Cultural Resources Study is to gather information that will be used to develop a Historic Properties Management Plan (HPMP) with recommended protection, mitigation, and enhancement measures to reduce impacts to historic properties under the new Project license. The objectives of the study include the following:

- A field inventory to identify historic properties within the Project APE
- Consultation with tribal representatives to document any TCPs and other significant locations within the APE
- Evaluation of resources to determine whether they meet criteria for NRHP eligibility
- Documentation of any Project-related effects on NRHP-eligible historic properties

The Cultural Resources Study will be conducted in consultation with the SHPO, Indian tribes, and federal agencies. Toward this end, SCL has contacted the following parties with regard to

planning the Cultural Resources Study: the CNF, the BLM, the Kalispel Tribe of Indians, the Confederated Tribes of the Colville Reservation, the Kootenai Tribe of Idaho, the Spokane Tribe of Indians, the Coeur D'Alene Indian Tribe, the Confederated Salish and Kootenai Tribe, and the Washington State Department of Archaeology and Historic Preservation (WDAHP).

2.4. Need for Study

Summary of Existing Information

Cultural Background

The lower Pend Oreille River valley is characterized by the Pend Oreille River channel, located within montane forests of the Selkirk Mountains, in the northeastern corner of Washington State. Warm summers with light precipitation and cool winter temperatures with heavy snow accumulations characterize the historical climate. Vegetation includes Douglas fir, ponderosa pine, and aspen forests. Topographical relief of the terrain in the Project vicinity sharply increases north (downstream) of the flat bench above the confluence of the Pend Oreille River and Sullivan Creek, at Metaline Falls. South of the falls, broad forested riverine terraces bound both sides of the river; north of the falls, the river flows through a deeply incised, steep-walled canyon for most of its run to Z Canyon and present-day Boundary Dam.

The Boundary Project area, in the lower Pend Oreille River valley, lies within the traditional territory of the Lower Kalispel Indians, which is in turn within the larger Plateau region of traditional tribal lands in North America. Lower Kalispel people shared many broadly defined traditions with inland Salish people, including lacustrine or riverine settlement patterns; seasonal travel for subsistence procurement; subsistence emphasis on fish (including salmon), land game, and a wide variety of vegetable foods; and household and village communities linked by family and exchange relations (Hudson et al. 1981; Lahren 1998; Mourning Dove 1990; Smith 2000).

Kalispel people regularly interacted with regional groups, notably during the annual salmon fishery and trade gathering at Kettle Falls on the Columbia River (Ackerman 1996; Anastasio 1972; Lahren 1998; Mourning Dove 1990). Colville Indians at Kettle Falls managed this regional fishery, which attracted Lakes, Okanagan, Sanpoil, Spokane, Coeur d'Alene, Nespelem, Methow, Chelan, and Kalispel people. At the beginning of the nineteenth century, Lewis and Clark estimated the Kalispel population to number approximately 1,600 persons, residing in 30 lodges or houses (Moulton 1990). At least a dozen Kalispel winter village sites were used. Lower Kalispel winter villages were located between Newport in the south and Jared in the north (Fandrich et al. 2000; Ray 1936; Smith 1961). Many locations were utilized for seasonal summer or temporary camps that supported hunting and collecting activities; these included locations along rivers and major streams, as well as wetlands, feeder streams, and lake shores (Fandrich et al. 2000; Smith 1961, 2000). No winter village sites are known along the Pend Oreille River north of Jared; however, fishing camps, gathering locations, and mineral pigment and vision quest areas were located throughout this area. People traveled into this area for huckleberries, pinenuts, serviceberries, caribou, deer, western red cedar bark, and medicinal juniper and other roots. Sweatlodges were built in lower meadows and cairns in the mountains. East of the Pend Oreille River, at Sullivan Lake, whitefish weirs were built along feeder streams,

and red pigment was collected in areas around Metaline Falls (Fandrich et al. 2000; Smith 1961, 2000).

Specialized fishing was conducted in the Pend Oreille River and nearby streams, and employed nets, traps, sweeps, weirs, hook and line, and wood and stone traps. The Pend Oreille River did not support the large anadromous fish runs found along the Columbia River. Salmon were usually obtained at seasonal fisheries at the lower Clark Fork River, the lower Salmo River, and the Little Spokane River, and most significantly at Kettle Falls. While salmon was utilized, most fishing within Lower Kalispel territory was concentrated on trout, whitefish, and other inland freshwater varieties (Lahren 1998; Lyons 2003). Camas provided a vegetable staple and was collected from large fields around present day Usk and Cusick in June and July. Women usually collected the bulk of the camas harvest while men and boys hunted in surrounding hills. Camas bulbs would be steamed in rock-lined earth ovens over several days, then ground with stone mortars into flour, baked with pine moss into cakes, and eaten or stored in bags for winter (Fahey 1986; Gough 1997; Smith 2000; Thoms 1989). Following the camas harvest, people separated into family bands or small groups for fishing and collecting tasks. Travel to salmon fisheries might also occur following the camas harvest and again in September; hunting efforts were intensified in the weeks prior to the first snows in the autumn, but some hunting would be pursued through the winter. In the eighteenth century, the adoption of horses increased the speed and distance traveled by Lower Kalispel people and enabled a greater degree of interaction in the western Plains buffalo hunts (Lahren 1998; Smith 2000).

The first recorded Euro-American traveler in Lower Kalispel territory was Canadian fur trader David Thompson in 1809. Thompson was a partner in the British North West Company, and sought new fur-trade territory for the company. In 1809 and 1810, Thompson traveled and mapped the area from Lake Pend Oreille northward along the Pend Oreille River with two companions in search of a water route to meet the Columbia River. By the early 1840s, Protestant clerics had moved outward from the trading posts and forts to establish a missionary presence among Indian people in the region. In 1844, Jesuit priests organized construction of the St. Ignatius mission near the large Kalispel village at present-day Cusick (Fahey 1986). In 1834, passage by Congress of the Indian Trade and Intercourse Act instituted guidelines for the negotiation of treaties and the reservation system. In the 1850s, miners migrated from Columbia River gold fields into the Pend Oreille country to work newly identified gold deposits (Bamonte and Bamonte 1996). Chinese who had originally journeyed from the California gold fields were among these, and moved to wash placer deposits on gravel bars along the lower Pend Oreille River and Sullivan Creek, most notably at Chinamen's Bar, located on the east bank of the Pend Oreille River about 2 miles north of Metaline Falls (Barker n.d.b.; Gaylord n.d.). As late as the 1940s, rocks, an "old log cabin, with a stone fireplace", and a pile of boulders in a "horseshoe shape" remained visible at Chinamen's Bar (Barker n.d.b). Chinese miners would typically work claims abandoned by non-Chinese, and use pans, rockers, and hydraulic systems in sandbars and shorelines for placer gold.

As early as 1873, hard-rock miners traveled into the Metaline region, and claims to mine lead and zinc ore deposits were recorded along both sides of the Pend Oreille River (General Land Office 1912). Metaline itself was so named because of the extensive and sizable quantities of metal ore that attracted miners (Bamonte 1988). The identified placer and vein ore gold deposits

in the Metaline area were nearly depleted by 1880, and most gold miners abandoned their diggings for newly reported gold deposits in the Idaho panhandle.

Although permanent settlement was sparse in the region through the mid-1880s, Kalispel people continued to be impacted indirectly by the consequences of white settlement. The Upper Kalispel people had largely moved to a reservation in Montana; Lower Kalispel people refused to be relocated but were forced to accommodate the entry of miners and homesteaders. From the late nineteenth century to 1914, non-treaty Lower Kalispel people witnessed greater numbers of settlers moving into their territory. In 1914, the Kalispel Reservation near Usk was established by U.S. Executive Order for the Lower Kalispel, and in 1939 the Kalispel Indian Community was chartered (Ruby and Brown 1992).

Until the late nineteenth century, steam-driven ferries provided the only large-scale reliable transportation for freight between the Project area and communities upstream along the Pend Oreille River. The growth of the towns of Metaline, Metaline Falls, and Ione grew from the increased scale of lead, zinc, and limestone mining and establishment of a cement industry, supported by completion of the Idaho and Washington Northern Railroad in 1910. Dozens of individual and corporate claims were recorded along the lower Pend Oreille River by the 1930s. Mills produced smelted materials during the First World War, and by the 1930s, following reorganizations a decade earlier, the Pend Oreille Mines and Metals Company operated some of the most productive zinc and lead mines and mills in Washington State. The federal government provided local economic stimulation through the Civilian Conservation Corps (CCC) and Rural Electrification Administration (REA) programs. CCC workers built the original ranger station and airstrip at Sullivan Lake, and other improvements. The REA provided for local loans for development of electrical supply infrastructure across the United States; the cedar pole lumber industry in the Pend Oreille valley supplied poles for electric and telecommunications systems built across the country. During the Second World War, soldiers were deployed to work in lead and zinc mines to produce ores for the war effort. Studies of the potential for hydropower development in the Z Canyon area, just upstream of the current Boundary Dam, were first proposed in 1914. However, administrative planning for the facility did not begin in earnest until the 1950s. The Project was federally licensed in 1961, and Boundary Dam was completed and began operation in 1967.

Cultural Resource Surveys

Numerous small-scale field surveys have occurred within several miles of the Boundary Project, generally for USFS or BLM compliance with the NHPA as related to timber sales, land exchanges, or similar projects (USFS 2000). Cultural resource surveys that have been conducted within or immediately adjacent to the Project APE are listed in Table 2.4-1. While overarching cultural resources overview documents provided context and assessment criteria for these projects (e.g., Hudson et al. 1981; Kramer 2002), field investigations were largely limited to surveys conducted by foresters with archaeological survey training rather than by professional archaeologists.

Table 2.4-1. Previous cultural resource surveys conducted within or immediately adjacent to the Project APE.

Year	Report Name	Author	Resources Identified
1962	Archaeological Research in the Boundary Dam Reservoir Area	Richard Daugherty	None
1980	East Boundary Timber Sale, Colville National Forest	Undetermined	8 historic era properties including mining features and associated outbuildings and a cabin
1981	Cultural Resources Evaluation of the Boundary Dam Project	Brantley Jackson	None
1982	Letter Report Regarding Five Proposed Rubble Disposal Areas near Boundary Dam	Gail Thompson	None
1983	Cultural Resources Surveys of Two Locations in the Seattle City Light Department's Boundary Hydroelectric Project, Pend Oreille County, Washington	Craig Holstine	None
1983	Boundary Dam Access Road, Seattle City Light, Cultural Resource Reconnaissance	Jill Osborn	None
1990	Timber Mite Timber Sale, Colville National Forest	John Ogmundson	A mining-related ditch and an outhouse
1999	Pend Oreille Mine Cultural Resources Overview and Historic Structure Inventory, Metaline Falls	Michael Madson and Lynn Larson	24 historic mining-related properties inventoried
2001	A Cultural Resources Survey for the Washington State Department of Transportation's SR 31: Metaline Falls to the International Border Safety Improvement Project	Dana Komen	Metaline Falls bridge identified as historic property; bridge was unevaluated, but recommended as ineligible for NRHP
2004	Archaeological Survey in Northeast Washington: the Northeast Lands Data Project in Ferry, Stevens, and Pend Oreille Counties.	Daryl E. Ferguson and Matthew J. Root	Recorded 12 previously undocumented sites (as well as a revisit to one previously recorded site) and 34 isolates.

Archaeological investigations conducted in or adjacent to the Boundary Project have been limited in number. Two past surveys (Daugherty 1962; Jackson 1981) were designed as reservoir-wide historic property identification efforts. Neither of these efforts identified any pre-contact archaeological sites or potential historic properties within their respective survey areas.

In 1962, prior to construction of Boundary Dam, four archaeologists conducted “surface examination of those portions of the land which eventually will lie beneath the backwater pool. Any portion of this land upon which habitation could have been feasible was designated for subsequent intensive inspection” (Daugherty 1962). Following surface examination, “each of these so-designated localities was examined by test trenches in appropriate spots.”

Archaeologists also inspected all nearby road cuts and erosion surfaces of the Pend Oreille River and its tributaries. Locations that received particular attention included both sides of the river approximately 1 mile north of Metaline Falls; the mouth of Slate Creek; the east bank of the river midway between Slate Creek and Pewee Creek; the mouth of Pewee Creek; and several places where the river had eroded small caves into the limestone cliff face.

In 1979, Boundary Reservoir was drawn down to permit inspection of the dam and pre-impoundment reservoir, and a one-day archaeological reconnaissance of about 5 miles of the reservoir was conducted (Jackson 1981). The reconnaissance examined the relatively level areas, including those around Boundary Dam and the mouth of Pewee Creek, upstream to Slate Creek.

In addition to the two reservoir-wide surveys, two limited surveys on CNF lands, and a recent cultural resources survey of portions of BLM lands in Pend Oreille County, a small number of localized surveys have been conducted within or very near to Boundary Reservoir. These were limited to small tracts within or immediately adjacent to the Project boundary to address individual, project-specific cultural resources management requirements (e.g., Holstine 1983; Komen 2001, 2002; Madson and Larson 1999; Osborn 1983; Science Applications International Corporation 1999; Thompson 1982).

Historical and Ethnographic Studies

Historical studies have been conducted on the development of towns, such as Metaline and Metaline Falls, and the local mining industries (e.g., Bamonte 1988; Barker n.d.a). Such studies have typically been produced in conjunction with local historical societies and have incorporated description of primary sources and interviews.

Ethnographic information on traditional use of the Project area by Native Americans was recorded in the middle part of the twentieth century by Smith (2000), based on his discussions with Kalispel Indian consultants. Fandrich et al. (2000) and others have based subsequent studies largely on Smith's documentation.

Known Cultural Resources

According to WDAHP records, 61 archaeological or historic-period sites are recorded within the Boundary Project vicinity (defined for the purposes of cultural resources as the Project area and land within approximately 1 mile of the Project); only three appear to be located within or directly adjacent to the Project APE (Table 2.4-2). In 2002 and 2003, cultural resources survey conducted on portions of BLM lands in Pend Oreille County resulted in identification of 10 additional, previously undocumented sites and 34 archaeological isolates, all of these located within about 1 mile of the Project APE (Ferguson and Root 2004).

Table 2.4-2. Documented historic properties within about 1 mile of the proposed Project APE.

Site No.	Site Type, Brief Description	Ownership	NRHP Eligibility
45PO81H	Historic Cabin, Historic Mining Property	Colville National Forest	Unevaluated
45PO82H	Historic Cabin	Colville National Forest	Unevaluated
45PO83H	Historic Cabin	Colville National Forest	Unevaluated
45PO87H	Historic Cabin (Lucky Strike Mine)	Colville National Forest	Unevaluated
45PO88H	Historic Cabin	Colville National Forest	Unevaluated
45PO98	Historic Mining Property (1 prospecting pit)	Not known	Unevaluated
45PO99	Historic Mining Properties (11 prospecting pits)	Not known	Unevaluated
45PO121H	Historic Cabin	Not known	Unevaluated
45PO122H	Historic Maritime Property (log/cable river landing)	BLM	Unevaluated
45PO124H	Historic District (Town of Metaline)	Public and Private	Unevaluated
45PO125H	Historic Commercial Structure (Washington Hotel)	Private	Listed NRHP 1979
45PO126H	Historic Residential Structure (Lewis P. Larson House)	Private	Listed NRHP 1979
45PO131H	Historic Mining Property (Lead King Mine)	Private w/in Colville National Forest	Unevaluated
45PO132H	Historic Railroad Property (Idaho and Washington Northern Railroad Bridge)	Private	Listed NRHP 1982; HAER/WA State Bridge Inventory 1979
45PO199H	Historic Cabin, Historic Mining Properties (cabin and associated adit and tailings pile)	BLM	Unevaluated
45PO449	Historic Cabin	Private or BLM (undetermined)	Unevaluated
45PO450	Historic cabins (2)	Private w/in Colville National Forest	Unevaluated
45PO466	Historic Bridge (Penstock Bridge)	BLM	Unevaluated
45PO469	Historic Mining Properties (shaft and pits)	Not known	Unevaluated
45PO470	Historic Hydroelectric (Box Canyon Dam)	Private	Unevaluated

Table 2.4-2, continued...

Site No.	Site Type, Brief Description	Ownership	NRHP Eligibility
45PO488	Pre Contact Lithic Scatter (FCR)	Colville National Forest	Unevaluated
45PO489	Pre Contact Lithic Scatter (FCR, corner-notched projectile point)	Colville National Forest	Unevaluated
45PO500	Historic Burial	Private w/in Colville National Forest	Unevaluated
45PO519	Historic Mining Property (Frisco Lode Mill Site/collapsed ore mill structures)	BLM	Unevaluated
45PO520	Historic Mining Property (Josephine Mine)	BLM	Unevaluated
FS5101-1 (temp.); recorded as FS1021 at DAHP)	Historic Mining Property (“Chinaman’s Ditch”; earthen ditch and wooden flume segments)	Colville National Forest	Unevaluated
FS5201-3 (temp.) & CNF687 (recorded as FS1033 at DAHP)	Historic Mining Property (Wolf Quarry adit)	Colville National Forest	Unevaluated
FS5201-7 (temp.) & CNF690 (recorded as FS1030 at DAHP)	Historic Cemetery (International Order of Odd Fellows cemetery)	Colville National Forest	Unevaluated
FS5201-8 (temp.) & CNF691 (recorded as FS1031 at DAHP)	Historic Homestead (Maggie Young Homestead)	Colville National Forest	Unevaluated
CNF808 (recorded as FS1167 at DAHP)	Historic Mining Property (Box Canyon Mine Site; cabin, pits)	Colville National Forest	Unevaluated
CNF1098	Historic Agricultural Features (three spring boxes)	Colville National Forest	Unevaluated
CNF1211	Historic Logging Property (Horse Skid Trail)	Colville National Forest	Unevaluated
NNR#76	Historic Trash Scatter (“tin dump”)	Colville National Forest	Unevaluated (recommended not significant by CNF)
(none)	Historic School (Metaline Falls School)	Private	Listed NRHP 1988
(none)	Historic Commercial Property (Inland Portland Cement Plant)	Private	NAER Inventory 1982
(none)	Historic Commercial Structure (Pend Oreille Mines and Metals Building)	Private	Listed NRHP 1997
(none)	Historic Bridge (Metaline Falls Bridge)	State of Washington	Unevaluated

Table 2.4-2, continued...

Site No.	Site Type, Brief Description	Ownership	NRHP Eligibility
Cominco Property (includes 24 inventoried properties)	24 historic mining properties inventoried at Cominco American, Inc. in 1999; surveyor indicated these properties may constitute a historic mining district	Private	Unevaluated

Most of these properties date to the early historic settlement, logging, and mining period, and include mining cabins, log flumes, logging skid roads, and homesteads. Numerous historic structures related to settlement and the growth of the mining industry are recorded in Metaline and Metaline Falls, and include Metaline Falls’ Lewis Larsen House and the Washington Hotel, both listed on the NRHP. These and other NRHP-listed properties in the vicinity of the Boundary Project are listed in Table 2.4-3. Evidence of the development of the general region by public land management agencies is also present (e.g., CNF recreation sites and trails).

Table 2.4-3. Summary of NRHP-listed properties in the Boundary Project vicinity.

Resource Name	City	Listed
Idaho and Washington Northern Railroad Bridge	Ione/Box Canyon Dam	1982-07-16
Larson, Lewis P., House	Metaline Falls	1979-03-26
Metaline Falls School	Metaline Falls	1988-09-08
Pend Oreille Mines and Metals Building	Metaline Falls	1997-08-29
Washington Hotel	Metaline Falls	1979-03-26

Traditional Cultural Properties

No specific locations within the Project vicinity have been identified as TCPs, and no ethnographic inventory of the vicinity exists. No winter village sites are known along the Pend Oreille River in this vicinity; however, some uses of the area by Kalispel people have been recorded. East of the Pend Oreille River, at Sullivan Lake, whitefish weirs were built along feeder streams, and red pigment was collected in areas around Metaline Falls (Fandrich et al. 2000; Smith 1961, 2000). The Kalispel Natural Resources Department, of the Kalispel Tribe of Indians, is developing a TCP database. Project-area information from this database is expected to be available in 2007 to support the Cultural Resources Study.

Need for Additional Information

Existing inventories of historic properties within the Boundary Project are limited in scope and/or are outdated. Previous surveys do not appear to have entailed 100 percent coverage of the Project area. Even in the areas systematically surveyed, some sites could be buried beneath sediment or vegetation cover with little or no trace on the ground surface, and therefore have

remained undetected in previous surveys. An archaeological and historic-era field inventory, as proposed in this study plan, is needed to identify historic properties within the Project APE.

TCPs have not been identified in the Project vicinity. A literature review has not identified TCPs in the Project APE; however an additional effort is necessary to identify any culturally significant places. Potential TCPs will be identified in consultation with cultural resource specialists from affected Indian tribes, who could ascertain potential adverse impacts. Archival research and consultation with the local historical society will be conducted to identify potential TCPs of other ethnic or cultural groups.

An important part of the Boundary Project relicensing effort will be to determine whether archaeological and historic-era sites identified within the APE are eligible for inclusion in the NRHP. All historic properties in the Project APE will require evaluation for significance. As part of the formal evaluation, consultation will occur with the SHPO, appropriate federal land-managing agencies, and affected tribes to seek recommendations on the evaluation. Potential and/or cumulative impacts of the Boundary Project upon historic properties within the Project APE have not yet been identified. Determination of any Project effects to NRHP-eligible properties within the Project APE will be conducted in consultation with the SHPO, tribes and federal agencies.

2.5. Detailed Description of Study

Study Area

A project's APE is defined as "the geographic area or areas within which an undertaking may directly or indirectly cause changes in the character or use of historical resources if any such cultural resources exist" (36 CFR 800.16). For the purposes of the relicensing analysis, the Project APE is defined as follows ¹:

- Downstream of Metaline Falls: The reservoir and the land within the FERC Project boundary, which includes most Project facilities, the land 200 horizontal (i.e., along the ground surface) feet inland of the high water elevation (1,990 feet NGVD 29 [1,994 feet NAVD 88]) along both shorelines, and the transmission line right-of-way (ROW) from the powerhouse to the Bonneville Power Administration interconnection.
- Upstream of Metaline Falls: The reservoir and the land within the FERC Project boundary, plus the land within 25 horizontal feet inland of the high water elevation along both shorelines (approximately 2,015 feet NGVD 29 [2,019 feet NAVD 88]), extending south to the FERC project boundary for the Box Canyon Project.^{2 3}

¹SCL letter dated December 19, 2006, to Allyson Brooks (State Historic Preservation Office) requesting concurrence with the Boundary Project Area of Potential Effects (APE) definition and a response by January 19, 2007 (see Attachment 4 of this RSP). No response received.

² The USFS Colville National Forest study request for cultural resources (USFS 2006) states that the Boundary Project APE should be the Project boundary. SCL agrees that the FERC project boundary is an appropriate basis for the Project APE. However, because the FERC project boundary above Metaline Falls is set at the ordinary high water line, SCL has extended the Project APE for this area by 25 horizontal feet inland. SCL believes the additional

- The SCL-owned Boundary Wildlife Preserve (155 acres) and adjoining SCL-owned property (85 acres).
- Major Project-related roads: The SCL ROW for the road from Boundary Dam to the Vista House and the road from the dam to County Road No. 2975. The Pend Oreille County ROW for the road from the Vista House to State Highway 31.
- All SCL-owned lands outside the FERC Project boundary, in the Pend Oreille valley between Box Canyon Dam and the international border, including lands where there are Project-related structures or activities, such as maintenance and equipment staging locations.
- In addition, the APE would be adjusted to include any areas where other resource studies (e.g., erosion, dispersed recreation) identify a Project effect in an area not within the original APE.⁴

The ability to conduct field surveys on private lands within the APE outside of the FERC Project boundary (mainly upstream of Metaline Falls) may be limited due to access constraints in these areas.

Proposed Methodology

Task 1 – Archival Research

A Cultural Resources Overview for the Project area, completed in 2006 as part of SCL's early information development effort, provides background information and evaluative context for assessing NRHP eligibility of sites within the Project APE. Additional archival research of known historic-era sites and the development of mining and related ethnic communities will be conducted prior to the field inventory in order to provide site-specific data to be utilized for field documentation.

The Cultural Resources Overview also includes a predictive model for archaeological sites. The predictive model was developed using empirical environmental data, supplemented with additional information from previous archaeological investigations in the Pend Oreille River valley and with locational information derived from ethnohistorical literature and geomorphology (study of landform development processes) pertaining to the Pend Oreille River valley. The result is a GIS-based map that describes zones as having high, moderate, or low

25 feet from the ordinary high water line captures the area in which any potential Project effects would reasonably be expected to occur.

³ The estimated high water elevation of 2,015 feet upstream of Metaline Falls is based on the review of existing hydrology, as described in section 1.3.5 of the PSP (see Table 1.3-1; SCL 2006). Following completion of the Hydrology Dataset and Statistics in March 2007 (see Attachment 1, section 3.1 of this RSP), SCL will review and refine, as necessary, this elevation range.

⁴ The USFS study request for cultural resources (USFS 2006) states that the Boundary Project APE should be the Project boundary, but must also include any historic properties that begin or terminate within the Project boundary. SCL agrees that the FERC project boundary is an appropriate basis for the Project APE. SCL's APE definition can accommodate expansion of the APE to include any historic properties (beginning or terminating within the Project boundary) that extend beyond the original APE, if a Project effect is identified in those areas where the historic properties are located.

potential to contain archaeological sites. The locations and kinds of sites cannot be anticipated by a model in all instances; however, the underlying assumption of the model is that most archaeological occurrences are associated with sets of environmental and cultural variables. Development of the predictive model also included a limited, multi-day field reconnaissance for model verification, primarily field-checking some high probability areas for the presence of archaeological materials in the summer of 2006. The information from the predictive model is intended to provide explanatory information to supplement archival research and field inventory efforts and will also be used to develop a culture history context to support evaluation of resources.

Task 2 – Field Inventory

The Technical Consultant that conducts the Cultural Resources Study will be responsible for obtaining BLM and USFS Archaeological Resources Protection Act (ARPA) permits, as well as any special permits to conduct the field survey. Before the survey, the Technical Consultant will review the archaeological sensitivity map depicting high, medium, and low probability areas within the APE for containing archaeological resources produced by the predictive model. The field survey will be intensive and will be consistent with the most recent survey standards supported by the BLM and the USFS, Indian tribes, and WDAHP. Tribal representatives will be informed of the fieldwork schedule and invited to participate in or observe the work. SCL will develop a methodology for contacting landowners to request permission to access private property within the Project APE prior to conducting the field inventory.

Prior to initiating the field inventory, the Technical Consultant will conduct a reconnaissance visit to the Project to become oriented to the range of potential site locations and Project area conditions and environment. The Cultural Resources Workgroup will be invited to participate in this pre-inventory orientation and reconnaissance. Following the orientation/reconnaissance, the Technical Consultant will refine the inventory methodology, as needed, to accommodate the range of landforms within the Project APE, including identification of locations for subsurface investigations and minimum spacing intervals for subsurface excavations. The physical geography of the Boundary Project produces two distinct zones for cultural resources investigations. Upstream of Metaline Falls, the river approximates its pre-development configuration. The river gradient is moderate, and alluvial fans and terraces are evident. Below the falls, the pre-development river was incised into a deep, steep-sided gorge. There, the original riverside environments are now deeply submerged by as much as 300 feet of water. Archaeological sensitivity mapping for prehistoric sites produced by the Cultural Resources Overview predictive model suggests that the Project APE downstream from Metaline Falls has a low potential to contain cultural resource sites; however, the part of the Project upstream of the falls has greater potential for prehistoric archaeology. Conversely, the area downstream of the falls contains extensive mineral deposits that were mined in the historic era. Thus, there is greater potential for evidence of these activities downstream from the falls.

The kinds of prehistoric sites that might be expected above the falls include residential sites (camps and/or villages) and task/resource specific sites (fishing/hunting/etc.). Below the falls, residential sites generally would not be expected on the steep, rugged terrain; however, diffuse archaeological deposits representing task/resource-specific activities might be identified. Historic-era sites above the falls could include properties associated with settlement, agriculture,

mining, or transportation. Sites downstream are expected to be associated with mining or other dispersed resource procurement (e.g., trapping).

The field inventory will include determination of site boundaries, stratigraphy of archaeological sites, assessment of site integrity, and initial identification of site significance for those sites within the Project APE. Fieldwork along the perimeter of the Project reservoir will be scheduled during periods when the fluctuation zone can be examined for exposed archaeological materials. A generalized methodology is presented below.

Identification Methodology

Pedestrian transects will be regularly spaced at no greater than 25-meter intervals across 100 percent of accessible terrain within the Project APE. Areas not surveyed due to excessively steep terrain and/or for safety reasons or due to access constraints from private landowners will be documented. In areas of sediment accumulation, such as along the reservoir, streams or confluences, fieldwork may require excavating shovel and/or auger probes to examine subsurface deposits. In addition, the field crew will systematically examine all horizontally and vertically exposed sediment surfaces (i.e., cutbanks) for archaeological materials. The examination of these exposures will also aid in determining horizontal and vertical boundaries of sites.

In non-riverine upland environments, shovels or trowels may be used to clear areas of forest duff to examine the mineral soil for evidence of artifacts, petroglyphs and pictographs, features, soil discoloration, and other potential anthropogenic characteristics.

Shovel testing, when necessary, will be performed in a standardized manner and will be used to delineate site boundaries (e.g., vertical and horizontal extent), determine the presence/absence of subsurface cultural material, and determine the degree and types of material. Probes would be systematically located along transects or could be excavated in other regular patterns in areas that may contain cultural deposits. Specific locations for probes and the numbers of probes to be excavated will be determined by supervisory field archaeologists. Test probe excavations will measure approximately 40–50 centimeters in diameter, if round, or approximately 50-by-50 centimeters square, as permitted by the character of the local soils. Unless natural stratigraphic units are identified, probes will be excavated in approximately 10-centimeter arbitrary levels and will be excavated to bedrock, or until culturally sterile deposits or the point of diminishing return (two consecutive archaeologically sterile levels) is reached. All sediments will be screened through 0.25-inch mesh hardware cloth. If buried cultural features are found (e.g., trash pits, hearths, buried living surface), the test probes will be terminated at the feature and the site recommended for additional, formal archaeological testing. In any case, shovel probing will not be intensive, and probes will be located so as to generate maximum data regarding site potentials with a minimum of ground disturbance.

The identification methodology will include inventory of above-ground historic era structures within the Project APE. When encountering a historic-era site, standard site recording procedures will be undertaken. The site area will be systematically examined to identify and record any structural remains and other evidence of human use and/or occupation, including:

- Method of construction, size, room sizes, number of stories, roof design, roofing materials, and types of construction materials
- Trash dumps or surface scatter of artifacts
- Depressions left from structures such as privies or root cellars
- Roads or trails
- Evidence of water procurement (ditches, pipes, wells, springboxes)
- Landscape and vegetation (lilac bushes, bulb flowers, fruit trees or bushes, created meadows)

Placement of archaeological test units at historic-era sites will be most successful if located in areas where the heaviest concentration of human use/occupation may have occurred. The interiors of living structures, the exteriors of structures near doors or windows, suspected trash dumps, or root cellars would be likely areas to explore.

Inadvertent Discovery of Human Remains

In the event of the inadvertent discovery of human remains, work will be immediately halted in the discovery area, the remains covered and secured, and communication established with field crew supervisory personnel, SCL, local law enforcement, WDAHP, and authorized tribal representatives. Any exposed human remains will be discretely covered and treated with appropriate respect until tribal, state, and other officials (and any involved federal agency) have determined and agreed upon a course of action for removal, reburial, or other treatment. There will be no photographs or any analysis (including bone assays) conducted on human remains without the explicit concurrence of tribes and the SHPO.

Data Analysis

A general non-collection strategy shall be employed with regard to identified artifacts; however, documentation of artifact distribution and types will be necessary. Diagnostic artifacts shall be analyzed in the field. Materials will be collected during the inventory only when they could be subject to irretrievable loss or unauthorized collection, with the exception of scientific samples described below. The provenience of all collected materials will be recorded using maps and either a global positioning system (GPS) receiver or with measured reference to a known fixed datum.

Any materials collected in the field will be analyzed to generate data to address NRHP-eligibility. Description and analysis will be conducted as appropriate to the research goals of the Cultural Resources Study. Once information regarding provenience, function, and chronology has been entered into computer databases, the artifacts will be catalogued, photographed as appropriate, and curated at a facility that complies with the Secretary of the Interior's Guidelines, 36CFR Part 79, "Curation of Federally-Owned and Administered Archaeological Collections; Final Rule," Federal Register, September 12, 1990.

If radiocarbon or tephra from geological or cultural features in cutbanks or other contexts are identified during inventory, samples will be obtained for chronometry and/or sourcing. Obsidian

artifacts may be collected for source analysis, and quartzite knives may be collected for DNA analysis.

Task 3 – Traditional Cultural Property Identification

The identification of potential TCPs involves tribal consultation and will take into consideration National Register Bulletin No. 38, Guidelines for Evaluating and Documenting Traditional Cultural Properties (Parker and King 1995). The Cultural Resources Study anticipates that the tribes will provide any information on potential TCPs that may be needed as part of consultation for the Project. If tribes do not wish to disclose the locations of potential TCPs due to religious or other confidentiality concerns, SCL will instead work with the tribes to identify the general issues and concerns that the tribes may have regarding potential impacts of the Project upon resources known to the tribes, and work to develop agreeable measures to alleviate these concerns. Archival research and consultation will also be conducted with the local historical societies to identify potential TCPs of other ethnic or cultural groups

Task 4 – National Register of Historic Places Eligibility Evaluation

NRHP evaluations will be site specific. NRHP eligibility criteria will be applied to assess the archaeological and historic-era properties identified within the Project APE in order to develop NRHP determinations of eligibility to be presented to the SHPO for concurrence. Eligibility criteria are codified in 36 CFR 60.4:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association and:

- a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
- b) that are associated with the lives of persons significant in our past; or
- c) that embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- d) that have yielded, or may be likely to yield, information important in prehistory or history.

In addition to the criteria described in 36 CFR 60.4, properties of traditional religious and cultural importance to a community (i.e., TCPs) may be determined eligible for inclusion in the NRHP because of their “association with cultural practices or beliefs of a living community that are (a) rooted in that community’s history, and (b) are important in maintaining the continuing cultural identity of the community.”

Whenever feasible, NRHP assessment of archaeological sites will be accomplished without ground-disturbing archaeological test excavation. Initial assessment of NRHP eligibility will hinge on two data sets: site integrity and site contents as indicated by surface observations and

testing. Field observations may produce sufficient information to determine site significance (i.e., research potential relating to NRHP criterion (d)). NRHP assessment of archaeological sites will include the application of questions such as the following:

- Does the archaeological record indicate changes through time in types of resources used?
- Does the archaeological record reflect use of locally available raw material sources?
- What is the range of materials present? Could these materials have been obtained from the same local (i.e., immediately available) source?
- What local (i.e., immediately available) plant and/or animal resources might have been exploited by people?
- What chronological evidence is present? Are typologically identifiable artifacts and/or datable organic materials present?
- What processing and manufacturing techniques can be distinguished from the archaeological record, and are these time-sensitive?
- Are buried cultural components present?

For historical-era sites, it cannot be assumed that an evaluation of that site's NRHP eligibility can be made solely through an assessment of the built environment. Historic sites that have few, if any, remaining above ground structures still have the potential to yield important information about history. Pre-field research into the nature of a historic-era site can provide valuable information regarding ownership, use, technology, and length of occupation.

Questions that may be applied to historic sites to address the physical structure and artifacts of these sites, but also incorporate information from the written record, include:

- Is there evidence specific to particular ethnic groups?
- What information is present that indicates relative economic status?
- What artifacts or structures are present that are related to expressions of gender?
- What evidence is present that indicates age (e.g., child/adult) of the inhabitants?
- What relationships are there between a site's utilitarian and non-utilitarian artifact assemblages?
- Is there evidence of specific socio-cultural or political movements?

Section 106 of the NHPA does not require future management of cultural resources that are not eligible for the NRHP, and thus not considered to be historic properties. Ineligible sites can be removed from any future consideration in the Historic Properties Management (HPMP). NRHP evaluations will be developed through consultation with the SHPO, tribes, federal agencies and FERC.

Task 5 – Assessment of Project Effects on Historic Properties

Assessment of potential adverse Project effects will be site specific for any NRHP-eligible historic properties within the APE and will be done in consultation with the SHPO, tribes and federal agencies. Effects analyses will also consider results of the Erosion Study; the Dispersed Recreation Use, Access, and Condition Analysis; the Assessment of Factors Affecting Aquatic Productivity in Tributary Habitats; and the Bat Surveys and Cave Mapping.

Task 6 –Documentation

All field inventory data will be carefully and completely documented. Complete records on all aspects of the work, including but not limited to field notes, records of features, a site plan map of all sampling units, stratigraphic records (as appropriate), artifacts, and environmental and geological observations, will be maintained. A general daily log will be kept that will record crew members and their activities, field conditions (e.g., location with GPS or fixed datum, weather, temperature and vegetation), the amount of work completed that day, description of said work, and other pertinent information such as pictures taken, artifacts collected, potential biases affecting site location and interpretation.

Once a site is identified, a Washington State Archaeological Inventory form (as well as updating site forms for all previously recorded sites) will be completed. In addition, forms to describe observed impacts and research potential of archaeological sites will be completed (see Appendix 1 of this study plan). One form records impacts to the site through surface observations, prior to any subsurface testing, and considers both natural (geomorphologic variability, erosion factors) and cultural processes (e.g., existing and/or past effects) acting on the site. The other form considers the research potential through observable features, artifact types and distributions on the site. Consistent application of these forms will provide a framework for systematic data collection.

2.6. Work Products

The results of the Cultural Resources Study will be compiled and presented in a written study report completed in standard scientific format. The report will include at least the following information:

- Standard Washington State Department of Archaeological and Historic Preservation Inventory Forms. All inventoried sites will be recorded on standard Washington State Archaeological Inventory Forms. Copies of completed forms will be submitted to appropriate federal land management agencies and to WDAHP for assignment of permanent Smithsonian trinomials.
- Determinations of Eligibility (DOEs). NRHP eligibility forms will be completed upon submittal of draft copies of the study products to the SHPO, tribes and federal agencies for review and comment. Federal agencies will submit DOEs to WDAHP for sites on lands managed by that agency.
- A discussion of the Cultural Resources Study methodology and the results of historic properties inventory and evaluation, including TCP investigations, assessment of potential Project effects and a consultation summary.

2.7. Consistency with Generally Accepted Scientific Practice

The planned study methods discussed above are consistent with survey strategies used by the USFS and BLM. These methods comply with the requirements of FERC and Section 106 of the NHPA, as amended.

2.8. Consultation with Agencies, Tribes, and Other Stakeholders

The Cultural Resources Study plan was prepared with input from the USFS, Kalispel Tribe of Indians, FERC, and WDAHP, which was provided at meetings of the Cultural Resources Workgroup on May 25, June 27, and August 15, 2006. Comments provided by these relicensing participants on the draft study plan are summarized in the Proposed Study Plan (PSP), Attachment 8-2 (SCL 2006) and can also be found in the workgroup meeting summaries, which are available on SCL's relicensing website (<http://www.seattle.gov/light/news/issues/bndryRelic/>).

After draft versions of the Cultural Resources Study plan were discussed at the Cultural Resources Workgroup meetings, SCL further modified the study plan in response to comments and study requests filed with FERC by the USFS (USFS 2006). Modifications included adding clarification, additional supporting rationale, and additional detail to address comments and specific components in the USFS cultural resources study request. The Cultural Resources Study plan, as modified to address participant comments, was included in the PSP that was filed with FERC on October 16, 2006.

Since filing the PSP, SCL has continued to work with relicensing participants on its proposed study plans. In response to comments made during the November 15 study plan meeting and comments filed with FERC by the USFS (2007) SCL has further modified the Cultural Resources Study plan. (SCL's responses to comments are summarized in Attachment 3 and consultation documentation is included in Attachment 4 of this RSP.) Modifications included adding clarification, additional supporting rationale, and additional detail to address FERC and USFS comments. SCL believes that the FERC and USFS comments are adequately addressed in this revised study plan.

2.9. Schedule

Finalization of the study plan for the Cultural Resources Study plan and implementation of the study will be in accordance with the process schedule presented in Attachment 1, section 2.2 of this RSP.

The Cultural Resources Study will be initiated in 2007 and completed in 2008. The need for additional inventory work will be evaluated in early 2008. Circumstances that could require additional 2008 fieldwork include adjustments to the Project APE to include any additional lands where Project effects are identified by other resource studies. Reports are planned for distribution in early 2008 and 2009.

Table 2.9-1. Schedule for Cultural Resources Study.

Activity	2007				2008				2009
	1 Q	2 Q	3 Q	4 Q	1 Q	2 Q	3 Q	4 Q	1 Q
Study implementation planning, including pre-inventory orientation/ reconnaissance, refinement of field inventory methodology, establishment of field study needs and determination of final schedule									
Review of existing information (Cultural Resources Overview and Predictive Model) and Archival research									
Field inventory, data analysis, and evaluation									
Consultation on potential TCPs									
Prepare interim study report (first-year results)									
Distribute interim study report									
Meet with relicensing participants to review first year efforts and results and discuss plans for any second year efforts									
Include interim study report in Initial Study Report (ISR) filed with FERC									
Hold ISR meeting and file meeting summary with FERC									
Continue field inventory and consultation, as necessary									
Prepare “draft” final study report									
Distribute “draft” final study report for relicensing participant review									
Meet with relicensing participants to review study efforts and results and “cross-over” study results									
Include final study report in Updated Study Report (USR) filed with FERC									
Hold USR meeting and file meeting summary with FERC									

Information from the completed Cultural Resources Study will support development of the Boundary HPMP beginning in late 2008. The HPMP will summarize the cultural history of the area, provide information on resource inventory and evaluation, discuss Project impacts on eligible historic properties within the APE, and provide management measures and protocols for the period of the new license, including inventory and evaluation of Project structures when they attain 50 years of age, and the assignment of cultural resources management responsibilities to an appropriate SCL staff person. The draft HPMP will be completed for submittal with the Preliminary License Proposal in April 2009 and the final HPMP will be completed for submittal with the License Application in September 2009.

2.10. Progress Reports, Information Sharing, and Technical Review

In addition to preparing the Cultural Resources Study report, as described above, there will be several opportunities for information sharing and technical review with the Cultural Resources Workgroup. As described in Attachment 1, section 2.3 of this RSP, SCL plans to provide informal updates on a quarterly basis to keep relicensing participants abreast of study progress and communicate significant developments. Prior to release of the Initial and Updated Study Reports (which will include the results of this study), SCL will meet with relicensing participants to discuss the study results, as described in Attachment 1, section 2.3 of this RSP.

Washington State law provides for the protection of archaeological sites and confidentiality of site location information. Site location information that could subject cultural resources to vandalism, or that could impede the use of a traditional religious site by practitioners, is exempt from disclosure under Section 304 of the NHPA of 1966, as amended. Reports containing any sensitive information will be marked “confidential” and shared only with cultural resource specialists from the USFS, BLM, Indian tribes, SHPO and FERC. Confidential information will be removed from documents available to the public. Access to restricted information will be provided to qualified professionals (as specified in 43 CFR 7.8[a][1]) having specific and legitimate research requirements.

2.11. Anticipated Level of Effort and Cost

SCL will use the guidelines of 36 CFR 800.4 to make a reasonable and good faith effort to carry out appropriate identification efforts and conduct meetings with relicensing participants. SCL will also follow other applicable professional, state, tribal, and local laws, and standards, and will respect confidentiality concerns. The estimated cost to complete the cultural resources study is approximately in the range of \$160,000 to \$190,000.

3.0 LITERATURE CITED

- Ackerman, Lillian A. 1996. *Ethnographic Overview and Assessment of Federal and Tribal Lands in the Lake Roosevelt Area Concerning the Confederated Tribes of the Colville Indian Reservation*. Project Report Number 30, Center for Northwest Anthropology, Department of Anthropology, Washington State University, Pullman.
- Anastasio, Angelo. 1972. *The Southern Plateau: An Ecological Analysis of Intergroup Relations*. Northwest Anthropological Research Notes 6(2):109-229. Moscow, Idaho.
- Bamonte, Anthony. 1988. *Metaline Falls*. On file at Pend Oreille County Historical Society, Newport.
- Bamonte, Tony, and Suzanne Schaeffer Bamonte. 1996. *History of Pend Oreille County*. Tornado Creek Publications, Spokane.
- Barker, Charles I. n.d.a. *Memories of Early Day Events, People and Development of Metaline Falls*. On file at Pend Oreille County Historical Society, Newport.
- Barker, Charles I. n.d.b. *Prospecting and Mining as Carried On for the Past Century in the Pend Oreille River Valley*. On file at Pend Oreille County Historical Society, Newport.
- Daugherty, Richard D. 1962. *Archaeological Research in the Boundary Dam Reservoir Area*. Laboratory of Anthropology Report of Investigations No. 19. Washington State University, Pullman.
- Fahey, John. 1986. *The Kalispel Indians*. University of Oklahoma Press, Norman.
- Fandrich, Blain, Lynn M. Peterson, and Sherri Deaver. 2000. *A Cultural History of the Kalispel Indians (Draft)*. Prepared for The Kalispel Tribe Department of Natural Resources, Usk. Ethnoscience, Inc., Billings, Montana.
- Ferguson, Daryl E. and Matthew J. Root. 2004. *Archaeological Survey in Northeast Washington: the Northwest Lands Data Project in Ferry, Stevens, and Pend Oreille Counties (Draft)*. Submitted to Spokane District Bureau of Land Management, Contract No. HAC021006. Rain Shadow Research, Inc. Project Report 68, Pullman, Washington.
- Gaylord, Mary. n.d. *Eastern Washington's Past: Chinese and other Pioneers, 1860-1910*. United States Department of Agriculture Forest Service, Pacific Northwest Region.
- General Land Office. 1912. *Field Notes of the Survey of the North, East and West Boundaries, Subdivision and Meander Lines of Township 39 North, Range 43 East of the Willamette Meridian, Washington*. United States Bureau of Land Management, Spokane.
- Gough, Stan. 1997. *Data Recovery Excavations at Site 45PO422: A Camas Processing Site in the Calispell Valley, Pend Oreille County, Washington*. Eastern Washington University

- Reports in Archaeology and History 100-99. Archaeological and Historical Services, Eastern Washington University, Cheney.
- Holstine, Craig. 1983. Cultural Resources Surveys of Two Locations in the Seattle City Light Department's Boundary Hydroelectric Project, Pend Oreille County, Washington. Short Report SR-49, Archaeological and Historical Services, Eastern Washington University, Cheney.
- Hudson, L., S. Boswell, C. D. Carley, W. Choquette, C. Miss, D. H. Chance, and M. A. Stamper. 1981. A Cultural Resource Overview for the Colville and Idaho Panhandle National Forests and the Bureau of Land Management-Spokane and Coeur d'Alene Districts Northeastern Washington/Northern Idaho. Volume I: Cultural Resource Narrative. Cultural Resource Consultants, Sandpoint, Idaho.
- Jackson, J. Brantley. 1981. Cultural Resources Evaluation of the Boundary Dam Reservoir. Laboratory of Archaeology and History, Washington State University, Pullman.
- Komen, Dana. 2001. A Cultural Resources Survey for the Washington State Department of Transportation's SR 31: Metaline Falls to the International Border Safety Improvement Project, Pend Oreille County, Washington. Short Report DOT01-29, Archaeological and Historical Services, Eastern Washington University, Cheney.
- Komen, Dana. 2002. SR 31: Metaline Falls to International Border. AHS Letter Report DOT02-35, Archaeological and Historical Services, Eastern Washington University, Cheney.
- Kramer, Steve. 2002. Inventory Design for Heritage Resources: Colville National Forest, Ferry, Stevens, and Pend Oreille Counties, Washington. On file at Colville National Forest, Colville, Washington.
- Kramer, Steve. 2006. Memo regarding Historic Site Evaluation Procedures, June 13. On file at Colville National Forest, Colville, Washington.
- Lahren, Sylvester L., Jr. 1998. Kalispel. In Plateau, Handbook of North American Indians Vol. 12, pp. 283-296, edited by Deward E. Walker, Jr. Smithsonian Institution, Washington, D.C.
- Lyons, Kevin J. 2003. An Ethno-Archaeological Analysis of the Kalispel Aboriginal Fisheries of the Pend Oreille Watershed: The Relative Importance of *Salvelinus confluentus* to the Kalispel Bands (Draft). Unpublished draft paper prepared for the 2003 FCRPS Conference, Portland, Oregon. Kalispel Natural Resources Department, Kalispel Tribe of Indians, Usk, Washington.
- Madson, Michael J., and Lynn L. Larson. 1999. Pend Oreille Mine Cultural Resources Overview and Historic Structure Inventory, Metaline Falls, Pend Oreille County,

- Washington. Prepared for Cominco American, Incorporated, Spokane. LAAS Technical Report #99-06, Larson Anthropological Archaeological Services Limited, Gig Harbor.
- Moulton, Gary E. 1990. *The Definitive Journals of Lewis & Clark: Down the Columbia to Fort Clatsop*. Volume 6 of the Nebraska Edition. University of Nebraska Press, Lincoln.
- Mourning Dove. 1990. *Mourning Dove, a Salishan Autobiography*. Edited by Jay Miller. University of Nebraska Press, Lincoln.
- Osborn, Jill. 1983. *Boundary Dam Access Road, Seattle City Light, Cultural Resource Reconnaissance*. Colville National Forest, Colville, Washington.
- Parker, Patricia L., and Thomas F. King. 1995. *Guidelines for Evaluating and Documenting Traditional Cultural Properties*. National Register Bulletin. National Park Service, Washington, D.C.
- Ray, Verne F. 1936. Native villages and groupings of the Columbia Basin. *Pacific Northwest Quarterly* 27(2):99-152.
- Ruby, Robert H., and John A. Brown. 1992. *A Guide to the Indian Tribes of the Pacific Northwest*. University of Oklahoma Press, Norman.
- Science Applications International Corporation. 1999. *Cultural Resources Survey of the LeClerc - Box Canyon Fiber Optic Line and Portions of the Kalispel Reservation, Pend Oreille County, Washington*. Prepared for Pend Oreille Telephone Company, Glens Ferry, Idaho and Ione, Washington. Science Applications International Corporation, Boise, Idaho.
- SCL (Seattle City Light). 2006. *Proposed Study Plan for the Boundary Hydroelectric Project (FERC No. 2144)*. Seattle, Washington. October 2006. Available online at http://www.seattle.gov/light/news/issues/bndryRelic/br_document.asp.
- Smith, Allan H. 2000. *Kalispel Ethnography and Ethnohistory*. In *The Calispell Valley Archaeological Project Final Report, Volume 2: Historic and Ethnographic Background*, edited by William Andrefsky, Jr., Greg C. Burtchard, Kira M. Presler, Stephen R. Samuels, Paul H. Sanders, and Alston Thoms, pp. 7.1-7.151. Project Report Number 16, Center for Northwest Anthropology, Department of Anthropology, Washington State University, Pullman.
- Smith, Allan H. 1961. *An Ethnohistoric Analysis of David Thompson's 1809-1811 Journeys in the Lower Pend Oreille Valley, Northeastern Washington*. *Ethnohistory* 8(4):309-381.
- Thoms, Alston Vern. 1989. *The northern roots of hunter-gatherer intensification: Camas and the Pacific Northwest*. Unpublished doctoral dissertation, Department of Anthropology, Washington State University, Pullman.

Thompson, Gail. 1982. Letter to Don Yon, Seattle City Light, reporting cultural resources fieldwork for five proposed rubble disposal areas near Boundary Dam, June 1. Ertec Northwest, Inc., Seattle.

USFS (USDA Forest Service). 1988. Colville National Forest Plan, as amended. Colville National Forest. Colville, WA.

USFS. 2000. Boundary Hydroelectric Project Existing Information Analysis. Prepared by USDA Forest Service, Colville National Forest. October 2000.

USFS. 2006. Boundary Hydroelectric Project, FERC No. 2144-035, Response to Scoping Document 1, Comments on Pre-Application Document, and Study Requests. Colville National Forest. August 31, 2006.

USFS. 2007. Boundary Hydroelectric Project, No. 2144-035, comments to Proposed Study Plan. Colville National Forest. January 9, 2007.

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**Appendix 1: Boundary Hydroelectric Project, Observed Impacts
to Archaeological Sites Form**

BOUNDARY HYDROELECTRIC PROJECT
Observed Impacts to Archaeological Sites Form
(Surface Observations Prior to Testing)

SITE # 45 _____

Systems Operations Impacts

Overall impacts to site

Erosion Deposition Undetermined

Are both erosion and reservoir deposition present? Yes No

If erosion is present, are lag deposits present? Yes No

If yes, with gravel sand or silt

Are artifacts present? Yes No

If yes, is there evidence for horizontal or lateral transport?

Yes No Undetermined

Is there evidence of landform retreat? Yes No

If yes, describe landform and estimate linear distance of retreat.

If deposition is present, is there a gravel sand or silt cap?

What is the depth of deposits?

Overall estimated percentage of total site area affected by systems operations impacts: _____%

Other Impacts

Construction/urbanization related

Roads Structures Clearing/grading Other (specify)

Relic collection

Surface collection Excavation

ORV use

Overall estimated percentage of total site area affected by other impacts: _____%

Describe all impacts:

**BOUNDARY HYDROELECTRIC PROJECT
Observed Archaeological Research Potential Form**

Site # 45_____

SITE FORM DATA

Site dimensions

Site description

Site condition

PRE-TESTING SURFACE OBSERVATIONS

Features

Are features observable prior to testing? Yes No
 Do they appear intact? Yes No Uncertain
 What is feature density? High (>5) Moderate (2-4) Low (1) None
 Are activity loci present (i.e., multiple features in apparent association) Yes No

Density of surface materials (artifacts and fire-modified rock)

High Moderate Low

High => 10 items (outside of features) within a 1 m square area anywhere on site;
Moderate = 5-10 items (outside of features) within a 1 m square area;
Low = <5 items (outside of features) within a 1 m square area

Diversity of functional artifact types

High (>5) Moderate (2-4) Low (1) None

Diversity of lithic material types

>3 2-3 1 type

Diversity of historic artifact types

>3 2-3 1 type

Presence of faunal materials

Yes No Uncertain

Potential for organic materials (includes charcoal)

Yes No Uncertain

Other factors