PREASSESSMENT SCREEN

FOR THE

ST. REGIS PAPER COMPANY SUPERFUND SITE

LEECH LAKE RESERVATION
PIKE BAY TOWNSHIP
CITY OF CASS LAKE
CASS COUNTY, MINNESOTA

SEPTEMBER 24, 2012

PREPARED BY THE
NATURAL RESOURCE TRUSTEES FOR
THE ST. REGIS PAPER COMPANY SUPERFUND SITE

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LIST OF ACRONYMS AND DEFINED TERMS

Assessment Area	As defined in 43 C.F.R. Part 11 as amended. Area or areas within which natural resources have been affected directly or indirectly by the discharge of oil or release of a hazardous substance and that serves as the geographic basis for the injury assessment.
Baseline	As defined in 43 C.F.R. Part 11 as amended. Condition or conditions that would have existed at the assessment area had the discharge of oil or release of the hazardous substance under investigation not occurred.
BIA	Bureau of Indian Affairs
Biological resources	As defined in 43 C.F.R. Part 11 as amended. Those natural resources referred to in section 101(16) of CERCLA as fish and wildlife and other biota. Fish and wildlife include marine and freshwater aquatic and terrestrial species; game nongame, and commercial species; and threatened, endangered, and State sensitive species. Other biota encompass shellfish, terrestrial and aquatic plants, and other living organisms not otherwise listed in this definition
BNSF	BNSF Railway Company, Burlington Northern Santa Fe Railway Company
CCA	Copper-chromium-arsenate
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act, 42 U.S.C. 9601 *et seq*., as amended
C.F.R.	Code of Federal Regulations
Champion	Champion International Corporation
COC	Chemical of concern
Council	St. Regis Paper Company Superfund Site Natural Resource Damage Assessment and Restoration Trustee Council[1]
CWA	Clean Water Act, as amended, 33 U.S.C. 1251 *et seq*., also referred to as the Federal Water Pollution Control Act
Damages	As defined in 43 C.F.R. Part 11 as amended. Amount of money sought by the natural resource trustee as compensation for injury, destruction, or loss of natural resources as set forth in section 107(a) or 111 (b) of CERCLA, as amended
Destruction	As defined in 43 C.F.R. Part 11 as amended. Total and irreversible loss of a natural resource
Discharge	As defined in 43 C.F.R. Part 11 as amended. A discharge of oil as defined in section 311(a)(2) of the CWA, as amended, and includes, but is not limited to, any spilling, leaking, pumping, pouring, emitting, emptying, or dumping of oil

[1] November 15, 1999, Memorandum of Understanding Among the Leech Lake Band of Ojibwe; Minnesota Department of Natural Resources; United States Department of Agriculture, Forest Service; United States Department of the Interior; and the United States Environmental Protection Agency Regarding Natural Resource Damage Assessment in the St. Regis Paper Company Superfund Site Environment.

LIST OF ACRONYMS AND DEFINED TERMS

DNAPL	Dense non-aqueous phase liquid
DOI	Department of the Interior
Drinking water supply	As defined in 43 C.F.R. Part 11 as amended. Any raw or finished water source that is or may be used by a public water system, as defined in the SDWA, or as drinking water by one or more individuals.
EPA	United States Environmental Protection Agency
Exposed to or exposure	As defined in 43 C.F.R. Part 11 as amended. All or part of a natural resource is, or has been, in physical contact with oil or a hazardous substance, or with media containing oil or a hazardous substance.
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act, 7 U.S.C. §136 *et seq*., as amended
Geologic resources	As defined in 43 C.F.R. Part 11 as amended. Those elements of the Earth's crust such as soils, sediments, rocks and minerals, including petroleum and natural gas, that are not included in the definitions of ground and surface water resources
Groundwater resources	As defined in 43 C.F.R. Part 11 as amended. Water in a saturated zone or stratum beneath the surface of land or water and the rocks and sediments through which groundwater moves. It includes groundwater resources that meet the definition of drinking water supplies.
Hazardous substance	As defined in section 101(14) of CERCLA, as amended
HHERA	Human health and ecological risk assessment
HRL	Health Risk Limits
HSCA	Hazardous Substance Control Act (Leech Lake Band of Ojibwe)
Injury	As defined in 43 C.F.R. Part 11 as amended. Measurable adverse change, either long- or short-term, in the chemical or physical quality or the viability of a natural resource resulting either directly or indirectly from exposure to a discharge of oil or release of a hazardous substance, or exposure to a product of reactions resulting from the discharge of oil or release of a hazardous substance. As used here, injury encompasses the phrases "injury," "destruction," and "loss." 43 C.F.R. 11.14(v). Injury definitions applicable to specific resources are provided in at 43 C.F.R. 11.62
IP	International Paper Company
Loss	As defined in 43 C.F.R. Part 11 as amended. Measureable adverse reduction of a chemical or physical quality or viability of a natural resource
LLBO or Tribe	Leech Lake Band of Ojibwe
LLDRM	Leech Lake Division of Resource Management
LNAPL	Light non-aqueous phase liquid
MCL	Maximum Contaminant Level

LIST OF ACRONYMS AND DEFINED TERMS

MDH	Minnesota Department of Health
MDNR	Minnesota Department of Natural Resources
MERLA	Minnesota Environmental Response and Liability Act
MPCA	Minnesota Pollution Control Agency
NAPL	Non-aqueous phase liquid
Natural resources or resources	As defined in 43 C.F.R. Part 11 as amended. Land, fish, wildlife, biota, air, water, groundwater, drinking water supplies, and other such resources belonging to, managed by, held in trust by, appertaining to, or otherwise controlled by the St. Regis Paper Company Superfund Site Natural Resource Trustees[2]
NCP	National Contingency Plan, National Oil and Hazardous Substances Contingency Plan and revisions promulgated by EPA, pursuant to section 105 of CERCLA and codified in 40 C.F.R. part 300
NEPA	National Environmental Policy Act, 42 U.S.C. 4321 *et seq.*, as amended
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRDA	Natural Resource Damage Assessment
NRD	Natural Resource Damages
NRRI	Natural Resources Research Institute
Oil	As defined in section 311(a)(1) of the CWA, as amended.
OPA	Oil Pollution Act, 33 U.S.C. 2701 *et seq.*, as amended.
OU	Operable Unit
PAH	Polycyclic aromatic hydrocarbon
Pathway	As defined in 43 C.F.R. Part 11 as amended. The route or medium through which oil or a hazardous substance is or was transported from the source of the discharge or release to the injured resource
PAS	Preassessment Screen
PCB	Polychlorinated biphenyl
PCP	Pentachlorophenol
ppb	Parts per billion
ppm	Parts per million
ppt	Parts per trillion
PRP	Potentially Responsible Party
RCRA	Resource Conservation and Recovery Act, 42 U.S.C. 6901 *et seq.*, as amended

[2] *Id.*

LIST OF ACRONYMS AND DEFINED TERMS

Release	Release of a hazardous substance as defined in section 101(22) of CERCLA, as amended
Response	Remove, removal, remedy, or remedial actions as those phrases are defined in sections 101(23) and 101(24) of CERCLA, as amended
Restoration or rehabilitation	As defined in 43 C.F.R. Part 11 as amended. Actions undertaken to return an injured resource to its baseline conditions, as measured in terms of the injured resource's physical, chemical, or biological properties or the services it previously provided, when such actions are in addition to response actions completed or anticipated, and when such actions exceed the level of response actions determined appropriate to the Site pursuant to the NCP
SDWA	Safe Drinking Water Act, 42 U.S.C. 300f *et seq*., as amended
Services	As defined in 43 C.F.R. Part 11 as amended. Physical and biological functions performed by the resource including the human uses of those functions. These services are the result of the physical, chemical, or biological quality of the resource.
Site	St. Regis Paper Company Superfund Site
SQT	Sediment Quality Target
Surface water resources	As defined in 43 C.F.R. Part 11 as amended. Waters of the United States, including the sediments suspended in water or lying on the bank, bed, or shoreline and sediments in or transported through coastal and marine areas. This term does not include groundwater or water or sediments in ponds, lakes or reservoirs designed for waste treatment under RCRA or the CWA, and applicable regulations
Trustee(s)	St. Regis Paper Company Superfund Site Natural Resource Trustees.[3]
TEQ	Toxic Equivalent
U.S.C.	United States Code
UAO	Unilateral Administrative Order
USDA	United States Department of Agriculture
USDA-FS	United States Department of Agriculture – Forest Service
USGS	United States Geologic Survey

[3] *Id.*

I. PURPOSE AND NATURAL RESOURCE TRUSTEES' AUTHORITIES

A. Purpose

This document is a preassessment screen (PAS)[4], prepared pursuant to 43 C.F.R. Part 11, Subpart B by the natural resource trustees (Trustees) for the St. Regis Paper Company Superfund Site (Site), including any areas where natural resources may have been injured by releases of hazardous substances from the Site located in Cass Lake, Minnesota. The Site is more fully described in Section II.A. below. The Trustees' assessment of natural resource damages (NRD) will include the Site and, through the assessment process, is likely to incorporate other areas, where natural resources have been affected directly or indirectly by releases of hazardous substances from the Site (NRD Assessment Area).

The purpose of this PAS is to determine whether, based on a review of readily available information, there is a reasonable probability of making a successful claim for NRD before formal natural resource damage assessment and restoration (NRDAR) is conducted as authorized by the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), 42 U.S.C. § 9601 *et seq*., as amended; the Oil Pollution Act of 1990 (OPA), 33 U.S.C. § 2701 *et seq*., as amended; and the Federal Water Pollution Control Act, 33 U.S.C. § 1251 *et seq*. (Clean Water Act). The ultimate goal of NRDAR is restoration, and the U.S. Department of the Interior (DOI) NRDAR regulations emphasize this goal and expressly give trustees options that promote an early focus on restoration. 73 Fed. Reg. at 57260-57261. The Trustees intend to apply a restoration focus to the NRDAR process for the Site by implementing the procedures in the DOI rules to develop, inform, and achieve their restoration goals. This PAS represents a preliminary step in that process.

This PAS has been prepared under the direction of the St. Regis Paper Company Superfund Site Natural Resource Damage Assessment and Restoration Trustee Council (Council). The Council was established through a Memorandum of Understanding, effective November 15, 1999, and includes representatives of the Leech Lake Band of Ojibwe (Tribe or LLBO), the U.S. Department of the Interior (acting through the Bureau of Indian Affairs (BIA) and the Fish and Wildlife Service), the U.S. Department of Agriculture (acting through the Forest Service), and the Minnesota Pollution Control Agency (MPCA) and the Minnesota Department of Natural Resources (MDNR) as co-Trustees for the State of Minnesota (State). Collectively, pursuant to CERCLA Section 107(f) and Subpart G of the National Contingency Plan (NCP), these entities are trustees for all of the natural resources in the environment potentially injured by releases at or from the Site.

The decision of the Trustees to conduct a natural resource damage assessment is based on a preliminary determination regarding the following criteria from 43 C.F.R. § 11.23(e) (1)-(5):

(1) A discharge of oil or a release of a hazardous substance has occurred;

(2) Natural resources for which a Federal or State agency or Indian Tribe may assert trusteeship under CERCLA have been or are likely to have been adversely affected by the discharge or release;

[4] In many cases acronyms have been used when appropriate to improve the clarity of the document. A list of common abbreviations is included at the beginning of this document.

(3) The quantity and concentration of the discharged oil or released hazardous substance is sufficient to potentially cause injury to those natural resources;

(4) Data sufficient to pursue an assessment are readily available or likely to be obtained at reasonable cost; and

(5) Response actions from Superfund remedial activities carried out or planned do not or will not sufficiently remedy the injury to natural resources without further action.

Through an analysis of existing information and data about the Site, these criteria are discussed in the following sections and a determination is presented on each one.

B. Natural Resource Trustees' Authority

CERCLA, OPA, and the CWA authorize the federal government, states, and Indian Tribes to recover, on behalf of the public, damages to natural resources belonging to, managed by, controlled by, appertaining to, or otherwise controlled by them. The Minnesota Environmental Response and Liability Act (MERLA) provides additional authority to the State to recover damages for loss of or injury to natural resources under the State's trusteeship. The LLBO Hazardous Substance Control Act (HSCA) provides additional authority to the Tribe to recover damages for loss of or injury to natural resources under the Tribe's trusteeship.

In accordance with the NCP, 40 C.F.R. § 300.610, the Chairperson of the Leech Lake Band of Ojibwe acts as the trustee for natural resources, including their supporting ecosystems, belonging to, managed by, controlled by, or appertaining to the Tribe, or held in trust for the benefit of the Tribe, or belonging to a member of the Tribe if such resources are subject to a trust restriction on alienation. The Leech Lake Band of Ojibwe, a constituted band of the Minnesota Chippewa Tribe, is a federally recognized Indian Tribe governed by a Constitution and Bylaws adopted by the Minnesota Chippewa Tribe pursuant to the Indian Reorganization Act of 1934. The Leech Lake Tribal Council is the elected governing body of the Tribe and the reservation, with powers to pass laws for the reservation and its members. The Leech Lake Band is a signatory to the Treaty of February 22, 1855 (10 Stat. 1165), which established a reservation on Cass Lake as the permanent home of the Tribe.

In accordance with CERCLA, 42 U.S.C. § 9607(f)(2)(B) and the NCP, 40 C.F.R. § 300.605, the CWA, 33 U.S.C. § 1321(f), and the OPA, 33 U.S.C. § 2706, the Governor of the State of Minnesota has designated the Commissioners of the MPCA and MDNR as co-trustees for natural resources, including their supporting ecosystems, within the boundary of Minnesota or belonging to, managed by, controlled by, or appertaining to Minnesota. The Governor has also designated the Commissioners of the MPCA and MDNR to act on behalf of the State as trustees under MERLA, Minn. Stat. § 115B.17, subd. 7.

The NCP, 40 C.F.R. § 300.600 and Executive Order 12580, dated January 23, 1987, designates federal natural resource trustees. Pursuant to the NCP, the Secretary of DOI acts as trustee for natural resources and their supporting ecosystems, belonging to, managed by, controlled by, appertaining to, or otherwise controlled by the DOI. In this matter, the U.S. Fish and Wildlife Service and the Bureau of Indian Affairs (BIA) are acting on behalf of the Secretary of the DOI as trustees for the natural resources under its jurisdiction. The official authorized to act on behalf of the DOI at the Site is the Regional Director of Midwest Region BIA. The Secretary of the Department of Agriculture acts as trustee for natural resources, and their supporting ecosystems,

belonging to, managed by, controlled by, appertaining to, or otherwise controlled by the U.S. Department of Agriculture (USDA). In this matter, the U.S. Forest Service (USDA-FS) is acting on behalf of the Secretary of the Department of Agriculture as trustee for natural resources under its jurisdiction. The official authorized to act on behalf of USDA at the Site is the Regional Forester, Eastern Region USDA-FS.

II. HAS THERE BEEN A DISCHARGE OF OIL OR RELEASE OF A HAZARDOUS SUBSTANCE?

A. Information on Site Location, Description, and History (43 C.F.R. § 11.24(a))

The Site is located in Section 15, Township 145 North, Range 31 West, Cass County, Minnesota. The Site is located within the city of Cass Lake, Minnesota, wholly within the Leech Lake Indian Reservation, and within and adjacent to the Chippewa National Forest. The Site, as currently defined by EPA, consists of the following four Operable Units (OUs): OU1 is the former wood treatment area; OU2 is the Contaminated Soil Containment Vault; OU3 is the former Cass Lake City Dump; and OU7 is the Residential House Dust Survey Area. A diagram of the Site showing the operable units is attached as **Exhibit A**.

The OUs are adjacent to Pike Bay, Fox Creek, and Pike Bay Creek, the City of Cass Lake, Minnesota Highway 371, the Leech Lake Band Department of Natural Resources, the Chippewa National Forest, residential areas, and land owned by the Burlington Northern Santa Fe Railway (BNSF). *See* **Exhibit A**. For the purposes of this PAS, the NRD Assessment Area includes the Site as well as any areas where natural resources may have been injured by a release of hazardous substances from the Site.

The Site is part of the Mississippi River headwaters. Surface water in the area drains into Fox Creek, Pike Bay, Cass Lake, and the shallow channel called Pike Bay Creek or Pike Bay Channel that connects Pike Bay and Cass Lake. *See* **Exhibit A**.

Fox Creek is a small 1.5 mile stream bordering OU3, draining a small watershed west of Pike Bay. Fox Creek traverses Spike Lake, a small man-made lake near the headwaters, and below the lake weaves a channel through a cattail and tag alder wetland to Pike Bay. This channelized wetland varies in width from several yards to nearly 100 yards.

The NRD Assessment Area consists of several different land types and land uses which affect the fate and transport of the contaminants of concern (COC) likely to be found at the Site. The Site and adjacent areas consist of wetlands, forested wetlands, uplands, riverine, lacustrine and developed/cleared areas. Descriptions of the Site processes are found below in Section II.B. The NRD Assessment Area may expand based upon the results of the ongoing sampling efforts, depending on where contamination from the Site is found in quantities that diminish ecological services or value.

1. St. Regis Site History

The Site was used as a creosote wood treatment facility starting in 1957, and operations continued using different wood treatment chemicals including pentachlorophenol (PCP) and Copper-Chromium-Arsenate (CCA) salt until 1985 (MPCA 1995; EPA 2000; LLBO 2003).

The Site was owned and operated from 1957 to 1985 by the St. Regis Paper Company. On January 31, 1985, Champion International Corporation (Champion) and the St. Regis Paper

Company merged. In September 1988, Champion, then the Potentially Responsible Party (PRP) at the Site, quit-claimed a portion of the Site to the City of Cass Lake and 2.23 acres to the Leech Lake Band. The PRP only retained ownership and control over the property which included the ground water treatment plant facility, the ground water pump out wells, and the Contaminated Soil Containment Vault. International Paper (IP) acquired Champion in a stock sale in 2000, thereby assuming the liabilities as PRP from Champion.

2. State and Federal Response Actions at the Site

a. Initial U.S. EPA NPL Listing

On September 21, 1984, the U.S. Environmental Protection Agency (EPA) placed the Site on its National Priorities List (NPL) established under CERCLA due to the potential risks to human health and the environment as a result of releases of hazardous substances at or from the Site.

b. State of Minnesota Response Actions

At about the same time as the NPL listing, the Site was placed on MPCA's Permanent List of Priorities established under the Minnesota Environmental Response and Liability Act (MERLA), the state superfund law. On February 26, 1985, Champion entered into two Response Orders by Consent with the MPCA, one for investigation and cleanup of the former Wood Treating Facility and the other for investigation and cleanup of the former Cass Lake City Dump. On March 5 and July 29, 1986, the MPCA issued Minnesota Enforcement Decision Documents, which detailed the selected remedial actions for the Site.

Remedial actions that were constructed in 1986-1988 included:

i. A groundwater containment pump and treat system was installed at both the former Wood Treating Facility and the former Cass Lake City Dump area to pump contaminated ground water, treat it with granular activated carbon, and discharge the treated water to Pike Bay Channel under a National Pollutant Disposal Elimination System (NPDES) permit.

ii. The Contaminated Soil Containment Vault was designed and constructed to store hazardous waste sludges and visually contaminated soil excavated during source removal operations at both the former Wood Treating Facility and former Cass Lake City Dump (EPA 2005).

iii. Champion extended the Cass Lake community water system to residents who might potentially be affected by ground water contamination from the Site in their potable water wells.

3. Continuing Response Actions

Continuing Response Actions at the Site include the following activities:

a. Long-term monitoring of the ground and surface water to determine the effectiveness of the ground water containment system.

b. Long-term operation and maintenance of the ground water containment pump and treat system.

c. Long-term monitoring and operation and maintenance of the on-site contaminated soil containment vault.

d. Long-term monitoring of the treated ground water discharge to determine the effectiveness of the ground water treatment system.

e. CERCLA § 121 requires a review of the remedy every five years whenever the selected remedy allows hazardous substances to remain at a site to determine if the remedial actions remained protective of public health and the environment. Four five-year reviews have been conducted for the Site in 1995, 2000, 2005, and 2010.

4. U.S. EPA Response Actions

In early 1995, the Site changed from state-lead (MPCA) to federal-lead (EPA) pursuant to a request by the Leech Lake Band. EPA then issued its own Administrative Order to Champion under §106 of CERCLA, on January 24, 1995, requiring Champion to continue to perform the remedial actions undertaken pursuant to the two Response Orders by Consent with the MPCA and to perform other related additional activities.

EPA identified four OUs at the Site. OU1 is the location of the St. Regis Paper Company former Wood Treating Facility which includes the ground water treatment plant, the groundwater pump out wells, and the area of the former disposal ponds. The extracted groundwater is passed through activated carbon elements prior to eventual discharge to Pike Bay Channel. OU2 is the Contaminated Soil Containment Vault. OU3 is the former Cass Lake City Dump where liquid and solid waste from the facility was disposed of and burned, and includes the excavated pit area and the groundwater treatment wells at the former Cass Lake City Dump. OU7 is the Residential House Dust Survey area, where fugitive dust samples have been collected to assess impacts on local residents due to airborne migration of Site soils.

Following review of the MPCA prepared 1995 Five-Year Review, EPA recommended additional soil investigation and the installation of additional monitoring wells to assess the protectiveness of the remedies implemented (EPA 2005).

EPA and IP conducted surface soil investigations in 2001, primarily focused on the risk of dioxin. This resulted in another Unilateral Administrative Order (UAO) from EPA in 2003 requiring IP to conduct removal actions (EPA 2003a). During 2004, IP removed 3,294 tons of contaminated soils. EPA also issued another UAO in 2003 requiring IP to remove shallow soils in excess of 1000 ng/kg (parts per trillion or ppt) Toxic Equivalent (TEQ) of dioxin (EPA 2003b).

The Third Five-Year Review conducted by EPA noted that the remedy was not protective of human health with regards to Site soil (EPA 2005). Surface soils were found to exceed Removal Action Levels in some Site areas and institutional controls were insufficient to prevent human exposure. In 2005, BNSF Railway Company (BNSF) was added as a PRP, and BNSF entered into a separate CERCLA Administrative Settlement Agreement with EPA for removal actions on the BNSF property. In 2005, BNSF initiated excavation of soils exceeding 5 ug/kg (parts per billion or ppb) of dioxin for offsite disposal. In 2004, EPA issued another UAO for IP to

conduct a Human Health and Ecological Risk Assessment (HHERA). The HHERA was completed in 2011 (Integral 2011) and documented the human health and ecological risks posed by the Site. The HHERA's findings are incorporated into this document where relevant.

The Residential House Dust Area investigation was conducted and an interim remedy is being implemented while a final remedy is being determined. Sampling indicated human health risks at 6 of the 10 homes assessed under the risk-based screening levels. Cleaning and some retrofitting of the residences was conducted in 2006.

B. Information on Time, Quantity, Duration and Frequency and Sources of the Discharge or Release (43 C.F.R. § 11.24(a)(1) and (a)(3))

Beginning in 1957, the St. Regis Paper Company operated a wood treating business at the Site on land leased from the Great Northern Railroad. The Site was eventually expanded by purchasing land south of the leased facility. Creosote use began in 1957, and use of pentachlorophenol (PCP) began in 1960. PCP was generally combined with a carrier solvent, usually No. 2 fuel oil. In later years of facility operation, a water dispersible PCP concentrate (which was a mixture of PCP and ketone) was used. From approximately 1969 until 1973, in the non-freezing months, a water-soluble Copper-Chromium-Arsenate (CCA) salt solution was also used for wood treating. St. Regis Site activities produced wastewater, sludge and combustion byproducts including creosote, PCP, CCA, polycyclic aromatic hydrocarbons (PAHs), and metals, as well as impurities and transformation products of these contaminants, including dioxins and furans (MPCA 1995).

Wastewater was managed through a series of unlined ponds and land based disposal for the operational history of the facility. It is estimated that at least 50 million gallons of contaminated wastewater and sludges were deposited in the unlined ponds at the former Wood Treating Facility (OU1) or at the former Cass Lake City Dump (OU3). The wastewater was stored in unlined Ponds A, B and C at OU1 in the northeast area of the Site. A wood constructed conduit connected Pond A to Ponds B and C. Wastewater was generated as a byproduct of all the wood treating processes used at the Site. The volume of wastewater varied over the course of operations as the volume of wood treated increased and as the wood treating process changed. Operations of the facility were estimated to produce 12,000 gallons per day of wastewater from 1974 through mid-1980 (MPCA 1995).

The Site was also used as a lumber mill and for shipping and storage of treated and untreated lumber and chemicals until 1985. Site industrial facilities and activities which contributed to releases of hazardous substances consisted of rail spurs, treated lumber storage areas, debarking areas, pressure treatment cylinders, three unlined wastewater settling and treatment ponds and associated wood conduits, underground storage tanks, a boiler, a municipal and industrial landfill facility, scrap wood burners (a.k.a. teepee burners), and areas where Site wastewater was sprayed for fire suppression, spray irrigated, and disposed to City of Cass Lake wastewater treatment facility which discharged to Fox Creek (MPCA 1995; NRRI 2002). In addition, Site waste products were disposed of in the former Cass Lake City Dump in combustion pits, and Site contaminants migrated from the Site to nearby residential areas (Integral 2011).

A number of sources of potential and ongoing releases are present within the Site and adjacent areas, including soils which may remain above the risk-based values to an unknown depth, groundwater contaminant plumes beneath the facility, the former Cass Lake City Dump, and known, and potentially unknown, areas along Fox Creek where Site wastes were disposed.

Consequently, the NRD Assessment Area will include the Site and, through the assessment process, is likely to incorporate other areas where natural resources have been affected directly or indirectly by releases of hazardous substances from the Site.

Recent information reinforces that the variety of past disposal practices may result in new Contaminants of Concern (COCs,), or detections of contaminants in new areas. Gaps in the Site model for geology and hydrogeology are present and may explain the unexpected detection of COCs. The discovery in late 2008 of dense non-aqueous phase liquid (DNAPL) reinforces these gaps.

C. Identification of Hazardous Substances Released (43 C.F.R. § 11.24(a)(2))

Hazardous substances identified as having been released at the Site, or potentially released to the Site, are on the list of hazardous substances in 40 C.F.R. § 302.4, List of Hazardous Substances and Reportable Quantities, as required by 43 C.F.R. § 11.24(a)(2). Hazardous substances released at or from the Site include, but are not limited to, the following chemicals (reported by name and Chemical Abstract Service [CAS] Registry Number): pentachlorophenol (CAS 87-86-5); dioxins and furans, including 2,3,7,8-tetrachlorodibenzo-*p*-dioxin (CAS 1746-01-6) and 2,3,7,8-tetrachlorodibenzofuran (CAS 51207-31-9); creosote (8001-58-9); metals, including copper (CAS 7440-47-3), chromium (CAS 7440-47-3), and arsenic (CAS 7440-38-2); and polycyclic aromatic hydrocarbons (Barr 1985; LLBO 2003; Integral 2011).

D. Relevant Operations at or Near the Site (43 C.F.R. § 11.24(a)(4))

The Site was used as a wood treating facility from 1957 to 1985. Wood treating operations at the Site included the application of a number of wood preservatives, including pentachlorophenol, creosote, and copper-chromium-arsenate salt, and the associated waste handling operations (Barr 1985). Unless otherwise indicated, the source of the remaining information regarding relevant operations at or near the Site in this section is Barr 1985. Waste handling processes varied over time. Initially, wastewater was passed through a baffled separator tank before being discharged to a holding pond. In the 1960's, two underground tanks were added to help separate oil and sludge from the wastewater, with discharges to additional holding ponds. Waste, wastewater, and sludge from the various separating methods were reportedly hauled to the former Cass Lake City Dump, spray applied to land, and disposed of in on-site waste pits. The former Cass Lake City Dump reportedly received sludge and wastewater from the Site, where it was placed in a pit and periodically burned. In addition, the City of Cass Lake's wastewater treatment plant discharged to Fox Creek from the mid- to late-1950s until the mid-1980s, in the vicinity of the former Cass Lake City Dump (Integral 2011).

Burning was a common means of disposal for all manner of wastes generated at the Site. Between 1960 and 1975, unknown quantities of sludge generated from the wood treating operations were hauled to the former Cass Lake City Dump. Witnesses have reported that sludge was regularly burned at the former Cass Lake City Dump area and the former Wood Treatment area disposal areas.

At least two teepee burners at the Site were utilized to burn treated scrap wood, which converted the wood to charcoal. No information is available regarding the operation of the burners or the quantities of wood burned (EPA 2005). Teepee burners produce a large amount of smoke and soot containing toxic products of incomplete combustion and, as a result, create a significant amount of fine particulate matter that is usually deposited locally.

Please also refer to sections II.A and II.B of this document and Section 2 of the 1985 Remedial Investigation, for additional information regarding the operations at the Site.

The Site is undergoing active remediation with groundwater containment systems which are designed to treat some areas where groundwater impacts from Site contaminants are documented. The Third Five-Year Review conducted in 2005 by the EPA found that "the extraction system has not always been operating to design specifications, allowing possible contaminant bypass toward nearby Pike Bay" (EPA 2005). Limited activity near the Site consists of the lumber mill currently operated by Cass Forest Products, and the fish hatchery operated by the Leech Lake Department of Resource Management that utilizes groundwater. Low level Site COCs were measured in the fish hatchery well, a deep aquifer well adjacent to the soil containment vault, but the source of that contamination remains unclear at this time (MPCA 1995).

E. Additional Hazardous Substances Potentially Released at the Site (43 C.F.R. § 11.24(a)(5))

PCBs, mercury, and pesticides have been detected in samples collected at the Site and in the NRD Assessment Area; however, the source of these hazardous substances has not been determined (LLBO 2003, Integral 2011). Additional sampling and assessment will be needed to determine the source of these hazardous substances potentially released at the Site and in the NRD Assessment Area.

The Trustees reserve the right to investigate additional hazardous substances as the assessment process proceeds and new information becomes available.

F. Potentially Responsible Parties (43 C.F.R. § 11.24(a)(6))

Currently, there are four potentially responsible parties (PRP) identified by EPA based on the historic and current ownership and activities conducted at the Site.

1. International Paper Corporation (IP). IP is the successor to the Champion International Corporation (Champion). IP purchased Champion in 2000 in a stock sale and acquired all of the property and assets of Champion. Champion had previously purchased St. Regis Paper Company in 1985. St. Regis Paper Company was the original developer and operator of the Site.
2. Burlington Northern Santa Fe Railway Company (BNSF). St. Regis Paper Company originally operated on land that was leased from the Great Northern Railroad. Through mergers with several other railroads (Chicago Burlington and Quincy, and the Atchison Topeka and Santa Fe), the Great Northern is now represented at the Site by the BNSF Railway Company.
3. Cass Forest Products, Inc. Cass Forest Products, Inc. currently operates a lumber mill adjacent to the Site and uses portions of the Site for drying and storing milled lumber.
4. City of Cass Lake. The City of Cass Lake currently owns a portion of the Site; this property was gifted to City of Cass Lake from Champion in 1985.

G. Damages Excluded From Liability Under CERCLA and CWA (43 C.F.R. § 11.24(b) and (c))

The NRDA regulations require that the Trustees evaluate whether the natural resource damages being considered are excluded from liability under CERCLA or the CWA. If such damages are excluded from liability under CERCLA or CWA, then an assessment of associated potential injuries is not to be continued under these regulations.

1. Damages Excluded From Liability Under CERCLA. 43 C.F.R. § 11.24(b) lists the following specific damages excluded from liability under CERCLA:

   - damages resulting from a discharge or release that was specifically identified as an irreversible and irretrievable commitment of natural resources in an environmental assessment;
   - damages from a release that occurred wholly before enactment of CERCLA;
   - damages resulting from the application of a pesticide registered under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), 7 U.S.C. § 135-135k;
   - damages resulting from any other federally-permitted release as defined in Section 101(10) of CERCLA;
   - damages resulting from the release or threatened release of recycled oil, as described in 43 C.F.R. § 11.24(b)(1)(v).

To the best of the Trustees' knowledge, damages which may result from injuries due to the discharge or release of the hazardous substances at the Site have not been identified in any environmental impact statement, pursuant to the National Environmental Policy Act (NEPA), as amended (42 U.S.C. §§ 4321 *et seq*.), or any similar environmental analysis [43 C.F.R. § 11.24(b)(1)(i)].

The releases of hazardous substances at the Site are ongoing and did not occur wholly before enactment of CERCLA. Injuries to natural resources and resultant damages to the public from the release or discharge of the hazardous substances are ongoing [43 C.F.R. §11.24(b)(1)(ii)].

The hazardous substances at the Site are not pesticide products registered under FIFRA. Damages resulting from the discharge or release of the hazardous substances at the Site did not result from the application of a FIFRA-registered pesticide product. [43 C.F.R. §11.24(b)(1)(iii)].

The hazardous substances are not recycled oil products as described in 42 U.S. C. § 9607(a)(3) or (4). Damages resulting from the discharge or release of the hazardous substances at the Site did not result from release of a recycled oil product [43 C.F.R. §11.24(b)(1)(v)].

The Trustees do not believe that the damages resulting from the discharge or release of hazardous substances at the Site are a result of a permitted discharge. Only one permitted discharge is documented at or from the Site. The groundwater extraction system installed in the former treatment area as part of the remediation of the Site discharged treated groundwater to Pike Bay Channel under a National Pollutant Discharge Elimination Permit System (NPDES) permit issued in 1992 which expired in 1997. Although groundwater treatment has continued using the groundwater extraction system, no NPDES permit has been issued since 1997 for the discharge of treated groundwater after EPA took over the lead on oversight of the remediation.

Since that time, the MPCA has provided water quality discharge limits to EPA for use in evaluating whether the discharge from the groundwater extraction system meets water quality standards.

As described more fully in other sections of this PAS, releases of hazardous substances that are not excluded from liability under CERCLA have occurred at and from the Site and have the potential to cause or continue to cause injury to natural resources. The historic releases and discharges which occurred prior to CERCLA were part of the same operations that continued through the time CERCLA was enacted and Site operations ceased. There are significant historical releases that occurred at the Site prior to any permitting under environmental laws, and these contaminants continue to be present at the Site and have the potential to cause injury to natural resources.

The Trustees do not believe that any of these exclusions are applicable or eliminate liability for natural resource damages resulting from releases of hazardous substances at or from the Site, and, therefore, the continuation of an assessment is not precluded [43 C.F.R. 11.24(b)(2)].

2. Damages Excluded From Liability Under CWA. 43 C.F.R. § 11.24(c) requires the trustees to determine whether the injuries to natural resources resulted from discharges meeting the Clean Water Act exclusions in § 311(a)(2) or (b)(3), 33 USC § 1321(a)(2) or (b)(3). 33 USC § 1321(a)(2) excludes from the definition of discharge the following discharges:

   - discharges in compliance with an NPDES permit;
   - discharges resulting from circumstances identified and reviewed and made part of the public record on the NPDES permit and subject to the conditions in the NPDES permit;
   - continuous or anticipated intermittent discharges identified in the NPDES permit or permit application caused by events occurring within the scope of the operating or treatment system;
   - discharges incidental to a mechanical removal authorized by the President under 33 USC § 1321(c).

33 USC § 1321(b)(3) exempts from liability certain discharges that the President has determined, by regulation, not to be harmful.

As described in Part II.G.1. above, the releases or discharges of hazardous substances at or from the Site are not a result of a permitted discharge. The only permitted discharge was the NPDES permit to discharge treated groundwater from 1992-1997. Significant historical releases and discharges occurred at the Site prior to any permitting under environmental laws, and these contaminants continue to be present at the Site and have the potential to cause injury and damage to natural resources.

The Trustees do not believe that any of the Clean Water Act exclusions eliminate liability for natural resource damages resulting from releases of hazardous substances at or from the Site, and, therefore, the continuation of an assessment is not precluded [43 C.F.R. 11.24(c)(2)].

H. Determination of Releases of Hazardous Substances

Based on the information present in this section of the PAS, the Trustees determine there have

been releases of hazardous substances from the St. Regis Paper Company Superfund Site. Further, the Trustees believe there are no exclusions of liability for damages which may be determined to result from injuries to natural resources due to these releases.

III. HAVE NATURAL RESOURCES, FOR WHICH A STATE, FEDERAL AGENCY OR INDIAN TRIBE ASSERT TRUSTEESHIP BEEN, OR ARE LIKELY TO BE, ADVERSELY AFFECTED BY THE DISCHARGE OR RELEASE?

A. Preliminary Identification of Pathways (43 C.F.R. § 11.25(a))

Numerous pathways are present natural resources at the Site and adjacent areas to be exposed to contaminants in the soil, sediment, surface water and groundwater. Direct contact, inhalation and ingestion of contaminated soil, uptake by plants and soil invertebrates, and wind transport are the primary potential pathways associated with exposure of terrestrial flora and fauna. Aquatic flora and fauna can be exposed to Site contaminants via ingestion, inhalation, water respiration, direct contact and bioaccumulation. There is the potential for hazardous substances released at the Site to enter the surface water from runoff, sediments, and air transport; as well as through groundwater-surface water connectivities common in this area (Barr 1985).

Contaminated soil, sediment, indoor dust, surface water, fish, invertebrates, and groundwater are the major exposure media in the Site environment. The continued presence of large quantities of contaminated Site related media provide known and potential pathways of exposure for ecological and other natural resource receptors.

Of particular importance to the St. Regis Site Trustees is the exposure of natural resources that are traditionally used by tribal members for spiritual, cultural, and subsistence purposes. Ingestion of fish, wild rice and other plants, game, or waterfowl may present additional pathways unique to the Leech Lake Band within the NRD Assessment Area. An additional activity unique to Tribal cultures is the use of surface water for sweat lodge ceremonies.

In addition, two deep aquifer wells located just to the west of the Contamination Soil Containment Vault are used by the Tribe's Division of Resources Management (LLDRM) to provide water for a fish hatchery located adjacent to Fox Creek, presenting the potential for exposure of hatchery fish to Site hazardous substances via the groundwater pathway.

B. Estimates of Exposed Areas (43 C.F.R. § 11.25(b-e))

Ecosystems and land types believed to have been exposed to hazardous substances released from the Site include wetlands, riverine, lacustrine, upland, forested and developed areas. The Site and adjacent areas that comprise the NRD Assessment Area is a dynamic system composed of interconnected and interdependent ecosystems, with numerous species moving through and resident on the NRD Assessment Area.

As noted in Part III.A., there is a potential for hazardous substances released at the Site to enter surface waters from runoff, sediment and air transport, effluent discharge from the groundwater treatment system, and through groundwater which is often connected to surface waters in this area. Hazardous substances have also been discharged to surface waters adjacent to the Site, and United States Geological Survey (USGS) reports indicate that groundwater in the area flows towards rivers and lakes, suggesting that shallow contaminant plume migration will continue to impact surface waters as the plumes moves to the south and east, towards Cass Lake, Pike Bay, and Pike Bay Channel, and Fox Creek (EPA 2008; Integral 2011).

1. Soils

Soil contamination can be considered likely across the Site and adjacent areas that may be included in the NRD Assessment Area. Furthermore, the lack of soil sampling at depth precludes a reasonable evaluation of the NRD related injury to soil and associated natural resources. Additional sampling will likely be a part of the damages assessment process.

Contaminated surface soils and fine particulates have been transported by wind and other means from source areas at the Site, creating OU7. Residential properties nearby and on-Site have been found to have elevated concentrations of COCs in samples of residential dust from both exterior and interior samples (EPA 2003).

2. Groundwater

Groundwater aquifers beneath the Site have been exposed to hazardous substances released at the Site; groundwater resources in adjacent areas also potentially have been exposed. Older reports state that contamination is limited to the upper shallow groundwater aquifer; however as a result of ongoing NAPL investigations, it is now known that DNAPL is present in the lower aquifer (EPA 2010). Migration of the shallow LNAPL plume has been noted in the NRD Assessment Area indicating that the groundwater and adjacent areas are likely to be impacted by releases from the Site (NRRI 2002). This coincides with the conclusions from the Third Five-Year Review that the groundwater pumpout systems have not always been operating to contain the plumes (EPA 2005). The vertical and horizontal extent of contamination indicates potential natural resource injury.

A preliminary estimate of the areal extent of the surficial aquifer groundwater plume, based on available Site specific investigation data, indicates that a minimum of 45 acres in OU1 have been impacted, with an average depth of 50 feet. A preliminary estimate of the areal extent of the groundwater plume, based on available Site specific investigation data, indicates at a minimum of 10 acres in OU3 has been impacted (EPA 2010).

These preliminary estimates of exposure of groundwater resources to hazardous substances released from the Site may be revised as remedial investigations continue. For example, the ongoing NAPL investigation of ground water contamination at OU3 (the former Cass Lake City Dump) revealed DNAPL at depths that vertically extend the Site boundary and describe the potential deep groundwater communication between OU3 and Pike Bay (EPA 2010; Barr 1985). OU1 (the former wood treatment area) and OU2 (the Contaminated Soil Containment Vault) have yet to be investigated for potential lower aquifer NAPL migration. DNAPL is not addressed in any remediation activities, although it is common at former wood treatment facilities.

3. Surface Waters/Sediments

The Trustees believe that approximately 20,000 acres of surface water resources, including Cass Lake, Pike Bay, the channel between Cass Lake and Pike Bay, and the lower reaches of Fox Creek, have been exposed to hazardous substances released at the Site (EPA 2002; NRRI 2002; LLBO 2003; Integral 2011). Specific surface water resources known to be impacted by Site contaminants include sediments, invertebrates, fish, and plants. Contaminants known to be impacting surface water resources include dioxin, PCP, PAHs, and several metals.

C. Determination of Trust Natural Resources Exposed to Hazardous Substances Released at the Site

Based on the information presented in this section of the PAS, the Trustees determine natural resources in and around the St. Regis Paper Company Superfund Site have been exposed to hazardous substances released at the Site. The Trustees believe that a variety of terrestrial and aquatic ecosystems are likely to have been adversely affected due to hazardous substances released to soils, groundwater, surface water and air. Accordingly, subsequent sections of this PAS present evaluations of potential injury and service losses utilizing the following resource categories: Soils (Site Upland Ecosystem), Groundwater (Site Groundwater Systems and Leech Lake Division of Resource Management Fish Hatchery Fish); Surface water / sediments (Cass Lake/Pike Bay Ecosystem and Fox Creek Ecosystem), and associated Biological Resources.

IV. ARE SUFFICIENT QUANTITIES AND CONCENTRATIONS OF THE CONTAMINANTS PRESENT AT THE SITE TO POTENTIALLY INJURE NATURAL RESOURCES?

A. Estimates of Quantities and Concentrations of Contamination at the Site

A preassessment screen is used to determine if natural resources under the jurisdiction of the Trustees have likely been injured and if ecosystem and other services supported by these resources have likely been affected. Injury is defined as a "measurable adverse change, either long or short term, in the chemical or physical quality or the viability of a natural resource" resulting from a discharge or release of oil or a hazardous substance. (43 C.F.R. § 11.14(v)). Remedial investigations addressing soil contamination are currently being further considered by the Responsible Parties and EPA; further, other areas at the Site currently being considered by the Trustees have not been completely evaluated. Additionally, groundwater remedial investigations remain in progress at the time of this PAS. Consequently, data gaps may result, and a complete estimate of contaminant concentrations and quantities throughout the NRD Assessment Area is not feasible at this time. The following presents a summary of concentrations of hazardous substances in various environmental media known to the Trustees, as well as a preliminary evaluation of the resulting potential for injury to natural resources.

1. Soils

Geological resources in defined in 43 C.F.R. 11.14(s) to include soil, sediments, rocks, and minerals that are not included in the definitions of ground and surface water resources.

The 2011 Human Health and Ecological Risk Assessment (HHERA) conducted by IP, as modified by the EPA, identified several human health and ecological risks above applicable levels. Soil dioxin concentrations detected across the Site exceed the HHERA ecological-based soil screening value of 2 ng/kg TEQ (Integral 2011). In addition, the HHERA concluded that dioxin concentrations in surficial soils create unacceptable risks to nearby residents. The measured dioxin concentrations significantly exceed relevant Tribal standards and Minnesota State residential human health-based soil reference values for dioxin, which are 10 ng/kg TEQ and 20 ng/kg TEQ, respectively.[5] Surface soil sampling conducted in 2001 found dioxin values as high as 7,160 ng/kg TEQ in the former operations area (OU1) (EPA 2002).

PCP concentrations exceeding EPA's screening levels were detected in multiple operable units,

[5] EPA's dioxin policy for residential use soils is 1,000 ng/kg (EPA 1998)

including the highest measured PCP concentrations, 160 mg/kg, measured in OU2 (Integral 2011). EPA's ecological soil screening level for PCP is 2.1 mg/kg and the HSCA soil cleanup level is 2.0 mg/kg (EPA 2007; LLBO 2002b). A soil sample taken near Fox Creek and OU2 (the Contaminated Soil Containment Vault) was found to be acutely toxic to soil invertebrates because of the elevated levels of Site COCs (Integral 2011).

Evidence of continued exposure to soil contamination through the environment and ongoing Site activities was determined by the EPA to contribute to unacceptable risk levels at the Site and the adjacent area (EPA 2008; Integral 2011). Notably, the future child resident scenario is above acceptable levels for non-cancer risk on nearby residential properties (Integral 2011). The potential long term impacts from PCP to the environment, and the inability to use the PCP impacted land for even commercial purposes, represents both a potential loss of past and interim use; including, potential long-term loss of use. In October 2004, International Paper, with EPA oversight conducted sampling of residential house dust for COCs. This was compared to soil sampling data, specifically for dioxins and furans, arsenic and benzo(a)pyrene (a PAH), which are likely to migrate through airborne transport to the interiors of residences on the Site and within the NRD Assessment Area. Sampling of shallow soil, likely to represent airborne deposition in homes adjacent to the Site, revealed concentrations of dioxins ranging from 8 ng/kg TEQ to 480 ng/kg TEQ (EPA 2003). Sampling of interior dust from houses near the Site revealed dioxin concentrations ranged from 0.234 ng/kg TEQ to 240 ng/kg TEQ of dioxin, and benzo(a)pyrene values from a low of 105 ug/kg to 485 ug/kg (EPA 2003; Barr 2005a; Barr 2005b)[6].

Exceedances of these values are indicative of potential injury to soils as supporting habitat to terrestrial invertebrates, birds and mammals, and human service losses. Based on these data, the Trustees determine that injuries to soil resources exist at the Site.

2. Groundwater

Significant impacts to groundwater at the Site (OU1, the former Wood Treating Facility and OU3, the former Cass Lake City Dump) have been well documented through remedial investigations and annual groundwater monitoring reports conducted over the past 25 years. Details regarding the full lateral and vertical extent of the contaminant plumes and their migration patterns are still being investigated; however, reasonable estimates of the overall size of the plumes and their outer limits have been established.

At OU1 (the former Wood Treating Facility), the highest concentrations of PCP in the groundwater ranged up to 11,000 ug/l in samples collected in 2008 while the highest concentrations of total PAHs and naphthalene ranged up to 2,864 and 2,400 ug/l, respectively (Barr 2011; Barr 2012). Historical maximum concentrations of PCP at OU1 were as high as 150,000 ug/l in 1986 (Barr 2011). The contaminant plume in this area currently extends from the former Wood Treatment Facility to the Cass Lake / Pike Bay channel, approximately 3,300 feet to the east from its origin. The current size of the plume, approximately 45 acres, is limited by the Cass Lake / Pike Bay channel at the eastern down gradient boundary and by a groundwater extraction system that controls the flow gradient in the area and captures the plume, preventing off-site migration. The nature and extent of the groundwater plume on the eastern edge of OU1 is currently being studied.

[6] Arsenic concentrations ranged from 2.28 mg/kg to 62.8 mg/kg. (Barr 2005a; Barr 2005b).

The highest concentrations of PCP in the groundwater in OU3 (the former Cass Lake City Dump) ranged up to 16,000 ug/l, while the highest concentrations of total PAHs and naphthalene were greater than 45,000 ug/l and 13,000 ug/l, respectively (Barr 2011; Barr 2012). Recent investigations indicate that there is an approximately 1.5 acre LNAPL plume near the former burn pit source area and that the entire PCP contaminant plume at OU3 encompasses approximately six acres (Barr 2011; Barr 2012). The down gradient extent of this plume, east of the OU3 source area, is still being investigated, but the size of this plume is being controlled by a groundwater extraction system designed to prevent off-site expansion.

In accordance with State Water Law, MN Stat. 103H and MN Rules ch. 7060, groundwater in the State of Minnesota is protected from degradation. State and federal drinking water standards can be used as benchmarks to assess the degree of groundwater degradation at the impacted areas. The State of Minnesota human health risk limits (HRLs) and federal MCLs for drinking water are 1 ug/l for PCP, and range from 200 ug/l to 2,000 ug/l for individual non-carcinogenic PAHs. The HRL for naphthalene is 300 ug/l. The Health Based Value (HBV) for benzo[a]pyrene is 0.06 ug/l (MDH 2012).

In accordance with the federal Clean Water Act and Minnesota Water Law, MN Stat. 103A and MN Rules, ch. 7050, water quality for Cass Lake is also protected from degradation from contaminated groundwater migrating from the Site. Minnesota Rules, ch. 7050, establishes surface water classifications for Cass Lake and relevant service water quality standards and criteria. Under these rules, Class 2B standards / criteria established for protection of aquatic life would generally be the most conservative surface water standards applicable to the Site. The 2B surface water quality standards are 5.5 ug/l for PCP and 81 ug/l (this may change to 20 ug/l) for naphthalene. Surface water protection rules and standards are relevant to the plume of contaminated groundwater because the site is located in close proximity to Cass Lake and the adjoining wetlands, and plumes of contaminated groundwater from both areas are migrating toward and may be intersecting these surface water bodies.

A portion of the Site which was transferred to the City of Cass Lake required a covenant that no wells would be installed due to groundwater contamination. The extension of the municipal water system was necessary due to impacts to Site groundwater which required discontinuing use of the resources for drinking water, but groundwater from private wells may be used for garden and lawn irrigation purposes.

In 2009, an investigation was completed to assess the extent of LNAPL and DNAPL zones at OU3. The size and extent of the LNAPL plume was estimated based on the results of this investigation. The 2009 investigation confirmed the presence of a DNAPL zone present near the bottom of the upper aquifer beneath OU3. Hazardous substance concentrations in groundwater do not appear to have declined in many of the extraction wells over recent years indicating significant source areas remain in the groundwater.

Based on these data, the Trustees conclude that injuries to ground water resources are likely to have occurred due to releases of hazardous substances from the Site. Because remedial actions remain in progress, these injuries are expected to occur for an unknown period of time into the future.

3. Surface Water/Sediments

Surface waters resources are defined in 43 C.F.R. 11.14(pp) to include waters of the United States, including the sediments suspended in water or lying on the bank, bed or shoreline.

Sampling of the nearby surface water has demonstrated that Site related contaminants are present.

Limited surface water sampling has been conducted in Pike Bay, Cass Lake, Pike Bay Channel, Fox Creek, and the Forested Wetland.[7] Champion collected two samples from Pike Bay Channel in 1994 and found 75 ug/l of PCP at the south end of Pike Bay Channel and 7 ug/l of PCP at the north end of Pike Bay Channel, both of which exceeded the State chronic 2B surface water standard for the protection of aquatic life (Barr 1995). Hazardous substances were also detected in surface water samples collected in the Forested Wetland in concentrations exceeding the MPCA surface water standards (Integral 2011). Specifically, aluminum was detected up to 343 ug/l, lead was detected up to 5.7 ug/l, and zinc was detected up to 142 ug/l in surface water samples collected for the HHERA. The State surface water standards are 125 ug/l, 3.2 ug/l, and 106 ug/l, respectively. Exceedances of the State surface water standards, numeric and narrative, are indicative of potential injury to surface water resources and to aquatic life.

Annual data for the groundwater monitoring well nearest the surface water bodies (Well MW#215, near the Pike Bay Channel) from 1987-1997 indicate that concentrations of PCP ranged up to 27,000 ug/l. These concentrations exceeded the State Class 2B chronic and acute surface water standards (5.5 and 18 ug/l, respectively). PAHs have also been detected in this well (Barr 1998). Because it is likely that the groundwater continues to flow beneath the channel and may well impact the surface water, exceedances of the State surface water standards in the groundwater are indicative of potential injury to adjacent surface waters.

Champion routinely analyzed for hexachlorinated dioxins in the Site water treatment plant influent, but not the effluent. However, in 1990, Champion analyzed the effluent for dioxin and detected hexachlorinated dioxin at 4.1 ng/l TEQ (Barr 1992). In 1990, PCP was detected at 9 ug/l in the ground water treatment effluent discharging to Pike Bay Channel which exceeded the State Class 2B chronic surface water standard of 5.5 ug/l. Exceedances of the State surface water standards in the effluent are indicative of potential injury to surface water resources and to aquatic life.

Site related hazardous substances have been detected in sediments in concentrations above the Level 1 or Level 2 Sediment Quality Targets (SQTs) in Pike Bay, Cass Lake, Pike Bay Channel, Fox Creek, and the Forested Wetland. Level 1 SQTs are sediment contaminant concentrations above which harmful effects to benthic invertebrates may be observed, and Level 2 SQTs are concentrations above which harmful effects are likely to be observed (MPCA 2007). Dioxin concentrations were measured in Fox Creek sediments at up to 201 ng/kg TEQ, above the MN Level 2 SQT of 21.5 ng/kg TEQ (Integral 2011). Dioxin concentrations were also measured in Pike Bay and Cass Lake deep hole sediments at up to 8.8 ng/kg TEQ, above the MN Level 1 SQT of 0.85 ng/kg TEQ (EPA 2002). Total PAH concentrations were detected at up to 44.5 mg/kg in the channel and 7.8 mg/kg in Fox Creek[8], exceeding the MN Level 2 and Level 1 SQTs of 23 mg/kg and 1.6 mg/kg, respectively (Integral 2011). Total PCBs were detected in sediments from Cass Lake, Pike Bay, and Fox Creek, with a maximum concentration of 1.55 mg/kg (ppm)

[7] PAHs were detected in low concentrations in channel samples collected by Champion in 1986 and 1990 (< 0.01 ug/l total PAHs), and phenol was detected at 1 ug/l in a sample collected by Champion in 1991. These detections also indicate that further investigation is warranted.

[8] In a split sample of sediments collected at Fox Creek and analyzed by the LLBO, total PAHs were detected at a concentration of 35.2 mg/kg (LLBO 2008b), evidencing potentially higher concentrations in Fox Creek than reported in the HHERA.

in Fox Creek, exceeding the MN Level 2 SQT of 0.68 mg/kg (Integral 2011). The following metals and maximum concentrations detected in Fox Creek sediments exceeded MN Level 2 SQTs: cadmium (10.6 mg/kg), copper (383 mg/kg), lead (488 mg/kg), mercury (11.1 mg/kg) and zinc (3420 mg/kg); arsenic, selenium and silver were also detected above sediment benchmark values (Integral 2011). In the Forested Wetland, cadmium, copper and zinc were measured above SQTs (Integral 2011). Exceedances of the State SQTs are indicative of potential injury to surface water and sediment resources and to aquatic life.

Based on these data, the Trustees believe that injuries to surface water resources (including sediments) have occurred due to releases of hazardous substances at the Site.

4. Biological Resources

a. Benthic Invertebrates

Growth and survival bioassays conducted with Fox Creek sediments indicate the potential for injury to benthic invertebrates (EPA 2008; Integral 2011). The HHERA concluded that chironomids suffered an average decrease of 30% in growth relative to control groups for 8 of the 10 Fox Creek sediment sample locations (EPA 2008; Integral 2011). Fox Creek sediment data collected during the HHERA, between 2004 and 2008, showed dioxin, PAH, and metals concentrations significantly above reference sample location concentrations and ecological benchmark values, and chironomid growth deficits in sediment toxicity tests on co-located samples.

Benthic invertebrates also serve as the initial bioaccumulation point because of their contact with sediment and role as prey for higher level receptors. In addition, hazardous substances including dioxins/furans, PCBs, and PAHs were detected in the tissues of benthic invertebrates, in a small dataset collected from the Site, at concentrations greater than those from reference concentrations, with maximum concentrations of 1.34 ng/kg TEQ, 0.067 mg/kg total PCBs, and 1.65 mg/kg total PAHs respectively (Integral 2011).

b. Terrestrial Invertebrates

Toxicity tests using earthworms exposed to soils collected from the Site showed significant mortality at a location in OU2 in which the co-located soil sample contained elevated concentrations of PCP (160 mg/kg) and total PAHs (291 mg/kg) (Integral 2011). Earthworms collected from OU2 and OU3 exhibited elevated tissue concentrations of dioxins/furans (up to 251 ng/kg TEQ), PCP (up to 44 mg/kg) and total PAHs (up to 9.4 mg/kg), as well as PCBs and several metals (Integral 2011). In addition, grubs (beetle larvae) collected from soil in OU1 had measurable tissue concentrations of PCP (0.16 mg/kg), dioxins/furans (101 ng/kg TEQ) and PAHs (1.26 mg/kg) indicating bioaccumulation from soil. These data indicate the potential for direct injury to soil invertebrates, as well as, the potential for injury to birds and mammals via injury to the food chain.

c. Fish

Selective fish sampling for Site COCs has been conducted periodically since 1985 (MPCA 1995). Recent Site related fish sampling events are the 2001 EPA Site Screening Study, the 2003 LLBO Pilot Superfund Project, and the 2011 HHERA. These studies included sampling and analysis of fish fillets, eggs and partial carcasses (whole fish tissue minus fillets and eggs).

Measurable lipophilic COCs that resulted in MDH and LLBO advice to limit fish consumption were found in all assessed tissues of the Salmon family species known as whitefish (Coregonus

clupeaformis) and tulibee, (Coregonus artedi), and in the eggs of walleye (LLBO 2002a; MDH 2008). Dioxin concentrations ranged up to 1.6 ng/kg TEQ, PCB concentrations ranged up to 2.1 ng/kg TEQ, and total dioxin plus PCBs TEQ concentrations ranged up to 2.6 ng/kg TEQ. Site whitefish tissue fillets averaged 0.88 ng/kg total dioxin plus PCBs TEQ while reference area whitefish and tulibee averaged 0.14 ng/kg total dioxin plus PCBs TEQ (LLBO 2008a). Concentrations of dioxin-like compounds above 0.019 ng/kg TEQ result in advice to limit fish consumption (EPA 2000).

Fish, including fish eggs, are relied upon for subsistence and the concentrations of COCs exceed screening values, the resource can be considered at risk for injury due to Site related contaminants. Fish consumption advisories have been issued for Cass Lake and Pike Bay fish since 1986 by either the Minnesota Department of Health, Leech Lake Band of Ojibwe, or both. (*See e.g.* MDH 1986; MDH 1987; MDH 1989; MDH 1991; MDH 1997; MDH 2008; EPA 1991; LLBO 2002a).

The issuance of fish consumption advisories is indicative of the injury to the food chain and recreational service losses. At this time, insufficient information exists regarding impacts to fish populations.

d. Birds and Mammals

The potential for injury to birds and mammals from soil contamination was found, in the Site HHERA, through exceedances of soil screening values and food chain modeling based on terrestrial invertebrates resulting in hazard quotients greater than one (Integral 2011). In addition, several food sources for birds and mammals (i.e. earthworms, grubs, and fish) have measured concentrations of Site hazardous substances in excess of the relevant standards and guidelines (*See* Sections IV.A.4.b. and IV.A.4.c. above). The potential for injury to birds and mammals is also indicated due to measured maximum fish tissue concentrations of dioxins, furans, and PCBs in excess of tissue residue guidelines for the protection of fish-eating wildlife (CCME 2001a, CCME 2001b). This data is indicative of the potential for injury to birds and mammals via injury to the food chain.

e. Plants

In addition to providing ecological services, plants at the Site and in adjacent areas are important to the recreation and subsistence culture of the community. Traditional tribal lifestyles result in increased contact with and use of flora at the Site. Dioxins and furans were detected in multiple plant species and tissues (grass, cattail roots, aspen bark, cedar leaves, pine needles, sumac roots and berries, and wild rice grains) from the Site, with concentrations up to 2.1 ng/kg TEQs in sumac berries from OU 3 (Integral 2011). The Superfund Pilot Project Final Report (LLBO 2003) also reported detected concentrations of dioxins/furans and PCBs (up to 0.2 ng/kg TEQs) in several plants, including wild rice. These limited data suggest that loss of use services related to plant resources may have occurred due to Site specific contaminants.

B. Potentially Affected Resources

The Trustees, collectively, have trusteeship over all of the natural resources in the environment potentially injured by releases of hazardous substances at or from the Site and the adjacent areas. The natural resources affected or potentially affected from releases or discharges of hazardous substances include, but are not limited to, the resources listed below.

1. Generally

Flora and fauna (resident and migratory) in Cass Lake, Pike Bay, Pike Bay Channel, as well as Fox Creek and the upland and wetland areas at the Site and within the adjacent areas, groundwater, and soil at the Site and within the adjacent areas, including natural resources and residential areas have been impacted by Site specific contaminants resulting in injury to natural resources. Specific natural resource services injured by Site related contaminants include subsistence or recreational use of fish, invertebrates as food sources, food sources for wildlife, surface water and groundwater use for drinking and Tribal cultural purposes.

2. Specifically

In addition to the general areas of the Site, impacts are most likely in the food-web, and through biological resources. A list of known Site species which may be impacted is found in the addendum to the Superfund Pilot Project Report (LLBO 2003). However, this list is not exhaustive and additional investigations may identify other species impacted by Site contaminants.

Contamination has been detected in the deep aquifer wells, located just to the west of the Contamination Soil Containment Vault, that are used by the Band's Division of Resources Management (LLDRM) to provide water for a fish hatchery located adjacent to Fox Creek (MPCA 1995).

3. Services Impaired

The services provided by the impacted ecosystems will need to be further defined. However, at a minimum, services lost include the loss of cultural, spiritual, economic, traditional use, and recreational opportunities for the Band, and the economic, aesthetic, recreational, and associated services lost by the federal and state trustees. The presence of hazardous substances physically decreases the usable land and resources at the Site and in adjacent areas, including the National Forest and other adjacent lands and waters. The scope of a complete assessment of services provided by the Site and adjacent areas will assess developed land, forests, wetlands, riverine environments, lacustrine environments, associated flora and fauna, soils, sediments, groundwater, and surface water.

Based on this preliminary evaluation, the Trustees believe that the natural resources likely to have been injured due to the release of hazardous substances at the St. Regis Site provide critical human use, cultural, and ecological services. The Trustees further believe that a natural resource damage assessment at the St. Regis Site can be specifically directed to develop restoration projects and actions appropriate for the type and extent of the injuries and losses to be documented in an assessment, as further explained in Sections V and VI which follow.

V. CAN A DAMAGE ASSESSMENT BE UNDERTAKEN AT A REASONABLE COST?

The St. Regis Site has been, and continues to be, the subject of considerable sampling and focused remedial actions. Available data support Trustee conclusions here that natural resources have been exposed to hazardous substances released from the Site, and that these hazardous substances have likely injured natural resources including groundwater, surface water, soils, sediments, plant and biological resources at the Site and within the adjacent areas. The Trustees anticipate that a significant part of a natural resource damage assessment at the St. Site Regis

Site can be accomplished using available data, as well as data anticipated to become available through on-going remedial investigations and actions. The Trustees believe that limited additional data will likely be required to further define and quantify specific aspects of the injuries to provide the necessary basis to develop and scale those restoration projects and actions considered the most reasonable and appropriate to compensate for the loss of natural resources and their services at the Site. The Trustees further believe that the costs of acquiring and evaluating additional data and information will be substantially less than the anticipated costs of the restoration resulting from the damage assessment.

Based on this evaluation, the Trustees determine that a damage assessment can be undertaken at the St. Regis Site at a reasonable cost.

VI. WILL REMEDIAL ACTIVITIES CARRIED OUT OR PLANNED SUFFICIENTLY REMEDY THE INJURY TO NATURAL RESOURCES WITHOUT FURTHER ACTION?

A number of focused Site remediation actions have taken place over the past 26 years since the Site was listed on the National Priorities List. The actions have focused on removing some sources of contamination, including shallow soils and residential dust, and containment of contamination, such as the contaminated soil containment vault and the groundwater containment pumpout system. Nevertheless, substantial sources of COCs remain in place.

To date, remedial actions have collectively reduced the potential for injury to natural resources at some areas of the Site. Additional proposed remedial actions may further reduce potential for injury to natural resources. However, based on recent studies including the HHERA (Integral 2011), recent Annual Monitoring Reports (Barr 2012; Barr 2011), and the most recent Five Year Review (EPA 2010), the Trustees believe that concentrations of contaminants remaining at the Site and adjacent areas are sufficient to continue to cause injury to natural resources.

Further, the Trustees believe there is a potential for the various remedial actions proposed (but not yet implemented) at the Site to insufficiently eliminate injuries and related service losses for soils, groundwater, or other important media at the Site and adjacent areas. As an example of remaining uncertainty, the development of a comprehensive Site model is being revisited due to the discovery of DNAPL in OU3.

The Trustees believe that injuries to natural resources may continue for some time at the St. Regis Site in spite of past and pending remedial actions. Accordingly, the Trustees are scoping potential restoration projects and actions which may be coordinated with the remedial process, and which will provide the basis for further development as part of this natural resource damage assessment.

VII. PREASSESSMENT SCREEN CRITERIA AND CONCLUSIONS

As stated above, 43 C.F.R. § 11.23(e)(1)-(5) lists the five criteria the Trustees must determine have been satisfied before proceeding past the preassessment phase to a full natural resource damage assessment. The criteria and corresponding Trustee determinations based on this preassessment screen are listed below.

1. A discharge of oil or release of a hazardous substance has occurred.

Evidence of discharges and releases, as described more fully in this PAS, indicate that hazardous

substances have been released from the St. Regis Site to the environment.

2. Natural resources for which the State or Federal Agency or Indian Tribe may assert trusteeship under CERCLA have been or are likely to have been adversely affected by the discharge or release.

The natural resources and associated impacts due to the releases of hazardous substances from the St. Regis Site, as presented in this PAS, are under the trusteeship of the Leech Lake Band of Ojibwe and federal and state Trustees.

3. The quantity and concentration of the discharged oil or released hazardous substance is sufficient to potentially cause injury to those natural resources.

Although the full extent and magnitude of contamination has yet to be fully determined, existing data regarding quantities and concentrations of hazardous substances in the groundwater, surface water, soil, sediment, and biota at the St. Regis Site have been measured at levels which have or may cause injuries to natural resources.

4. Data sufficient to pursue an assessment are readily available or likely to be obtained at reasonable cost.

Currently available scientific data from the St. Regis Site provide an adequate basis to initiate a natural resource damage assessment to fully restore natural resources and the services they provide at the Site and adjacent areas. Additional data and information necessary to develop the appropriate type and extent of restoration projects can be collected for a reasonable cost, and the additional costs are anticipated to be less than the cost of restoring the natural resources.

5. Response Actions from Superfund remedial activities carried out or planned do not or will not sufficiently remedy the injury to the natural resources without further action.

The Trustees believe that Superfund remedial activities completed and planned, only partially mitigate natural resource injuries, rather than fully restore the function of the resources to a baseline condition. The Trustees intend to develop projects and actions necessary to provide restoration and/or replacement of natural resources to fully compensate for injuries to natural resources at the St. Regis Site and adjacent areas.

Based on their review of current data and as set out above, the Trustees hereby conclude that further assessment is warranted at the St. Regis Paper Company Superfund Site and adjacent areas in accordance with Federal Regulations 43 C.F.R. Part 11, Subparts C and E to restore natural resources lost or injured at the Site and adjacent areas. The Trustees further conclude that current information supports their assertion of a natural resource damage claim to do so, pursuant to section 107 of CERCLA, and that the requirements and criteria enumerated in 43. C.F.R. Part 11 generally, and 43 C.F.R. Part 11.23(a)-(g), Part 11.24 and Part 11.25 specifically, have been satisfied.

SIGNATURES

This preassessment screen may be executed in counterparts. A copy with all original executed signature pages affixed shall constitute the preassessment screen. The date of execution shall be the date of the final Trustee signature.

Carri Jones, Chairwoman
Leech Lake Band of Ojibwe

9-24-12
Date

Tom Landwehr, Commissioner
Minnesota Department of Natural Resources

9/17/12
Date

John Linc Stine, Commissioner
Minnesota Pollution Control Agency

9/17/12
Date

Diane K. Rosen

Diane Rosen, Regional Director
U.S. Department of the Interior

9/14/12
Date

PREASSESSMENT SCREEN FOR THE
ST. REGIS PAPER COMPANY SUPERFUND SITE

Josiah S. Kim, Director of Engineering
U.S. Department of Agriculture, Forest Service

9/24/12
Date

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EXHIBIT A

Exhibit A
St. Regis Paper Company Superfund Site
Natural Resource Areas Map

Legend

- Fox Creek

Operational Units

- OU 1 - Former Operations Area
- OU 2 - Containment Vault Area
- OU 3 - City Dump Area
- OU 7 - Residential Area

NWI - Circular 39 Classification - Polygons

- 1 - Seasonally Flooded Basin or Flat
- 2 - Wet Meadow
- 3 - Shallow Marsh
- 4 - Deep Marsh
- 6 - Shrub Swamp
- 7 - Wooded Swamp
- 8 - Bogs
- Municipal and Industrial Activities
- Riverine Systems

Forested Wetland
As described in HHERA

0 0.1 0.2 0.4 Miles

MNDNR Ecological & Water Resources 6-29-12
Air Photo Source: Bing Maps