UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, WA 98101

Rec 1/2/01
BS

December 29, 2000

Reply To
Attn of: ECL-115

Patti Stone
Colville Confederated Tribes
Office of Environmental Trust
P.O. Box 150
Nespelem, Washington 99155

Randall E. Connolly
Spokane Tribal Natural Resources
P.O. Box 100
Wellpinit, WA 99040

Dear Ms. Stone and Mr. Connolly:

The U.S. Environmental Protection Agency (EPA), through its contractor, Ecology & Environment, Inc. (E & E), has completed the preliminary assessment (PA) of the Upper Columbia River/Lake Roosevelt site (River Mile 597 to 745). A copy of the report is enclosed.

Based on this PA, EPA finds that additional investigation is warranted. EPA anticipates conducting a site investigation during the spring/summer of 2001. The follow-up investigation will be conducted under the Federal Superfund Program.

E & E's recommendations, with which EPA concurs, is presented on page 4-1 of this report. If you have any questions, please feel free to contact me at (206) 553-0323.

Sincerely,

Monica Tonel

Monica Tonel
Site Assessment Manager

Enclosure

cc: Dave Lyngholm, USDoI, Bureau of Reclamation, Grand Coulee, WA
Flora Goldstein, Ecology Eastern Regional Office
Anthony W. Grover, Ecology Eastern Regional Office
Rick Roeder, Ecology Central Regional Office
Dave Norman, WA State Dept. of Natural Resources
Preston A. Sleeger, USDoI, Office of the Secretary

ecology and environment, inc.
International Specialists in the Environment

1500 Wells Fargo Center , 999 Third Avenue
Seattle , Washington 98104
Tel: (206) 624-9537 , Fax: (206) 621-9832

DATE: December 28, 2000

TO: Monica Tonel, Task Monitor, U.S. EPA, Region 10, Seattle, WA

FROM: for Annette Franzen, START Project Leader, E & E, Seattle, WA DB

SUBJ: Site Recommendations
Upper Columbia River/Lake Roosevelt Site Preliminary Assessment
Northeast Washington

REF: Contract No. 68-W6-0008
Technical Direction Document No. 99-10-0002

CC: Gary Sink, START Project Officer, U.S. EPA, Region 10, Seattle, WA
Dave Byers, START Program Manager, E & E, Seattle, WA
Julie Howe, START Project Manager, E & E, Seattle, WA

This recommendations memorandum has been developed for the Upper Columbia River/Lake Roosevelt site located in northeast Washington, as part of a Preliminary Assessment (PA). The PA consisted of an evaluation of 150 miles of the Columbia River between the Grand Coulee Dam and the United States boundary with Canada.

Analytical data have shown that widespread contamination is present in river and lake sediments throughout the study area. During prior studies, sediment samples were collected in the Columbia River/Lake Roosevelt study area, and in locations upgradient of known sources, and tributaries emptying into the study area. Concentrations of metals, including arsenic, cadmium, copper, lead, mercury, and zinc, were significantly higher in most of the samples collected from the study area, than in the associated background and tributary samples. In addition, elevated concentrations of dioxins, furans, and PCBs have also been documented in the study area. Significantly elevated levels of these contaminants have also been documented in fish tissue samples collected in the study area. Mercury levels exceeding Canadian health standards in fish tissue also have been documented.

Lake Roosevelt is a major recreational area with over one million visitors per year. Recreational activities include sport fishing, boating, swimming, and camping. The area is also of economic and cultural significance to Native American populations. Subsistence fishing may constitute a major portion of some resident's diets. Additional concerns include potential exposure to the contaminated sediments during lake draw down periods, such as the potential for health effects resulting from dermal contact with the sediments, or from inhalation of airborne sediment particles.

Based on a review of prior studies conducted and an evaluation of migration pathways, receptors and hazardous substances found in samples collected from the Upper Columbia River Basin, further investigation of the Upper Columbia River/Lake Roosevelt site under the Comprehensive Environmental Response, Compensation and Liability Act is recommended.

If you have any questions or comments regarding this recommendation please call me at 206/624-9537.

Upper Columbia River/Lake Roosevelt
River Mile 597 to 745
Preliminary Assessment Report
Washington

TDD: 99-10-0002

Contract: 68-W6-0008
December 2000

Region 10

START

Superfund Technical Assessment and Response Team

Submitted To: Monica Tonel
U.S. Environmental Protection Agency
1200 Sixth Avenue
Seattle, WA 98101

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UPPER COLUMBIA RIVER/LAKE ROOSEVELT
PRELIMINARY ASSESSMENT REPORT
WASHINGTON

TABLE OF CONTENTS

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LIST OF ILLUSTRATIONS

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LIST OF ACRONYMS

Acronym	Definition
asl	above sea level
CCT	Colville Confederated Tribes
Celgar	Celgar Pulp Company
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
Cominco	Cominco Limited, Inc.
E & E	Ecology and Environment, Inc.
Ecology	Washington Department of Ecology
EPA	United States Environmental Protection Agency
HRS	Hazard Ranking System
kg/d	kilograms per day
lbs/day	pounds per day
LRWQC	Lake Roosevelt Water Quality Council
µm	micrometers
mg/kg	milligrams per kilogram
MGD	million gallons per day
MTCA	Model Toxics Control Act
NPL	National Priorities List
NPS	National Park Service
NWI	National Wetlands Inventory
PAs	Preliminary Assessments
PCDDs	polychlorinated dibenzo-p-dioxins
PCDFs	polychlorinated dibenzofurans
RM	River Mile
SARA	Superfund Amendments and Reauthorization Act
SI	Site Inspection
START	Superfund Technical Assessment and Response Team
TCDDs	tetrachlorodibenzo-p-dioxins
TCDFs	tetrachlorodibenzofurans
TDD	Technical Direction Document
TDL	target distance limit

LIST OF ACRONYMS (CONTINUED)

Acronym	Definition
TMDL	total maximum daily load
URS	URS Consultants, Inc.
US	United States
USDoI	United States Department of the Interior
USGS	United States Geological Survey
WDOH	Washington Department of Health
WDNR	Washington Department of Natural Resources
WFWS	Washington Fish and Wildlife Service
WRATS	Water Rights Application Tracking System

UPPER COLUMBIA RIVER RM 597 to 745/LAKE ROOSEVELT
PRELIMINARY ASSESSMENT REPORT
WASHINGTON

1. INTRODUCTION

Pursuant to United States Environmental Protection Agency (EPA) Contract No. 68-W-0008 and Technical Direction Document (TDD) 99-10-0002, Ecology and Environment, Inc. (E & E) conducted a Preliminary Assessment (PA) of the Upper Columbia River, from the Grand Coulee Dam at River Mile (RM) 597 to the United States-Canada boundary at RM 745. The PA was conducted under the authority of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA).

The PA is the first phase in the process of determining whether a site is releasing, or has the potential to release, hazardous substances, pollutants, or contaminants into the environment and whether it requires additional investigation and/or response action that is authorized by CERCLA. The assessment process does not include extensive or complete site characterization, contaminant fate determination, or quantitative risk assessment.

The objectives of this PA are to:

- Determine whether the site is releasing, or has the potential to release hazardous constituents into the environment;
- Identify potential public health and environmental threats posed by the site;
- Assess the need for additional investigation and/or response action at the site; and
- Determine the potential for placement of the site on the National Priorities List (NPL).

Activities conducted as part of this assessment include reviewing and evaluating available information pertaining to the site; collecting information on migration pathways and receptors; determining regional characteristics; and conducting a site visit. This document presents site background information and a discussion of the surrounding environment (Section 2), a discussion of migration/exposure pathways and potential receptors (Section 3), a discussion of conclusions and recommendations (Section 4), and a list of pertinent references (Section 5).

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2. SITE BACKGROUND

2.1 SITE LOCATION

Site Name:	Upper Columbia River RM 597 to 745
CERCLIS ID No.:	WASFN1002167—RM 597 to RM 745
Location:	Northeast Washington
Site Contacts:	Mr. Dave Lyngholm Area Manager United States Department of the Interior (USDoI) Bureau of Reclamation P.O. Box 620 Grand Coulee, Washington 99133-0620 (509) 633-9501 Ms. Patti Stone Water Quality Coordinator Office of Environmental Trust Confederated Tribes of the Colville Reservation P.O. Box 150 Nespelem, Washington 99155 (509) 634-2415 Mr. Randall E. Connolly Spokane Tribe of Indians, Natural Resources P.O. Box 100 Wellpinit, Washington 99040 (509) 258-9042

2.2 SITE DESCRIPTION/OWNERSHIP HISTORY

The Columbia River flows from northern British Columbia, generally south through eastern Washington, and then west, eventually forming part of the border between Washington and Oregon eventually emptying into the Pacific Ocean. The portion of the river addressed in this report, and referred to as the Upper Columbia River, runs approximately 150 river miles between the Grand Coulee Dam and the United States-Canada boundary, through northeast Washington, including portions of Okanogan, Lincoln, Ferry, and Stevens Counties (Figure 2-1).

In 1942, construction of the Grand Coulee Dam was completed by the United States Bureau of Reclamation to supply irrigation water, to control flooding, and to produce hydroelectric power. The portion of the Columbia River from the dam upstream to the Northport area (approximately 135 river miles) is referred to as both the Upper Columbia River and Franklin D. Roosevelt Lake (or more commonly, Lake Roosevelt). The Lake Roosevelt National Recreation Area, comprising the lake and its shorelines, attracts more than 1 million visitors per year. Recreational activities include boating, swimming, fishing, and camping.

Each winter, the water level in Lake Roosevelt is drawn down to accommodate spring runoff from surrounding uplands. The degree of drawdown is based on snowmelt predictions. The full pool elevation of the water level is 1,290 feet above sea level (ASL) and minimum pool elevation is 1,208 feet ASL (USDoI 1999). The maximum drawdown occurs at the end of April, when the lake elevation is generally below 1,237 feet ASL.

2.2.1 Physical Setting

The Colville Indian Reservation borders the lake on the north and west for approximately 93 miles. North and west of the lake, the terrain is mountainous and mostly forested, with a small amount of farmland. The area is thinly populated, with about 3.2 persons per square mile. It is mainly national forest and Colville Indian Reservation lands. Logging and mining dominate the economy (USDoI 1999).

The Spokane Indian Reservation borders the lake to the east for about 8 miles, just north of the Spokane Arm (confluence of the Spokane River with the Columbia River). East of the lake is a mixture of forest and farmland, with a population density of 14.3 persons per square mile. Forest products manufacturing dominates the economy. The area south of Lake Roosevelt and the Spokane Arm is generally flat with low rolling hills. The population density is 4.2 persons per square mile, and agriculture is the main livelihood (USDoI 1999).

The Columbia River is the principal inflow to Lake Roosevelt and contributes about 90 percent of the flow from a large drainage area in Canada and the United States (Figure 2-2). In addition to the Columbia River, four other major rivers flow directly into Lake Roosevelt: the Kettle, Colville, Spokane, and Sanpoil rivers. The Pend D'Oreille River flows into the main stem of the Columbia River just north of the United States-Canada boundary (Figure 2-2; USGS 1994).

The Upper Columbia River gorge, within which Lake Roosevelt is contained, spans three distinct physiographic provinces: the Okanogan Highlands, the Kootenay Arc, and the Columbia Plateau.

During the last ice age, glaciers descended from the north and gouged large valleys and canyons. Huge lakes were formed when ice blocked rivers and streams. When these ice dams collapsed, floods scoured the landscape, creating the channeled scablands of the Columbia Plateau and the Grand Coulee (USDoI 1999).

From the north, the Columbia River generally follows the boundary of the Okanogan Highlands on the west and the Kootenay Arc on the east. The rocks within the Kootenay Arc were originally ocean bottom sediments that were deposited in a trench formed as part of a subduction zone where the North American continent overrode the Pacific Plate. The lake is contained within a fairly narrow gorge for most of this distance, and it retains much of the character of a large river rather than a lake. In the upper stretches of Lake Roosevelt, there is often an observable current due to the high flows in the river (USDoI 1999).

The Columbia River runs north to south for most of its length. Just south of the Spokane Arm, the river turns west where it meets the flood basalts of the Columbia Plateau. Here, massive outpourings of lava forced the river to change its course and form a large loop around the north and west extent of the plateau. Basalts were deposited over granite and then were uncovered by the ice age floods. In this area in Lincoln County, the Columbia River also borders the north end of the Palouse Hills, where basalts of the Columbia Plateau have been buried by wind-blown soils known as loess. Large areas were high enough to be unaffected by the ice age floods, and the resulting deep soils provide valuable agricultural land. The landscape in this area is mainly rolling cultivated hills (USDoI 1999).

Toward the Grand Coulee Dam, the river meanders and flows almost directly north. During the ice age, the river was diverted from its normal course by a lobe of ice and forced to flow southwest through the Columbia Plateau basalts. The force of the water from the various floods carved a huge canyon with vertical walls more than 800 feet high. The floor of the Grand Coulee is about 500 feet higher than the original river channel, and when the ice receded, the river returned to its original channel, leaving the Grand Coulee dry (USDoI 1999).

The climate of the area changes significantly from the south end to the north. The south is hot and dry in the summer, with an average annual precipitation of 10 inches. Vegetation is characterized by shrub steppe species such as sagebrush and bitterbrush. To the north in Colville, precipitation averages 17 inches per year, which is sufficient to support the ponderosa pines and Douglas fir forests that are common to the area. Rainfall continues to increase farther north.

2.2.2 Ownership and Management

When the Grand Coulee Dam was built, the United States Bureau of Reclamation obtained the lands up to the 1,310-foot elevation level, as well as the lands to be flooded, in order to have control of a narrow band of land above the 1,290-foot maximum watermark of Lake Roosevelt. In many cases, whole parcels were purchased, resulting in federal ownership of a width of shoreline that varies from a few hundred feet to a half mile.

Initially, the National Park Service (NPS) managed all of the lands surrounding the lake that had been acquired or withdrawn by the United States Bureau of Reclamation for construction of the reservoir. In 1974, the Secretary of the Interior directed that management be returned to the tribes for all lands within the reservations not needed for operation of the reservoir, and that a cooperative management agreement be developed. After 16 years of negotiations, the Lake Roosevelt Cooperative Management Agreement was approved by the Secretary of the Interior in 1990. In addition to delineating management responsibilities, the agreement recognized the Lake Roosevelt National Recreation Area as an existing unit of the National Park System (USDoI 1999).

At its full pool elevation, the lake has a surface area of 81,389 acres, and a total shoreline of 513 miles. Approximately 312 miles of shoreline and 47,438 acres of water surface are managed by the NPS. Most of the remainder of the shoreline and water surface are within reservation boundaries and managed by the Spokane and Colville Confederated Tribes (USDoI 1999).

The Lake Roosevelt Water Quality Council (LRWQC), which includes members from federal, state, and local governments; the Colville Confederated Tribes; the Spokane Tribe; citizen groups; and individuals, was formed in 1990 to address point source pollution coming out of Canada directly impacting Lake Roosevelt. The LRWQC developed a Management Plan (Ecology 1994) and continues with the coordination of water quality studies.

2.3 SITE OPERATIONS AND WASTE CHARACTERISTICS

Previous studies carried out on the Upper Columbia River Basin indicated elevated levels of arsenic, lead, cadmium, copper, and zinc in sediment and fish in Lake Roosevelt and the upper reach of the Columbia River extending to Trail, British Columbia. Elevated levels of polychlorinated biphenyls (PCBs), polychlorinated dibenzo-p-dioxins (PCDDs), and polychlorinated dibenzofurans (PCDFs) also have been found in water, sediment, and fish samples collected from the Upper Columbia River. Potential contaminant sources that may have contributed to this contamination, include mining and milling operations, associated smelting operations, pulp and paper production, sewage

treatment plants, and other industrial activities. These potential contaminant sources are summarized in the following sections.

2.3.1 Mining and Milling

Numerous mining and milling operations along the tributaries feeding into the Upper Columbia River in the United States and Canada have occurred since the late 1800s. Although claims were staked earlier, development of resources in the area did not become economically feasible until approximately the 1890s, when ore concentration processes were developed. Ores were concentrated in mills built at or close to each mine, significantly reducing transportation costs. Concentrated ores then were transported to smelters for further refining. Large amounts of ore processing wastes containing arsenic, cadmium, lead, mercury, copper, and zinc were produced during these operations.

The Northport area comprised mostly lead-zinc mines (Ecology 2000b). Low-grade lead and zinc ore concentration processes involved physical crushing, pulverizing, and classifying using a stream of water, followed by a flotation process. Flotation was accomplished by adding reagents to the fines and then skimming off the resulting concentrated metals. Reagents used in this process included pine oil, cresylic acid, alcohols, eucalyptus oils, coal tar (wood creosotes), flotation reagents, xanthates, thiocarbonilide, lime, soda ash, copper sulfate, sodium cyanide, and sodium silicate. The cleaned concentrate then was dried on a vacuum filter and sent to a smelter for refining (Orlob 1950).

The Republic District on the Sanpoil River produced silver and gold as early as 1896 (Ecology 2000b). Gold recovery usually was accomplished using a cyanide leaching process. The ore similarly was crushed, pulverized, and classified. Pulp from the classifier either was passed over a sheet of mercury, on which much of the gold was removed by amalgamation, or the pulp was concentrated through flotation. In either case, the tailings from the primary process were subjected to cyanidation for more complete recovery of the gold. Free gold eventually was precipitated and collected in filter bags for shipment to the refinery. The cyanide wastes resulting from this process were handled using various combinations of dilution, ponding, acid treatment, and alkaline-chlorination (Orlob 1950).

Extensive mining also occurred in northern Idaho during the same time period. These operations affected water and sediment quality in the Coeur d'Alene watershed, including Lake Coeur d'Alene and the Spokane River. EPA is studying the Midnite Mine site located in Wellpinit, Washington and Washington Department of Health is studying the Dawn Mining Company Mill Ponds site located in Ford, Washington (Figure 2-2). The studies are being conducted to determine the extent to which mining and associated uranium milling operations have affected tributaries to the Spokane River Arm. The

tributary associated with the Midnite Mine site is Blue Creek and the tributary associated with the Dawn Mining Company Mill Ponds site is Chamokane Creek. The Spokane River discharges to Lake Roosevelt and the Columbia River at approximately RM 639.

2.3.2 Smelters

Once ores were mined and concentrated, they were transported to a smelter for further refining. Smelters in the proximity of the Upper Columbia River watershed include the former LeRoi Smelter in Northport, Washington, and the Cominco smelter located in Trail, British Columbia, approximately 11 river miles north of the United States-Canada international boundary.

2.3.2.1 LeRoi Smelter

The LeRoi Smelter is located approximately 500 feet from the Columbia River, in the town of Northport, Washington, 15 RM downstream of the United States-Canada boundary (Figure 2-1). It began treating copper and gold ores in 1896, and by 1908 was processing 500 tons of ore per day. The smelter closed in 1909, but reopened in 1914 after being renovated to process lead ores. In 1921, the smelter again closed, and the smelting equipment was removed from the property. Since that year, the property has been used for lumber operations by several companies. During smelting of gold and copper, large amounts of sulphur dioxide were released to the air. Large quantities of iron and slag (waste rock from smelting) also were produced. (URS 1993)

Limited soil sampling was conducted during an EPA site inspection (SI) in 1993. Table 2-1 shows analytical results for metals in background, off-site soil, and tailings samples collected and a comparison of these results to EPA, Region 9, Preliminary Remediation Goals for both residential and industrial soils.

The Washington Department of Ecology (Ecology) sampled soils and slag piles at the LeRoi Smelter in 1997. A report for this sampling event is unavailable; however, preliminary results showed levels of metals two to three orders of magnitude above background. Concentrations of up to 1,010 mg/kg of arsenic, 337 mg/kg of cadmium, 33,400 mg/kg of copper, 20,200 mg/kg of lead, and 1,750 mg/kg of zinc were found (Gregory 2000b). Ecology had planned to conduct a groundwater investigation at the LeRoi Smelter site. However, due to availability of resources, this has not been pursued (Gregory 2000a).

According to the Stevens County Assessor's Office, the property was sold to KES Contracting, Inc., 1252 Bay Avenue, Trail, British Columbia, in June 1999.

2.3.2.2 Cominco Limited

The Cominco smelter is located in Trail, British Columbia, approximately 11RM upstream of the United States-Canada boundary (Figure 2-1). The smelter has operated since the turn of the century and remains the world's largest integrated lead-zinc smelter and refiner. Cominco's fertilizer plant, adjacent to the smelter, uses residual sulfur from the metallurgical plant as feedstock. Releases to the environment from Cominco include air emissions and discharge of liquid effluent and slag to the Columbia River (Cominco 1997).

Historically, effluent has been discharged to the Columbia River through five outfalls: one outfall from the fertilizer operation, three submerged outfalls for the metallurgical plants, and one outfall for slag discharge. Cominco's 1996 Environmental Report includes an inventory of discharges of metals in effluents from the metallurgical operations from 1980 to 1996. These discharges were as high as 18 kilograms per day (kg/d) of arsenic, 62 kg/d of cadmium, 200 kg/d of lead, 4 kg/d of mercury, and 7,400 kg/d of zinc. Additionally, fertilizer plant operations contributed up to 4 kg/d of mercury and 350 kg/d of zinc (Cominco 1997).

As of 1994, an average of 360 metric tons of slag per day (or approximately 800,000 pounds per day) were discharged to the Columbia River. The slag was subjected to a metals recovery process called "fuming" and then discharged to the Columbia River as a slurry. In 1994, the slag contained approximately 2.5 percent zinc, 0.5 percent copper, and less than 0.1 percent lead. (Serdar 1994)

The volume and contaminant concentrations in Cominco's effluent have been regulated under a provincial government permit. The permit effluent limitations have become more stringent in recent years. Following a study by a Canadian environmental group and a river monitoring program conducted by Cominco, the 1996 effluent permit was revised to include goals established for water quality and effluent toxicity. (Cominco 1992, 1997) Cominco's 1991 permit included effluent limits for five metals from four outfalls. The maximum discharge allowed at each outfall totaled 265,000 cubic meters per day (or 70.3 MGD). The effluent limits for the four outfalls ranged from 1.0 to 5.0 mg/L for zinc, 0.5 to 0.25 mg/L for arsenic, 0.25 to 1.0 mg/L for lead, 0.05 to 0.5 mg/L for cadmium, and 0.001 to 0.035 mg/L for mercury. (B.C. Environment 1991)

In 1979, Cominco began a modernization program consisting of 20 projects that continued through the 1980s and 1990s. These projects included controlling spills and dust, building a new lead smelter, installing air emissions controls, eliminating discharge of slag, replacing the phosphate plant with an ammonium sulphate fertilizer production operation, and reducing effluent discharges. In 1995,

the flumes used to discharge slag to the river were removed, and the slag is being shipped to cement plants to be incorporated into the manufacture of Portland cement. (Cominco 1997)

Stoney Creek Landfill is an inactive landfill and arsenic storage site associated with Cominco. It was identified as a significant contributor of contaminants to the Columbia River, and as of 1997, remediation of the site was planned for 1997 and 1998 (Cominco 1997). Remedial activities at this site are ongoing (Stone 2000). No information on the current status of the site was found in the file documents reviewed.

Cominco also discharged sulfides (up to 10,000 tons per month in 1925) to the atmosphere through a 409-foot brick smokestack. Pollutants discharged through the stack migrated south and became trapped in the north Stevens County river valley. The citizens of Northport complained of health effects resulting from the emissions. The case was brought before an international tribunal, and in 1931, the International Joint Commission recommended that the Canadian government stop polluting the atmosphere (URS 1993). Although the new smelter has resulted in an overall reduction in air emissions, representatives of the Colville Confederated Tribes and local citizens groups are concerned that the emissions may contain smaller particles that may pose an increased health threat (Ossiander 2000). In addition, the Trail, British Columbia area has been designated Contaminated Site by Environment Canada. Cominco has hired a consultant to conduct an Ecological Risk Assessment related to Trail Operations. The results will be integrated with the findings of a human health risk assessment conducted by the Trail Lead Task Force. (Cantox 2000)

2.3.3 Pulp Industry

The Celgar Pulp Company (Celgar), a bleached kraft pulp mill in Castlegar, British Columbia, about 30 river miles upstream of the United States-Canada boundary, began operations in 1961. Hazardous substances associated with pulp and paper production may include tetrachlorodibenzo-p-dioxins (TCDDs), tetrachlorodibenzofurans (TCDFs), and other organics (USGS 1994a). One of the effects of these discharges was the formation of a fiber mat on the riverbed just downstream of Celgar (Celgar 1994).

Fiber mats form when effluent containing wood debris and pulp fibers is discharged into the aquatic environment, settles to the bottom, and accumulates. While fiber mats are readily degraded by microorganisms (producing ammonia and hydrogen sulfide by-products), they often contain persistent chemicals from pulp production and bleaching processes. Persistent chemicals documented in other fiber

mats have included polynuclear aromatic hydrocarbons (PAHs), TCDDs, and heavy metals (Servos et. al. 1996).

In 1993, Celgar completed a major expansion and modernization project including the installation of a new bleach plant that uses chlorine dioxide instead of chlorine for bleaching pulp and a secondary treatment process for plant effluent. The LRWQC (1993) *Retrospective Studies, Summary and Recommendations* states that data provided by Celgar show a substantial reduction in concentrations of TCDDs and TCDFs discharged to the Columbia River. No actual effluent data was provided in the LRWQC (1993) document or in the 1994 Celgar *Environmental Performance Report.* Other reported changes included the use of hydrogen peroxide in the delignification process and treatment of boiler scrubber water containing dibenzofuran, a TCDF precursor (Ecology 1997).

According to Celgar's 1994 Environmental Compliance Report, the fiber mat adjacent to the mill has decreased in size and character as a result of process changes, and the remaining mat now consists of a black silt (flyash) and wood debris mix. According to Celgar, the remaining wood debris adjacent to the mill is from ongoing log booming along the south shore by Celgar and the adjacent Pope and Talbot sawmill. (Celgar 1994)

Downstream flushing, as well as natural biodegradation, may have contributed to the size decrease in the fiber mat near Celgar's outfalls. The Colville Confederated Tribes are concerned about spongy materials present at Northport Beaches (45 RM downstream of Celgar) and believe further investigations are needed to determine if they are from the fiber mat (E & E 2000).

2.3.4 Municipal Sewage Treatment and Other Potential Sources

Municipal wastewater treatment facilities in Castlegar and Trail, British Columbia, discharge to the Columbia River. Treated municipal wastes from Spokane are discharged to the Spokane River, and wastes from Colville and Chewelah discharge to the Colville River (USGS 1994a). In 1991, an overloaded Trail sewage collection system had a large release of raw sewage to the Columbia River (Lakeline 1994). CCT is concerned that there have been other undocumented releases during overload events in the watershed in Canada near Trail, BC.

There are other potential sources of contaminants in the Upper Columbia River watershed that may affect water quality. Sources of concern to the LRWQC include discharge of effluent containing manganese and other wastes from the Avista electric generation plant at Kettle Falls, heavy metals from the Northwest Alloys Magnesium Plant on the Colville River, runoff from slag piles in Chewelah, and cyanide and fluoride groundwater contamination from the Kaiser aluminum plants in Spokane.

2.4 PREVIOUS INVESTIGATIONS

Numerous agencies and interest groups have conducted investigations of the Upper Columbia River Basin and Lake Roosevelt. These studies have covered a wide range of concerns.

In 1950, a preliminary survey of the sources of mining and mill waste pollution in the Upper Columbia River Basin and Lake Roosevelt was sponsored by the Washington Pollution Control Commission in cooperation with the United States Public Health Service and the British Columbia Department of Health and Welfare. Operations and waste handling methods at 11 mining operations (including mines and flotation and cyanidation mills) were examined, and alternatives to discharging wastes directly into waterways were presented for some mine sites (Orlob 1950).

In 1984, Ecology collected fish tissue samples from the Columbia River at Northport and from nine other rivers in Washington for trace metal analyses. The Northport samples had the highest concentrations of lead and cadmium. The mean lead concentration in fillet samples from Northport was 6.4 micrograms per gram (µg/g), approximately 90 percent of the unofficial guideline of 7.0 µg/g set by the United States Food and Drug Administration (USGS 1994).

The USGS and the Lake Roosevelt Water Quality Council in cooperation with CCT conducted a sediment quality assessment of Lake Roosevelt in 1992. This study included analysis of trace elements and organic compounds in sediments, bed-sediment toxicity, and benthic community structure in Lake Roosevelt and the upstream reaches of the Columbia River toward the United States-Canada boundary. In addition to data collected by the USGS and Ecology for this study, data also were collected by the Columbia River Integrated Environmental Monitoring Program, a coalition of Canadian environmental agencies and industries that studies and monitors the Columbia River upstream of the international boundary. The study included collection of five background samples from Arrow Lake and the Kootenay River, approximately 35 to 45 miles upstream of the United States-Canada boundary (and upstream of Cominco and Celgar) as well as samples from major and some minor tributaries feeding into the Columbia River. The study concluded that concentrations of arsenic, cadmium, copper, lead, mercury, and zinc in bed sediments collected from the Columbia River and Lake Roosevelt were elevated relative to background reference sites. Concentrations of metals in sediments also were compared to benchmarks developed by the province of Ontario. Trace element concentrations (copper, lead, or zinc) exceeded Ontario's "severe effects level" at 28 locations in the Northport reach of the Columbia River and Lake Roosevelt; however, because the total trace-element analysis methods yield larger concentrations than the total recoverable methods used in the development of the Ontario standards, a direct comparison is not

possible, and the actual number of locations with severe-effects concentrations may be less. USGS assumed that the total trace-element concentrations would not exceed the total-recoverable concentrations by more than 100%. Using this comparison, the severe effects level was exceeded at 18 locations. The severe effects level represents concentrations at which pronounced impacts to benthic organisms are expected to occur. (USGS 1994a)

Tables 2-2 and 2-3 present concentrations of metals of concern that were detected in river sediments during the 1992 study by the USGS. Table 2-2 includes concentrations found in background sediment samples collected from Arrow Lake and the Kootenay River, and concentrations in sediment samples collected from the Upper Columbia River. Table 2-3 shows the concentrations of metals found in samples collected from the major tributaries that empty into the Upper Columbia River. Sample locations are shown in Figures 2-3 through 2-8.

USGS also found that concentrations of trace elements were higher in suspended sediments than in bed sediments; however, concentrations in unfiltered water samples were relatively low, reflecting the small concentrations of suspended sediment and the large dilution capacity of the Columbia River. Water quality criteria were not exceeded (USGS 1994a).

The 1992 USGS study also included analysis of benthic invertebrate communities for abundance and diversity. It was found that benthic invertebrate communities in the erosional habitats of the Columbia River resembled those commonly associated with contaminated or habitat-degraded areas. Communities were relatively low in abundance and diversity and were dominated by stress-tolerant organisms. Although communities in the depositional habitats were more difficult to assess because of naturally low diversity of benthic organisms in reservoirs, USGS concluded that it was likely that these communities had also been affected by the elevated concentrations of sediment-bound trace elements (USGS 1994a).

Concerns about levels of PCBs, TCDDs, and TCDFs began in the 1980s following discovery of elevated levels of TCDFs in lake whitefish collected in the Columbia River approximately 30 miles upstream of Lake Roosevelt, just downstream of the Celgar pulp mill, in Castlegar, British Columbia. As a result, in May 1989 Health and Welfare Canada issued a health advisory, recommending that people limit their consumption of lake whitefish. From 1990 to 1998, Ecology and USGS conducted studies to determine concentrations of PCBs, TCDDs, and TCDFs in Lake Roosevelt fish tissue and to evaluate risks associated with human consumption.

In 1990, 1992, and 1993, Ecology monitored TCDDs and TCDFs in suspended particulate matter and fish tissues to determine trends in concentrations of these pollutants. The subsequent report states

that the primary historical source of dioxins and furans in Lake Roosevelt is the Celgar pulp mill in Castlegar, British Columbia. Ecology found that concentrations of these contaminants generally decreased over the study period and credited changes in pulp production and wastewater treatment methods at Celgar (Serdar 1994). A total maximum daily limit (TMDL) for 2,3,7,8-TCDD was established for the Columbia River at the United States-Canada boundary, putting a ceiling on the combined discharge of this contaminant from all upstream sources. The TMDL is 2.3 milligrams per day (USGS 1994).

In 1998, USGS looked at the changes in various contaminant levels in rainbow trout in the study area since 1994. It concluded that most of the contaminants identified as potential threats to human health have decreased; however, PCBs (as determined by the presence of Aroclor 1254) do not appear to have changed significantly. Since levels were higher in fish from the upper reach than the lower reach, the study evaluated these areas separately. In the upper reach the median concentration of Aroclor 1254 in wild rainbow trout in 1998 was 24 µg/kg; in 1994 the median concentration was 21.6 µg/kg. USGS determined that there was no significant statistical difference between the years due to high variability. (USGS 1998b)

For the lower reach, a significant difference was found among the three trout groups. Multiple comparison tests determined that there was no significant difference between the 1994 mixed rainbow trout (median = 15.6 ppb) and the 1998 wild rainbow trout (median = 15.5 ppb), but that the concentration of Aroclor 1254 in 1998 net pen rainbow trout (median = 5.7 ppb) was significantly lower. (USGS 1998b)

In 1992 and 1993, the Ecology study also included the analysis of metals in suspended particles collected by continuous-flow centrifuge at Northport, Washington. One set of duplicate samples was analyzed, and the report (Serdar 1994) presents mean concentrations in µg/g on a dry weight basis. This data is included in this report as Table 2-4. Some of the results also present the +/- range of the duplicate analyses. There are no standards for metals in suspended particles; therefore, Ecology used benchmarks developed for bottom sediments by the province of Ontario for comparison purposes. Ecology found that aside from the arsenic concentrations found in the 1993 particulate sample, the concentrations of zinc, lead, copper, arsenic, cadmium, and mercury all exceeded Ontario's "severe effects levels" for trace metals in bed sediments. (Serdar 1994).

In 1994, the USGS, in cooperation with the Colville Confederated Tribes, analyzed fish tissue to determine levels of mercury and other metals in three fish species in the Upper Columbia River. Walleye, smallmouth bass, and rainbow trout were analyzed. The highest levels of mercury were found

in walleye samples, with concentrations ranging from 0.11 mg/kg to 0.44 mg/kg. Smallmouth bass and rainbow trout samples also contained mercury, but at lower concentrations. Because walleye are predator fish, their potential to bioaccumulate mercury is higher. A correlation between mercury concentration and age was also found (USGS 1995). Although the Federal Food and Drug Administration standard of 1.0 ppm was not exceeded, the USGS and the Washington Department of Health (WDOH) issued a fact sheet that summarized the study and advised the public to limit consumption of walleye taken from Lake Roosevelt (USGS 1997).

2.5 START ACTIONS

The START conducted a site visit on March 2, 2000. Photographic documentation of the site visit is presented in Attachment B.

The START met with Ms. Stone and Mr. Gary Passmore of the Colville Confederated Tribes at the town of Seven Bays, located on the east bank of the Columbia River, just south (downstream) of the confluence with the Spokane River. The group drove north on Route 25 (east side of the river) through Fruitland, Hunters, Cedonia, and Gifford, and then crossed to the Colville Indian Reservation on the west side of the river via the Gifford-Inchelium ferry. The group continued up the west shore of the river on Inchelium-Kettle Falls Road, crossing the river again at Kettle Falls. The group then continued north on Route 25 along the river as far as Northport.

During the site visit, concern regarding potential impacts to human health from inhalation of potentially contaminated sediments that become airborne particulates was expressed by the tribal representatives. During periods of low water elevation, large bank areas are exposed to the atmosphere. These banks frequently become dry, and periodic dust storms occur. Photograph Nos. 23 and 24 (Attachment B), provided by Ms. Stone, show dust storm events at the Swawilla Basin (RM 610)and Marcus Flats (RM 708).

The full pool elevation level in Lake Roosevelt is 1,290 feet ASL. During the site visit, the level was approximately 1,260 feet ASL. The START observed exposed sediments along much of the length of the river. In some areas, the exposed sediments were almost 1 mile wide. The weather during the site visit was damp and calm, and no observable dust was in the air. Photograph Nos. 6 through 13 (Attachment B) show exposed sediments along the shoreline of the lake. CCT raised concerns about reservoir operations. Specifically, the winter/spring flood control drawdown, the summer Endangered Species Act drawdowns and potential changes in reservoir operations relating to the new Biological Opinion that may impact critical tribal resources and management programs (CCT 2000).

During the site visit, the group stopped in Northport. The START examined black granular material on the beach of the public park (Attachment B, Photograph No. 20). The START also observed a spongy material covering many of the rocks on the beach (Attachment B, Photograph Nos. 18 and 19).

The START also viewed the LeRoi smelter from the roadway. A smokestack associated with the old smelter (Attachment B, Photograph No. 17) and piles of material that appeared to be slag south of the smokestack (Attachment B, Photograph No. 21) were observed.

The START noted many single houses and several housing tracts that were not marked on the USGS topographic maps of the area. Ms. Stone stated that there has been a large amount of development in recent years, and that the residential populations along the river have increased dramatically. Shoreline areas with significant development include Seven Bays, Gifford, Daisy, Rice, Kettle Falls, Aspen Springs, Marble, Barney's Junction, Haag Cove, Martin Creek, Marcus, Evans, and Lincoln.

Table 2-1

URS 1993 ANALYTICAL DATA
LEROI SMELTER SITE
NORTHPORT, WASHINGTON
METALS CONCENTRATIONS IN SOIL AND TAILINGS SAMPLES
(mg/kg)

	Off-Site Background		On-Site			Off-Site: City Park		Region 9 Soil PRGs	
	SS05	SS06	SS01	SS07	SS02	SS03	SS04		
	500 Feet Upstream	2 Miles Upstream	Tailings Pile East	Duplicate of SS01	Tailings Pile West	East	West	Residential	Industrial
Total Metals									
Antimony	2.5 UJ	3.2 UJ	48.4	46 J	2.5 UJ	2.5 UJ	4.8 J	31	820
Arsenic	17.8	7.53	140	126	18.1	5.64	61.1	0.39	2.7
Barium	858	120	151	146	125	109	312	5400	100,000
Beryllium	0.28 J	0.28 J	0.31 J	0.32 J	0.29 J	0.38 J	0.753	150	2200
Cadmium	8.16 J	2.18 J	26.8 J	20.5 J	11.6 J	1.59 J	0.72 J	37	810
Chromium	51.8	36.9	36.2	25.8	46.3	51.3	28.3	210	450
Cobalt	10.6	44.9	54.6	20.4	14.3	25.3	19.1	4700	100,000
Copper	146	15.4	1600	991	165	35.4	355	2900	76000
Lead	699	202	39000	37100	2180	112	64.2	400	1000
Manganese	532	344	651	820	366	375	350	1800	32000
Mercury	0.33	0.02 J	0.65 J	0.87 J	0.38 J	0.02 J	0.06 J	23	610
Nickel	33.8	59.3	44	21.6	27.7	32	25.1	1600	41000
Selenium	0.81 J	0.2 UJ	3.3 J	2.42 J	0.42 J	0.4 UJ	0.4 UJ	390	10000
Silver	0.59 J	0.31 J	93.9	90.4	4.87	0.3 U	0.96 J	390	10000
Thallium	0.25 U	0.25 U	0.43 J	0.34 J	0.25 UJ	0.25 U	0.25 U	6.3/7[1]	160/180[1]
Vanadium	26	17.7	22.7	23.8	20.9	41.5	43.4	550	14000

[1] Depending on the Thallium compound.

Key:

mg/kg = milligrams per kilogram.

J = The analyte was positively identified; the concentration is an estimate.

PRGs = Preliminary Remediation Goals.

U = The analyte was analyzed for but not detected above the detection limit.

UJ = The analyte was not detected above the detection limit. The associated concentration is an estimate.

Underline values indicate the detected concentration of the analyte was significant based on the criteria in Section 3.

Table 2-2

USGS 1992 ANALYTICAL DATA SUMMARY
COLUMBIA RIVER SEDIMENT SAMPLES
UPPER COLUMBIA RIVER BASIN

METALS CONCENTRATIONS IN SEDIMENTS SUSPENDED PARTICLES AT NORTHPORT DURING 1992 AND 1993 (mg/kg)

Sample No. and Location	Arsenic	Cadmium	Copper	Lead	Mercury	Zinc
Background Samples						
1 - Arrow Lake—LB 1	2.0	0.05	7.0	28	<0.05	49
2 - Arrow Lake—LB 2	1.5	0.5	7.0	32	<0.05	60
3 - Keenlyside Dam LB	<2.0	<0.5	9.0	17	<0.05	47
4 - Kootenay River MS	4.6	2.0	48	76	<0.05	290
5 - Kootenay River LB	<7.0	0.5	20	27	<0.05	120
Columbia River Sediment Samples						
7 - Boundary RB	52	1.2	3,300	480	0.8	17,000
8 - Boundary LB	34	1.0	2,700	280	0.2	13,000
9 - Auxiliary Gage RB	43	1.1	2,600	270	0.2	13,000
10 - Auxiliary Gage RB	35	1.1	3,000	310	0.3	16,000
11 - Goodeve Creek RB	32	0.9	2,900	310	0.1	17,000
12 - Goodeve Creek LB	22	5.7	670	370	0.9	3,200
14 - Fivemile Creek LB	4.5	1.2	45	72	0.1	330
15 - Onion Creek LB	21	5.1	540	340	0.8	3,600
16 - Onion Creek RB	19	3.8	800	300	0.6	4,600
17 - China Bend RB	24	6.3	550	480	1.4	3,000
18 - China Bend MS	33	0.6	3,000	430	<0.05	22,000
19 - Bossburg RB	13	4.5	230	280	0.9	1,400
20 - Summer Island RB1	20	11	300	660	2.7	1,800
21 - Summer Island RB2	15	8.2	170	420	1.4	2,000
22 - Marcus Island MS	14	5.5	170	310	1.2	1,000
23 - Marcus Island RB	8.5	3.3	96	150	0.6	420

Table 2-2 (CONTINUED)

USGS 1992 ANALYTICAL DATA SUMMARY
COLUMBIA RIVER SEDIMENT SAMPLES
UPPER COLUMBIA RIVER BASIN (continued)

METALS CONCENTRATIONS IN SEDIMENTS (mg/kg)

Sample Number & Location	Arsenic	Cadmium	Copper	Lead	Mercury	Zinc
24 - Marcus Island LB	26	8.4	410	510	1.8	2,200
28 - West Kettle Falls LB	17	8.0	290	440	1.4	1,700
35 - Haag Cove RB	17	9.0	150	490	2.2	1,100
36 - Haag Cove MS	16	7.2	260	400	1.5	1,800
37 - French Point Rocks RB	9.3	7.8	99	390	1.7	930
38 - French Point Rocks MS	19	9.9	220	570	2.3	1,300
39 -French Point Rocks LB	10	4.2	57	230	0.8	470
40 - Cheweka Creek LB	16	8.3	77	550	1.7	1,000
41 - Gifford MS	14	9.7	110	470	2.8	1,000
42 - Gifford LB	19	8.4	110	480	2.5	940
43 - Gifford RB	8.6	2.0	40	94	0.4	220
46 - Hunters LB	13	6.7	87	380	1.5	760
47 - Ninemile Creek MS	14	5.6	82	270	1.2	590
48 - Ninemile Creek LB	12	3.6	45	140	0.5	410
49 - Ninemile Creek RB	22	1.5	42	57	0.2	180
51 - Fort Spokane RB	21	6.0	79	240	1.1	550
56 - Seven Bays MS	13	2.6	35	78	0.2	320
57 - Seven Bays RB	20	2.3	40	75	0.2	320
58 - Seven Bays LB	17	10	69	320	1.4	1,100
59 - Seven Bays LB1	18	<.05	---	21	<0.05	93
60 - Seven Bays LB2	20	<.05	---	21	<0.05	88
61 - Whitestone Creek MS	16	9.8	76	290	1.4	1,000
66 - Keller Ferry RB	15	3.9	52	200	0.5	570
68 - Swawilla Basom RB	14	4.7	41	130	0.5	560
69 - Swawilla Basin RB	15	4.5	55	140	0.6	560

Table 2-2 (CONTINUED)

USGS 1992 ANALYTICAL DATA SUMMARY
COLUMBIA RIVER SEDIMENT SAMPLES
UPPER COLUMBIA RIVER BASIN (continued)

METALS CONCENTRATIONS IN SEDIMENTS (mg/kg)

Sample Number & Location	Arsenic	Cadmium	Copper	Lead	Mercury	Zinc
70 - Swawilla Basin MS	21	9.9	73	310	1.6	1,100
71 - Grand Coulee Dam RB	18	6.2	61	190	0.8	730

Note: Bold text indicates concentrations greater than the detection limit.
Underlined values are greater than three times the highest concentration of the analyte found in background samples, or greater than the detection limit if the analyte was undetected in background samples.

Key:

< = The material was analyzed for, but not detected. The associated numerical value is the detection limit.
LB = Left bank.
mg/kg = Milligrams per kilogram.
MS = Midstream.
NA = Not applicable.
PA = Preliminary assessment.
RB = Right bank.
USGS = United States Geological Survey.

Table 2-3

USGS 1992 ANALYTICAL DATA SUMMARY
SEDIMENT SAMPLES
UPPER COLUMBIA RIVER BASIN

METALS CONCENTRATIONS IN SEDIMENTS IN TRIBUTARIES ENTERING THE COLUMBIA RIVER (mg/kg)

Sample No. and Location	Arsenic	Cadmium	Copper	Lead	Mercury	Zinc
6 - Pend D'Oreille River LB	**13**	**8.7**	**18**	**220**	**0.1**	**1,600**
44 - Hall Creek LB	**8.0**	**1.2**	**30**	**50**	**0.1**	**150**
45 - Hall Creek MS	**5.5**	**1.3**	**30**	**28**	**0.07**	**140**
52 - Spokane River MS	**30**	**11**	**49**	**150**	**0.1**	**1,800**
53 - Spokane River LB	**19**	**6.0**	**42**	**120**	**0.1**	**1,000**
54 - Spokane River RB	**15**	**4.9**	**40**	**80**	**0.06**	**980**
55 - Hawk Creek	**20**	**1.0**	**29**	**35**	**<0.05**	**170**
62 - Sanpoil River MS	**7.3**	**1.4**	**36**	**23**	**0.06**	**160**
63 - Sanpoil River LB	**6.3**	**0.9**	**24**	**21**	**<0.05**	**110**
64 - Sanpoil River RB	**7.3**	**0.8**	**43**	**29**	**0.05**	**170**

Note: Bold text indicates concentrations greater than the detection limit.

Key:

* = Mercury was not detected in background samples, so value represents three times the detection limit.
< = The material was analyzed for, but not detected. The associated numerical value is the detection limit.
— = No data.
LB = Left bank.
mg/kg = Milligrams per kilogram.
MS = Midstream.
RB = Right bank.
USGS = United States Geological Survey.

Table 2-4

USGS ANALYTICAL INORGANIC DATA SUMMARY COLUMBIA RIVER SUSPENDED PARTICLES SAMPLES NORTHPORT, WASHINGTON

METALS CONCENTRATIONS (µg/g, dry weight basis)

Metal	1992	1993
Zinc	1,478 ± 8	498
Lead	554 ± 4	498
Copper	352 ± 6	256
Arsenic	442.2 ± 0.5	24.8 ± 5.3
Cadmium	16.1 ± 0.2	10.3
Mercury	13.7 ± 0.2[1]	2.46 J
Manganese	1,794 ± 12	N/A
Aluminum (%)	4.50 ± 0.37	N/A
Iron (%)	3.47 ± 0.1	N/A

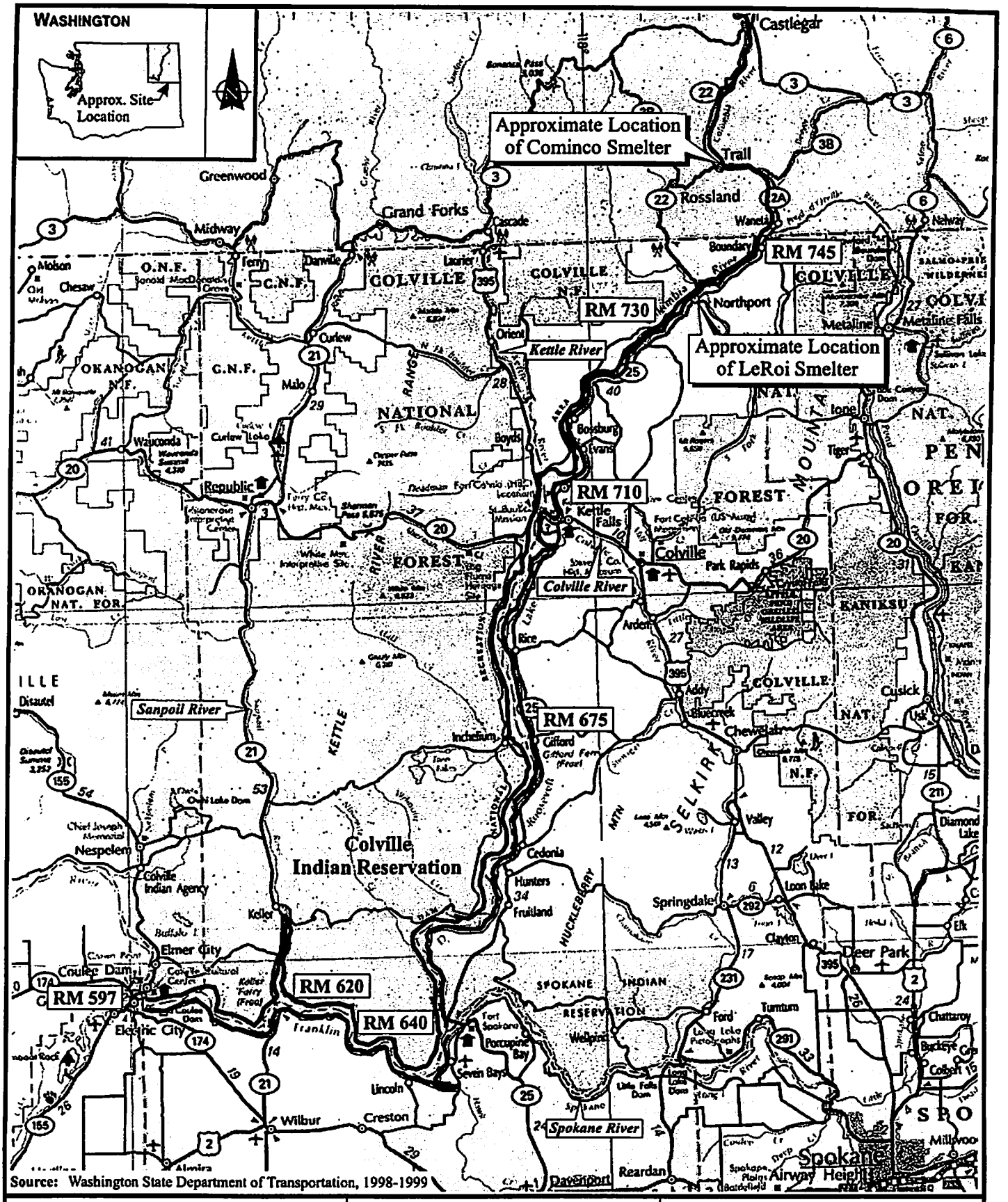
Source: Serdar 1994.

Note: Results presented are mean ± range of duplicate analyses.

[1] Elevated levels due to mercury spill on October 1, 1992.

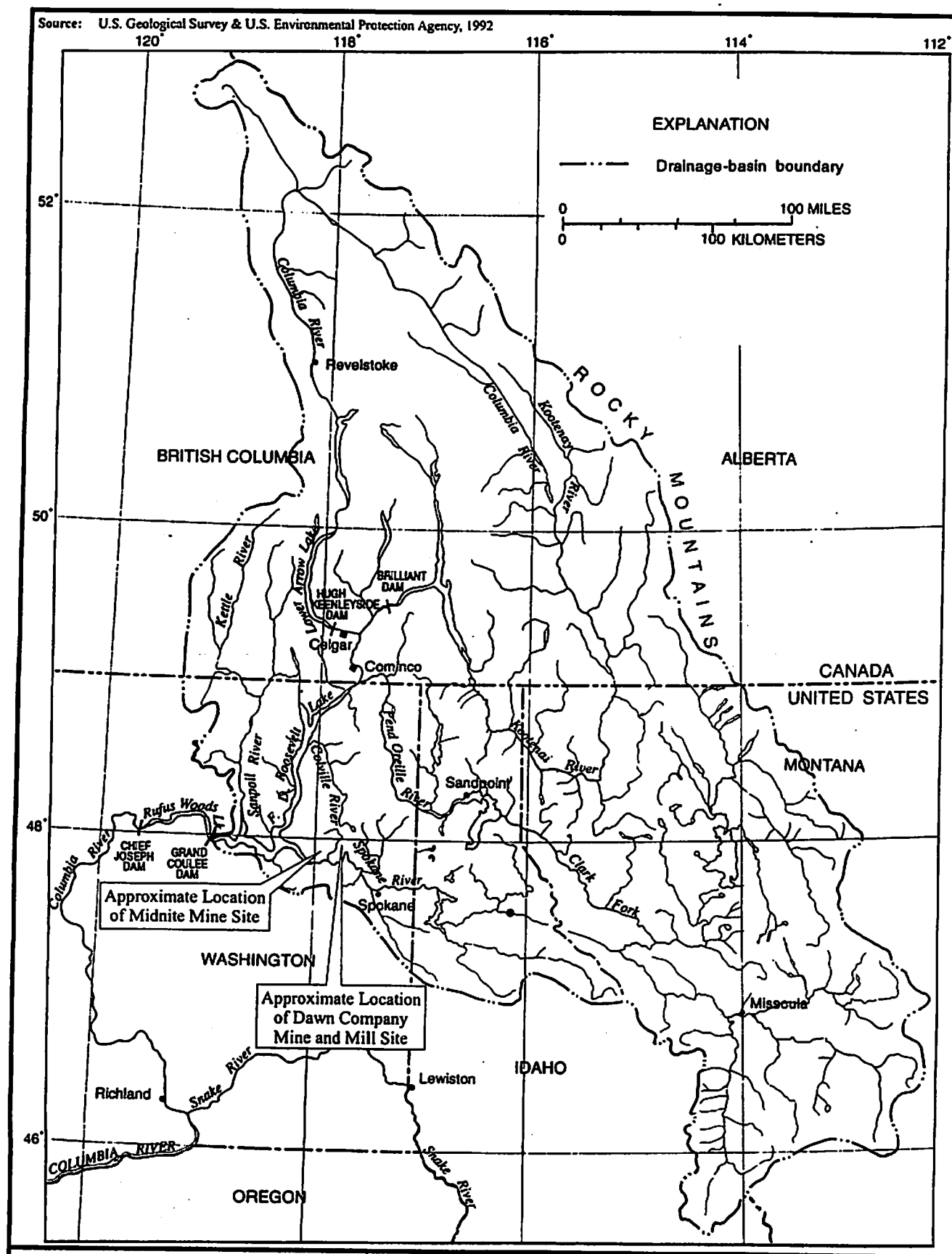
Key:

J = Estimate.
N/A = Not Analyzed.



Source: Washington State Department of Transportation, 1998-1999

ecology and environment, inc. International Specialists in the Environment Seattle, Washington	UPPER COLUMBIA RIVER PRELIMINARY ASSESSMENT Northeastern Washington	Figure 2-1 SITE VICINITY MAP			
	0 5 10 Approximate Scale in Miles	Drawn: AES	DATE: 12/1/00	JOB NO. DJ0201SAT0	Dwg.No. DJ0201 2-1



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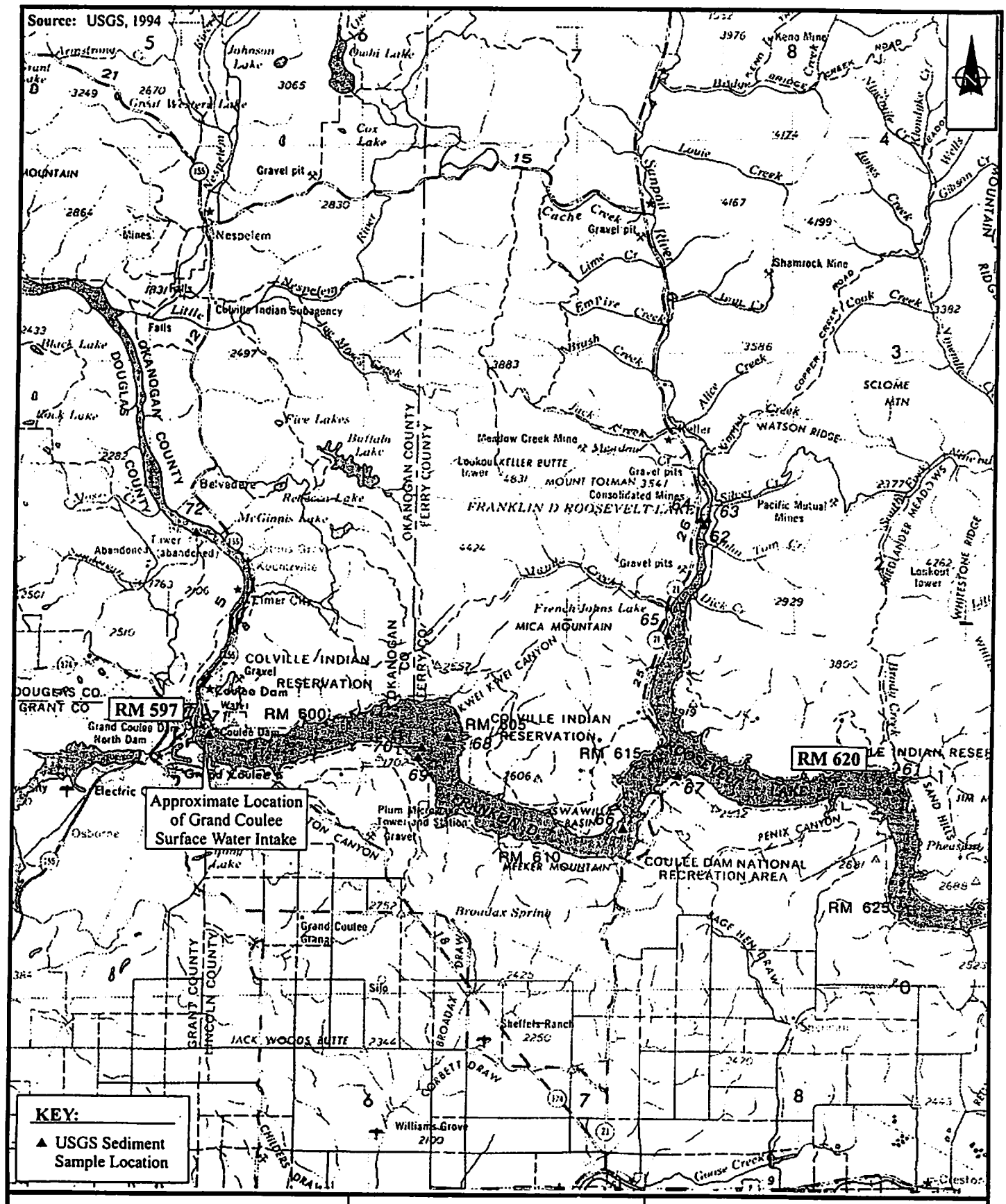
UPPER COLUMBIA RIVER
PRELIMINARY ASSESSMENT
Northeastern Washington

Figure 2-2
DRAINAGE BASIN
UPPER COLUMBIA RIVER

Drawn:	DATE:	JOB NO.	Dwg.No.
AES	11/29/00	DJ0201SAT0	DJ0201 2-2



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UPPER COLUMBIA RIVER
PRELIMINARY ASSESSMENT
Northeastern Washington

Figure 2-3
SAMPLE LOCATION MAP
RIVER MILE 597 TO 620

0 2.5 5
Approximate Scale in Miles

Drawn:	DATE:	JOB NO.	Dwg.No.
AES	11/29/00	DJ0201SAT0	DJ0201 2-3

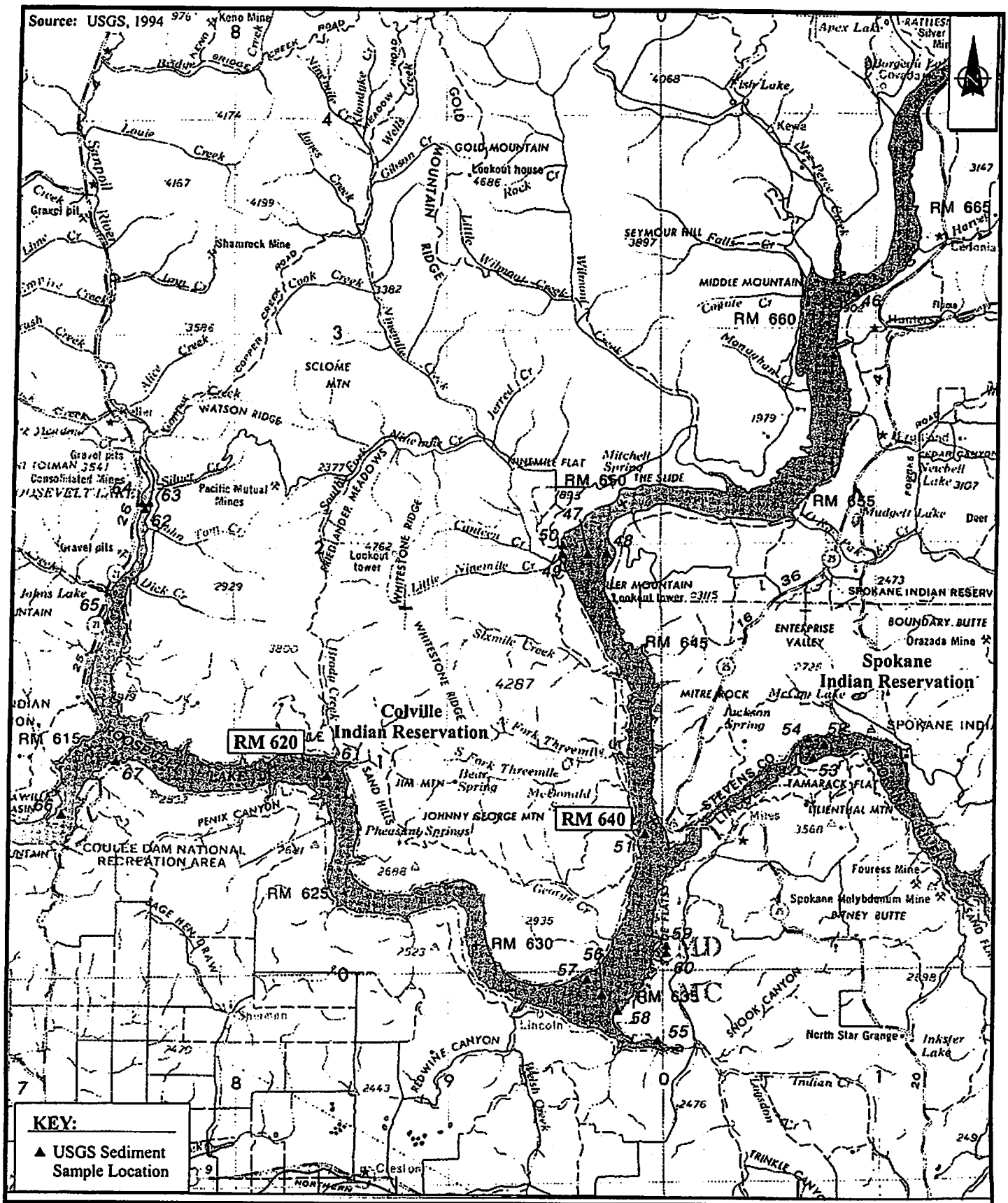

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Figure 2-4
SAMPLE LOCATION MAP
RIVER MILE 620 TO 640

0 2.5 5
Approximate Scale in Miles

Drawn:	DATE:	JOB NO.	Dwg.No.
AES	11/29/00	DJ0201SAT0	DJ0201 2-4

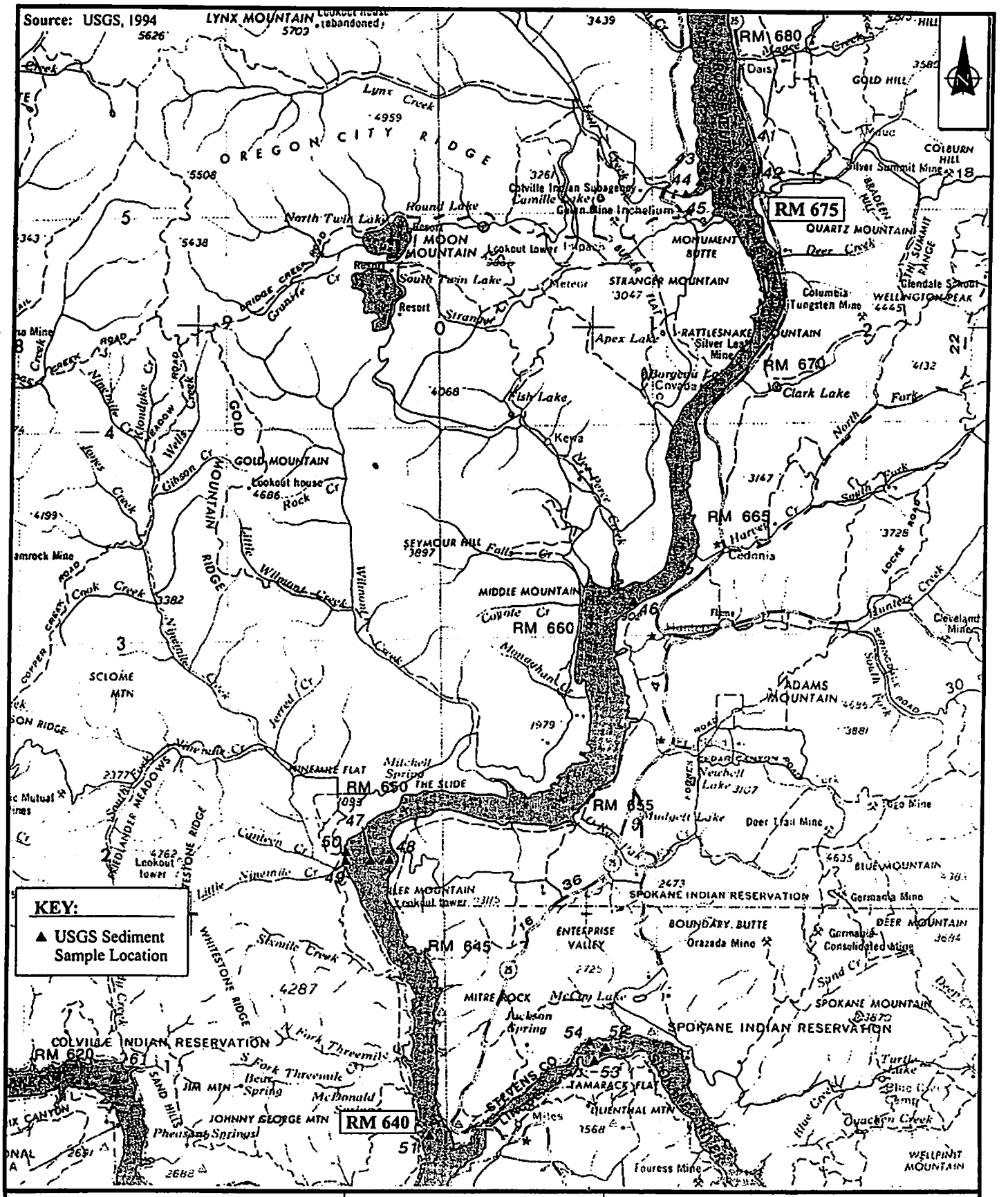

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Figure 2-5
SAMPLE LOCATION MAP
RIVER MILE 640 TO 675

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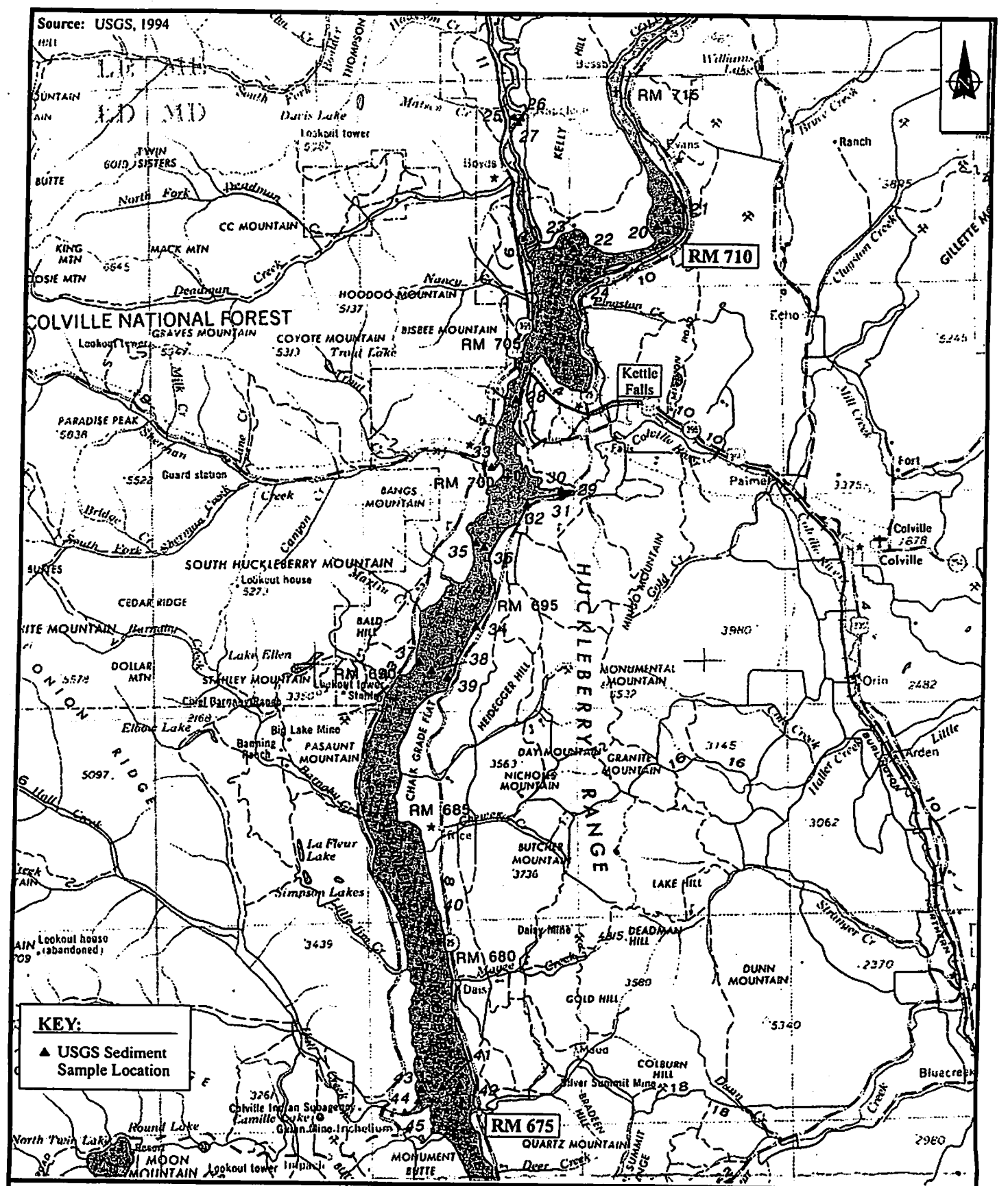

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Figure 2-6
SAMPLE LOCATION MAP
RIVER MILE 675 TO 710

0 2.5 5
Approximate Scale in Miles

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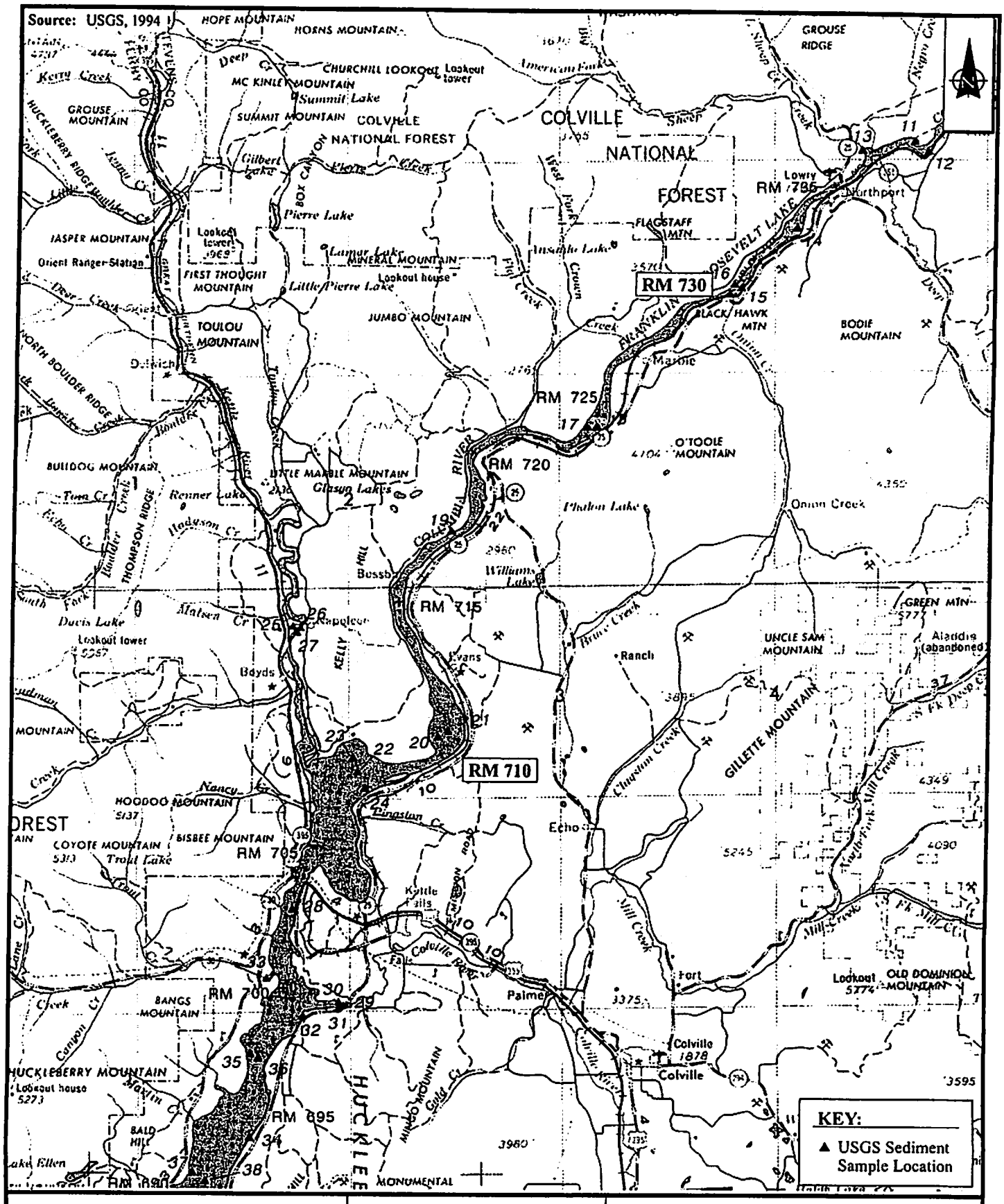

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PRELIMINARY ASSESSMENT
Northeastern Washington

Figure 2-7
SAMPLE LOCATION MAP
RIVER MILE 710 TO 730

0 2.5 5
Approximate Scale in Miles

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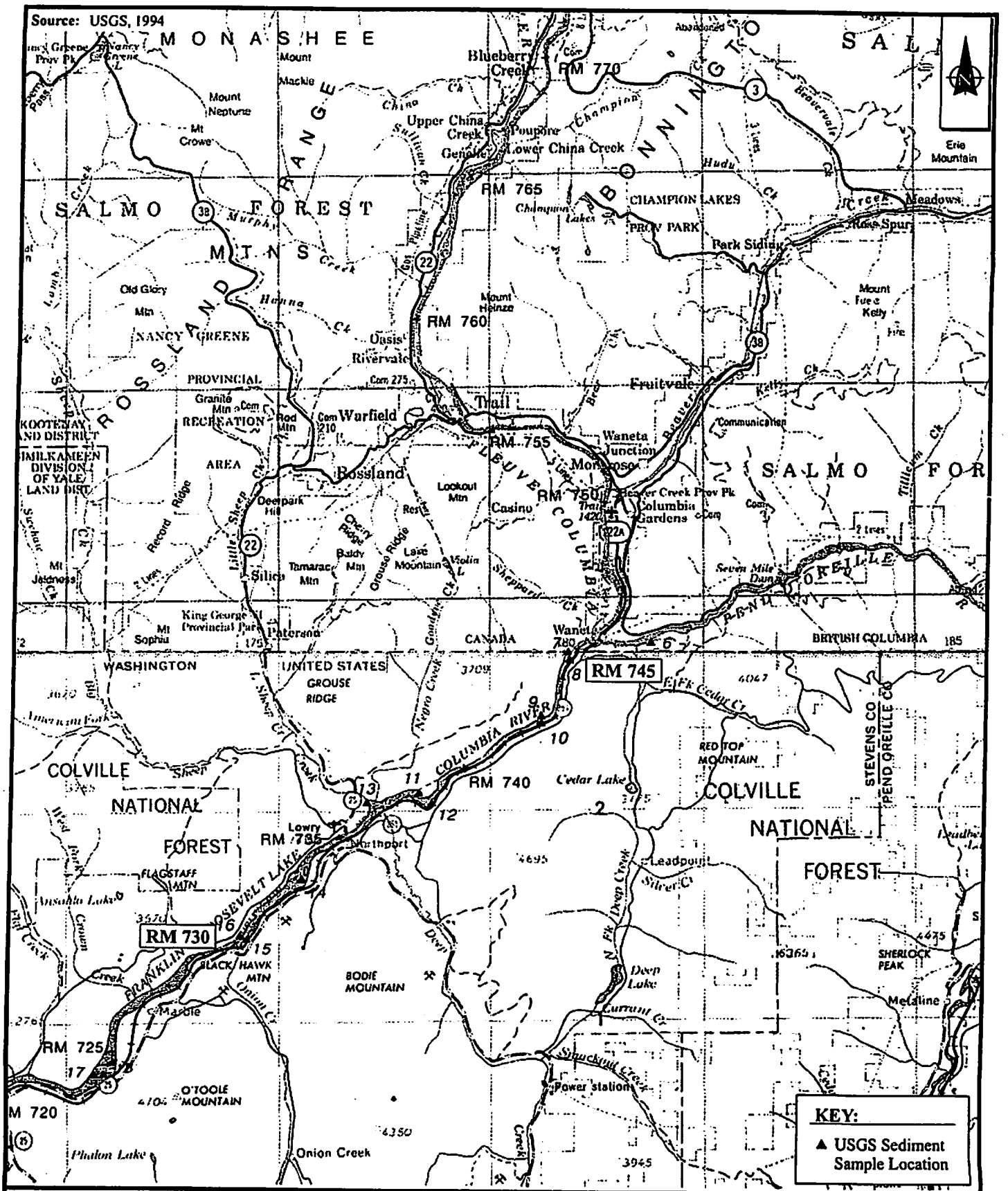
AES	11/29/00	DJ0201SAT0	DJ0201 2-7



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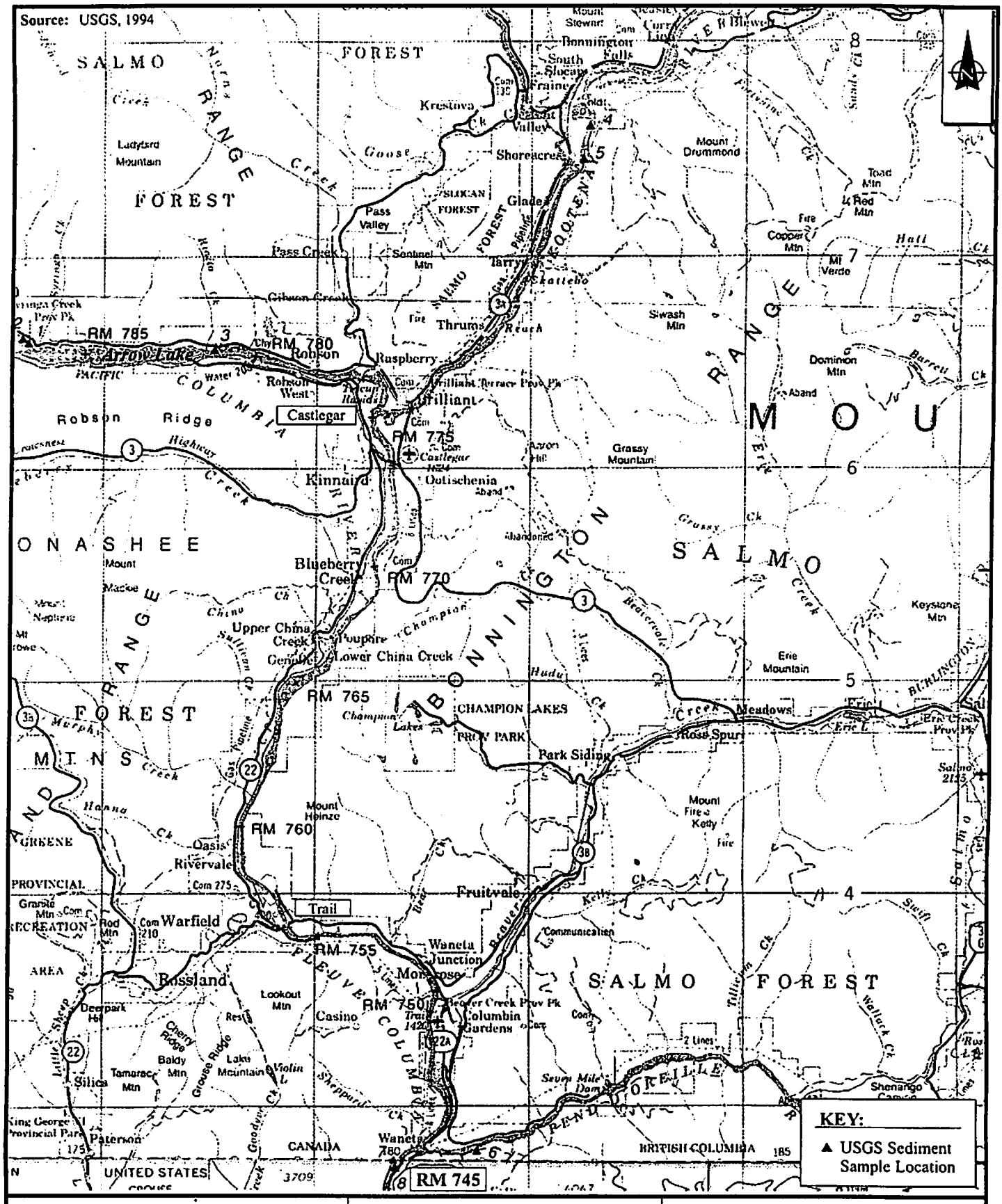
UPPER COLUMBIA RIVER
PRELIMINARY ASSESSMENT
Northeastern Washington

Figure 2-8
SAMPLE LOCATION MAP
RIVER MILE 730 TO 745

0 2.5 5
Approximate Scale in Miles

Drawn:	DATE:	JOB NO.	Dwg.No.
AES	11/29/00	DJ0201SAT0	DJ0201 2-8



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UPPER COLUMBIA RIVER
PRELIMINARY ASSESSMENT
Northeastern Washington

Figure 2-9
BACKGROUND
SAMPLE LOCATION MAP

0 2.5 5
Approximate Scale in Miles

Drawn:	DATE:	JOB NO.	Dwg.No.
AES	11/29/00	DJ0201SAT0	DJ0201 2-9

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3. MIGRATION/EXPOSURE PATHWAYS AND TARGETS

The following sections describe migration/exposure pathways and potential targets within the site's range of influence (Figures 3-1 and 3-2).

For the purposes of this report, an "observed release" is defined, using Table 2-3 of the EPA Hazard Ranking System (HRS) model criteria for observed release (significant or elevated concentration), as follows:

- If the background concentration equals or exceeds the detection limit, an observed release is established when the sample measurement is three times or more above the background concentration.
- If the background concentration is not detected (or is less than the detection limit), an observed release is established when the sample measurement equals or exceeds the sample quantitation limit (SQL). For non-CLP or Special Analytical Services within the CLP, the method detection limit (MDL) is used in place of the SQL.

3.1 GROUNDWATER MIGRATION PATHWAY

Groundwater is used for domestic purposes, irrigation, stock watering, and commercial activities within the target distance limit (TDL). For the purposes of this PA, the TDL has been defined as a 1/4-mile corridor bordering the shorelines of the river. Based on a review of existing information, an observed release to groundwater has not been documented at the site.

Aquifers in the vicinity of the site are present in pre-Miocene rocks which consist of undifferentiated volcanic rocks, undifferentiated consolidated sedimentary rocks, and undifferentiated igneous and metamorphic rocks that are distributed throughout the region. In the volcanic rocks, water is present primarily in joints and fractures as in the Pliocene and younger and the Miocene basaltic-rock aquifers. In the consolidated sedimentary rocks, water is present primarily in solution cavities and joints in carbonate rocks and fractures, faults and intergranular pore spaces in clastic rocks such as sandstone and conglomerate. In igneous and metamorphic rocks, water is present primarily in fractures, faults, and weathered zones that developed on exposed surfaces (USGS 1994b).

The public water supply for Northport is obtained from three wells located within 1/4 mile of the Columbia River on the old LeRoi Smelter property. In Northport, the top of the aquifer supplying the

community water is at almost the same elevation as the bottom of the Columbia River. Because of its proximity, the Columbia River provides most of the recharge for the aquifer. Although the area has high percolation rates, rainwater causes little recharge for the aquifer because of an annual average net precipitation of only 9.5 inches (URS 1993). The Washington Department of Health (WDOH 2000) reports that 215 connections supply water to approximately 312 residents of Northport. Water is analyzed quarterly to comply with Federal regulations for public water supplies. No exceedances of Maximum Contaminant Levels (MCLs) were reported between 1995 and 2000 (WDOH 2000).

Water for Kettle Falls is supplied by five wells and one backup surface water intake. The wells are located approximately 1.5 miles from the Columbia River. The system has 937 connections serving 2,640 residents. Quarterly sampling is conducted and no exceedances of MCLs have been reported between 1995 and 2000. (WDOH 2000)

In addition to these water supplies, Ecology's Water Rights Application Tracking System (WRATS) lists an additional 41 single or general domestic wells, and 23 wells designated as multiple domestic. The average number of people per housing unit in the region is two (USDoI 1999). Assuming that each single domestic well serves two people, and each multiple domestic well serves 20, the total number of people served by wells located within 1/4 mile of the site is 854. Since additional well applications listed in the database did not specify water use, and therefore were not counted in the estimate, the actual number of wells used for drinking water may be higher (Ecology 2000a).

3.2 SURFACE WATER MIGRATION PATHWAY

Sediment contamination at the site has been documented near the international boundary, and at sample intervals all the way downstream to the Grand Coulee Dam. The surface water pathway TDL is defined as the Grand Coulee Dam to the United States-Canada boundary. An observed release of hazardous substances to surface water was established at the site based on sediment sampling and analysis conducted by USGS (1994).

The flow rate of the Columbia River at the United States-Canada boundary averages 101,000 cubic feet per second, and at Northport averages 103,340 cfs (USGS 1998a). The upland drainage area is estimated to be 85,000 square miles (USGS 1994, Figure 2-2). The two-year, 24-hour rainfall event for the region averages roughly 1.5 inches (U. S. National Oceanic and Atmospheric Administration 1973).

Surface water is used for domestic purposes, irrigation, stock watering, fire protection, power generation, and commercial purposes within the surface water TDL (Ecology 2000a). The municipal

water supply for Grand Coulee is obtained from a surface water intake on Lake Roosevelt (Figure 2-3). The 394 residential connections serve a population of 1,103. Water is sampled quarterly to meet Federal regulations for public drinking water supplies. Analytical results from 1995 to 2000 show no exceedances of MCLs (WDOH 2000). Ecology's WRATS lists permits for surface water intakes along the TDL. The list includes 37 permits designated as single or general domestic and seven permits designated as multiple domestic. The average number of people per housing unit in the region is two (USDoI 1999). Assuming that each single domestic intake serves two people, and each multiple domestic intake serves 20, the total number of people served by surface water intakes along the TDL is 1,317. Since other listed surface water intake applications did not specify the source of the surface water, and therefore were not counted in the estimate, the actual number of intakes on the Columbia River may be higher (Ecology 2000a).

Fishing occurs on the Upper Columbia River as a major recreational activity and for subsistence by tribal members. The fish, wildlife, and plant materials of the Upper Columbia River Basin are of central importance to the Colville Tribe's subsistence and culture (CCT 1999). No data on the amounts of fish caught or consumed for subsistence are available. The Bonneville Power Administration has funded construction and operation of two hatcheries on the watershed. A comprehensive creel (fish catch) survey for the Columbia River upstream of the Grand Coulee Dam was conducted in 1993. Surveys were conducted at tribal campgrounds and NPS boat launches in 48 locations, and creel clerks interviewed anglers at access points (Underwood 1996). Table 3-1 presents the creel survey results. Significant fishing also occurs on the Columbia River upstream of Onion Creek. Rainbow trout and walleye are popular sport fish; however, no survey information is available (Vail 2000).

Sensitive environments within the surface water TDL include 5.34 linear miles of wetland frontage (USFWS 2000). The bull trout is present in Lake Roosevelt, and bald eagle nesting sites are present at approximately 20 locations along the shoreline (Robinette 2000; Spotts 2000). Both species are federally-listed threatened species. In addition, the Lake Roosevelt National Recreation Area is a unit of the national park system (USDOI 2000).

Other tribally sensitive areas of central importance to CCT include those areas used for ceremonial, cultural, traditional, subsistence or economic purposes. The Colville Tribes, in 1891, ceded the North Half of the Reservation to the United States, including a portion of the Columbia, but expressly reserved hunting and fishing rights in these ceded lands, including the Columbia River. Section I of the October 1996 Environmental Agreement between the Tribes and EPA recognizes these rights. The Tribes continue to rely heavily on the anadromous fisheries between Chief Joseph Dam and the

Reservation boundary five miles downstream. In addition, the Tribes have come to rely increasingly on the resident fishery and water resources above the dams, both for subsistence and recreation and for economic development in a continuing effort to create jobs and improve the quality of life for Tribal members and the broader community (PA Petition, Attachment A).

3.3 SOIL EXPOSURE PATHWAY

Exposed sediments along the banks of the Columbia River are up to 1 mile wide in some locations and extend most of the 150-mile length of the study area. There are no restrictions prohibiting access to potentially contaminated exposed sediments at the site. In addition, contaminated sediments may be present at beaches that are used for public recreation.

Residences are located along the shores of the river, sometimes within 200 feet of exposed sediments. Approximately 1,670 individuals reside within 1/4 mile of the site. This estimate was made using census data where available, and counting the number of houses in rural areas on USGS maps and multiplying the sum by the average number of persons per household, which is 2.0 in these counties (USDoI 1999). These values then were adjusted based on observations of development made during the site visit.

No terrestrial sensitive environments occur on an area of contaminated soil at the site (WDNR 2000).

3.4 AIR MIGRATION PATHWAY

Analytical results have shown the presence of contaminated sediments, and it has been documented that during extended low-water conditions, exposed sediments dry out and become airborne (Attachment A, Photograph Nos. 23 and 24).

The WDOH conducted an assessment of the risks associated with exposure to Cominco slag, which is believed to make up most of the slag in Columbia River sediments. Cominco personnel modeled the dispersion of dust and particulate matter from slag piles as part of their land slag disposal planning effort and concluded that dust and particulate matter would not be a concern due to wind erosion. Cominco stated that data from a fumed slag sieve analysis indicated that approximately 1 percent (by weight) of discharged slag is less than 150 micrometers (µm; 10-µm particles generally are considered respirable).

Preliminary air monitoring data for the Northport area did not indicate significant amounts of respirable particles, regardless of source (WDOH 1993). An evaluation of the threat posed by inhalation

of the airborne slag particles is being conducted by the American Society for Testing and Materials. No information on potential health threats posed by inhalation of airborne sediment particles is available.

For the purposes of this PA, the air migration pathway TDL was defined as a 1/4-mile corridor bordering the potentially contaminated exposed sediments at the edge of the river (Figure 3-1). The total population within 1/4 mile of the site is approximately 1,670.

Several sensitive environments exist within the Upper Columbia River Segments air pathway TDL. Based on maps from the National Wetlands Inventory (USFWS 2000), there are 3.19 acres of wetlands within 1/4 mile of the site. Most of the site is a national recreation area. Approximately 20 nesting sites of the bald eagle, a federally listed threatened species, have been documented along the shoreline of the river (WFWS 1999; Robinette 2000). No other federally listed threatened or endangered species or terrestrial sensitive environments occur within 1/4 mile of the site (WDNR 2000).

Table 3-1

ANNUAL FISH HARVEST WITHIN THE SITE'S RANGE OF INFLUENCE UPPER COLUMBIA RIVER SEGMENTS PRELIMINARY ASSESSMENT WASHINGTON

Species	Number Harvested	Average Weight (pounds)	Pounds Harvested
Kokanee	13,960	2.4	33,504
Rainbow trout	398,943	1.8	718,097
Walleye	307,663	.98	301,510
Smallmouth bass	103,687	.53	54,954
Sturgeon	66	NA	NC
Other species	296	NA	NC
Total Harvest	824,615		1,108,065

Source: Underwood 1996

Key:

NA = Not available.
NC = Not calculated because average weight was unavailable and catch numbers were low.

4. CONCLUSIONS AND RECOMMENDATIONS

This PA consisted of an evaluation of 150 miles of the Columbia River between the United States-Canada boundary with Canada and the Grand Coulee Dam.

Analytical data have shown that widespread contamination is present in river and lake sediments throughout the study area. During prior studies, sediment samples were collected in the Columbia River/Lake Roosevelt study area, and in locations upgradient of known sources, and tributaries emptying into the study area. Concentrations of metals, including arsenic, cadmium, copper, lead, mercury, and zinc, were significantly higher in most of the samples collected from the study area, than in the associated background and tributary samples. In addition, elevated concentrations of dioxins, furans, and PCBs have also been documented in the study area. Significantly elevated levels of these contaminants have also been documented in fish tissue samples collected in the study area. Mercury levels exceeding Canadian health standards in fish tissue also have been documented.

Lake Roosevelt is a major recreational area with over one million visitors per year. Recreational activities include sport fishing, boating, swimming, and camping. The area is also of economic and cultural significance to Native American populations. Subsistence fishing may constitute a major portion of some resident's diets. Additional concerns include potential exposure to the contaminated sediments during lake draw down periods, such as the potential for health effects resulting from dermal contact with the sediments, or from inhalation of airborne sediment particles.

Based on a review of prior studies conducted and an evaluation of migration pathways, receptors and hazardous substances found in samples collected from the Upper Columbia River Basin, further investigation of the Upper Columbia River/Lake Roosevelt site under the Comprehensive Environmental Response, Compensation and Liability Act is recommended.

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ATTACHMENT A

PRELIMINARY ASSESSMENT PETITION

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THE CONFEDERATED TRIBES
of
THE COLVILLE RESERVATION
POST OFFICE BOX 150-NESPELEM WASHINGTON 99155 PHONE (509) 634-4711

August 2, 1999

Regional Administrator
Region X
United States Environmental Protection Agency
1200 Sixth Avenue
Seattle, WA 98101

Re: **Petition for Assessment of Release**

Dear Mr. Clark:

I write in my capacity as the Chair of the Business Council of the Confederated Tribes of the Colville Indian Reservation, a sovereign entity whose government is recognized by the United States. This letter is also sent to you in furtherance of the October 1996 Environmental Agreement between EPA and the Tribes.

Enclosed herein a Petition of the Tribes for a Preliminary Assessment of the hazards to public health and the environment which are associated with the release or threatened release of a hazardous substance, pollutant, or contaminant on lands which include the Reservation.

As is set out in detail in the enclosed Petition, the upper Columbia River basin has been of great importance to the Colville Tribes since time immemorial. We have always occupied and utilized this area, from below the Columbia-Okanogan confluence up into what is now Canada, and the fish, wildlife, and plant materials of the upper Columbia basin have always been of central importance to the Tribes' subsistence and culture. The

Tribe continues to hold reserved hunting and fishing rights in lands in the North half of the historic reservation lands, including the Columbia River, which are recognized in Section I of the October 1996 Environmental Agreement between the Tribes and EPA.

This matter is extraordinarily important to the Tribe. We respectfully request that you give this matter your full and careful attention.

Very truly yours,

CONFEDERATED TRIBES OF THE
COLVILLE INDIAN RESERVATION

Colleen Cawston
Chair, Colville Business Council

cc: Members, Colville Business Council
Director, Office of Environmental Trust
Director, Office of the Reservation Attorney
Special Environmental Counsel

LAW OFFICES

SHORT CRESSMAN & BURGESS PLLC

999 THIRD AVENUE, SUITE 3000
SEATTLE, WASHINGTON 98104-4088
FAX: (206) 340-8856
(206) 682-3333

PAUL R. CRESSMAN, SR., P.S.
JOHN O. BURGESS
BRIAN L. COMSTOCK
JOHN H. STRASBURGER
JAMES A. OLIVER
DAVID R. KOOPMANS
KENNETH L. MYER
ROBERT J. SHAW
RICHARD A. DU BEY
PAUL R. CRESSMAN, JR.
ANDREW W. MARON
CHRISTOPHER J. SOELLING
PAUL J. DAYTON
BRYAN P. COLUCCIO
ROBERT E. HIBBS
CHRISTOPHER R. OSBORN
MICHAEL R. GARNER
DAVID E. BRESKIN
SCOTT A. SMITH
STEPHEN P. CONNOR
SUSAN THORBROGGER
SCOTT M. MISSALL
LISA WOLFARD
KERRY S. BUCKLIN*
ANN T. WILSON

* MEMBER OF PATENT BAR, USPTO

CLAUDIA CRAWFORD
WALTER H. OLSEN, JR.
JOHN D. SULLIVAN
PAUL CHUET
CONNIE SUE MANOS MARTIN
GRAEHM C. WALLACE
JENNIFER DIKE
ANNE-MARIE E. SARGENT
DEREK N. KO
R. BRENT WALTON
N. ELIZABETH MCCAW**
DAVID A. HERRMAN
ZACHARY A. WRIGHT
JULIE L. WILCHINS

KENNETH P. SHORT
DOUGLAS R. HARTWICH
ROBERT E. HEATON
SAMUEL S. CHUNG
MARK E. NADLER
ROBERT A. STEWART

OF COUNSEL

JOSEF DIAMOND
COUNSEL TO THE FIRM

** ADMITTED IN GEORGIA

August 5, 1999

Regional Administrator
Region X
United States Environmental Protection Agency
1200 Sixth Avenue
Seattle, WA 98101

Re: **Petition for Assessment of Release**

Dear Mr. Clark:

We represent the Confederated Tribes of the Colville Indian Reservation (Tribes). This Petition is submitted to the U.S. Environmental Protection Agency (EPA) on behalf of the Tribes, a sovereign entity whose government is recognized by the United States, and, through the Tribes' Office of Environmental Trust. The Tribal government, and the role of Environmental Trust, has been specifically recognized in the October 1996 Environmental Agreement between the Tribes and EPA. This Petition is submitted to EPA in furtherance of the Tribal/EPA Agreement. The Office of Environmental Trust is located at Post Office Box 150, Nespelem, WA 99155, and the telephone number is (509) 634-4711.

1. **Petitioner/Location**

Pursuant to Section 105(d) of CERCLA, 42 USC §9605(d), the Tribes, Petitioner

herein, respectfully request that EPA Region X conduct a Preliminary Assessment of the hazards to public health and the environment which are associated with such release or threatened release of a hazardous substance, pollutant, or contaminant at the following location:

> The Upper Columbia River Basin from the Canadian Border, southward through Lake Roosevelt, to the Grand Coulee Dam, encompassing the water, river- and lake-beds, and banks[1]

2. **Petitioner is affected by the release**

Critical tribal resources, governance processes, and inter-governmental agreements have been and continue to be affected by these releases. As repeatedly confirmed by decisions of the federal courts, the upper Columbia River basin has been of great importance to the Colville Tribes since time immemorial. Predecessors of the Colville Tribes and its members have always occupied and utilized this area, from below the Columbia-Okanogan confluence up into what is now Canada. The fish, wildlife, and plant materials of the upper Columbia basin have always been of central importance to the Colville Tribes' subsistence and culture. When the Colville Reservation was established in 1872, the entire segment of the Columbia from the Okanogan confluence to the Canadian border, roughly 150 river miles, was included within the Reservation. In 1891, the Colville Tribes ceded the North Half of the Reservation to the United States, including a portion of the Columbia, but expressly reserved hunting and fishing rights in these ceded lands, including the Columbia River. The U.S. Supreme Court affirmed these rights in a 1975 decision, *Antoine v. Washington*, 420 U.S. 194, and Section I of the October 1996 Environmental Agreement between the Colville Tribes and EPA also recognizes these rights.

Grand Coulee and Chief Joseph Dams have eliminated anadromous fish from most of the Columbia within the Colville Reservation and former North Half, but the Tribes continues to rely heavily on the anadromous fisheries between Chief Joseph Dam and the Reservation boundary five miles downstream. In addition, the Tribes has come to rely increasingly on the resident fishery and water resources above the dams, both for subsistence and recreation and for economic development in the form of tourist and recreation enterprises.

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[1] See Figure 1 - Lake Roosevelt and tributary waters attached as Exhibit A.

Active Tribal environmental and fishery management programs, in coordination with other management entities on the system, struggle to maintain a viable, healthy ecosystem given the past environmental damages and current management constraints. It is also important to note that there is increasing recreational use of the Lake Roosevelt system along with increased population growth. The Tribes have established a marina, houseboat rental enterprise and related business in a continuing effort to create jobs and improve the quality of life for Tribal members and the broader community. Therefore, issues about contaminants in the system that raise serious human health questions are critically important to Petitioner and all members of the local population.

3. Characteristics of the substances released

Based upon information and belief, Petitioner asserts that the following hazardous substances have impacted the study area and should be included in the Assessment process:

3.1 metals (arsenic, cadmium, copper, lead, mercury, and zinc); primary source of the contamination appears to be a lead-zinc smelter on the Columbia River in British Columbia but may also come from the Spokane River[2]

3.2 blast furnace slag from Canadian smelters as well as from the LeRoi (Northport) Smelter site in Northport, Washington[3]

3.3 organochlorine compounds (dioxins, furans, and PCBs) believed to have originated from a pulp mill near Castlegar, British Columbia[4]

3.4 wood-pulp waste, urban runoff, and discharges from industrial activities[5]

3.5 contaminants released into the Upper Columbia from historic and

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2 *See* Exhibit A at 12.

3 *Id.* at 12 and 14.

4 *Id.* at 13.

5 *See* Exhibit A generally.

ongoing mining operations in the region[6]

3.6 contaminated fugitive dust caused by exposed sediments resulting from drawdowns of Lake Roosevelt

4. Activities contributing to the releases

4.1 In the early 1980s, concerns about water quality in Lake Roosevelt and the upper Columbia River were first reported in a U.S. Fish and Wildlife study that reported elevated concentrations of arsenic, cadmium, lead, and zinc in fish . Follow up studies identified the primary source of the contamination to be a lead-zinc smelter on the Columbia River in British Columbia, 16 km upstream from the international boundary. Since the 1950s, the subject smelter had discharged several hundred tons of blast furnace slag and effluent per day into the Columbia River.

4.2 At the request of the U.S. Environmental Protection Agency (EPA) and Lake Roosevelt Water Quality Council (LRWQC), the U.S. Geological Survey (USGS) initiated a large-scale sediment quality study in 1992. The USGS reported that bed sediments were contaminated, as indicated by elevated concentrations of metals (arsenic, cadmium, copper, lead, mercury, and zinc), laboratory toxicity, and altered benthic invertebrate communities. In addition, a 1994 USGS study determined that mercury in sportfish was elevated to levels high enough to trigger a Washington Department of Health consumption advisory.

4.3 Due in part to the studies in Canada and Washington state, the subject lead/zinc smelter in Canada has apparently stopped discharging slag and has reduced its effluent discharge. While this is a significant improvement in the loadings of metals to the system, *large quantities of contaminated sediments remain in Lake Roosevelt,* and therefore studies are still in progress. For example, Petitioner is currently funding a USGS study to determine if the level of mercury found in the tissue of Walleye Pike has decreased since the 1994 study. In addition, the EPA is presently funding a USGS study in the Coeur d'Alene and Spokane River Basins as part of a Natural Resources Damage Assessment (NRDA) of the Coeur d'Alene system. The primary objective of that study is to determine the relative contribution of metals to the Spokane River from the Lake Coeur d'Alene system.

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6 *Id.* and *see Exhibit B.*

4.4 While metals have received the most attention, organochlorine compounds, due to their persistence and established role in causing adverse environmental effects are also of concern. Human health effects of organochlorine compounds are controversial. The particular organochlorine of concern are dioxins, furans, and PCBs. In 1988 and 1990, Canadian studies reported large concentrations of furans in fish collected in the Columbia River downstream of a pulp mill near Castlegar, British Columbia. The Washington state Department of Ecology (Ecology) confirmed that fish from Lake Roosevelt contained elevated furan concentrations, but that concentrations of dioxins and furans generally decreased as one moves downstream away from Canada.

4.5 In a 1992 study, the USGS reported that dioxins and furans were present in suspended sediment collected from the Columbia River, but only a few of the 17 targeted isomers were detected. The form of dioxins most toxic to some laboratory animals was not detected. Aside from dioxins and furans, few of the many other organic compounds associated with wood-pulp waste, urban runoff, and industrial activities were detected in the bed sediments of Lake Roosevelt and its major tributaries.

4.6 There is generally less known about PCBs than about the dioxin and furan compounds. In 1993-94, Ecology reported that PCBs were detected in most fish samples from the Spokane River, and that concentration were highest in fish collected from the Spokane River above Spokane, but below the Idaho border. New data developed by EPA and other agencies indicates that heavy metals may also present risks to Lake Roosevelt and that further study of the risk of adverse impact to human health is needed. In general, there needs to be more study regarding how contamination sources located on the Spokane Indian Reservation may have impacted the Colville Reservation. In 1994, the EPA funded a study to determine the potential human health risks posed by concentrations of dioxins, furans, and PCBs in species of fish collected and consumed by people throughout Lake Roosevelt. That study did find that dioxins and furans were present in fish, but that concentrations did not differ from the upper Columbia River to the Grand Coulee Dam. There has been no human health statements released from the EPA PCB study.

4.7 In a current follow-up study, the USGS is presently determining if organochlorine compounds, including both dioxins and furans, and PCBs, have decreased in sportfish filets since the EPA study four years ago. This study was requested by the Lake Roosevelt Water Quality Council and Colville Confederated Tribes; the Spokane Tribe collected the fish as part of a joint (Colville Tribes, Spokane Tribe, Washington

Department of Fish and Wildlife) fisheries monitoring program in Lake Roosevelt.

4.8 The EPA performed a site inspection of the LeRoi Smelter site in 1993. The SI sampled only on-site surface soils, surface soils of an adjacent city park, and off-site (background) surface soils (a total of only 4 sampling sites) to gather data to evaluate potential soil problems associated with previous smelting operations on site. The sampling revealed that arsenic, antimony, lead and copper were detected on site at significant concentrations (exceeding Washington State Model Toxics Control Act Method B soil cleanup levels). Arsenic and copper were also detected at a significant level off site in the adjacent city park. No sampling of groundwater was conducted, nor was the site assessed with regard to the suspected release or threatened release of a hazardous substance, pollutant, or contaminant on site or from the site into the Columbia River or to groundwater. The report recommended further investigation of the site to evaluate any possible exposure via the air or soil pathway, but no additional investigation has occurred to date.

5. Governmental officials contacted about the releases

5.1 The Tribe has contacted: Chuck Rice and Elizabeth McKenna from the *United States Environmental Protection Agency*; Tony Grover, Carl Nuechterlein, David Knight, Guy Gregory, Bill Fees, and Flora Goldstein from the *Washington State Department of Ecology;* Tanya Barnett and Fritz Clarke from the *Washington Office of the Attorney General;* Mark Munn and Cindi Barton of the *United States Geological Survey;* Mary Verner Moore from the *Spokane Tribe of Indians;* and Congressman George Nethercutt from the *United States House of Representatives.*

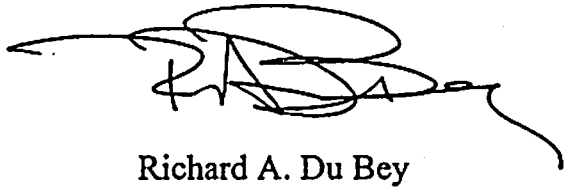
5.2 The response from the State of Washington has been that Ecology recognizes that LeRoi is ranked as a No. 1 (most serious) on the State Hazardous Substances List. Ecology has conducted phase I of an assessment for remediation and had intended to undertake phase II work involving well-drilling and a sediment study in 1999. However, phase II of the remediation plan never occurred because Ecology did not have sufficient funds in its 1999 budget. Furthermore, Ecology has not considered the cumulative impact of the site in relation to the contribution by other sources to contamination of the Columbia River basin and Lake Roosevelt.

6. Request for Preliminary Assessment

In light of the foregoing, Petitioner herein, by and through the office of Environmental Trust respectfully request that EPA Region X undertake timely review of this matter and initiate the preliminary assessment of the releases described above. Please be advised that the Tribes would like to meet with you to review this Petition and discuss how EPA and the Tribes may work together to protect the Upper Columbia River environment.

Respectfully submitted this 6th day of August, 1999 by:

SHORT CRESSMAN & BURGESS PLLC



Richard A. Du Bey
Special Environmental Counsel to the
Confederated Tribes of the Colville Reservation

RAD:vh

cc: Members, Colville Business Council
Director, Office of Environmental Trust
Director, Water Quality Management
Director, Office of the Reservation Attorney
Elizabeth McKenna, EPA, ORC
Chuck Rice, EPA
Richard McAllister, EPA, ORC
Tony Grover, Department of Ecology
Tanya Barnett, Office of the Attorney General
Guy Gregory, Department of Ecology
Cindi Barton, USGS
Mary Verner Moore, Spokane Tribe of Indians
Congressman George Nethercutt

1996-478

RESOLUTION

WHEREAS, it is the recommendation of the Natural Resources Committee to approve the attached proposed agreement between the Colville Confederated Tribes and U. S. EPA, and authorization that Chairman execute on behalf of the Tribes in connection with meeting with EPA region x administration on October 29, 1996 in Seattle. Agreement may enable tribes to qualify for additional funding in fY 97 (but does not guarantee any such funding). Agreement also promotes government to government relationship between CCT and EPA. Agreement recommended by Environmental Trust and Tribal Attorney.

THEREFORE, BE IT RESOLVED, that we, the Colville Business Council by authority delegated in Resolution 1991-431, this 28th day of OCTOBER, 1996, do hereby approve the recommendation of the Natural Resources Committee of the Business Council.

The foregoing was duly enacted by the Colville Business Council by a vote of 10 **FOR** 0 **AGAINST,** under authority contained in Article V, Section 1(a) of the Constitution of the Confederated Tribes of the Colville Reservation, ratified by the Colville Indians on February 26, 1938, and approved by the Commissioner of Indian Affairs on April 19, 1938.

ATTEST:

for Joseph A. Pakootas, Chairman
Colville Business Council

cc: Deb Louie, Chairman, Natural Resources Com.
Gary Passmore, Environmental Trust
Alan Stay, Tribal Attorney
Kathy Desautel, Financial Officer

ENVIRONMENTAL AGREEMENT
BETWEEN THE
ENVIRONMENTAL PROTECTION AGENCY, REGION 10
AND THE
CONFEDERATED TRIBES OF THE COLVILLE RESERVATION

I. PARTIES TO THE AGREEMENT AND ROLES

This Agreement reflects and affirms the government-to-government relationship between the United States of America and the Confederated Tribes of the Colville Reservation.

The Parties to this Tribal Environmental Agreement (hereinafter referred to as the "Agreement") are the Confederated Tribes of the Colville Reservation (hereinafter referred to as "Tribes"), represented by the Chairman of the Colville Business Council, and the United States Environmental Protection Agency (EPA), represented by the EPA Region 10 Regional Administrator.

The U.S. Environmental Protection Agency was created to provide coordinated and effective governmental action to assure the protection of the environment by abating and controlling pollution on a systematic basis.

Environmental Protection Agency, Region 10, is responsible for the execution of the Agency's programs within the boundaries of Alaska, Idaho, Oregon, and Washington.

The Parties recognize that the Colville Reservation established by Executive Order in 1872 is the permanent homeland of the Tribes and its members. The parties further recognize that the Tribes retains significant rights in the so-called North Half of the Reservation, which was ceded to the United States by an 1981 agreement reserving hunting and fishing rights for the Tribes and its members. The parties also recognize that the Tribes and its members owns lands, some of which are held in trust by the United States, outside the Reservation, both within the North Half and in other locations near the Reservation.

The parties further recognize that the Tribes possesses inherent sovereign authority to regulate environmental and natural resources matters within the Reservation, and that the Tribes desires to establish the scope of its authority over lands within the Reservation not owned by the Tribes.

This Agreement identifies the respective roles and governmental responsibilities of the Tribe and EPA for planning and undertaking environmental protection activities. The Tribe and EPA enter into this Agreement in order to ensure that tribal jurisdiction is preserved and protected, and furthermore, that the Tribe has substantial and meaningful involvement in environmental policy decisions impacting its Reservation, tribal members and tribal resources.

The Parties expect that the improved coordination that will result from this Agreement will maximize effective protection of the Tribe's environment and the fulfillment of the EPA's legislative mandate and trust responsibilities to the Tribe.

In furtherance of the expectations of the Parties, the following declarations are made and agreed to:

1. Pursuant to federal Indian law and policy, the Tribe is the government with primary jurisdiction and stewardship for its members and resources, and the Tribe has the right to a substantial and meaningful role in protecting the environment of its homeland.

2. The EPA is the federal agency with the primary responsibility for the protection of the environment in and of the United States. The EPA has a trust responsibility to use its legal authority to assist in the protection of the Tribal environment and the sovereignty of tribal government. The EPA is committed to assisting the Tribe in its development and implementation of an environmental protection and regulatory program which is consistent with EPA's regulatory authority.

II. VISION STATEMENT

A. Tribal Three Part Goal

The Tribes' strategic planning process is based on a 3-part holistic goal. Environmental programs on the reservation pursue their mission in accordance with this 3-part goal:

1. Quality of Life:

We want to maintain and build upon our unique culture, traditions, language, sovereignty and history; we want a healthy society, environment and economy; we will treat everyone with honor and respect, having the freedom to worship, live, work and play as we choose, accepting each Others diversity/uniqueness. We want to provide plentiful/affordable housing, meaningful/secure employment and educational opportunities. We want communities that are clean, self-sufficient, safe, wholesome and provide opportunities for family based recreation.

2. Forms of Production:

We will support our quality of life through sustainable wealth from diverse income opportunities, without waste or sacrifice of tradition, culture and values; we will emphasize the importance of involving the membership in developing their communities; we will provide opportunities/infrastructure to increase understanding/awareness of our culture, traditions, language, sovereignty and history throughout our communities, schools and workplaces, continuously promoting honor, respect and diversity.

3. Future Resource Base:

We are and continue to be a self-sustaining sovereign entity, having flourishing enterprises, having healthy productive landscapes including rangelands, croplands, forests, riparian areas, streams and lakes, tribal decisions will include protection of tradition, culture, and aesthetic values; we will continue to provide improved/enhanced opportunities to communities/schools/workplace to increase understanding and awareness of our culture, values, tradition, language, sovereignty and history.

The reservation remains as a rural lifestyle and the population is in balance with an effective water, mineral, and energy cycle with bio-diversity resulting in and abundance of culture, medicinal and edible plants, clean air and water, springs and streams that flow year round, large trees, wildlife, fish and insects.

B. EPA National Guidance

1. The EPA "Indian Policy"

The EPA Policy for the Administration of Environmental Programs on Indian Reservations sets forth nine principles by which the EPA will pursue it's objective. Among the principles are a commitment to work with tribes on a government-to-government basis, to recognize tribes as the primary decision makers for environmental matters on reservation lands, to help tribes assume program responsibility for reservations, to remove existing legal and procedural impediments to tribal environmental programs, and to encourage tribal, state, and local government cooperation in areas of mutual concern. The Policy has been reaffirmed by every administrator since it's adoption, most recently by Administrator Carol Browner in 1994.

EPA's relationship with the Tribes is intended to be in accordance with its Indian and tribal policies first set forth in 1983 which emphasize respect for tribal rights to self government and self determination, a commitment to a co-equal government-to-government relationship, support and advocacy in behalf of tribal jurisdiction, and a recognition of the unique trust responsibility of the United States on behalf of Indian Tribes.

2. Government-to-Government Memorandum of 4/29/94.

President Clinton outlined principles intended to ensure that the federal government operates within a government-to-government relationship with federally recognized tribes in a manner which is "always respectful of tribal sovereignty."

3. Environmental Justice, Exec. Order #12898, 2/11/94.

As a result of the Order, Administrator Browner convened an interagency Federal Working Group and established the National Environmental Justice Advisory Council, including tribal government representatives.

4. Reinventing Environmental Regulations, 3/16/95.

President Clinton and Vice-President Gore recognize as a principle of reinventing environmental protection that federal, state, tribal and local government must work as partners to achieve common environmental goals, with non-federal partners taking the lead when appropriate.

5. Congressional Recognition of Tribal Role.

Congress has amended the Safe Drinking Water Act, Comprehensive Environmental Response, Compensation and Liability Act, Clean Air Act, and Clean Water Act to clarify the role of tribal governments and enhance their ability to participate in the federal environmental regulatory scheme.

6. EPA's Administrative Support of Congress' Intent.

Consistent with its Indian Policy, the EPA has pursued its goal to eliminate statutory and regulatory barriers to the assumption of federal environmental programs by Indian tribes, including the amendment of environmental laws to include tribes. EPA has utilized its administrative authority under Resource Conservation and Recovery Act, the Federal Insecticide, Fungicide, and Rodenticide Act, and the Emergency Community Preparedness Right to know Act to include tribes as appropriate authorities even where an Act has been silent on the role of tribal governments.

III. OBJECTIVES

The Parties enter into this Agreement to accomplish the following objectives:

A. To Establish a Mechanism for Environmental Protection.

This Agreement is intended to establish a mechanism for determining the specific environmental priorities for the Colville Confederated Tribes, to identify the regulatory areas under the federal environmental laws for which the Tribes desire primacy, and to plan how all aspects of the reservation environment can be protected.

This Agreement shall form the basis for communication and programmatic assistance to the Tribe by the EPA. Program staff will provide assistance to the Tribe in accordance with the government-to-government relationship between the Parties, and as specified by the Specific Work plan attached to this Agreement.

B. To Implement the Government-to-Government Relationship.

This Agreement will provide a mechanism for implementing the government-to-government relationship by clarifying the roles, responsibilities, and relationships of EPA and the Tribe.

C. To Build Tribal Capacity

This Agreement is intended to build Tribal environmental capacity so that the Tribe will be able to develop and implement an on-going environmental program. To the extent practical, given resource limitations, the EPA will provide training and information-sharing workshops for Tribal staff and Tribal government to build Tribal capacity and encourage the operation and management of Tribal programs by Tribal people.

D. To Provide Support for Tribal Regulatory Processes

This Agreement will provide support for the development and implementation of regulatory processes which will strengthen the ability of the Tribe to protect its cultural, religious and spiritual resources as it protects its environment.

E. To Build Tribal Environmental Programs

This Agreement will facilitate support for Tribal development of an environmental program, regulatory and otherwise, that will protect, conserve, and restore the reservation environment and the health of its citizens. This Agreement will also provide a mechanism for the effective enforcement of and compliance with federal and Tribal environmental laws.

F. To Institute Specific Procedures

This Agreement will provide a mechanism for the enhancement of communication, funding, technical assistance, training, capacity building, administration and the periodic reevaluation of this Agreement.

G. To Promote Stability

This Agreement shall be implemented to promote Tribal stability in funding, employment, capacity building, infrastructure development and other factors that assure acceptable levels of environmental protection on the reservation in perpetuity.

H. Long-Term Goals

This Agreement has been developed with the understanding that the long-term goal is to address, implement and maintain, where deemed necessary by the Tribes, the full range of EPA's activities and programs.

I. To Address the EPA Trust Responsibility

This Agreement will be used to identify procedures by which the EPA can uphold its federal trust responsibility to the Tribes, to protect both the environment of the reservation and to protect

other lands and rights which the Tribes retain. In addition, such procedures shall be the basis for assistance by EPA in communicating trust responsibility concerns to other agencies whose activities affect the rights and interests of the Colville Tribes.

J. To Ensure that Unique Tribal Concerns are Respected

This Agreement is intended to provide a framework for environmental protection which is respectful of Tribal cultural concerns, subsistence activities, traditional practices and resource protection. This Agreement will assist EPA and Tribal staff in assessing and providing an understanding of Tribal environmental needs and identify the areas under which the Tribe intends to assume program responsibility.

K. Provide a Flexible, Common-Sense Tool for Tribal Environmental Protection

This Agreement is intended to provide maximum flexibility so that Tribal specific needs can be accommodated. It should be interpreted as a flexible document that can be changed to meet Tribal environmental needs.

EPA will in a timely manner notify the Tribes of all revisions in EPA policies and regulations that may result in an impact to the Tribe will be communicated to the Tribe in a timely manner. The Parties will work together to utilize the policies and regulations in a manner which will most effectively facilitate the protection of the Tribe's environment in a manner consistent with the government-to-government relationship. To that end, this Agreement will be revisited periodically to keep it current with current legislation and regulations, expand flexibility into the future, and review the progress in using the provisions of the Agreement to provide a flexible, common-sense tool for Tribal environmental protection.

L. To Address a Full Range of Environmental Programs

This Agreement will provide the framework for the cooperative development, implementation, and maintenance of comprehensive Tribal environmental programs. EPA and Tribal staff are encouraged to identify all aspects of environmental protection that the Tribes may pursue to enhance its capacity to protect the Tribes' environment.

M. EPA Planning

This Agreement will assist the EPA in identifying areas where EPA will need to plan for and carry out direct implementation. This Agreement will provide a mechanism for including Tribal concerns in EPA planning. The EPA Tribal Office will coordinate efforts to involve the Tribe in EPA planning activities.

IV. GUIDING PRINCIPLES

As these Agreements are developed, all principles included in the EPA's Indian Policy shall apply. These principles include recognition of the trust responsibility for environmental protection, the government-to-government relationship, and Tribal sovereignty.

A. Protocol

The government-to-government relationship shall be directly between the EPA and the Tribes. Grants, contracts, and official agreements between the two entities must be signed by Chairman of the Colville Business Council, or otherwise approved in accordance with tribal law, to commit the tribe to any official action or financial/performance requirement.

Training and technical assistance services for the Tribes by EPA will be initiated by initially contacting the Director of Environmental Trust or a delegated individual.

EPA will coordinate with the Tribes when entering the Reservation for the purposes of conducting enforcement activities and providing compliance and technical assistance. EPA will use its best efforts to notify the Director of the Tribes' Environmental Trust Department of enforcement inspections and investigations that take place on the Reservation. EPA will endeavor to afford tribal environmental officials an opportunity to accompany EPA officials on visits to facilities for inspections and investigations, and for compliance and technical assistance.

B. Communication

While implementing the Agreement, the EPA and the Tribe are committed to on-going, timely and open communication. EPA commits to providing timely advice on available grants and other sources of available funding, training and on-going meetings that affect Tribes. This also includes a timely transfer of state of the art technology as the Tribe seeks to build capacity. The Tribe commits to the identification of issues and problems at early stages of development in order to provide time to plan potential resolutions that EPA may be able to support or implement (or assist in implementing) in furtherance of this Agreement.

C. Environmental Justice

The principles of environmental justice shall apply to this Agreement. In general, these principles call for the EPA to assure that Tribes at a minimum are afforded all of the opportunities afforded States, including procedures for Tribal participation in EPA decision making. The unique aspects of tribal sovereignty and the federal trust responsibility may require that the Tribes be entitled to special opportunities as well. In addition, environmental justice principles call for a recognition of Tribal cultural concerns such as subsistence needs and traditional uses of natural resources.

V. TRIBAL AND EPA COORDINATION

A. Information Sharing

The parties agree to share information relating to their activities or decision-making that may directly or indirectly impact the environment of the Tribes. The Parties also agree that, to the extent possible, they will share information pertaining to impacts on the Tribal environment or Tribal resources.

B. Development of EPA Coordination Process

The Parties agree to maintain coordination efforts. Parties will communicate issues and concerns regarding the work that is required to coordinate efforts to protect the environment of the Tribes.

C. Planning

The Parties will use the partnership established herein to jointly plan and implement a strategy for effective environmental programs on the Reservation that are consistent with the general Goals and Objectives of the Agreement. Specific actions and time lines will be set forth in Appendix I to this agreement entitled "Action Plan."

1. Planning and Budget Cycles

For the purposes of this Agreement the Tribe, in coordination with the EPA, will identify the following:

a. EPA Resources Needed. The Parties will cooperatively identify resources needed from EPA.

b. Grant Schedule Information. EPA will identify and submit to the Tribe a schedule for submitting grant applications, and other such planning information.

c. Progress Toward Stable Funding. The Parties will seek to identify how stable sources of funding will be provided, including resources from EPA and from the Tribe. Project specific funding can be used to get started, but sources of long-term program implementation funding sources should be identified.

d. Linkage Between Short- and Long-Term Funding. The Tribe will attempt to explain in detail the linkage between long- terms goals and short-term resource needs so that the EPA can pursue adequate resources to assist with these longer-term objectives, without focusing on the year-to-year fluctuations to the budget.

e. Updated Information for National Budget Development. Updated key information for national budget development on rolling schedules should be submitted annually based on the Agreement, while maintaining key activities that lead to fulfillment of longer term goals.

2. Other Planning Considerations

To achieve a well-informed plan relating to community health and environmental quality, the parties may consider infrastructure issues such as housing, utility and energy development, road-building, transportation and community sanitation. Where both the State and EPA are engaged in such infrastructure changes, the EPA agrees to initiate and/or facilitate discussion as to the potential impacts the project will have on the Tribes, its members and residents, or its resources.

D. Visits by EPA Staff

To enhance coordination and the parties' working relationship, and to develop and implement the Work Plan, EPA agrees to meet with representatives of the tribal government or tribal staff at least once a year. The visits may focus on any or all of the objectives of this Agreement, including collateral activities consistent and supportive of this Agreement.

E. Legislation

To the extent permitted by law and possible by timeliness, EPA agrees to solicit Tribal comments on proposed legislation and regulatory activity which may impact the Tribe. The intent is to provide the Tribe with an opportunity to comment on legislation that may impact it and its ability to protect the Tribal environment.

VI. ENVIRONMENTAL COMPLIANCE

A. Compliance Education

EPA will design an educational program and educational information to promote environmental compliance on the Colville Indian Reservation, with respect to activities of the Tribes and its entities and other persons and entities that affect the environment and may be subject to federal or tribal environmental laws. The following will be addressed:

1. Tribal Participation and Comment

Invite Tribal participation and comment in the development of environmental legislation and regulations affecting the Tribe.

2. Existing Requirements

Inform the Tribe of existing environmental requirements, as stated in applicable laws and regulations.

3. Advice to Attain Compliance

Advise and explain to the Tribe how to effectively achieve compliance in non-compliance situations.

4. Recognize Barriers to Compliance

Recognize when compliance may be delayed, and work to assure that public and environmental health risks are minimized until compliance is achieved.

B. Technical Assistance in Developing Tribal Policies and Regulations

EPA will provide technical assistance and/or written models to the Tribe ~~to~~ assist in the preparation and adoption of environmental policies and ordinances which are congruent with applicable federal laws.

C. Assistance in Identifying and Prioritizing Compliance Problems

EPA and the Tribe will work jointly to identify and prioritize non-compliance situations in the Colville Indian Reservation. An inventory of noncompliance issues will be developed each year after input from the Parties. Together, the Parties will decide upon strategies for correction, and include the correction strategy in the environmental Action Plan for the applicable area, along with a time line. EPA will coordinate with the Tribes if a federal enforcement response is planned for a non-compliance situation involving a private party. The Parties shall periodically re-evaluate the selected strategy, and their progress.

VII. TRIBAL CAPACITY-BUILDING

EPA recognizes that in order to achieve the Tribes' three part holistic goal environmental protection programs on the Colville Indian Reservation must in time be melded into a holistic, integrated program that reflects the values of the Tribes and meets or exceeds federal standards; recognizing that nature, unlike environmental laws and regulations, is not compartmentalized into discrete and independent parts.

The Tribes recognize that by embarking on this agreement process that they will be working with EPA to pioneer unique ways of protecting the environment, ways that do not necessarily fit the "state model" or discrete environmental media program model.

EPA agrees to assist the Tribe in building its capacity and capability to assume responsibilities that are identified as priorities for the Tribal government through this Agreement. Until the Tribe is capable of assuming full programs or programs requiring EPA approval, EPA will retain responsibility for managing federal environmental programs in the Colville Indian Reservation.

A. Definition

This Agreement is intended to build Tribal environmental capacity so that the Tribe will be able to develop and implement on-going environmental programs. Tribal Capacity Building is the process of working through Tribal government to build tribally-controlled community programs which meet the needs of Tribal members and achieve the Tribes' 3-part goal. Tribal Capacity Building promotes Self-Determination by encouraging the development, implementation and operation of Tribal programs by the Tribes' government. Tribal Capacity Building will reduce reliance on federal program implementation and oversight. Under this Agreement, Tribal Capacity Building includes the development of environmental management capability. Management capability is composed of three primary components: technical/managerial, education/communication, and environmental monitoring.

B. Guiding Principles for Capacity Building

1. Technical and Fiscal Resource Commitment

EPA will support the Tribes' Tribal Capacity Building through the dedication of EPA human and fiscal resources (to the extent such resources are available or can be allocated), and through the adoption of policies and regulations which support Tribal Capacity Building. EPA will work with the Tribe and other federal agencies to identify long-term financial support for the implementation of Tribal environmental programs.

2. Cross-Cultural Training

EPA will support and implement cross-cultural training for its staff, to facilitate understanding tribal culture, goals, and values. The Tribes agrees to provide information and, to the extent feasible, technical assistance which will help EPA staff understand the unique history, circumstances and perspectives of the Tribe. This training is intended to enhance communication and cooperation between the Tribe and EPA staff and management. EPA will also develop a training module will which assist the Tribal government and staff in understanding the institutional culture of the EPA.

3. Management Training

Subject to available resources, EPA will develop and implement an administration and management training module which will assist Tribes in understanding the expectations and requirements of EPA for such purposes as grant development and application, financial management systems, grants compliance and reporting, program authorization requirements and other areas

necessary to Tribal capacity building and success.

4. Commitment to Notification of Regulation Changes

EPA will provide the Tribe with proposed and final rules or regulations, as well as other documents, which pertain to Tribal environmental programs, or which are requested by the Tribes. EPA will assist the Tribes in conducting impact assessments of new or revised regulations, and in reviewing potential funding and assistance resources made available by EPA.

VIII. ADMINISTRATION OF AGREEMENT

A. Setting Priorities

On an annual basis, the Tribe will identify specific environmental priorities for the Reservation. The Parties will be guided by the following procedures.

1. Tribal Environmental Information Gathering

With technical assistance from EPA, the Tribes will gather information about Tribal environmental concerns. A focus of the information gathering will be to distinguish between environmental concerns being effectively addressed and those that need further emphasis in order to minimize current and/or future risks.

2. Tribal Assessment of Priorities

Based on the annual environmental review, the Tribe will determine which environmental concerns call for emphasis. The Tribe may also identify Tribal priorities for programs which it would like the EPA to implement on the Reservation.

3. Joint Review of Tribal Information and Priorities

The Tribe will communicate with EPA regarding the Tribe's identified priorities. The Parties will jointly review the priorities and identify a program implementation strategy. Both short and long-term action plans will be revisited or developed.

4. Plan for Attaining Priorities

As part of establishing priorities, the Parties will develop a plan for attaining each priority, which may include goals, tasks, responsibilities, and timelines for each specific matter. In addition, the Parties will jointly identify potential short-term and long-term funding sources.

5. Progress Milestones

The priorities and the identified progress milestones will be evaluated annually by staffs of EPA and the Tribes, and will be presented to managers of EPA and the Tribes at the annual review of this Agreement.

B. Implementation

The Parties concur that this Agreement provides a framework for each Party to act individually under its authorities, and in concert with the other Party, to meet the goals and objectives identified above.

1. Roles and Responsibilities of EPA.

EPA will, within available resource constraints:

a. Implement the EPA National Indian Policy and the policies of EPA Region 10.
EPA will take other actions in accordance with formal EPA policy, guidance and direction, with due consideration of the Tribes' views.

b. Protect the Tribal environment
EPA will protect the Tribal environment to the same degree as the non-Tribal environment, including spiritual and cultural sites, by ensuring effective implementation and enforcement of regulatory programs that meet or exceed applicable tribal, state and federal standards.

c. Retain EPA Jurisdiction on the Reservation
EPA will retain jurisdiction on the reservation for those federal environmental program components which are not either delegated to the Tribes or otherwise implemented by the Tribes.

d. Provide the Tribe with proposed and final Regulations
EPA will provide the Tribes with proposed and final regulations and policies, as well as other documents which are available to the general public, which pertain specifically to tribal environmental programs, or which are otherwise requested by the Tribes.

e. Provide Technical and Other Assistance to the Tribe
EPA will assist the Tribes in conducting: i) reservation environmental program needs assessments, ii) an impact assessment of new or revised regulations; iii) a priority assessment of existing and new program requirements; and iv) a review of potential funding and technical assistance sources.

f. Cross-Cultural Training
EPA will provide cross-cultural and trust responsibility training opportunities for EPA staff and managers, with the assistance of the Tribes on request.

g. Participation in Ecosystem/Watershed Protection
EPA will assist and coordinate with the Tribes in the development of an ecosystem/watershed approach to environmental protection based on the Tribes' 3-part goal.

h. EPA Administrative & Management Training
EPA will provide training to facilitate the Tribes' understanding of the various EPA program administrative and management requirements.

2. Roles and Responsibilities of the Tribes.

The Tribes will, within available resource constraints:

a. Identify Tribal Priorities
The Tribes will identify the Tribe's specific environmental priorities.

b. Implement a Primacy Strategy
The Tribes will, to the extent reasonable for its circumstances, implement a strategy to achieve primacy for certain regulatory programs. As part of that strategy, the Tribes will work with EPA and other federal agencies to build the capacity of the Tribes to enforce and assure compliance with all necessary federal and Tribal environmental laws, regulations, and programs.

c. Assist EPA with Programs
The Tribes will assist in the implementation of those programs for which EPA retains the lead, and cooperate with EPA's efforts to enforce and assure compliance with all federal environmental regulations.

d. Identify Alternative Funding Options
The Tribes will explore and identify options for long-term funding, including an analysis of program fees, excise taxes and fines as a source of program funding.

e. Identify Tribal EPA Contacts
The Tribes agrees to identify a Tribal government representative and/or Tribal staff who will be responsible for receiving and distributing EPA notices, including requests for comment.

f. Train EPA About Tribal Management
The Tribes will provide EPA with training and/or other information to facilitate EPA's

understanding of the Tribe's culture and its administrative/management requirements.

3. Other Federal Agencies, State, Regional and Local Governments.

a. Other Federal Agencies
The Parties will work with other Federal agencies to carry out their relevant responsibilities, sharing and coordinating the collection of information that pertains to the human and environmental health both in and near the Colville Indian Reservation.

b. Develop Relationships with Other Entities
Efforts to implement environmental protection for ecosystems will guide the development of working relationships and procedures with federal, state, regional, county and local agencies.

c. Assist in Educating Local Governments
EPA may assist in the Tribes' environmental program initiatives by helping to educate local governments about this Agreement, the joint planning of environmental protection on the Reservation, jurisdiction issues, the trust responsibility, and other aspects of EPA's government-to-government relationship with the Tribes.

d. Cooperative Agreements
Upon the Tribes' request, EPA will provide technical assistance in developing environmental cooperative agreements with state, regional, and local governments.

4. Funding and Technical Assistance.

Recognizing each of the Parties' resource limitations, the Parties will prioritize the environmental programs for which the Tribes seek financial assistance. EPA will endeavor, within the constraints of its resources, to provide technical and/or funding assistance requested by the Tribes for those priorities.

C. Communications

The Parties agree that communications will be conducted as follows:

1. Designated Key Contacts - Programmatic

EPA has designated ita Tribal Programs Coordinator (currently Larry Brockman) to serve as the primary contact for the Tribe. The Coordinator is responsible for assisting the Tribe, as necessary, in working with others throughout the Agency. The Tribal staff is free to communicate with staff persons at the EPA who are responsible for the relevant program or subject matter. In that instance, the EPA staff person is responsible for notifying the Tribal Coordinator of the communication so that

at least one person in the EPA has the "big picture" of all EPA-Tribes activities. Tribal staff and management should also feel free to contact the Regional Tribal Program Manager regarding programmatic concerns.

The Tribe has identified its Director of Environmental Trust (currently Gary Passmore) as Tribal staff person who will serve as the primary contact for the EPA on programmatic issues and concerns, including but not limited to program development and implementation, grants development, grants management and for whatever other purposes the Parties agree to.

2. Designated Key Contacts - Policy

Tribal staff, management and government should feel free to contact the Regional Tribal Policy Director regarding policy matters. The Tribal Policy Director will provide timely policy information to the Tribe, either personally or through the Tribal Coordinator.

The Tribes will identify a tribal contact that the Regional Tribal Policy Director can call on for input on Regional tribal policy matters. When policy decisions that may impact the Tribal environment are being considered, the Tribal Policy Director will provide for meaningful Tribal government input, whenever possible.

3. Designated Key Contacts - Leadership

The Chairman of the Colville Business Council always has the option of contacting the Regional Administrator and/or Deputy Regional Administrator if a situation arises which warrants their involvement.

D. Issue Resolution

Both Parties will strive to address matters informally, at the staff level. In the event that staff are unable to resolve a dispute, the issue will be presented to immediate supervisors, who will attempt to resolve the dispute. If the dispute is not resolved, the staffs will present the matter to progressively higher levels of management until consensus is reached.

In the event consensus is not reached, the matter will be resolved by the Regional Administrator of the EPA and the Chairman of the Colville Business Council.

Other dispute mechanisms required by statute or regulation may apply to grants or program-specific issues.

IX. EFFECT OF THIS AGREEMENT

This Agreement is intended solely to facilitate intergovernmental coordination between the

parties, and grants no rights in third parties nor any right of judicial review. This Agreement is not intended as an enforcement document, and the Tribes disclaims any responsibility to act as an enforcement agency. The parties do not, by entering into this Agreement, waive any rights, powers, immunities or remedies otherwise available.

X. DURATION, RENEWAL AND MODIFICATION

A. Effective Date of Agreement

This Agreement is effective upon the date of signature by both parties.

B. Duration & Renewal

This Agreement is self-renewing and will remain in effect until terminated by mutual agreement of the Parties; provided, however, that any Party to this agreement may withdraw from this agreement by providing thirty (30) days written notice to the other Party. Unless otherwise specifically provided, termination of this agreement will not in any way affect program delegations, funding agreements, or any other agreements between the Parties.

C. Modification & Amendment

This Agreement may be modified in writing upon the request of either party. All modifications must be mutually agreeable, in writing, and signed by the signatories or their duly appointed representatives. each party will keep the other informed of proposed and enacted modifications to relevant statutory or regulatory authority, forms, procedures, or priorities. The parties will endeavor to negotiate and make modifications to this agreement where it appears appropriate to do so in light of any such proposed or enacted modifications.

XI. SOVEREIGNTY AND DISCLAIMER

The parties to this Agreement recognize and respect the sovereignty and legal status of one another. The parties further recognize that each has and reserves all rights, powers, and remedies now or hereafter existing at law or in equity, or by statute, treaty or otherwise. This Agreement does not modify, diminish, or alter the rights and entitlement of the Parties. The Tribes' joinder to this Agreement shall not constitute a waiver of sovereign immunity by the Tribes. This Agreement does not modify or supersede agreements with other entities or other agreements with EPA unless expressly noted.

XII. SAVINGS CLAUSE

If any provisions or elements of the Agreement are held or decided by law to be invalid, all

other provisions of the Agreement remain in full force and effect. If, in the interpretation of the Agreement, the parties have differing interpretations, an effort will be made to interpret the agreement in terms that are favorable to the protection of the Tribal environment.

A. Regulatory Legislation

If any provisions or elements of the Agreement are held legally or by regulatory legislation to be invalid, all other provisions of the Agreement remain in full force and effect.

B. Funding Legislation

If any provisions or elements of the Agreement are held or decided by funding legislation to be invalid, all other provisions of the Agreement remain in full force and effect.

C. State EPA Agreements

Nothing in this Agreement is intended to abrogate agreements EPA has with other entities. Conversely, agreements between EPA and other entities shall not abrogate this Agreement. In the event EPA has entered into conflicting agreements, EPA will be attempt to facilitate a resolution of the differences. Any elements of this Agreement that are designated as invalid shall not abrogate any provisions of the Agreement not in conflict with other EPA agreements.

FOR THE PARTIES

for Joseph A. Pakootas, Chairman

Date

Chuck Clarke
Regional Administrator
Environmental Protection Agency,
Region 10

Date

ATTACHMENT B
PHOTOGRAPHIC DOCUMENTATION

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intentionally left blank.

PHOTOGRAPH IDENTIFICATION SHEET

Camera Serial #: 52712087 **TDD #: 99-10-0002**
Lens Type: Minolta Freedom Zoom 140 EX **Site Name: Upper Columbia River Segments**

Photo	Date	Photographer	Direction	Description and Orientation
1	03/02/00	J. Howe	Northwest	Seven Bays community.
2	03/02/00	J. Howe	North	Trout net pens at Seven Bays.
3	03/02/00	J. Howe	West	Across Lake Roosevelt from Seven Bays.
4	03/02/00	J. Howe	South	Marina run by Spokane Tribe on the Spokane Arm of Lake Roosevelt.
5	03/02/00	J. Howe	South	Bank erosion near Bissell.
6	03/02/00	J. Howe	North	Exposed sediments surrounding Barnaby Island.
7	03/02/00	J. Howe	Southeast	Barnaby Creek and inlet.
8	03/02/00	J. Howe	East	Looking across Lake Roosevelt from Barnaby Creek.
9	03/02/00	J. Howe	East	Across Lake Roosevelt to houseboats at Kettle Marina.
10	03/02/00	J. Howe	South	Marcus Flats.
11	03/02/00	J. Howe	North	Just below Evans Campground looking upstream.
12	03/02/00	J. Howe	North	Evans campground.
13	03/02/00	J. Howe	South	Old (pre-Grand Coulee Dam) roadbed at Evans Campground.
14	03/02/00	J. Howe	East	Sawmill at the LeRoi Smelter property.
15	03/02/00	J. Howe	East	Discarded materials at the LeRoi Smelter property.
16	03/02/00	J. Howe	Northeast	LeRoi Smelter property.
17	03/02/00	J. Howe	East	LeRoi Smelter stack.
18	03/02/00	J. Howe	Down	Fibrous material clinging to rocks at Northport city park beach.
19	03/02/00	J. Howe	Down	White fibrous material on rock at Northport city park beach.
20	03/02/00	J. Howe	Southwest	Black slag accumulated on Northport city park beach.
21	03/02/00	J. Howe	Northeast	Possible old slag piles on LeRoi Smelter property.
22	03/02/00	J. Howe	East	Building and automobile chassis at Old Bossburg.
23	05/01/99	P. Stone	North	Dust storm event at Swawilla Basin.
24	1999	P. Stone	South	Dust storm event at Marcus Flats.


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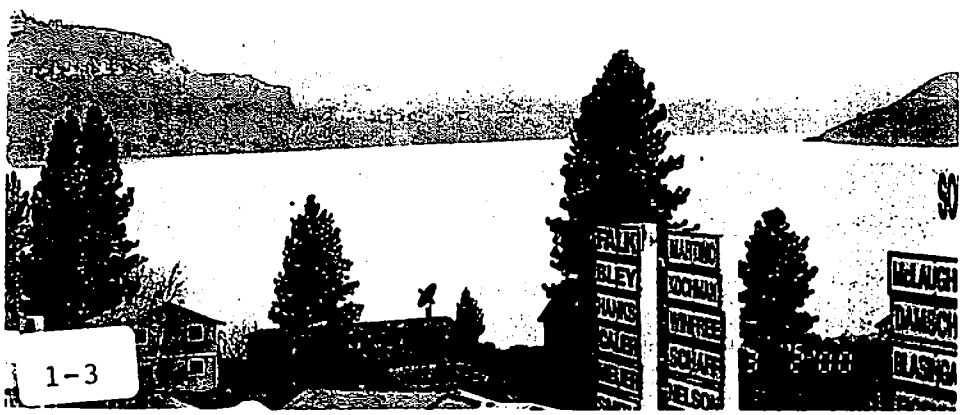
1-2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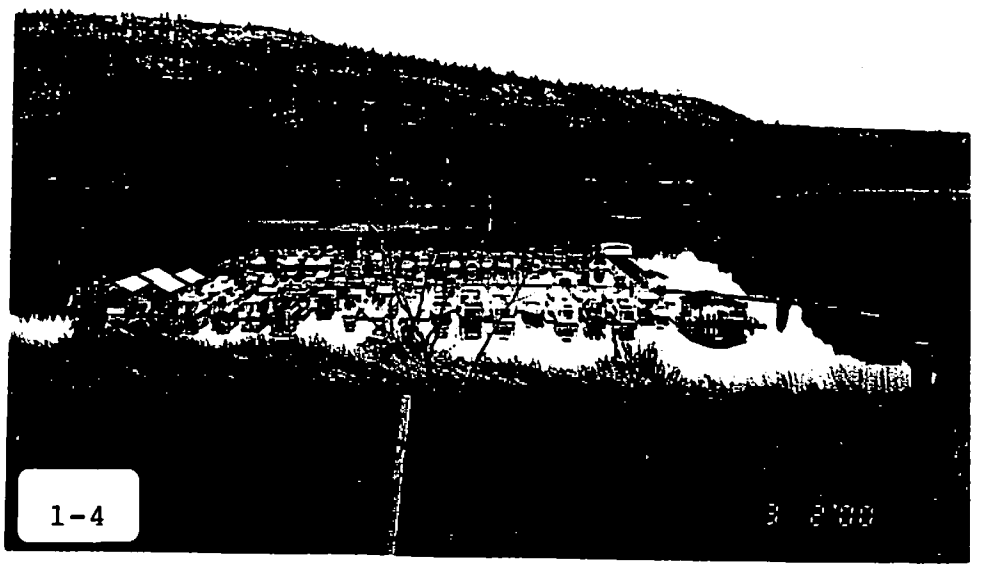
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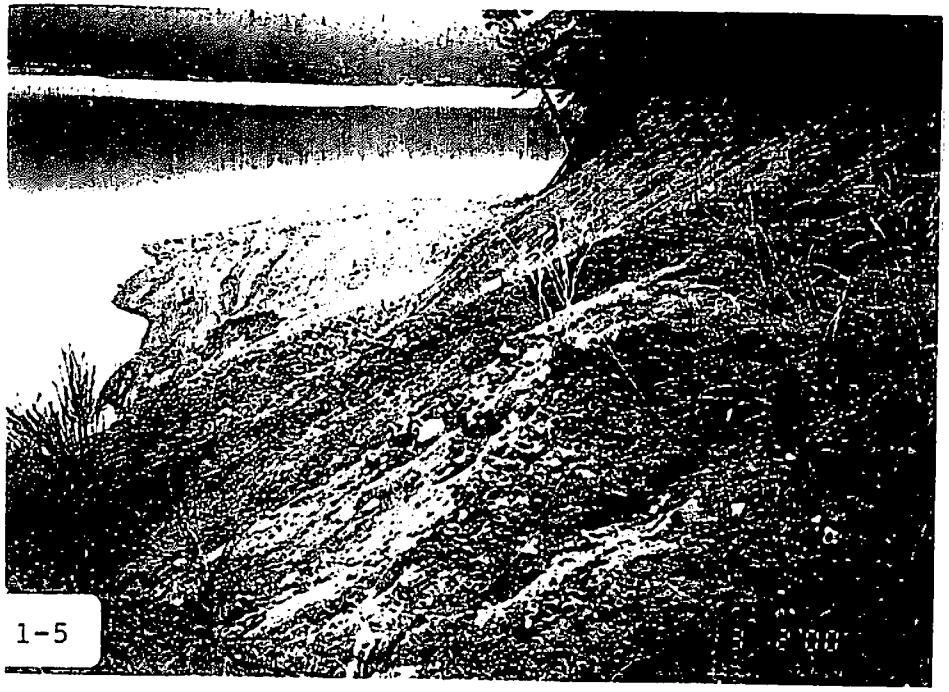
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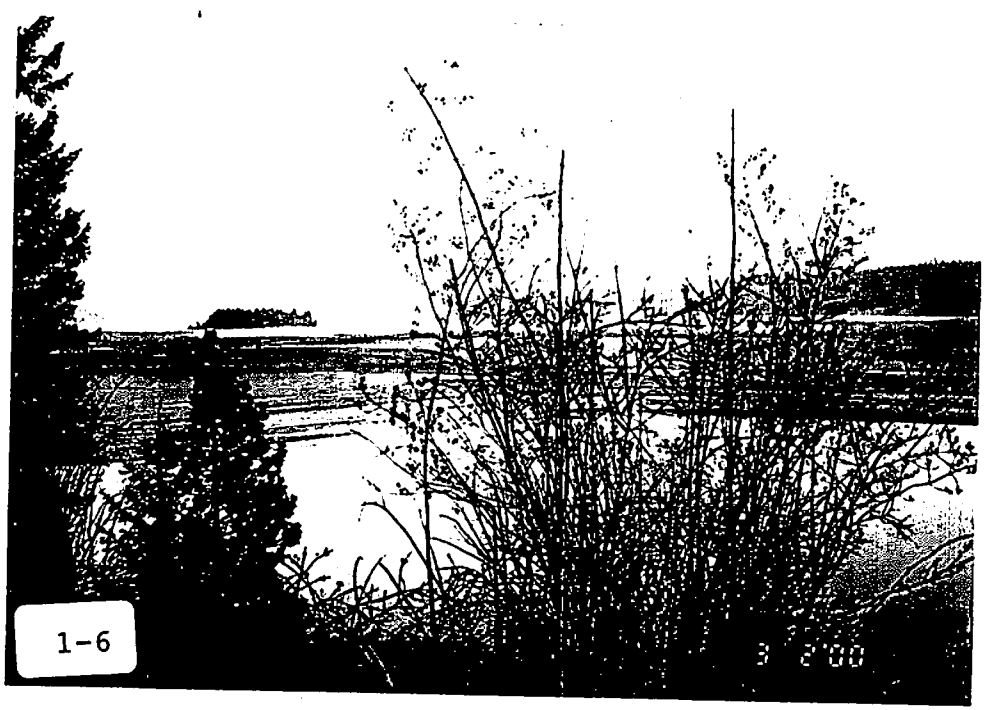
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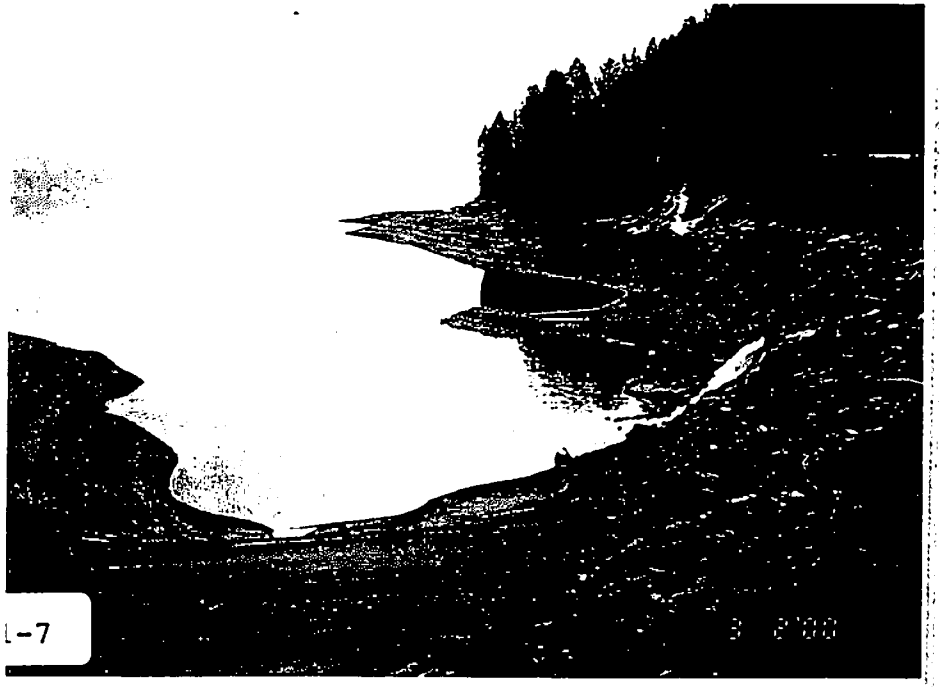
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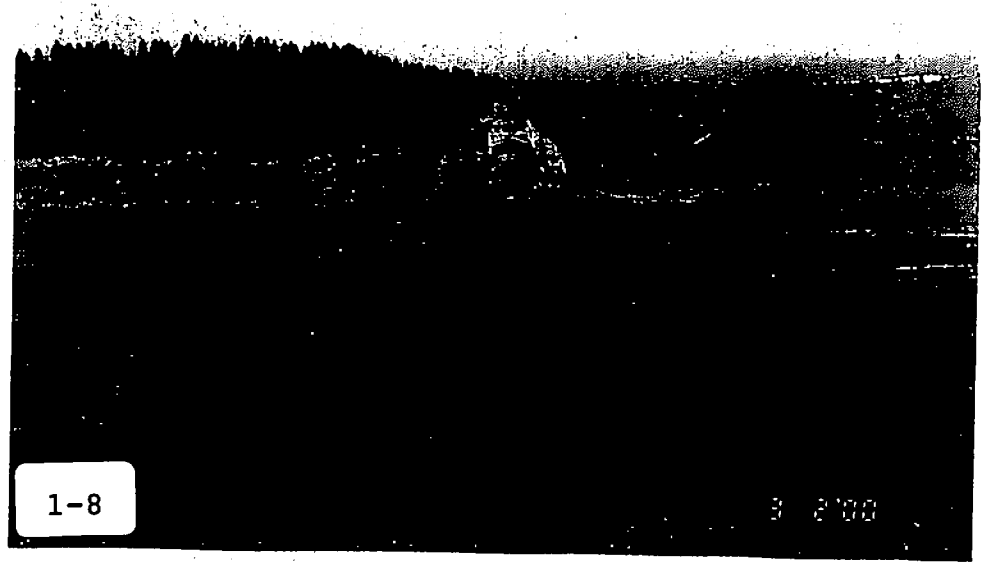
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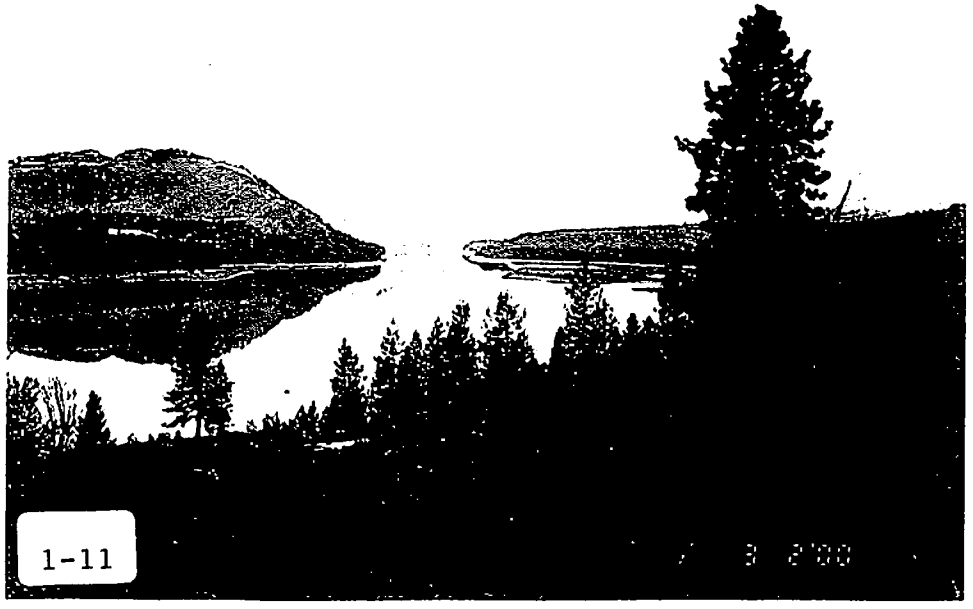
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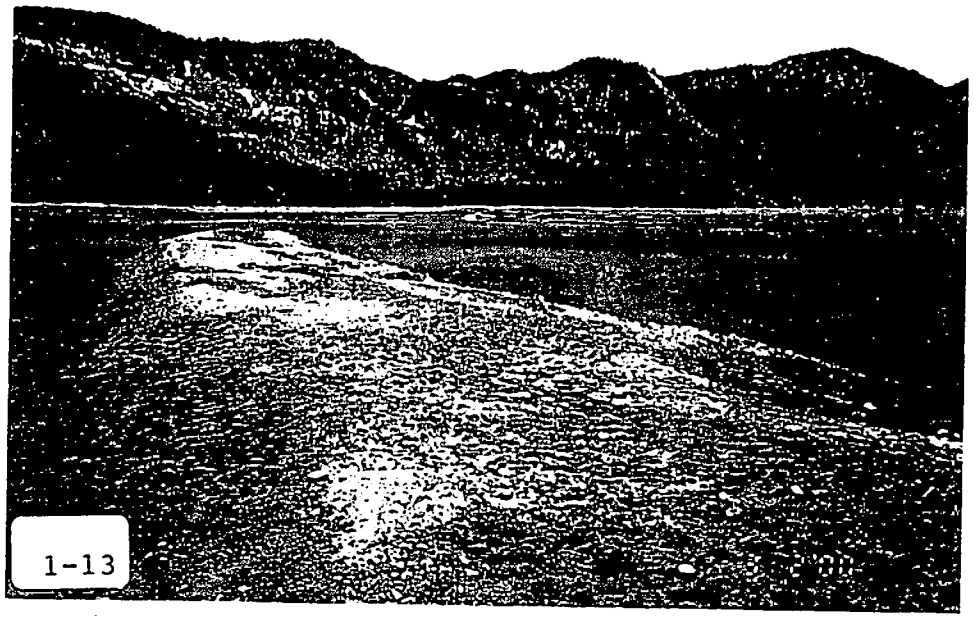

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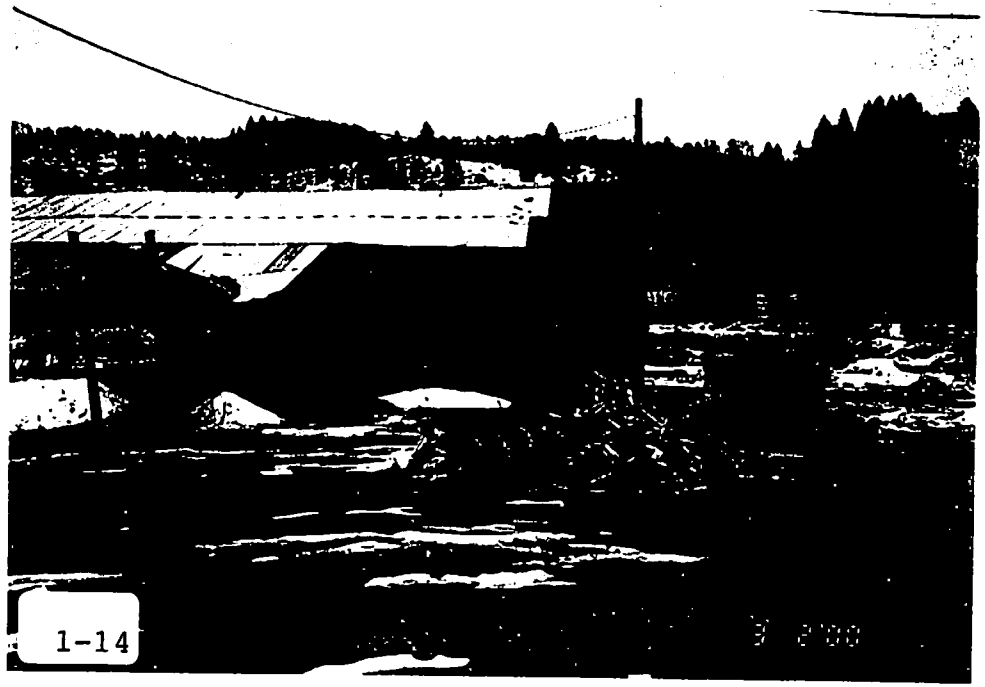

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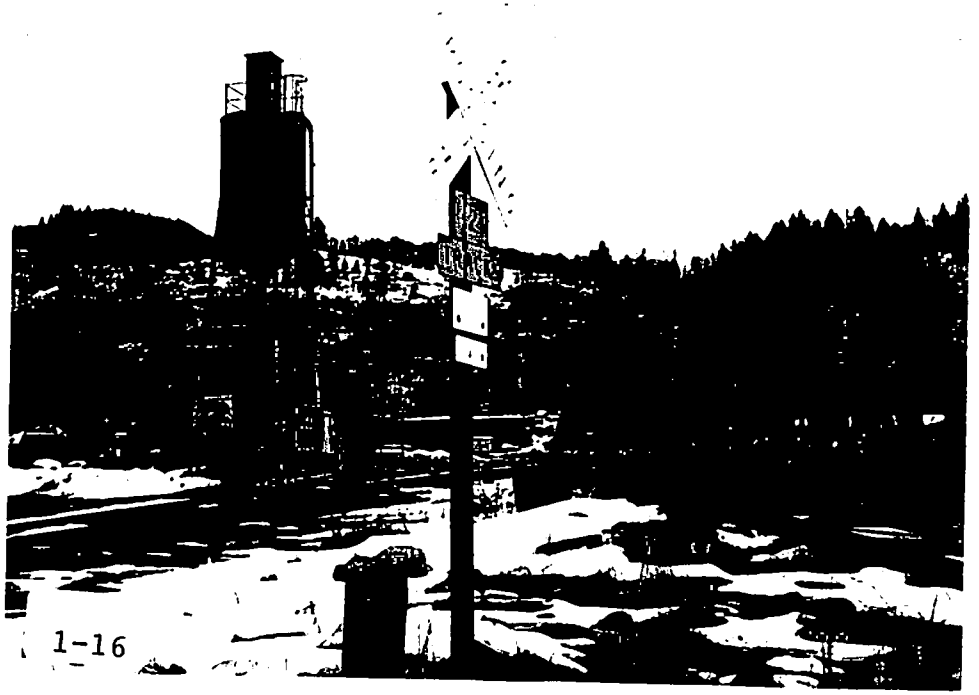

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