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EXHIBIT E

ENVIRONMENTAL REPORT

1. GENERAL AREA DESCRIPTION

The Tanana River is the largest tributary of the Yukon River. Its headwaters are located at the confluence of the Chisana and Nabesna Rivers just north of Northway in eastern Alaska. It flows northwest from near the Canada border and Yukon Territory, and laterally along the northern slope of the Alaska Range, roughly paralleled by the Alaska Highway. In central Alaska, it flows into a lowland marsh region known as the Tanana Valley and passes to the south of the city of Fairbanks. In the marsh regions it is joined by several large tributaries, including the Nenana and Kantishna rivers. It empties into the Yukon River near the town of Tanana. Altogether, the river drains an area of over 45,000 square miles according to the Alaska Department of Fish and Game. It is a glacially fed river with many tributaries and a total length of approximately 515 miles. This project is located at its confluence with the Delta River at River Mile 361, approximately 90 miles southwest of Fairbanks and about ½ mile downstream of the Alyeska Pipeline Bridge which crosses the Tanana River.

a. Topography

The proposed project is located in the Tanana Valley between the Alaska Range to the South and the Brooks Range to the north. In the immediate vicinity of the project area, is the confluence of the Delta and Tanana rivers. The north side of the project area is a bluff rising approximately 250-feet above the surface of the river at normal high water. On the south side of the project area the river lowlands form sandy beaches along both the Delta and Tanana rivers. Approximately 1 mile south of the project location another bluff is situated. The Tanana River runs approximately from east to west through the project area. A map showing the topography of the area can be seen in Exhibit G.

b. Climate

The project area located at mile 361 of the Tanana River where the Delta Rivers flows in. The climate in this part of interior Alaska is arid, with an average annual precipitation of 22 inches. Below are temperature charts taken for the year of 2005 which are representative of the normal temperature distributions for the project area. The temperature readings were taken about a mile downstream of the project area during a wind resource study conducted for a different project. Also included is a histogram showing temperature distributions for the entire year.

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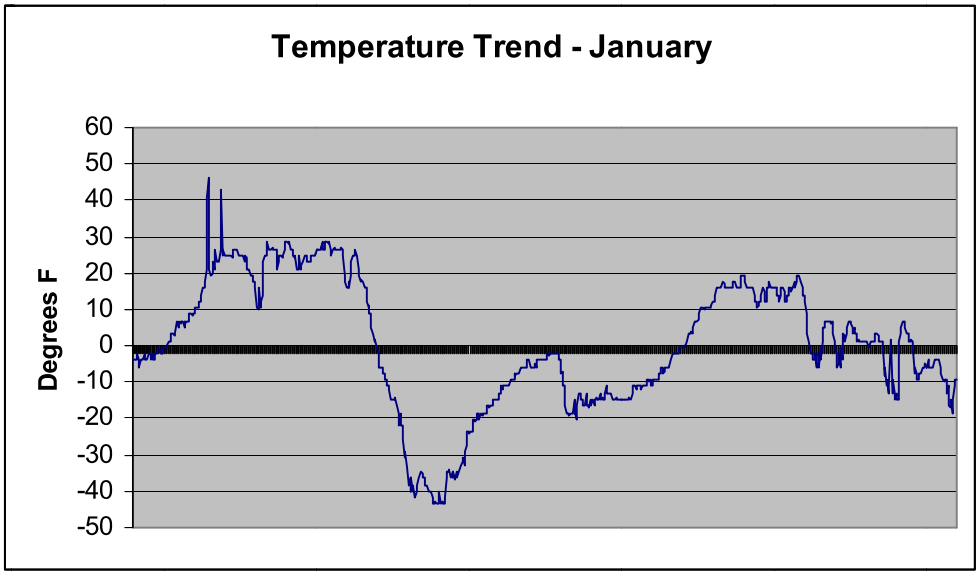

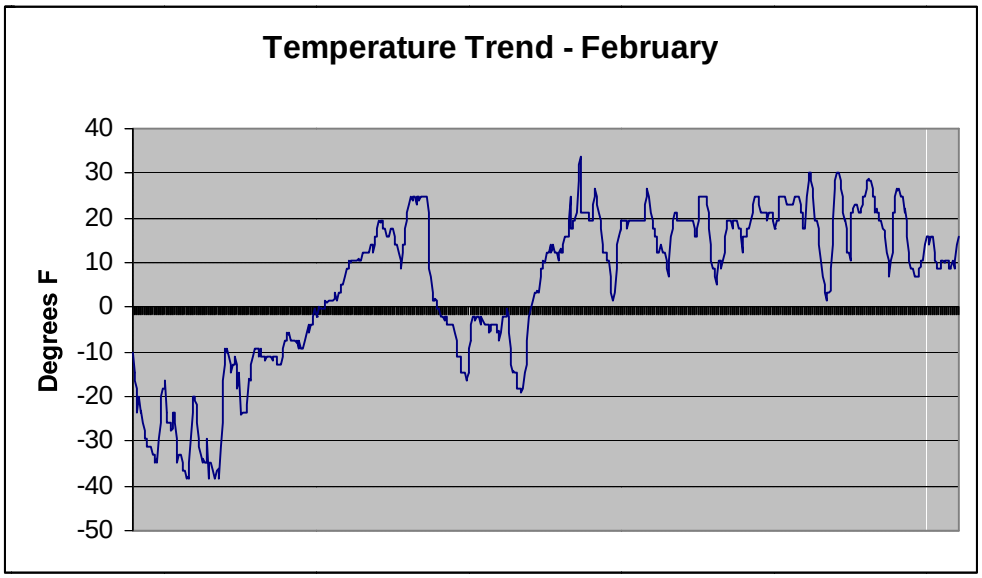

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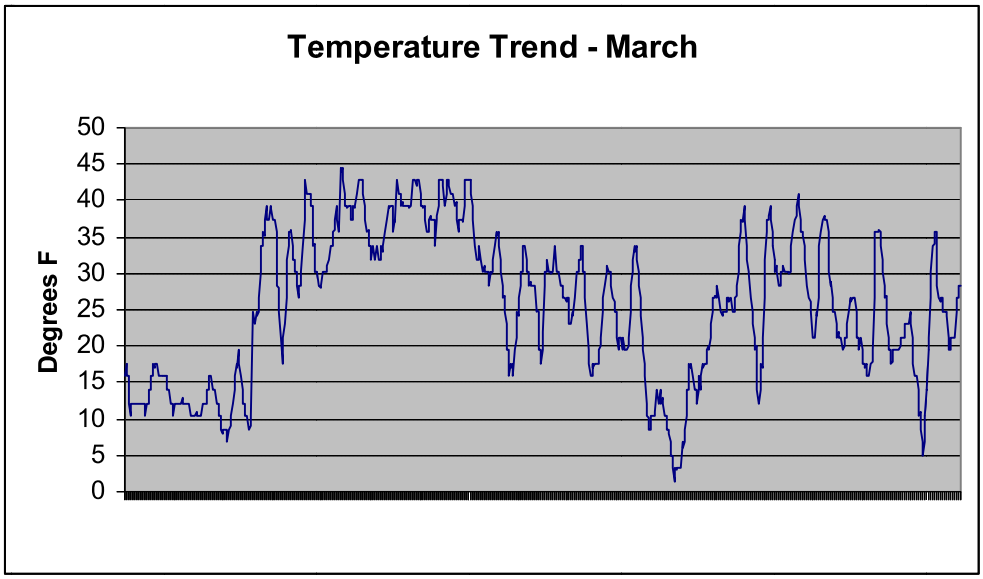

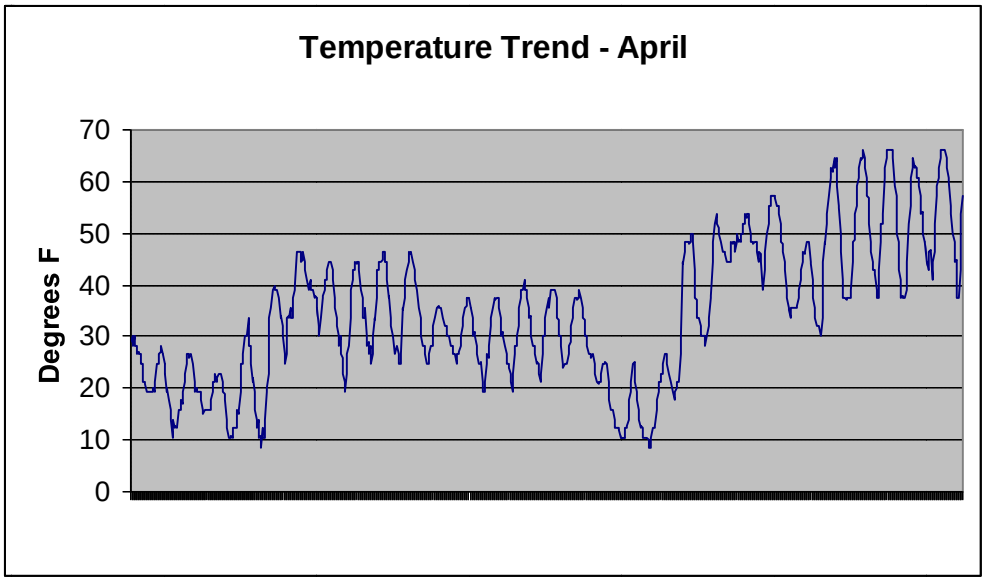

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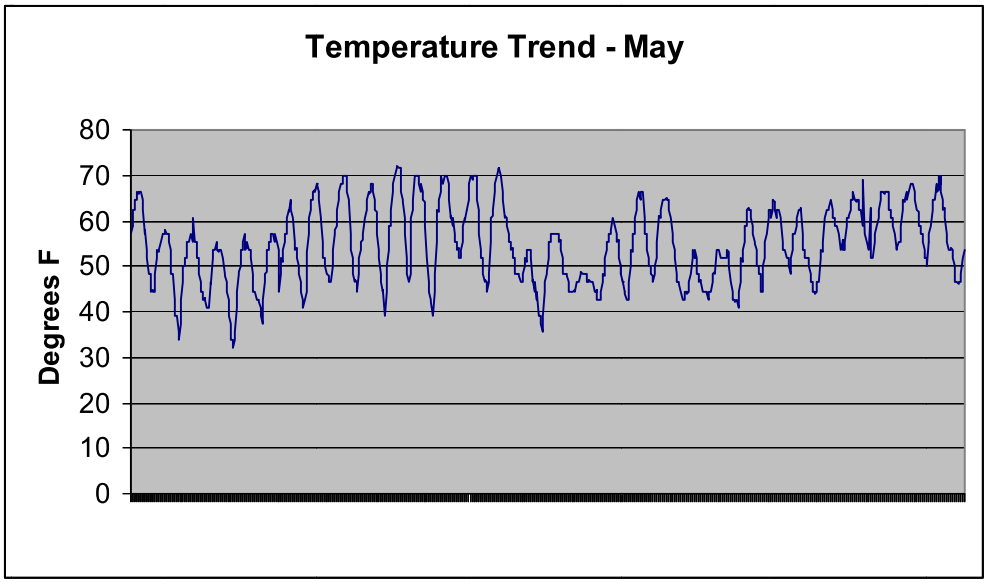

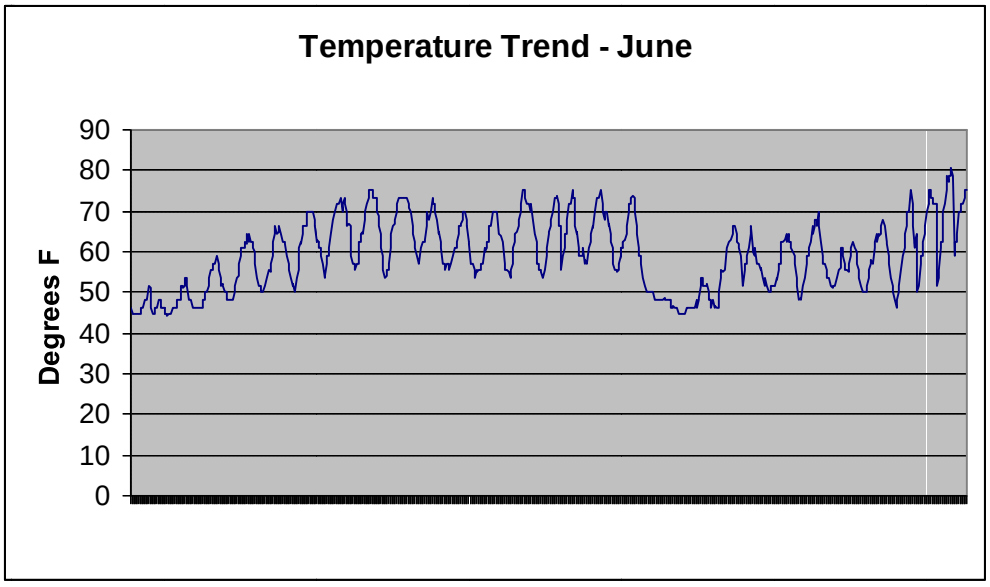

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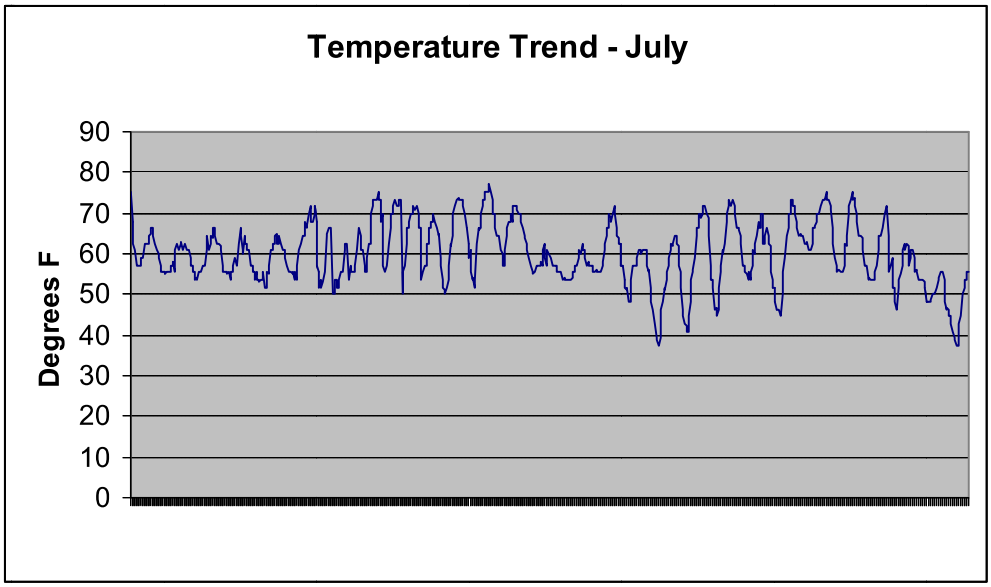

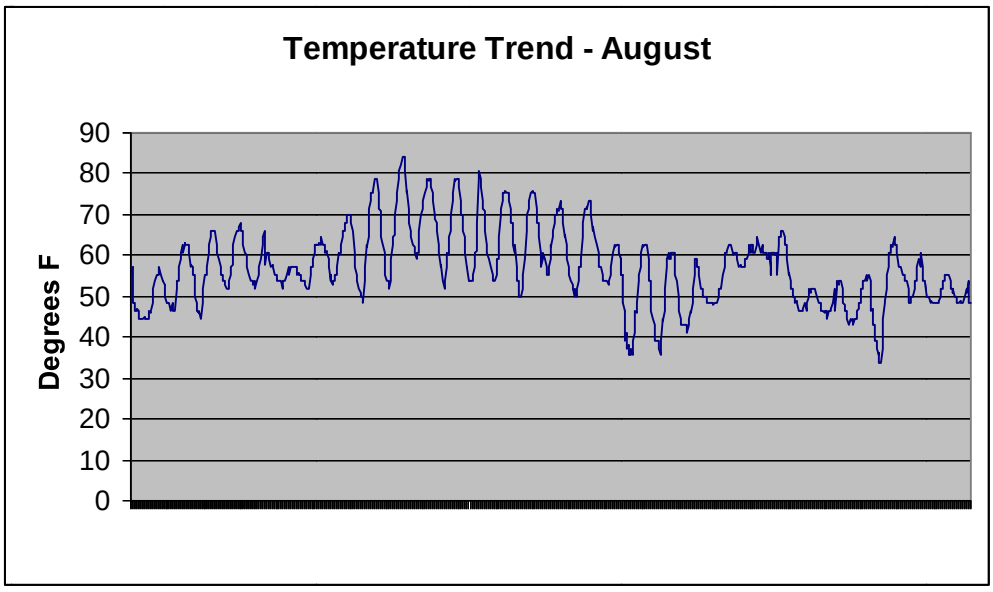

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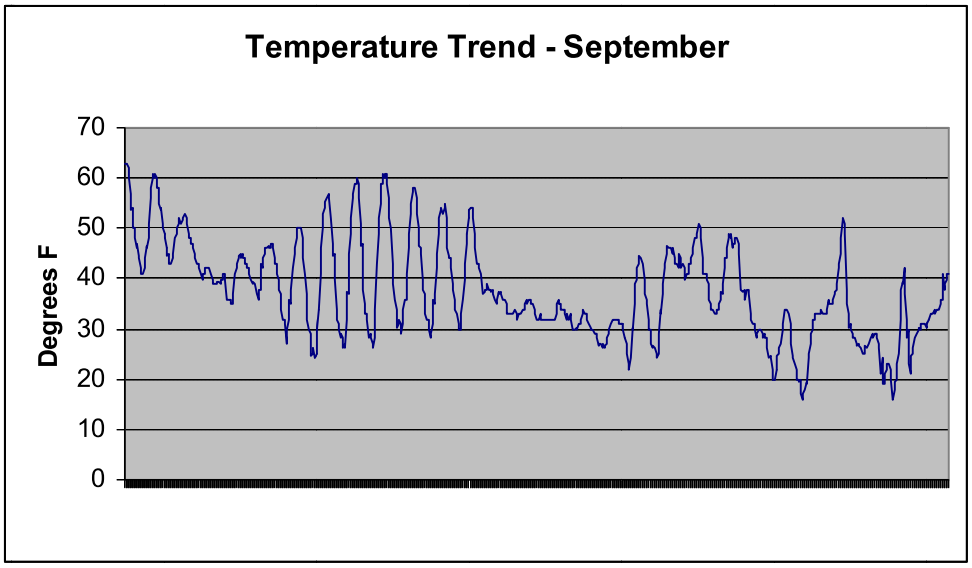

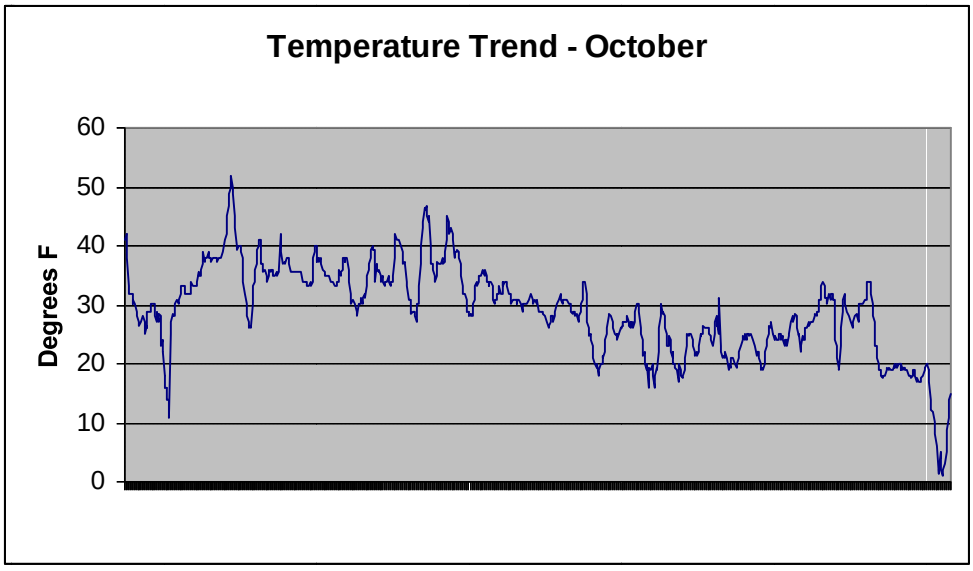

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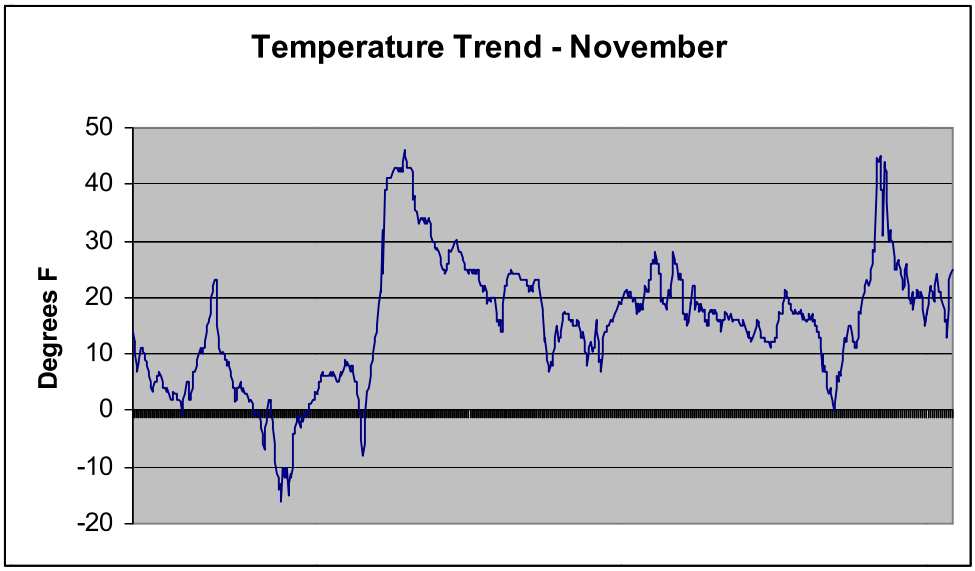
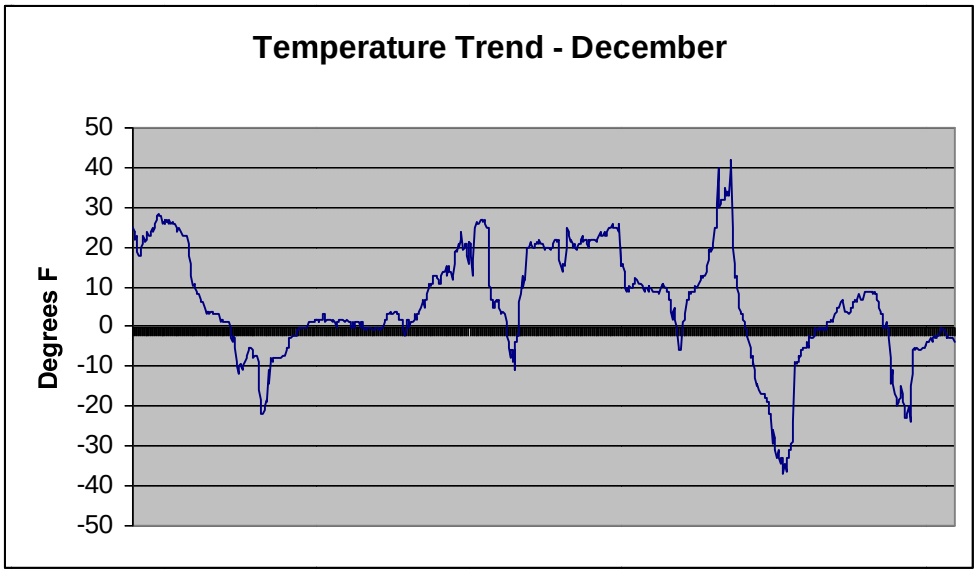
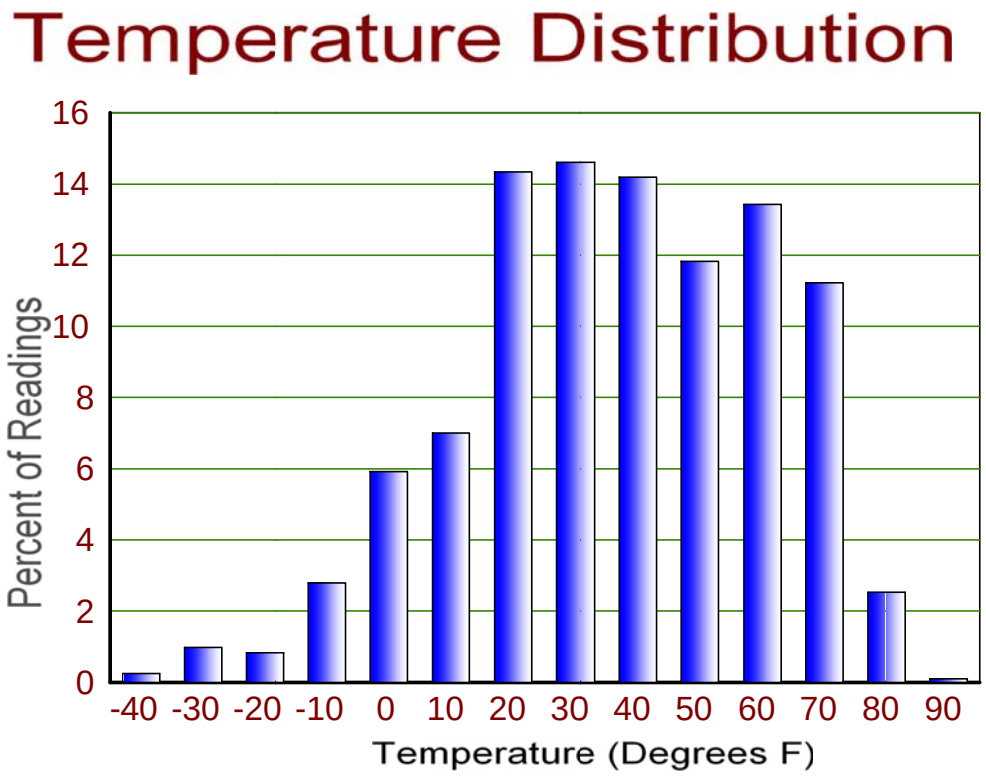
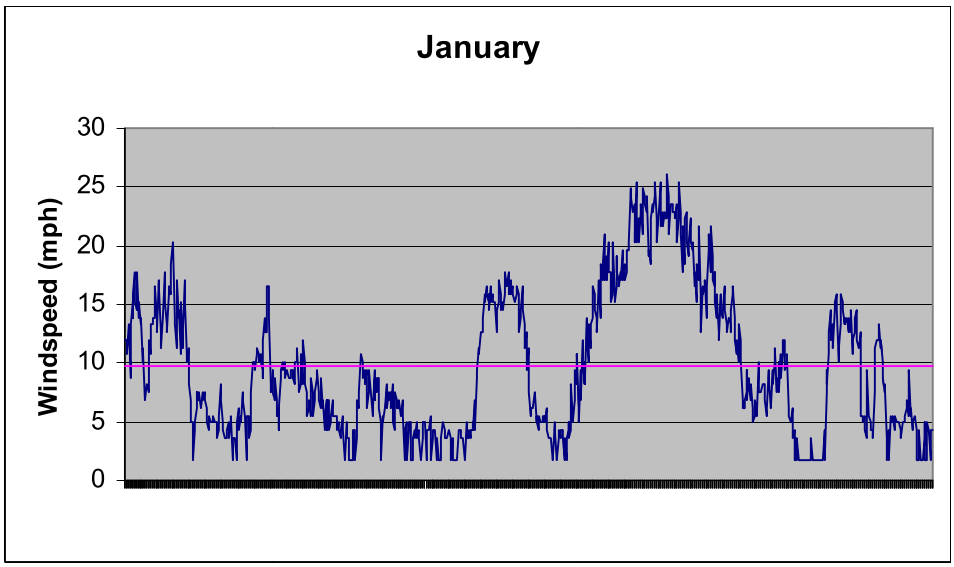






Wind is also a major consideration in the project area. The particular area of the Tanana River Basin in which the project is located in a 50-mile radius has periods of high winds. The following wind distributions show a representative year of wind data.



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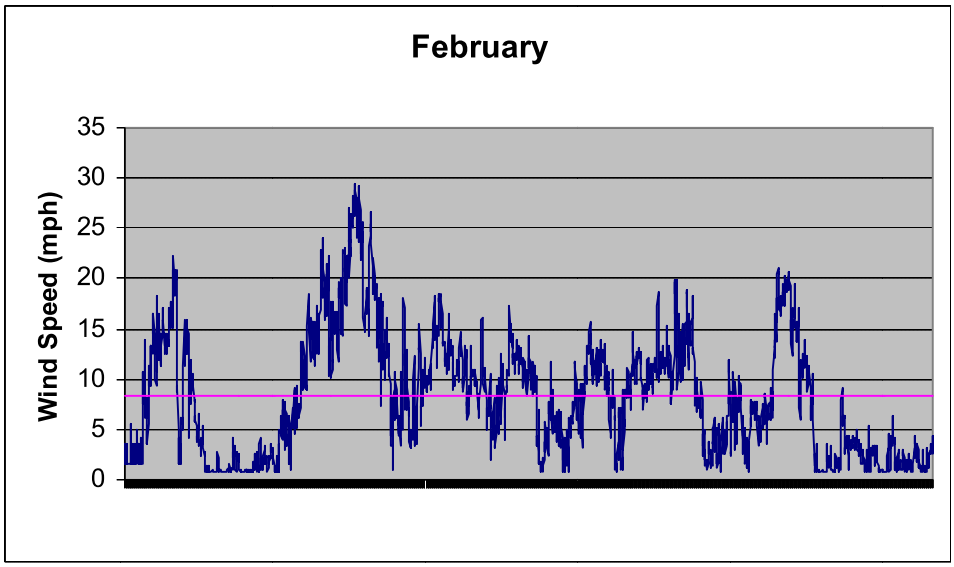

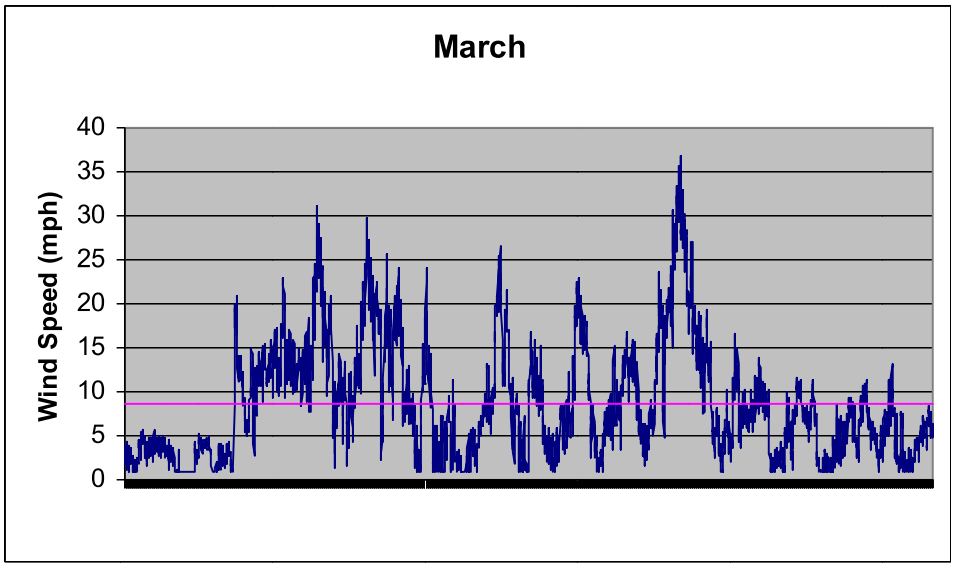

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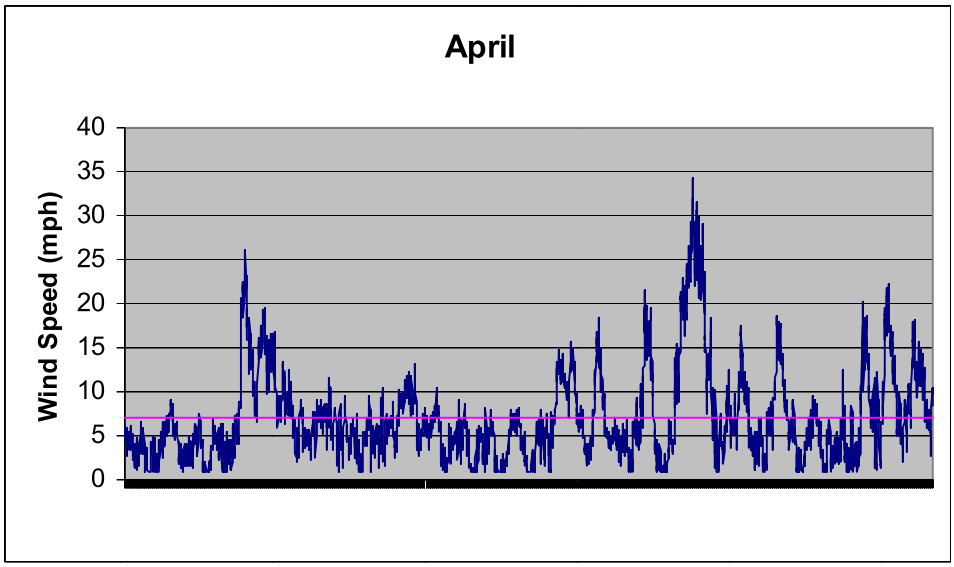

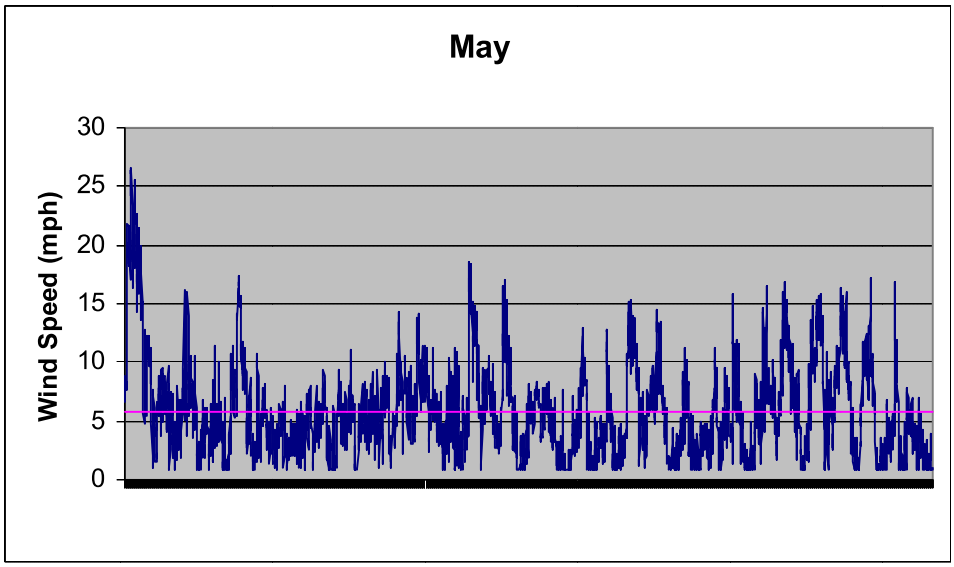

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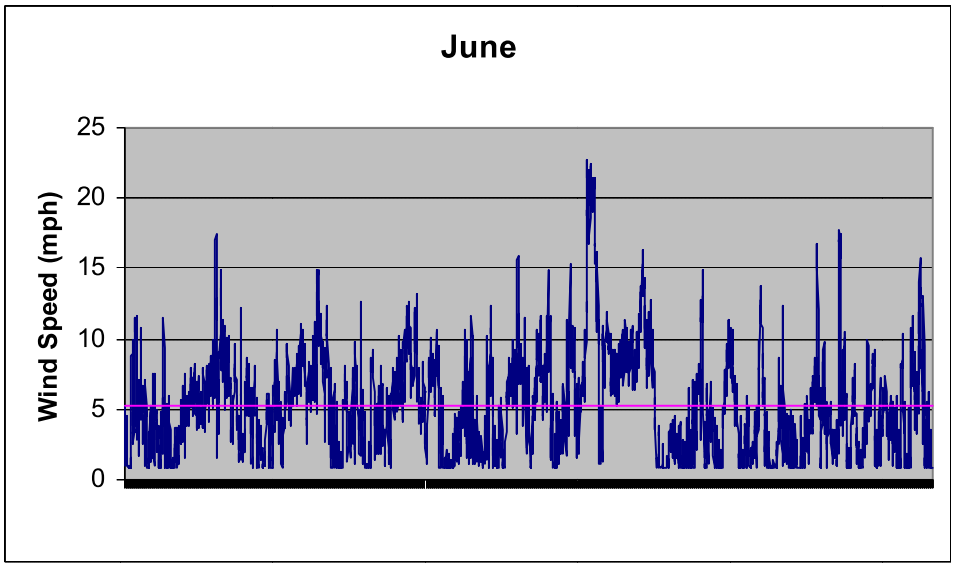

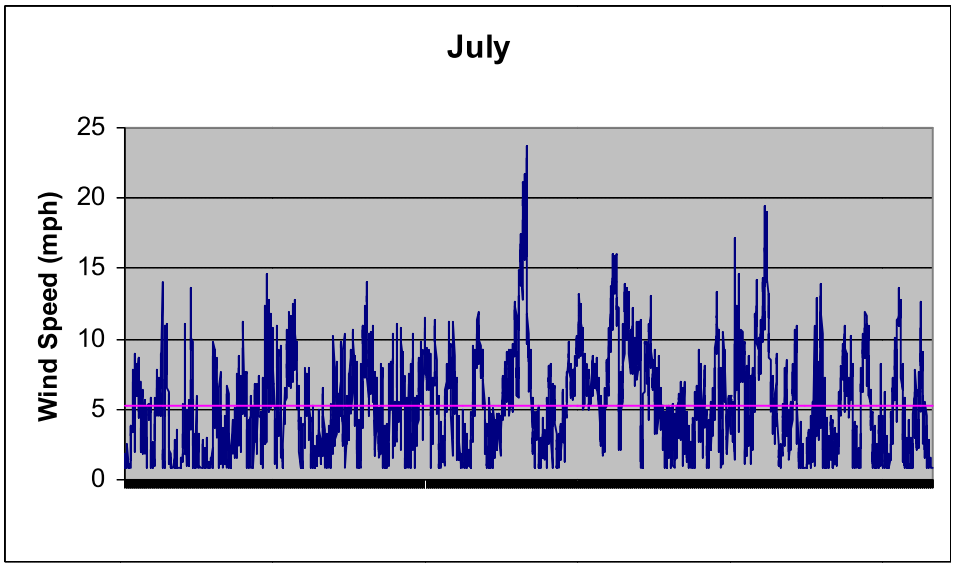

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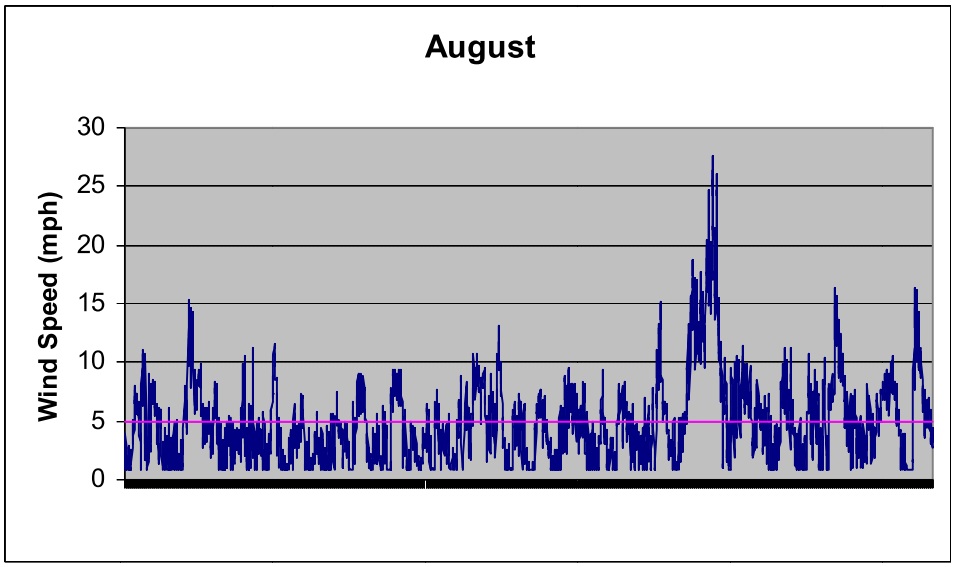

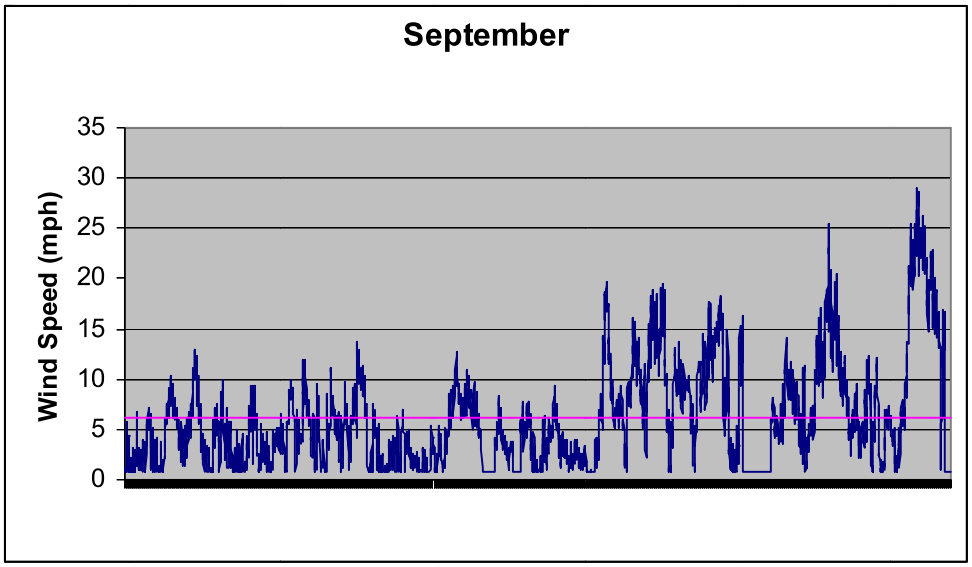

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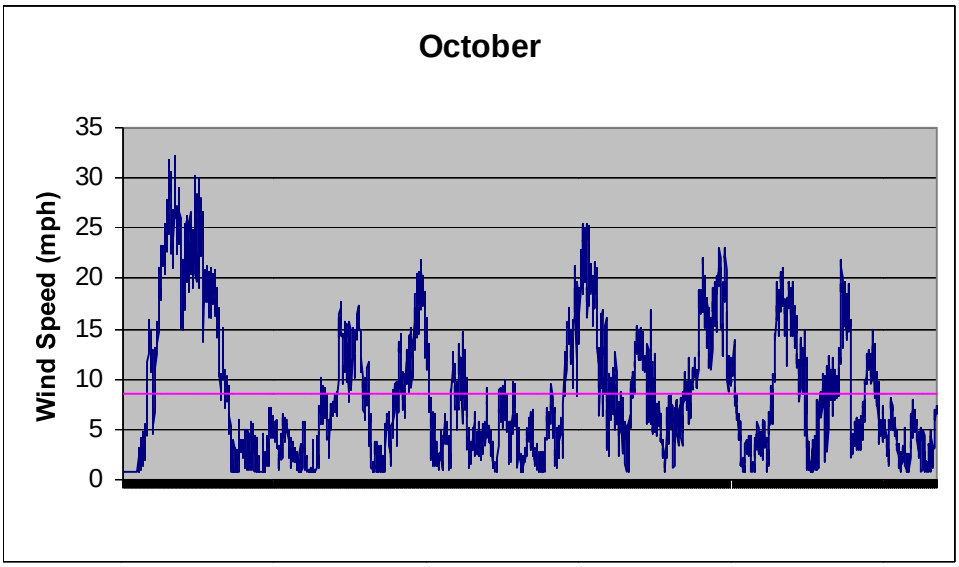
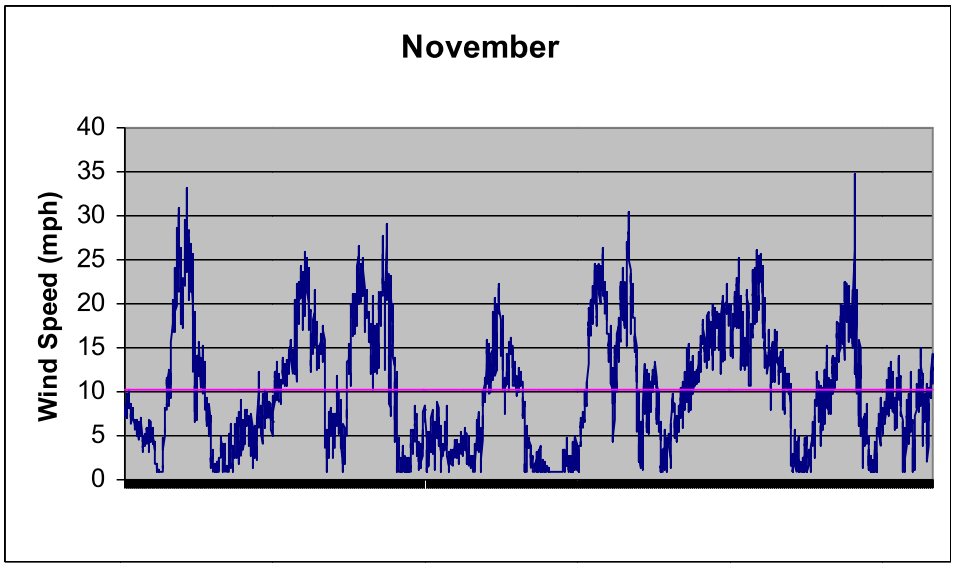
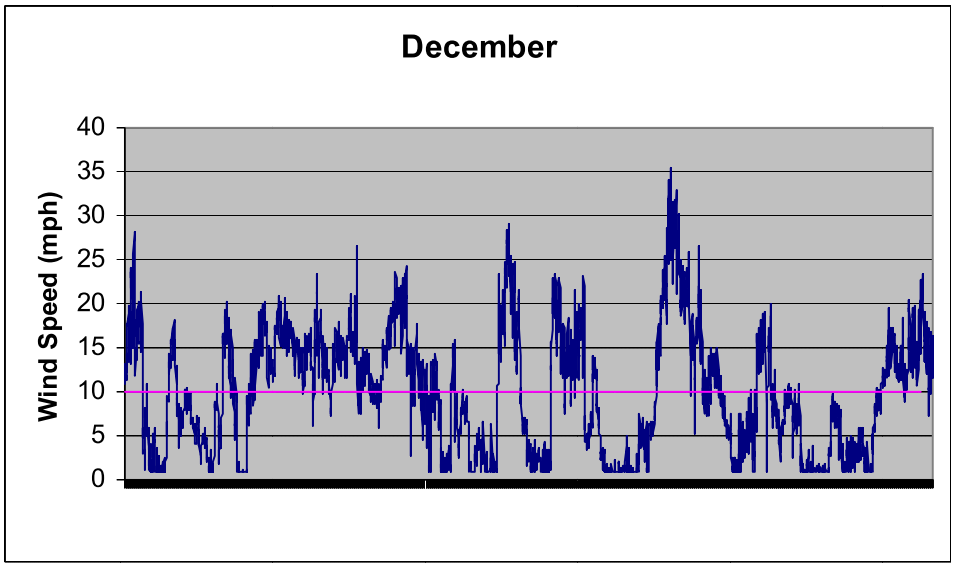






2. CUMULATIVE EFFECTS AND SCOPE

a. Cumulative Effects

According to the Council on Environmental Quality's (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) (40 CFR §1508.7), an action may cause cumulative effects on the environment if its effects overlap in time or space with the effects of other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes the actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time, including hydropower and other land and water development activities.

This project is a test project with a maximum life of five (5) years. At the end of five years the structures will be permanently removed. Within this short time duration it is expected that no cumulative effects will accumulate. Currently no other projects are operating in the area, nor are there any projects planned for the area during the life of the project.

b. Geographic Scope And Effects

The geographic scope of the analysis defines the physical limits or boundaries of the proposed actions' effect on the resources. Because the proposed action would affect resources differently, the geographic scope for each resource may vary. The geographic scope of the effect analysis broadly includes the Tanana River and the mouth of the Delta

River in the area of the proposed project. The surface area occupied by the project boundary is approximately 540,000 sq. ft. Please refer to the area maps in Exhibit G.

The proposed project will extend into the Tanana River from the right (north) bank approximately 50-feet. Thus it will cause a 9% restriction in the channel which is 600 ft wide at the project location. In addition, approximately 100 rock anchors will be used to anchor the craft and power transmission cable to the bluff at the project location. It is expected that the project will create some turbulence in the river channel that will be no wider than 50-feet and no longer than 100-yards. In consideration of the size of the river channel in question and the light nature of the traffic both in size and frequency, these are not expected to be significant impacts. WPC has consulted with State agencies such as Fish and Game, Natural Resources, and Historic Preservation, as well as federal representatives from the US Fish and Wildlife Service, Corps of Engineers, and Coast Guard. After reviewing our proposed project none of the agencies found that their particular area of jurisdiction or resource management would be impacted. All consultations with agencies and local governments are documented in Attachment A – Communication Records. The documentation is organized alphabetically by agency.

Although hydrokinetic technology is applicable in most river environments, WPC has a responsibility primarily to the residents of the community of Whitestone. For this reason, no other sites were considered for this project as the site chosen is the only one in proximity to the community with sufficient resource.

c. Temporal Scope And Effects

The temporal scope of analysis includes a discussion of the past, present, and reasonably foreseeable future actions and their effects on cumulatively affected resources. This Pilot Project License Application is for a 5-year term which would expire in 2017. At the present time there are no riverine projects in the vicinity of the project boundary. From a historical perspective, the project location and any resources it might affect have not been disturbed by any events other than the normal course of nature.

While the project is in operation, it is not expected to impact any resources outside the footprint of the float, nor is it expected that any changes made to the surrounding environment cannot be completely reversed at the conclusion of the project. The electrical power transmission cable will not be strung overhead on poles nor will it be buried so no excavation will be required. Instead, the cable will be laid on the ground and anchored to the rock faces of the bluff using drilled rock anchors. These anchors will be less than 1-inch diameter and less than five feet long. At the conclusion of the project they will be cut off and ground down to the level of the earth leaving no discernable projection. These anchors will be less than 100 in number. Small brush covering 4,500 sq. ft. will be cleared to make room for the cable. It can be reasonably projected that all this brush will be regrown within five years of the end of the project.

Rock anchors will also be used to moor the craft to the bluff face during operation. These will also be ground flat at the end of the project and will not have any protrusions remaining. All other facilities and equipment used for the project are portable and completely removable and will not leave any evidence of their presence after they have been removed. Since this is a test project which will be permanently removed at the end of the license period, there will be no long term economic, social, or recreational impacts. In consideration of the inaccessibility of the project location, the fact that it has not been used historically for any purpose and the fact that there are no plans for the project location in the future, it can be reasonably asserted that there will be no long term cumulative impacts resulting from the project.

3. APPLICABLE LAWS

a. Section 401, Clean Water Act

Pursuant to Section 401 of the Clean Water Act, as amended, any activity requiring a federal license or permit that may result in discharge into navigable waterways, requires certification from the state that confirms that any such discharge will comply with applicable state water quality standards. This requires WPC to obtain Section 401 Water Quality Certification prior to issuance of the Pilot Project License and a subsequent Letter of Permission from the USACE under Section 10 of the Rivers and Harbors Act. The project is not subject to the auspices of Section 404 of the Clean Water Act since it requires no excavation of the river bed and will have no discharge of any material into the water.

Consultation: WPC has received a Section 10 Letter of Permission from the United States Army Corps of Engineers (USACE) which precludes the need for a clean water certification since USACE enforces the Clean Water Act in Alaska and considers the project to have no substantial individual or cumulative effects. This documentation is provided in the USACE section of Attachment A – Communication Records.

b. Endangered Species Act

Section 7 of the Endangered Species Act (ESA) requires an authorizing or acting federal agency or designated non-federal representative to consult with USFWS/National Marine Fisheries Service (NMFS) on any actions that might affect listed species or their habitats. If the authorizing/acting agency or USFWS/NMFS determines an action is likely to adversely affect a species, formal consultation is required with USFWS or NMFS depending on their jurisdiction over the listed species. Formal consultation consists of submittal by the authorizing/acting agency of a Biological Assessment (BA) for review by USFWS or NMFS. Upon review of the BA, USFWS/NMFS would each prepare a

Biological Opinion (BO) which assesses whether the action is likely to jeopardize the existence of the listed species. The BO may include binding or discretionary recommendations to reduce potential impact. An Incidental Take Statement may be attached to the BO if there is potential jeopardy to the species.

Consultation: WPC has been advised by the USFWS that there are no endangered species within the proposed project boundary. This documentation is provided in the USFWS section of Attachment A – Communication Records.

c. National Historic Preservation Act, Section 106

Section 106 of the National Historic Preservation Act requires federal agencies to consider the effect of federally permitted projects on historic and cultural resources and requires consultation with the Alaska State Historic Preservation Officer (SHPO) prior to authorizing a project. Compliance with Section 106 of the Act also requires consultation with the tribes in the region. FERC typically satisfies Section 106 requirements for license term through Historic Properties Management Plans developed by the applicant in consultation with SHPO or a Programmatic Agreement to which FERC, SHPO and the Advisory Council on Historic Preservation (ACHP) are typically the signatories.

Consultation: As part of a separate project conducted with the Denali Commission from 2007–2009, the Alaska SHPO conducted a study of the proposed project area and concluded that there were no historic landmarks or resources within the proposed project location. WPC has received a letter from SHPO confirming that there are no affected historic properties within the project boundary. This documentation is provided in Attachment A – Communication Records. Additionally, this location is not part of any tribal lands as shown on the map in Exhibit G.

d. Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson–Stevens Fishery Conservation and Management Act requires WPC to consult with the National Marine Fisheries Service to determine whether the proposed project will have adverse impacts to the habitat or migratory paths of fish species which are deemed important by NMFS and which are a food resource.

Consultation: WPC has been advised by the National Marine Fisheries Service (NMFS) that there are no concerns regarding the habitat or safety of species protected under the Magnuson-Stevens Fishery Conservation and Management Act, and that they will not require WPC to develop an Essential Fish Habitat Assessment (EFH). This documentation is provided in Attachment A – Communication Records.

e. Coastal Zone Management Act

This statute is not applicable to the Whitestone Poncelet RISEC Project.

Consultation: A concurrence letter from the Alaska Department of Natural Resources (DNR) is provided in the DNR section of Attachment A – Communication Records.

f. Alaska Fish and Game Code

The Alaska Fish and Game Code (AS16.05.817) gives the Alaska Department of Fish and Game (ADFG) the responsibility of protecting the states wildlife resources. As such, this statute grants ADFG the responsibility of issuing permits for projects which have the potential to impact the wildlife population. State law requires WPC to receive a Title 16 permit from ADFG before beginning construction.

Consultation: WPC has received a Title 16 permit from ADFG. This documentation is provided in the ADFG section of Attachment A – Communication Records.

g. Alaska Water Use Act

The Alaska Water Use Act (Title 46) give the Alaska Department of Natural Resources (DNR) the power to adjudicate water usage rights for waters owned by the State of Alaska. This regulation requires WPC to receive a water use permit from DNR prior to deployment of the proposed project.

Consultation: WPC has received a Title 46 permit from DNR. This documentation is provided in the DNR section of Attachment A – Communication Records.

h. Alaska Land Act

The Alaska Land Act (Title 38) grants DNR the authority to issue permits for the use of state lands. This statute requires WPC to receive a Land Use Permit from DNR prior to the construction or deployment of the proposed project since the project will be entirely constructed and deployed on state owned land.

Consultation: WPC has received a Title 46 permit from DNR. This documentation is provided in the DNR section of Attachment A – Communication Records.

i. Wild and Scenic Rivers and Wilderness Act

This statute is not applicable to the Whitestone Poncelet RISEC Project.

j. Code of Federal Regulations Navigation and Navigable Waterways (Title 33)

CFR Title 33 gives the United States Coast Guard (USCG) the responsibility of monitoring the nation's waterways to insure the safety of the public among other concerns. This regulation requires WPC to receive a permit and PATON regulations from USCG prior to deployment of the proposed project.

Consultation: WPC has received a permit and PATON specification from the USCG. This documentation is provided in the USCG section of Attachment A – Communication Records.

k. Pacific Northwest Power Planning and Conservation Act

This statute is not applicable to the Whitestone Poncelet RISEC Project.

4. PROJECT FACILITIES AND OPERATION

a. Project Description

As described in Exhibit A, and illustrated with maps and diagrams in Exhibit G, the Whitestone Poncelet RISEC project is in the design stage and is the basis for the design and proposed action contemplated in this Draft Pilot License application.

The proposed action for which the applicant seeks a pilot license is the development, testing and environmental monitoring of a 100 kW River In-Stream Energy Conversion (RISEC) system using run-of-river current. This pilot project would consist of:

- A single Poncelet Kinetics RHK100 having a wheel of 16-ft diameter and 12-ft width producing a maximum of 100 kW
- Mooring and power cables running above the water from the float to the shore
- Appurtenant facilities for navigation safety and operation.

Based on the resource analysis of the current velocity and the projection of the annual duration of operation, the proposed project is expected to have an annual average power generation of 200 MWh.

b. Location And Layout

Based upon the velocity study completed by the University of Alaska, Anchorage survey team during the summer of 2010, the turbine will be anchored approximately 30 feet from the shore of the bluff shown on the northern edge of the project boundary. The total footprint of the device in the water will be 34 feet long and 19 feet wide. The total water surface area enclosed by the project boundary as shown in Exhibit G is approximately 540,000 sq. ft. (12.4 acres).

For a complete project description as well as operation, maintenance and monitoring plans, see Exhibit A of this draft application.

c. Alternatives Considered

WPC has studied various technologies over a period of three years and consulted with many developers, researchers and regulatory agencies in order to arrive at the conclusion that there is a need for a new technology. As such, WPC has formulated a new design in order to produce a technology that is uniquely suited to environments characterized by shallow water and heavy debris loads.

i. Alternative Sites Considered

Although this technology is applicable in most river environments, WPC has a responsibility primarily to the residents of the community of Whitestone. For this reason, no other sites were considered for this project as the site chosen is the only one in proximity to the community with sufficient resource.

ii. Alternative Facility Designs, Processes, and Operations Considered

WPC has had the opportunity to be involved in statewide discussions regarding the advent of hydrokinetic technology in Alaska from its inception. Over the last several years, WPC has had the advantage of observing many of the initial attempts to apply this technology to Alaskan rivers. Many of these technologies are available, although the vertical axis turbines have gained the most traction here in Alaska. All these designs have two problems. None of them is able to shed debris effectively in a manner that does not obstruct the flow of water to the rotor. Secondly, none of them has proven satisfactory to the various regulatory agencies particularly in the area of interaction with aquatic life. For these reasons, WPC considers these technologies ineffective for application to the Tanana River site near Whitestone.

5. PROPOSED ACTION AND ACTION ALTERNATIVES: ENVIRONMENTAL REVIEW

The potential impacts of the proposed action on the environment are analyzed in this section. Each "Resource Area" listed in the Commission's White Paper (and in CFR Title 18, 5.6(d)(3)) is described below in detail using standard FERC NEPA format. Consideration has been given to all relevant resource areas identified for analysis in the Commission's whitepaper on hydrokinetic projects in Appendix B of whitepaper §5.18(b)(5)(ii)(B). As stated earlier, this exhibit has been developed in cooperation with resource agencies and has been based on detailed environmental information collected. The exhibit has been designed to avoid and minimize all environmental impacts.

Exhibit A includes a description of the environmental monitoring plan under section 9: "Safe Management, Operations, and Maintenance Statement", subpart a: "Monitoring Plans", sub-subpart i: "Environment: Fish, Wildlife, Plants, Soils, Recreation, Land Use". The plan presented in Exhibit A applies to all the "Resource Effects Measures" described in this section.

a. Geology And Soils

i. RESOURCE DESCRIPTION

The proposed Whitestone Poncelet RISEC project would not excavate, disturb or make any use of the river bed. For this reason, there are no expected effects to the geology and soils of the river bottom due to anchoring. In addition, because the plunge of the blades is very small compared to the depth of the river, there should be no adverse effects as a result of turbulence disturbing the river bed.

The lands which will be used for construction of the project and storage of project maintenance and operation materials will not require any clearing of trees or brush. The existing sandy shore area near the river which has been granted to WPC to be used under ADNR Permit # ADL 417428 will be used for this purpose. Since this project will be removed after five years of testing, the use of this land will be temporary and non-invasive. Connexes will be used to store tools and materials and will be set on wood cribbing for the project duration. All of these materials will be removed at the conclusion of the project.

The craft will be moored to the opposite bank. The mooring location of the craft and power line intertie is an almost shear rock face. The rock is composed of schist and biotite gneiss. A map showing project area geology can be found in Exhibit G. These rocks have been recommended as being relatively hard and advantageous for anchoring. Not more than 100 individual anchors having a length not greater than 5-ft and a diameter of not more than 2-in will be drilled into the rock faces to support the mooring of the float and the anchoring of the overland armored

electrical cable. These anchors will not require any digging or soils removal; they will be drilled into the rock and grouted in place. At the conclusion of the project, they will be cut off and ground flat with the rock surface. This proposal has been approved by the ADNR as evidenced by the land use permit received by WPC for the purpose of this project (Permit # ADL 414914). A copy of this permit is also provided in Attachment A – Communication Records.

ii. RESOURCE EFFECTS ANALYSIS

It is not expected that there will be any environmental effects to the river bed soils or geology. The wheel and the blades will contact only the surface of the water, a minor penetration relative to the depth of the river, and there should be no adverse effects as a result of turbulence disturbing the river bed. The rock faces immediately bordering the river at the project location will be have rock anchors permanently grouted into them. These will be small, few in number and of a color similar to the existing rock.

iii. RESOURCE EFFECTS MEASURES

Any effects on river bed soils or geology will be observed as part of the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

iv. UNAVOIDABLE ADVERSE IMPACTS

The proposed project is not expected to create any unavoidable adverse impacts.

v. ECONOMIC ANALYSIS

The construction cost of the project is detailed in Exhibit A, Section 1(b). We expect no additional construction or developmental resource costs that might relate to protection, mitigation, or enhancement of this resource area.

vi. CONSISTENCY WITH COMPREHENSIVE PLANS

Monitoring any effect of the proposed project on river bed soils or geology is consistent with the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

vii. CONSULTATION DOCUMENTATION

Consultation with the Alaska Department of Natural Resources (DNR) and the US Army Corps of Engineers (USACE) is presented in Attachment A – Communication Records.

viii. LITERATURE CITED

No literature cited.

ix. ACTION ALTERNATIVES

No Action Alternatives were considered as part of this Environmental Exhibit. The proposed project design and geographic situation are considered the single best possible alternative.

b. Water Resources

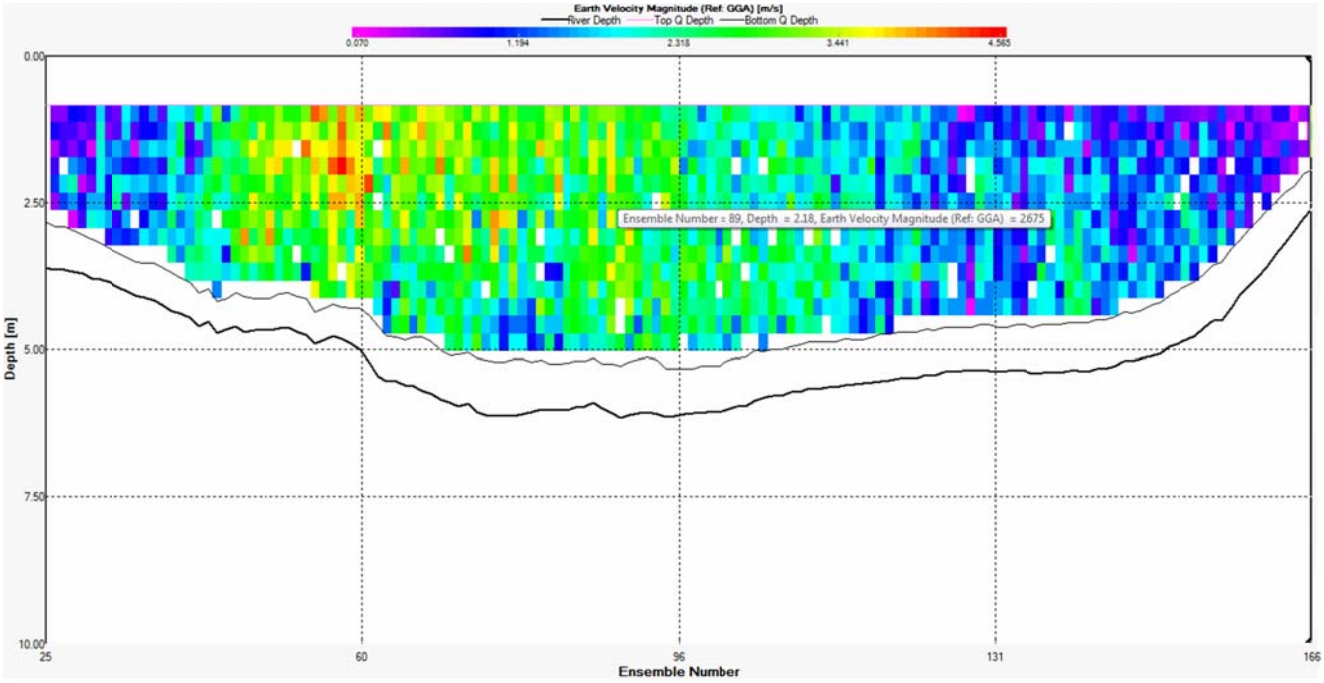
i. RESOURCE DESCRIPTION

The proposed project will be situated in the Tanana River at the site of its confluence with the Delta River, i.e. the mouth of the Delta River. The river-mile mark on the Tanana is 361. The surface area occupied by the project boundary is approximately 540,000 sq.-ft. The Tanana River is a relatively large river having discharge rates as high as 8,000 cfs in the summer months. Due to the high sediment load and remote location its water is not used for commercial purposes other than incidental transportation.

The device will extend into the Tanana River from the right (north) bank approximately 50-feet. Thus it will cause a 9% restriction in the channel which is 600 ft wide at the project location. In addition, approximately 100 rock anchors will be used to anchor the craft and power transmission cable to the bluff at the project location. It is expected that the project will create some turbulence in the river channel, the wake of which will be no wider than 50-feet and no longer than 100-yards.

On June 11 and 12, 2010, the University of Alaska, Anchorage (UAA) surveyed the project area using an Acoustic Doppler Current Profiler and recorded water velocities to determine which spots were viable for power production. Velocities recorded at the project site were as high as 14 fps measured relatively near the shore. The following graphic shows the bathymetry and velocity distribution at the chosen location for the project during the time of the study. Please note that

velocities range from magenta (low) to red (high) and that the proposed turbine will be situated approximately 50 ft from the left side of the plot.



Velocity distribution at the site selected for project deployment. The complete study results can be found here.

ii. RESOURCE EFFECTS ANALYSIS

In consideration of the size of the river channel in question and the light nature of the traffic both in size and frequency, these are not expected to be significant impacts. WPC has received assurances from all the appropriate local resource agencies that they do not expect any impacts to wildlife as a result of the project. WPC has also received assurances from the DNR that they do not expect any significant impacts to soils, terrain or water resources in the project area. Documentation is provided in the DNR section of Attachment A – Communication Records.

WPC believes that, given the time frame of the UAA velocity study (June 11-12) and the known river behavior, it is likely that high velocities will be available for at

least 5 months of each year with the possibility of 6-7 months of operation depending on temperatures and river conditions.

This proposed project will not remove any water from the river nor will it discharge any water or other liquid into the river. For this reason, and because the amount of energy being harvested from the river is minute in comparison to the energy available, there would not be any noticeable changes to the river either with regard to hydrodynamics, water quality, river level or discharge rate. The proposed project would have approximately the same effect on the river as a large boat moving at low speed. For this reason, no substantive effects to the river environment are expected as a result of the proposed project.

iii. RESOURCE EFFECTS MEASURES

Any effects on water resource will be observed as part of the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

iv. UNAVOIDABLE ADVERSE IMPACTS

The proposed project is not expected to create any unavoidable adverse impacts.

v. ECONOMIC ANALYSIS

The construction cost of the project is detailed in Exhibit A, Section 1(b). We expect no additional construction or developmental resource costs that might relate to protection, mitigation, or enhancement of this resource area.

vi. CONSISTENCY WITH COMPREHENSIVE PLANS

Monitoring any effect of the proposed project on water resources is consistent with the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

vii. CONSULTATION DOCUMENTATION

Consultation with the USCG, the USACE, and the Alaska DNR are documented in Attachment A – Communication Records. The documents are organized alphabetically by entity.

viii. LITERATURE CITED

No literature cited.

ix. ACTION ALTERNATIVES

No Action Alternatives were considered as part of this Environmental Exhibit. The proposed project design and geographic situation are considered the single best possible alternative, especially in light of the velocity study done by UAA, and described in this section.

c. Fish And Aquatic Resources

i. RESOURCE DESCRIPTION

The Tanana River is a relatively large river having discharge rates as high as 8,000 cfs in the summer months. The area includes a sensitive, high priority spawning area and migration path for several species of anadromous fish, most notably chum, coho and chinook salmon. The project will not have any effects outside the project area and even these effects should be minimal given the fact that this is a single unit which is similar in action to paddle wheel powered boats, many of which frequent Alaska's rivers with no deleterious effects on the fish populations.

The official species listing detailing the aquatic life which is present in the proposed project area at any given time throughout the year is as follows:

Common Name	***Scientific Name***
arctic lamprey	*Lampetra japonica*
least cisco	*Coregonus sardinella*
broad whitefish	*Coregonus nasus*
humpback whitefish	*Coregonus pidschian*
round whitefish	*Prosopium cylindraceum*
inconnu (sheefish)	*Stenodus leucichthys*
chinook (king) salmon	*Oncorhynchus tshawytscha*
chum (dog) salmon	*Oncorhynchus keta*
coho (silver) salmon	*Oncorhynchus kisutch*
arctic grayling	*Thymallus arcticus*
northern pike	*Esox lucius*
lake chub	*Couesius plumbeus*
longnose sucker	*Catostomus catostomus*
burbot	*Lota lota*
slimy sculpin	*Cottus cognatus*

Many of these fish are anadromous and migratory although a few of them live their entire lives more locally. The primary concern for these species with regard to the proposed project is the potential effects to out-migrating juveniles which can be found in the proposed project area for much of the summer. A secondary concern regards the adults returning to spawn in fall. ADFG has raised some concerns that, without proper location, the proposed project may interfere with the migrating patterns. WPC is in discussions with ADFG in an effort to satisfy their concerns. It is likely that the initial project location will be in a less sensitive portion of the proposed project area. This will allow ADFG to monitor the effects of the float on fish behavior during the initial stages of the project in order to determine whether the proposed project is too invasive to operate in more sensitive locations.

ii. SEASONAL CHARACTERIZATION OF THE TANANA RIVER

The Tanana River, in which the proposed project would be located, is the largest tributary of the Yukon River. During the summer months, it is fed primarily by glacial melt. As a result of this, it is heavily silt laden. The Tanana River is also considered a braided stream even though not all portions of the river are braided. The project area is a reach of the river which is not braided. The river levels vary by as much as 10 feet throughout the year. During the winter, the river is entirely spring fed and the water becomes clear.

The portion of the Tanana River in which the proposed project would be located does not freeze over during the winter. This is a result of the large amount of upwelling spring water which holds the water temperature high enough to avoid freezing. The river experiences small ice flows in October and November each year which are dumped into it by the Delta River which empties into the Tanana River at the proposed project location. The river also experiences large ice flows in May. These usually only last for two or three days and are a result of the annual ice breakup that occurs on the Goodpaster River which is several miles upstream of the project location. The depths of the river vary from less than 5 feet in some places to depths exceeding 30 feet in other areas. The proposed project location has an average summer depth less than 20 feet.

iii. UNDERWATER NOISE

WPC does not expect there to be high levels of underwater noise generated as a result of this installation. To begin with, the drive train and generator will not be submerged. In addition, the plunge depth of the blades on the wheel is only 2 feet. Additionally, these blades will be moving at about 50% of the speed of the water producing a pressure drop of only 0.51 psi at the tips of the blades. The amount of

noise generated would be smaller than that of a small boat propelled by an outboard motor which is very common in Alaska's rivers.

iv. RESOURCE EFFECTS ANALYSIS

The Poncelet Kinetics RHK100 and related systems will have little or no environmental effects on the aquatic environment because of its noninvasive design. The Alaska Department of Fish and Game has advised WPC that the pressure drop of 0.51 psi at the tips of the blades associated with power production is safe for all fish species which frequent the proposed project location. WPC will continue to consult with the local regulatory agencies as the project develops to ensure the safety and well-being of the aquatic species in the proposed project area. Additionally, WPC has received approval from ADFG and USFWS to given the known migration patterns of the anadromous fish populations (see Consultation Section below).

v. RESOURCE EFFECTS MEASURES

Any effects on aquatic resources will be observed as part of the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

vi. UNAVOIDABLE ADVERSE IMPACTS

The proposed project is not expected to create any unavoidable adverse impacts.

vii. ECONOMIC ANALYSIS

The construction cost of the project is detailed in Exhibit A, Section 1(b). We expect no additional construction or developmental resource costs that might relate to protection, mitigation, or enhancement of this resource area.

viii. CONSISTENCY WITH COMPREHENSIVE PLANS

Monitoring any effect of the proposed project on aquatic resources is consistent with the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

ix. CONSULTATION DOCUMENTATION

Consultation with the Alaska Department of Fish and Game (ADFG), US Fish and Wildlife Service (USFWS, and the National Marine Fisheries Service is presented in Attachment A – Communication Records.

x. LITERATURE CITED

Durst, J. D. (2000). Fish habitats and use in the Tanana River floodplain near Big Delta, Alaska, 1999-2000. Alaska Department of Fish and Game, Habitat and Restoration Division, Juneau. Technical Report No. 01-05. 57 pp.

Smith, Laurence C. Bryan L. Isacks, Brad Murray, and Arthur L. Bloom (1996). "Estimation of discharge from three braided rivers using synthetic aperture radar satellite imagery: Potential application to ungaged basins" *Water Resources Research, Vol 32, No. 7, July 1996, pp. 2021-2034*

Yarie, John, Leslie Viereck, Keith Van Cleve, and Phyllis Adams (1998). "Flooding and Ecosystem Dynamics Along the Tanana River" *BioScience, Vol. 48, No. 9, Flooding: Natural and Managed (Sep., 1998), pp. 690-695*

xi. ACTION ALTERNATIVES

No Action Alternatives were considered as part of this Environmental Exhibit. The proposed project design and geographic situation are considered the single best possible alternative.

d. Wildlife And Botanical Resources

i. RESOURCE DESCRIPTIONS

Upland Plants

A listing of the main plant species which can be found in the proposed project area is as follows:

Common Name	***Scientific Name***
white spruce	*Picea glauca*
black spruce	*Picea mariana*
balsam poplar	*Populus balsamifera*
quaking aspen	*Populus tremuloides*
paper birch	*Betula papyrifera*
dwarf arctic birch	*Betula nana*
alder	*Alnus* spp.
willow	*Salix* spp.
bush cinquefoil	*Potentilla fruticosa*
prickly rose	*Rosa acicularis*
highbush cranberry	*Viburnum edule*
wild iris	*Iris setosa*

Common Name	*Scientific Name*
reed-grass	*Calamagrostis* spp.
grass	Gramineae
sedge	*Carex* spp.
horsetail	*Equisetum* spp.

Wetland Plants

There are no wetland plant communities within the project boundary nor will the project have any significant impact on wetland communities upstream or downstream of the installation.

Wildlife Resources

A list of local terrestrial wildlife species is given below.

Black Bear	Short-tailed Weasel	Mink	Red Squirrel
Brown Bear	Lynx	Moose	River Otter
Beaver	Marmot	Muskrat	Wolf
Coyote	Marten	Red Fox	Wolverine

Avian Resources

A list of local bird species is given below.

Avian Resource	Common Name	Migratory Status	Breeding Status	Sp	Su	Fa	Wi
LOONS and GREEBES							
	Red-throated Loon	R	no	X	X	X	
	Pacific Loon	R	no	X	X	X	
	Common Loon	U	probable	X	X	X	
	Horned Grebe	U	yes	X	X	X	
	Red-necked Grebe	U	probable	X	X	X	
DUCKS, GEESE, and SWANS							
	Trumpeter Swan	U	yes	X	X	X	
	Tundra Swan	U	no	X	X	X	
	Canada Goose	U	no	X	X	X	
	Greater White-fronted Goose	C	no	X	X	X	
	Lesser Snow Goose	R	no	X		X	
	Green-winged Teal	U	yes	X	X	X	
	Blue-winged Teal	R	no	X	X	X	
	Mallard	U	yes	X	X	X	
	Northern Pintail	U	yes	X	X	X	

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Avian Resource	Common Name	Migratory Status	Breeding Status	Sp	Su	Fa	Wi
	Northern Shoveler	U	yes	X	X	X	
	American Wigeon	U	yes	X	X	X	
	Redhead	R	possible	X	X		
	Canvasback	R	possible	X	X	X	
	Ring-necked Duck	U	probable	X	X	X	
	Greater Scaup	U	yes	X	X		
	Lesser Scaup	U	probable	X	X	X	
	Long-tailed Duck	R	no	X	X	X	
	Surf Scoter	R	no	X	X	X	
	Black Scoter	R	possible	X	X	X	
	White-winged Scoter	R	possible	X	X	X	
	Harlequin Duck	R	no	X	X	X	
	Common Goldeneye	C	yes	X	X	X	
	Barrow's Goldeneye	R	possible	X	X	X	
	Bufflehead	U	yes	X	X	X	
	Common Merganser	U	possible	X	X	X	X
	Red-brested Merganser	U	possible	X	X	X	
	Osprey	R	no	X	X	X	
HAWKS, EAGLES, and FALCONS							
	Bald Eagle	R	no	X	X	X	X
	Northern Harrier	U	probable	X	X	X	
	Sharp-shinned Hawk	U	probable	X	X	X	
	Northern Goshawk	U	yes	X	X	X	X
	Swainson's Hawk	R	no	X	X	X	
	Red-tailed Hawk	U	yes	X	X	X	
	Rough-legged Hawk	R	possible	X		X	
	Golden Eagle	R	yes	X	X	X	
	American Kestrel	R	probable	X	X	X	
	Merlin	R	probable	X	X	X	
	Peregrin Falcon	R	possible	X	X	X	
	Gyrfalcon	R	possible	X	X	X	X
GROUSE							
	Spruce Grouse	C	yes	X	X	X	X
	Ruffed Grouse	C	yes	X	X	X	X
	Sharp-tailed Grouse	C	yes	X	X	X	X
	Willow Ptarmigan	U	yes	X	X	X	X
	Rock Ptarmigan	R	yes	X	X	X	X
	White-tailed Ptarmigan	R	possible	X	X	X	X
CRANES							
	Sandhill Crane	C	possible	X	X	X	

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Avian Resource	Common Name	Migratory Status	Breeding Status	Sp	Su	Fa	Wi
PLOVERS							
	Black-bellied Plover	R	no	X	X	X	
	American Golden-Plover	U	probable	X	X	X	
	Semipalmated Plover	U	probable	X	X	X	
SANDPIPERS, PHALAROPES, and ALLIES							
	Killdeer	R	no	X	X	X	
	Greater Yellowlegs	R	yes	X	X	X	
	Lesser Yellowlegs	U	yes	X	X	X	
	Solitary Sandpiper	R	yes	X	X	X	
	Wandering Tattler	R	no	X	X	X	
	Spotted Sandpiper	C	yes	X	X	X	
	Upland Sandpiper	C	yes	X	X	X	
	Whimbrel	R	possible	X	X		
	Long-billed Dowitcher	R	no	X	X	X	
	Ruddy Turnstone	R	no	X			
	Semipalmated Sandpiper	R	no	X	X	X	
	Western Sandpiper	R	no	X		X	
	Surfbird	R	possible	X	X	X	
	Least Sandpiper	U	possible	X	X	X	
	Dunlin	U	no	X	X	X	
	Wilson's Snipe	U	yes	X	X	X	
	Red-necked Phalarope	R	possible	X	X	X	
JAEGERS							
	Parasitic Jaeger	R	no	X	X		
	Long-tailed Jaeger	R	no	X	X	X	
GULLS and TERNS							
	Bonaparte's Gull	R	no	X	X	X	
	Mew Gull	C	yes	X	X	X	
	Herring Gull	U	no	X	X	X	
	Glaucous-winged Gull	R	no		X	X	
	Arctic Tern	U	possible	X	X	X	
	Rock pigeon	R	possible	X	X	X	X
	Great Horned Owl		yes	X	X	X	X
	Snowy Owl	R	no				X
	Northern Hawk Owl		yes	X	X	X	X
	Great Gray Owl		probable	X	X	X	X
	Boreal Owl		probable	X	X	X	X
	Short-eared Owl	R	yes	X	X	X	
	Belted Kingfisher	R	probable	X	X	X	
	Downy Woodpecker		yes	X	X	X	X

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Avian Resource	Common Name	Migratory Status	Breeding Status	Sp	Su	Fa	Wi
	Hairy Woodpecker		yes	X	X	X	X
	Three-toed Woodpecker		yes	X	X	X	X
	Black-backed Woodpecker		yes	X	X	X	X
	Yellow-shafted Flicker	U	yes	X	X	X	
	Olive-sided Flycatcher	R	yes	X	X	X	
	Western Wood-Pewee	R	yes	X	X	X	
	Alder Flycatcher	C	yes	X	X	X	
	Hammond's Flycatcher	U	yes	X	X	X	
	Say's Phoebe	U		X	X	X	
	Horned Lark	U	yes	X	X	X	
	Tree Swallow	U	yes	X	X	X	
	Violet-green Swallow	U	probable	X	X	X	
	Bank Swallow	C	yes	X	X	X	
	Cliff Swallow	C	yes	X	X	X	
	Barn Swallow	R	possible	X	X	X	
	Gray Jay	C	yes	X	X	X	X
	Black-billed Magpie	U	possible	X	X	X	X
	Common Raven	C	yes	X	X	X	X
	Black-capped Chickadee	C	yes	X	X	X	X
	Boreal Chickadee	C	yes	X	X	X	X
	Red-breasted Nuthatch	R	possible	X	X	X	X
	Ruby-crowned Kinglet	C	yes	X	X	X	
	Brown Creeper	R	no	X	X	X	X
	American Dipper	R	probable	X	X	X	X
	Northern Wheatear	R	possible	X	X	X	
	Townsend's Solitaire	R	possible	X	X	X	
	Mountain Bluebird	R	yes	X	X	X	
	Gray-cheeked Thrush	R	yes	X	X	X	
	Swainson's Thrush	C	yes	X	X	X	
	Hermit Thrush	C	yes	X	X	X	
	American Robin	C	yes	X	X	X	
	Varied Thrush	R	yes	X	X	X	
	American Pipit	U	probable	X	X	X	
	Bohemian Waxwing	U	probable	X	X	X	X
	Northern Shrike	R	probable	X	X	X	X
	Orange-crowned Warbler	C	yes	X	X	X	
	Yellow Warbler	C	yes	X	X	X	
	Yellow-rumped Warbler	C	yes	X	X	X	
	Townsend's Warbler	R	yes	X	X	X	
	Blackpoll Warbler	R	yes	X	X	X	

Avian Resource	Common Name	Migratory Status	Breeding Status	Sp	Su	Fa	Wi
	Common Yellowthroat	R	no		X		
	Wilson's Warbler	C	yes	X	X	X	
	Northern Waterthrush	R	yes	X	X	X	
	American Tree Sparrow	C	yes	X	X	X	
	Savannah Sparrow	C	yes	X	X	X	
	Fox Sparrow	C	yes	X	X	X	
	Chipping Sparrow	U	yes	X	X	X	
	Lincoln's Sparrow	U	yes	X	X	X	
	Golden-crowned Sparrow	R	no	X	X	X	
	White-crowned Sparrow	C	yes	X	X	X	
	Dark-eyed Junco	C	yes	X	X	X	
	Lapland Longspur	U	possible	X	X	X	
	Smith's Longspur	R	probable	X	X	X	
	Snow Bunting	U	no	X	X	X	X
	Red-winged Blackbird	R	no	X	X	X	
	Brown-headed Cowbird	R	no	X	X	X	
	Rusty Blackbird	R	possible	X	X	X	
	Gray-crowned Rosy-finch	R	no	X	X	X	X
	Pine Grosbeak	U	probable	X	X	X	X
	White-winged Crossbill	U	yes	X	X	X	X
	Common Redpoll	C	yes	X	X	X	X
	Hoary Redpoll	R	no	X		X	X
	Pine Siskin	R	no	X	X	X	X

ii. RESOURCE EFFECTS ANALYSIS

WPC has no reason to believe that any of the local terrestrial wildlife species listed above will be impacted by the proposed project in any way nor have any of the regulatory agencies we have approached expressed any concern for any wildlife species. The lack of any significant effect on aquatic resources would avoid harming the food sources of many birds and wildlife species. The traffic of wild game within the project location is extremely limited. The sheer rock faces at the mooring location of the float prohibit most species other than small furbearers such as squirrels, marmots and weasels. In addition, the swift water at the mooring location renders it an unattractive location for predators to fish or hunt. At the construction location, there is also very limited activity although moose frequent the location as well as bears and other species listed below. The construction of the project will cover 6 weeks during the spring and will not recur until the project is dismantled in approximately the same amount of time or less three years later. Storage of maintenance materials at the location will not be an additional

disturbance to the wildlife as the location is already in use as a boat landing and staging area for the Community of Whitestone (see Consultation Section below).

iii. RESOURCE EFFECTS MEASURES

Any effects on terrestrial resources will be observed as part of the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

iv. UNAVOIDABLE ADVERSE IMPACTS

The proposed project is not expected to create any unavoidable adverse impacts.

v. ECONOMIC ANALYSIS

The construction cost of the project is detailed in Exhibit A, Section 1(b). We expect no additional construction or developmental resource costs that might relate to protection, mitigation, or enhancement of this resource area.

vi. CONSISTENCY WITH COMPREHENSIVE PLANS

Monitoring any effect of the proposed project on terrestrial resources is consistent with the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

vii. CONSULTATION DOCUMENTATION

Consultation with Alaska Department of Fish and Game (ADFG) and the US Fish and Wildlife Service (USFWS) is presented Attachment A – Communication Records. Documentation is organized alphabetically by agency.

viii. LITERATURE CITED

No literature cited.

ix. ACTION ALTERNATIVES

No Action Alternatives were considered as part of this Environmental Exhibit. The proposed project design and geographic situation are considered the single best possible alternative.

e. Wetlands, Riparian and Littoral Habitat

i. RESOURCE DESCRIPTION

There are no wetlands within the project area. Shore-based facilities are located on lands with no hydrophilic vegetation or saturated soils. Likewise, no riparian or littoral habitats will be impacted.

The craft will be moored to the opposite bank. The mooring location of the craft and power line intertie is an almost sheer rock face. The rock is composed of schist and biotite gneiss. A map showing project area geology can be found in Exhibit G. These rocks have been recommended as being relatively hard and advantageous for anchoring. Not more than 100 individual anchors having a length not greater than 5-ft and a diameter of not more than 2-in will be drilled into the rock faces to support the mooring of the float and the anchoring of the overland armored electrical cable. These anchors will not require any digging or soils removal, they will be drilled into the rock and grouted in place. At the conclusion of the project, they will be cut off and ground flat with the rock surface.

ii. RESOURCE EFFECTS ANALYSIS

The shore-based supports of the proposed project will be situated on solid rock, sand, and cobble sediments. No wetland, riparian, or littoral environmental will be impacted.

iii. RESOURCE EFFECTS MEASURES

Any effects on wetland, riparian, or littoral environments will be observed as part of the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

iv. UNAVOIDABLE ADVERSE IMPACTS

The proposed project is not expected to create any unavoidable adverse impacts.

v. ECONOMIC ANALYSIS

The construction cost of the project is detailed in Exhibit A, Section 1(b). We expect no additional construction or developmental resource costs that might relate to protection, mitigation, or enhancement of this resource area.

vi. CONSISTENCY WITH COMPREHENSIVE PLANS

Monitoring any effect of the proposed project on wetland resources is consistent with the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

vii. CONSULTATION DOCUMENTATION

Consultation with Alaska Department of Fish and Game (ADFG) and the Alaska Department of Natural Resources (DNR) is presented Attachment A – Communication Records. Documentation is organized alphabetically by agency

viii. LITERATURE CITED

No literature cited.

ix. ACTION ALTERNATIVES

No Action Alternatives were considered as part of this Environmental Exhibit. The proposed project design and geographic situation are considered the single best possible alternative.

f. Rare, Threatened, and Endangered Species

i. RESOURCE DESCRIPTION

WPC has received assurance from the US Fish and Wildlife Service that there are no rare, threatened or endangered species present or migratory through the project area. Documentation is provided in Attachment A – Communication Records.

ii. RESOURCE EFFECTS ANALYSIS

No rare, threatened, or endangered species are present at the proposed project location.

iii. RESOURCE EFFECTS MEASURES

Any effects on rare, threatened, or endangered species will be observed as part of the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

iv. UNAVOIDABLE ADVERSE IMPACTS

The proposed project is not expected to create any unavoidable adverse impacts.

v. ECONOMIC ANALYSIS

The construction cost of the project is detailed in Exhibit A, Section 1(b). We expect no additional construction or developmental resource costs that might relate to protection, mitigation, or enhancement of this resource area.

vi. CONSISTENCY WITH COMPREHENSIVE PLANS

Monitoring any effect of the proposed project on rare, threatened, or endangered species is consistent with the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

vii. CONSULTATION DOCUMENTATION

Consultation with Alaska Department of Fish and Game (ADFG) and the US Fish and Wildlife Service (USFWS) is presented Attachment A – Communication Records. Documentation is organized alphabetically by agency.

viii. LITERATURE CITED

No literature cited.

ix. ACTION ALTERNATIVES

No Action Alternatives were considered as part of this Environmental Exhibit. The proposed project design and geographic situation are considered the single best possible alternative.

g. Recreational Land Use and Boating Resources

i. RESOURCE DESCRIPTION

The portion of the Tanana River being proposed for use under this pilot project license application is not a recreational resource. Due to its remoteness, temperature and unpredictable flow patterns, it is not a popular place for swimming, fishing or recreational boating. The proposed project if approximately ¼ mile downstream of the only observed recreational fishing spot in the project vicinity. It is also on the opposite side of the river from it and at a location almost

completely inaccessible from shore. There are no trails, lookouts or other known recreational resources within the project boundary.

There is a small amount of boating transportation that occurs in this portion of the river, but it is sporadic at its highest levels and often non-existent. This portion of the river has not been designated a state or federal park or wildlife refuge and is not part of any tribal lands. In addition, because it is not in an organized borough or county, there is very little interest from the public in developing new recreational resources in this area. For the purpose of this discussion there are no recreational activities within the project boundary.

WPC has reached out to the Tanana Valley Watershed Council and the Fairbanks Paddlers Association. WPC did not receive a response from either group. In addition no local residents have raised any concerns during comment periods or at any other time regarding the impact on recreational resources. WPC also received a letter from the NFWS stating that recreational fishing would not be negatively impacted by the project.

Measures to protect the recreating public from any harmful interaction with the device are described in the Safeguard Plan in Exhibit A. Signs will be placed on the craft warning the public of any dangers. In addition, one railing around the outer edge of the craft will make entry difficult. Should this be trespassed, a second railing will protect the intruder from the wheel. All electrical controls and mechanical levers will be locked and made as inaccessible to unauthorized personnel as possible.

WPC has received a temporary water use permit from the ADNR which states that there are no anticipated impacts to boating within the project boundary. There is a boat launch approximately ½ mile upstream from the project location. However, almost none of the traffic from that location flows downstream. Instead, the great majority of it uses the launch to access recreational homes on the Goodpaster River several miles upstream of the project location.

The location where the project will be constructed is used as a boat launch for the community of Whitestone. However, local consultation has shown there is enough room for the project to be constructed without disturbing the use of the location as a boat launch. Additionally, the project is planned to be constructed in April which is before the boating season really begins at Whitestone due to the cold weather.

The lands being used for the power line intertie easement are wholly unused at this time since they are on an almost shear bluff face. WPC has already been issued an exclusive easement for the use of these lands from the ADNR.

The low density of traffic in the area further decreases the danger of a collision or other catastrophe. WPC's studies have estimated average boating traffic to be less than one small craft per hour between the hours of 6 AM and 8 PM. Night time traffic is almost non-existent. The largest observed boats are 30 ft outboard boats used by residents of the nearby community of Whitestone for transportation and commuting. The debris diversion cable at the front of the craft will also help divert boats from the craft in the case of a collision. Should a boat make it over this cable, the front of the craft is an aluminum deck 18" from the water line. This will provide a full stop for any boats that are not diverted by the cable.

ii. RESOURCE EFFECTS ANALYSIS

The proposed project will have a small foot print on one of the shores of the Tanana River located at the confluence of the Delta and Tanana Rivers. The project will be located on the north bank of the river. Land use in the area is limited. All lands proposed to be used for the purposes of the project are owned in full by the State of Alaska. WPC has received permits from the ADNR to use the proposed lands for the project.

Approximately 900-feet downstream of the proposed project location a high voltage power distribution line owned and operated by Golden Valley Electric Association (GVEA) crosses the river from the bluff on the north side of the river to the low bank on the south shore.

Approximately 1,500-feet downstream of the proposed project location and on the opposite bank of the river from the proposed project location is the primary docking location for the residents of the community of Whitestone. Whitestone has a population of 167 people according to the 2010 US Census. At any given time, as many as 6 boats are moored at the dock. Over the past two years WPC has been conducting a debris study at the proposed project location. At no time during this period has more than 6 boats been seen docked at the boat launch.

The traffic past the project location averages about 1 boat every hour. Traffic is somewhat slower at night than during the day. All the traffic on the river at the proposed project location is commuter traffic. There is no recreational boating in the area. WPC has contacted the Tanana Valley Watershed Association and the Fairbanks Paddlers and has not received any comment from them regarding this area.

The Richardson Highway Bridge 524 (owned and operated by the Department of Transportation) is located approximately 1/2 mile upstream of the proposed project location. The proposed project location cannot be seen from the bridge due to the protrusion of the bluff located on the north shore of the river.

Approximately 500-feet upstream of the Richardson Highway Bridge 524 is the Trans-Alaska Pipeline bridge which is operated and maintained by the Alyeska Service Company. Between these two bridges, a boat launch is located on the south shore of the river which is used by residents of Whitestone as well as by recreational boaters who go upstream to cabins and fishing spots on the Goodpaster and Clearwater rivers.

Approximately one mile upstream of the proposed project location, Rika's Roadhouse and Landing, a State of Alaska Historical Park, is located. This park is open for tourist traffic in the summer from May 15 through September 15. This state park constitutes the only economic activity in the proposed project area.

WPC has no reason to believe that the infrequent use of the area for recreational land use will be impacted by the proposed project. No recreational organizations responded to letters requesting input.

iii. RESOURCE EFFECTS MEASURES

Any effect on recreating boaters, hikers, or other users of the proposed project area will be observed as part of the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

iv. UNAVOIDABLE ADVERSE IMPACTS

The proposed project is not expected to create any unavoidable adverse impacts.

v. ECONOMIC ANALYSIS

The construction cost of the project is detailed in Exhibit A, Section 1(b). The annual costs for "Testing, Monitoring and Surveillance" are detailed in Exhibit A, Section 7. We expect no additional construction or developmental resource costs that might relate to protection, mitigation, or enhancement of this resource area.

vi. CONSISTENCY WITH COMPREHENSIVE PLANS

Monitoring any effect of the proposed project on recreational uses is consistent with the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

vii. CONSULTATION DOCUMENTATION

Consultation with the National Park Service, the US Coast Guard (USCG), the Alaska Department of Natural Resources (DNR), and local government and tribal entities is documented in Attachment A – Communication Records. Documentation is organized alphabetically by agency.

viii. LITERATURE CITED

No literature cited.

ix. ACTION ALTERNATIVES

No Action Alternatives were considered as part of this Environmental Exhibit. The proposed project design and geographic situation are considered the single best possible alternative.

h. Aesthetic Resources

i. RESOURCE DESCRIPTION AFFECTED ENVIRONMENT

The proposed project location is a very lightly populated area (fewer than 200 people and only one waterfront property) which is largely virgin forest land. The impact of this small installation is unlikely to be significant. The float itself has a footprint of 28-ft x 23-ft and the on shore foot print will be even smaller. Although some trees may need to be cut down, the project will use the existing GVEA easement as much as possible to facilitate installations.

ii. RESOURCE EFFECTS ANALYSIS

The installation of the device, which will be removed each winter, will not cause significant environmental effects to the aesthetics of the area.

iii. RESOURCE EFFECTS MEASURES

Any effect of the project's on the aesthetics of the proposed project area will be observed as part of the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

iv. UNAVOIDABLE ADVERSE IMPACTS

The project will add two small installations which will be visible both during the day and at night. Their aesthetic effect will be minimal. Mockups of appearance of the installation can be seen in the following figures.

WHITESTONE POWER & COMMUNICATIONS
PHONE: (907) 895-4938 FAX (907) 895-4787 P.O. BOX 1229 DELTA JCT. AK, 99737

Figure 1: West-Facing Projected View of Craft Appearance

Figure 2: North-facing Projected View of Craft Appearance

v. ECONOMIC ANALYSIS

The construction cost of the project is detailed in Exhibit A, Section 1(b). The annual costs for "Testing, Monitoring and Surveillance" are detailed in Exhibit A, Section 7. We expect no additional construction or developmental resource costs that might relate to protection, mitigation, or enhancement of this resource area.

vi. CONSISTENCY WITH COMPREHENSIVE PLANS

Monitoring any effect of the proposed project on recreational uses is consistent with the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

vii. CONSULTATION DOCUMENTATION

Consultation with the Alaska Department of Natural Resources and local government and tribal entities documented in Attachment A – Communication Records.

viii. LITERATURE CITED

No literature cited.

ix. ACTION ALTERNATIVES

No Action Alternatives were considered as part of this Environmental Exhibit. The proposed project design and geographic situation are considered the single best possible alternative.

i. Cultural Resources

i. RESOURCE DESCRIPTION

Under Section 106 of the National Historic Preservation Act of 1966, federal agencies must take into account the effects of federal actions in historic properties and give the Advisory Council on Historic Preservation opportunity to comment on actions and decisions. Consultation related to historic properties is conducted with state historic preservation officers. Also under the National Historic Preservation Act (as amended in 1992), federally recognized Native American Tribes can assume the position of a state historic preservation officer for any activities affecting tribal lands.

ii. RESOURCE EFFECTS ANALYSIS

Due to the absence of historical significance associated with any artifacts or locations within the project area, there are no expected impacts to the cultural environment of the area. As part of a project conducted with the Denali Commission from 2007 – 2009, the Alaska SHPO conducted a study of the proposed project area and concluded that there were no historic landmarks or resources within the proposed project location. WPC has received a letter from the Alaska SHPO confirming that the earlier finding does apply to the proposed project and that no historic properties exist within the project boundary.

iii. RESOURCE EFFECTS MEASURES

Any effect the proposed project may have on cultural resources will be observed as part of the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

iv. UNAVOIDABLE ADVERSE IMPACTS

The proposed project is not expected to create any unavoidable adverse impacts.

v. ECONOMIC ANALYSIS

The construction cost of the project is detailed in Exhibit A, Section 1(b). We expect no additional construction or developmental resource costs that might relate to protection, mitigation, or enhancement of this resource area.

vi. CONSISTENCY WITH COMPREHENSIVE PLANS

Monitoring any effect of the proposed project on recreational uses is consistent with the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

vii. CONSULTATION DOCUMENTATION

Consultation with the State Historic Preservation Officer is documented in Attachment A – Communication Records.

viii. LITERATURE CITED

No literature cited.

ix. ACTION ALTERNATIVES

No Action Alternatives were considered as part of this Environmental Exhibit. The proposed project design and geographic situation are considered the single best possible alternative.

j. Socioeconomic Resources

i. RESOURCE DESCRIPTION

The community of Whitestone has been recorded as a separate community designated place under the auspices of the U.S. Census Bureau for the first time in 2010. The total population of the community is under 167 people. During the genesis of this project, the community was paying over $0.30 per kWh. In 2009, the community was tied into the GVEA grid for the first time which resulted in a cost reduction of 50%. However, this installation promises to produce power even more reasonably. In addition, the overriding purpose of this project is to produce a solution that is applicable state wide and provide energy cost reductions for communities with far higher energy costs.

ii. RESOURCE EFFECTS ANALYSIS

The proposed project would not likely have any negative impact to the local economy. To the contrary, the proposed project will benefit the local economy through job creation and reduced energy prices. The job creation aspect of the project would only apply to the construction part of it since staff already employed by WPC to monitor its various facilities would take on the minimal maintenance of this facility in addition to their current duties. Unfortunately, due to the limited resources of the area, the Poncelet Kinetics RHK100 would likely be manufactured in either Fairbanks or Anchorage and then shipped to Whitestone for installation. As such, the job creation is likely to include fewer than five people and only for a few months.

The cost of construction, deployment and intertie is not expected to exceed $1,400,000. At this point in time WPC hopes to obtain the necessary funds through various federal and state grant opportunities.

iii. RESOURCE EFFECTS MEASURES

Any effect the proposed project may have on socioeconomics will be observed as part of the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

iv. UNAVOIDABLE ADVERSE IMPACTS

The proposed project is not expected to create any unavoidable adverse impacts.

v. ECONOMIC ANALYSIS

The construction cost of the project is detailed in Exhibit A, Section 1(b). The annual costs for "Testing, Monitoring and Surveillance" including the wage rates and man-hour estimates are detailed in Exhibit A, Section 7. We expect no additional construction or developmental resource costs that might relate to protection, mitigation, or enhancement of this resource area.

vi. CONSISTENCY WITH COMPREHENSIVE PLANS

Section 10(a)(2) of the Federal Power Act (FPA) requires the Commission to consider whether or not, and under what conditions, the project would be consistent with relevant comprehensive plans on the Commission's comprehensive plan list.

WPC has reviewed the plans on the list and believes that none of them are relevant to the proposed project. However, at the Commission's request, WPC investigated the relevance of 5 comprehensive plans relative to the proposed project.

vii. CONSULTATION DOCUMENTATION

Consultation with US Coast Guard, the US Army Corps of Engineers, the Alaska Department of Natural Resources, and local government and tribal organizations is documented in Attachment A – Communication Record.

viii. LITERATURE CITED

No literature cited.

ix. ACTION ALTERNATIVES

No Action Alternatives were considered as part of this Environmental Exhibit. The proposed project design and geographic situation are considered the single best possible alternative.

k. Tribal Resources

i. RESOURCE DESCRIPTION

This location is not part of any tribal lands. In addition, at the request of the Commission, WPC attempted to contact 5 tribal councils. WPC received feedback from only the Dot Lake Traditional Council stating interest in the outcome of the project and support for the effort to lower energy prices for remote communities in Alaska. WPC believes the project will not affect any tribal resources and this is corroborated by the lack of interest in participating the process despite repeated efforts both by the Commission and WPC to contact them. The letters and response can be found in the Communication Record. The map in Exhibit G shows the relative size and location of the project boundary with relation to the nearest tribal lands. As can be seen from the map, the proposed project will not have any impacts on these tribal resources.

ii. RESOURCE EFFECTS ANALYSIS

The proposed project will not have any impact on tribal resources.

iii. RESOURCE EFFECTS MEASURES

Any effect the proposed project may have on tribal resources will be observed as part of the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

iv. UNAVOIDABLE ADVERSE IMPACTS

The proposed project is not expected to create any unavoidable adverse impacts.

v. ECONOMIC ANALYSIS

The construction cost of the project is detailed in Exhibit A, Section 1(b). We expect no additional construction or developmental resource costs that might relate to protection, mitigation, or enhancement of this resource area.

vi. CONSISTENCY WITH COMPREHENSIVE PLANS

Monitoring any effect of the proposed project on recreational uses is consistent with the environmental monitoring plan described in this application's Exhibit A, Section 9.a.i.

vii. CONSULTATION DOCUMENTATION

Consultation with local tribal organizations is documented in Attachment A – Communication Record.

viii. LITERATURE CITED

No literature cited.

ix. ACTION ALTERNATIVES

No Action Alternatives were considered as part of this Environmental Exhibit. The proposed project design and geographic situation are considered the single best possible alternative.