



Bureau of Land Management

Anchorage Field Office
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**Environmental Assessment
Right-of-Way Amendment**

Rebuilding and Upgrading of the Eklutna Transmission Line
and Construct Two Switchyard Bypass Circuit Routes

Municipal Light and Power
AA070133
Amendment
AK-040-06-EA-012

Location:

Seward Meridian, T. 14 N., R. 2 W.,
Secs. 2, 10, 11, 15, 21 and 22.

Prepared By:

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GLOSSARY

ACSR - (Aluminum Cable Steel Reinforcement) – represents a type of conductor

Circuit - A continuous system of conductors providing a path for electricity electrical current to flow.

Conductor - A substance that allows an electric current to pass through it easily. Good conductors have a low impedance and allow current to flow though them easily. The most common conductors in power system are power lines.

Distribution line - Power lines carrying power to neighborhoods (primary distribution) and to one or several buildings (secondary distribution). These carry less than 35 kV.

Flashover - Fault on an electrical power line caused by a breach of an insulator by an arc through the air.

Insulator - A material that reduces or stops the flow of electricity Good insulators have a high impedance, and do not allow current to flow though them. Some common insulators are rubber, porcelain, and AIR. That's why the wires on power lines are held apart from each other.

Kcmil - Description of wire size for a multiple stranded conductor; kcmil represents a measure of Thousand Circular Mil over 4/0 AWG (America Wire Gauge) in diameter.

Transmission line - Any line operating at 69,000 or more volts

Substation - A substation is a place that helps control the way power flows through the system. Substations are usually used to step voltage up or down, or open and close connections between transmission lines. They come in a variety of sizes depending on the purpose they serve. Most substations are filled with large, gray equipment, with large power lines connected. The equipment found in substations includes transformers, circuit breakers, and switches.

Voltage - Voltage is what "pushes" current through wires. A unit used to measure the electromotive force of an electric current. The unit for voltage is Volts (V). A common prefix for voltage in a power system is "kilo" (k), or thousand.

I. INTRODUCTION

In September 1997, the Bureau of Land Management (BLM) granted a right-of-way (R/W), to the Alaska Power Administration for the existing Eklutna Hydroelectric Project Facilities. The R/W was later assigned to the Eklutna Purchases in October 2, 1997. The Purchasers are Municipal Light and Power (ML&P) holding 53.33% ownership, Chugach Electric Association, Inc. holding 30% ownership, and Matanuska Electric Association (MEA) holding 16.67% ownership.

The specific location for the proposed action is located on Fort Richardson in the vicinity of MEA's Pipple substation to the north and MEA's Briggs substation to the south. (Figure 1).

A. Purpose and Need for the Proposed Action:

The Eklutna Purchasers, Eklutna Operating Committee authorized ML&P to manage the project and acquire an amended authorization from BLM. ML&P and Chugach representing 83.33% ownership voted for the project while MEA representing 16.67% ownership voted against the project. The purpose and need for the proposed action is rebuilding and upgrading the Eklutna Transmission Line R/W, within the existing 75 feet width R/W route crossing Fort Richardson lands between the Davis Highway and Artillery Road and constructing a new secondary circuit bypass proposed to be 60 feet wide.

The second circuit will then become a bypass circuit connecting Eklutna Hydroelectric Plant directly to Anchorage. This new construction will become a bypass circuit route (60 feet R/W width) to two switching yards will increase system reliability and flexibility. These proposed switching yards are located in the vicinity of the MEA's Briggs Tap and Pipple Tap substations. This amendment will be to construct an adjoining 60 foot R/W that will bypass each of these two MEA distribution substations. In the event of problems on the substation feeder circuit or substation tap line; these bypasses will keep Anchorage connected to power from the Eklutna Hydroelectric Plant.

B. Conformance With Land Use Plan:

The Proposed Action is in conformance with the Southcentral Management Framework Plan (MFP), March 1980. Objective Number L-1 of the MFP states the BLM intends to "Satisfy state and local government needs as well as public and/or private demonstrated needs for land as they arise".

C. Relationship to Statutes, Regulations, Policies, Plans or Other Environmental Analyses: (Optional)

A non-objection request for this project has been submitted to the Army. In

addition, BLM requested non-objections from the other rights-of-way holders within this corridor.

The Alaska Power Administration applied for a right-of-way for the Eklutna Power Project pursuant to Title V of the Federal Land Policy and Management Act of October, 21, 1976 and Sect 104 (d)(1) of the Alaska Power Administration Asset Sale and Termination Act (P.L. 104-58, 109 Stat. 558). Environmental Assessment AK-040-96-EA-014 dated September 3, 1997, provided the recommendation for the granting of the right-of-way.

On August 1, 2005 the Army Corps of Engineers provided the Project Engineer with a Section 404 of the Clean Water Act review and concluded a permit was not required.

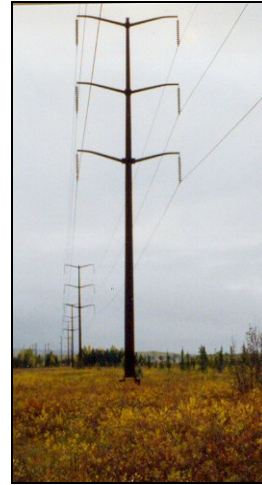
II. PROPOSED ACTION AND ALTERNATIVE

A. Proposed Action:

ML&P acting as an agent for the Eklutna Purchasers, proposes to amend R/W AA-70133 to rebuild and upgrade the Eklutna Transmission Line in the vicinity of the MEA's Briggs Tap and Pipple Tap substations. (See Figures 1-3) The Briggs Tap substation is located in Seward Meridian W $\frac{1}{2}$ of Sec. 22, T. 14 N., R. 2 W and the Pipple Tap substation is located in SW $\frac{1}{4}$ SW $\frac{1}{4}$ of Sec. 2. ML&P proposes to replace the existing 115 kV wooden poles (17 poles) with 230 kV standard steel pole double circuit lines within the existing 75 feet R/W (Figure 4) Even though, the poles are being upgraded to 230 kV standards, the circuit line will remain at the same 115 kV voltage. The new line will be insulated at 230 kV under this rebuild project to reduce the likelihood of flashover. None of the poles will be rebuilt in a wetland area. In addition, ML&P proposes to construct bypass circuit switchyard adjacent to the MEA's Briggs Tap substation and the Pipple Tap substation (Figure 5 and 6).

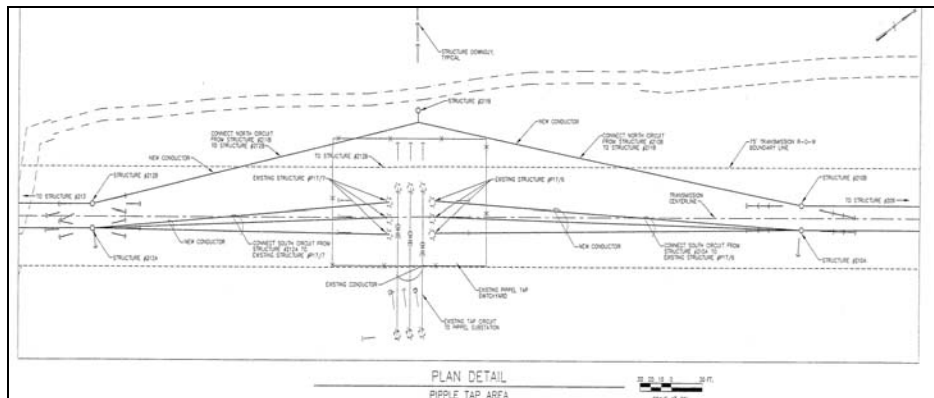


Existing 115 kV Pole

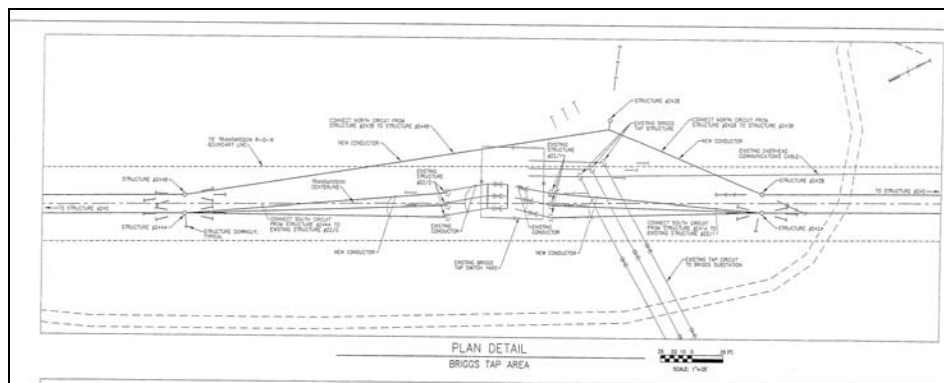


Upgrade 230 kV Pole

Photos H (wooden) poles replaced with single metal pole (Figure 4.)



Switchyard Pipple Substation (Figure 5)



Switchyard Briggs Substation (Figure 6)

The entire project area is located within, Seward Meridian, T. 14 N., R. 2 W., Secs. 2, 10, 11, 15, 21, and 22. The length of the project area (powerline and access road) is approximately four miles. These bypasses are single circuit bypasses, which requires a 60 foot wide linear R/W, 685 feet in length for the Briggs Tap bypass and 716 feet in length for the Pipple Tap Bypass. ML&P proposes that new R/W construction occur while for the ground is still frozen in early 2006, as soon as the authorization is approved.

Pole Design

The new transmission line design will consist of 2 circuits on steel single pole struts, similar to the existing line that is the southern terminus of this project. Structures across the military reservation will range in height from 65 feet to 110 feet, with the majority approximately 75 feet to 80 feet in height.(Figure 4)

Circuit Design

The proposed circuit wire strand cables will be strung between the poles: Each of the 2 circuit cables will be designed with conductor material that will consist of 795 kcmil aluminum conductor and steel reinforced ACSR with a diameter of 1.108 inches.

The design of the structures will be a circuit on each side of the single pole. The vertical spacing between phases of a circuit is 13 feet, and the horizontal spacing between circuits is a minimum of 15 feet. This along with utilization of suspension insulators to suspend the conductors beneath the structure arms should provide adequate raptor protection.

The existing transmission line R/W was cleared this last summer. (See Figure 1) area between beginning and ending points) No additional vegetation clearing of the existing R/W is anticipated to be required for construction.

Access

Construction access will be along the existing trail with bridges adjacent to the R/W. The following equipment will be utilized for construction, in addition, to the typical trucks and SUV's for crew transportation: Auger for drilling of pole foundation holes, cranes for setting poles, and trailers to transport and hold conductor reels and wire pulling equipment, and bucket trucks for line work on erected poles.

To avoid the time and security issues related to transporting equipment, materials and crews across the length of Fort Richardson, two alternative access points are proposed. The U.S. Army has been contacted about these needs.

- Access via Artillery Road and along the transmission line R/W and existing access road between Artillery Road and Fossil Creek;
- Access via Gate 2 (main gate), D Street, 6th Street and Davis Highway to the Transmission line R/W and existing access Road.

Bypass – Switching Yard

The proposed action is to construct an adjoining 60 foot linear R/W that will bypass each of these two MEA distribution substations. One of the circuits from the 230 kV line R/W will split bypassing the MEA substation. The new bypass route, 60 feet in width, will start approximately 300 feet before the substation and then angle approximately 15° northwest for approximately 400 feet following an already disturbed partially cleared route to a point 90° from the centerline of the substation. Leaving this point the route will then angle back 15° to northeast for approximately 300 feet to where the new R/W readjoins the main Eklutna Transmission Line R/W. The total length of the bypass for the Briggs Tap substation is 685 feet and 716 feet in length for the Pipple Tap bypass.

We expect that the full 60 feet R/W width will need to be cleared for the two short bypass circuits around the tap switchyards; however, most of that R/W is already devoid of vegetation. Any cleared material will be chipped and spread over the cleared area or disposed of off site. Existing roads will be used to access the area. No cut and fill is expected, the only excavation anticipated is the excavation for anchors and poles, which will be tamped back in to place with any excess mounded around the pole and or spread over the immediate area.

The bypass switchyards will be utilized as pulling locations for conductor installation, in addition to a dead-end structure located approximately 2 miles from the southern terminus of the project.

B. Alternative #1 - No Action Alternative:

The No Action Alternative was considered but not analyzed further due to the mandate from Congress in P.L. 104-58 of November 28, 1995, “authorized construction of the Eklutna project... and transmission facilities in connection therewith, and for other purposes”. The original ROW grant allows for the operation of, maintenance of, and repair to and replacement of, and access to, Eklutna facilities located on military lands.

III. AFFECTED ENVIRONMENT

A. Critical Elements

The following critical elements of the human environmental have been analyzed and are either not present or will not be affected by the Proposed Action or the No Action Alternative.

Air Quality
Areas of Critical Environment Concern
Environmental Justice
Farmland (Prime or Unique)
Floodplains
Wastes, Hazardous and Solid
Native American Religious Concerns
Wild and Scenic Rivers
Water Quality (Surface/Ground)
Wilderness

1. ANILCA Section 810 Clearance
The Proposed Action and Alternative have been analyzed and determined to have no effect on any subsistence uses or needs under Section 810.
2. Cultural Resources
AK-040-96-EA-014 documents that the high potential areas for cultural resources were surveyed by an archaeologist. The rest of the route is considered to be low in potential for cultural resources. If cultural resources are identified during the course of the project, all operations will cease and the BLM archaeologist will be notified immediately. Operations will recommence after clearance by the BLM.
3. T&E Species
AK-040-96-EA-014 mentions the following information. Harlequin duck, Northern goshawks, and Canada lynx occur along the transmission line. These are species of concern and were former Category II species under the Endangered Species Act. Bald eagles, are frequently observed near the transmission sites, are not endangered or threatened in Alaska, but are under the special protection of the Eagle Protection Act.
4. Wetlands/Riparian Zones
On Fort Richardson, access roads and the transmission line crosses Eagle River and Fossil Creek.

- B. Land Status
By Executive Order 8102, this land is under a withdrawal for a military reservation. BLM's role is to manage the vegetative and mineral resources. BLM issues land authorizations for this withdrawal, subject to the concurrence of the military.

- C. Vegetation
The transmission line and access roads cross many common Alaskan vegetation types. These include spruce, birch, and cottonwood forests, willow-alder shrub lands, low shrub/grass/forbs lowlands, marshes, and bogs.
- D. Noxious and Invasive Weeds
There are at least 24 terrestrial plant species in Alaska that are identified as noxious or invasive weeds. Several of these species likely occur in the area of the proposed action, particularly after surface disturbance, however the site of the proposed action has not been surveyed for invasive plants or noxious weed species invasive plants.
- E. Visual Resources
The existing transmission line corridor, transmission structures, and cables are visible from the Glenn Highway, local roads, and the air. They present a long linear visual intrusion or contrast in an area of high population density. The proposed action is taking place in a location where the immediate visual resources are already impaired by the existence of the current power lines and substation compounds. The R/W corridor passes through a relatively thick forest of mixed species including white spruce, white birch, alder and willow, and is generally cleared to the ground with small second-growth trees and shrubs that may range 3-5 feet in height. The terrain near the proposed action drops sharply into a deep valley, and is well screened from viewers on the busy Glenn Highway by this hilly terrain and the high mound of the adjacent municipal landfill. An access road parallels much of the existing corridor providing local users on base with frequent views of the existing double wooden poles, wires, corridor scar, and substation compounds.
- F. Wildlife
The transmission line and access roads cross moose winter range, moose travel corridors, and moose yearlong ranges. There is limited moose hunting on Fort Richardson. Black bears occur in the area of the proposed action, and brown bears are associated with salmon streams when fish runs occur in summer months. Wolverine, coyote, red fox, pine martin, mink weasel, otter, muskrat, beaver, and lynx all occur on one or more sites. Fort Richardson is closed to the taking of wildlife for subsistence and other consumptive uses of wildlife with the exception of highly controlled moose hunts.

Numerous non-game neotropical and resident birds occur within the Project area. Neotropical birds are of concern due to rapidly declining populations of specific species. Olive sided flycatchers and blackpoll warblers are among these and

occur with in the Project sites. Numerous species of raptors, including bald eagles, osprey, northern goshawk and rough-legged hawks, breed or migrate through the area.

G. Iditarod National Historic Trail

The Iditarod National Historic Trail (INHT)¹ consists of primary and connecting segments. The primary segment crosses the transmission line on Fort Richardson in Sec. 11, T. 14 N., R. 2 W., Seward Meridian.

H. Recreation

An informal foot trail follows much of the existing powerline corridor and is infrequently used by base residents for warm season walking and occasional winter skiing. Base maintenance personnel familiar with the trail report very low year-round use. Users of this corridor, and specifically the area of the proposed action, are already familiar with the powerlines, poles and substations in the corridor, which seem to have little impact on these recreation uses.

Access roads used for the maintenance of the transmission lines are likely to be used by fishermen desiring access to the Eagle River. Vehicle access is prohibited. Access has been blocked to the general public by fencing that has been constructed along the perimeter Ft. Richardson boundary.

IV. ENVIRONMENTAL CONSEQUENCES

A. Impacts of the Proposed Action:

1. Wetlands/Riparian Zones

Unauthorized OHV use along the project on Fort Richardson has damaged surrounding wetlands. OHVs have created large water filled mud holes and ruts in wet areas.

2. Vegetation

Since construction of the transmission line in the mid 1950's riparian, tall shrub, upland shrub, and forest communities have been periodically cut to allow access to the line or to prevent trees from growing too close to the transmission line. This action converts forest habitats of tall shrubs and trees into continuous state of early successional stages of increased forbs, grasses, low shrubs and younger age sapling of tall shrubs and trees. Conversion and maintenance treatments in many places limits growth of original vegetation and invading undesirable species, such as alder, establish themselves. The vegetation cutting and clearing along the transmission line has created an unnatural, straight, unvaried edge effect with the surrounding forest. Clear artificial boundaries exist where undisturbed vegetation types meet the

¹ The Iditarod National Historic Trail Seward to Nome Route, Comprehensive Management Plan, (BLM, 1986) (copy located in the Public Room)

maintained edges of the transmission line clearing. Removal of vegetation also reduces the effect of wildfire should it occur along the transmission line.

The existing R/W was cleared last summer. No additional vegetation clearing of the existing R/W is anticipated prior to construction. The 60 foot R/W for the switchyards bypass route will need to be cleared however, most of that R/W is already devoid of vegetation. Any cleared material will be chipped and spread over the cleared area, or disposed of off site.

3. Wildlife

Moose habitat on Fort Richardson is being lost due to clearing and cutting of vegetation along the transmission line. Clearing and cutting of trees and tall shrubs modified the area along the transmission line to a more open habitat with tall shrubs interspersed among a forbs/bluejoint grass vegetation type. A tall shrub dominant site with forbs and grass openings is preferable for moose and bears if alder do not dominate the site. A diverse tall shrub/sampling vegetation type of willow, sapling birch, aspen, highbush cranberry, elderberry, etc. is preferable for bear and moose, but does not offer vertical or patchy horizontal diversity of tree age classes to provide habitat for species of neotropical migratory and other non-game birds.

Power lines may attract roosting, perching or nesting raptors, causing the electrocution of birds if the spacing between energized lines and grounded lines or hardware of the powerline structure is narrow enough to allow birds to contact lines. Birds are killed when they simultaneously make physical contact between energized lines and grounded lines or hardware.

4. Threatened and/or Endangered Species

No documentation or record keeping of bird mortality due to electrocution or collision has been done along the Project. Prevention efforts are not a part of construction or maintenance functions. (For further information, see the T&E Species report dated September 17, 1991, in case file AA-70133.

5. Noxious and Invasive Weeds

Disturbed areas are often invaded by invasive or noxious plant species which displace native species. The 1999 Executive Order No. 13112 on Invasive Species states that each Federal agency shall not authorize, fund, or carry out actions that are likely to cause or promote the introduction or spread of invasive species in the United States.

6. Visual Resource Management

The additional clearing of the R/W to accommodate the bypass lines will occur immediately adjacent to the existing corridor, widening it slightly. The visual impacts of this widening will not be noticeable to most viewers,

especially from the well-traveled Glenn Highway to the east. Visual scars from the construction should be obliterated with natural growth within a single growing season. The new single poles will match new metal poles installed at other points along the greater R/W and should project less of a visual intrusion than the double and triple wood poles now in place. The substations will generally remain unchanged. Recreation users in the corridor and base road viewers should not recognize these additional intrusions in the existing visual landscape. No additional visual impacts greater than the existing environment are expected.

7. Recreation

The limited recreation activities taking place in this specific R/W corridor will not be affected by the implementation of the proposed action except during the actual construction phase. Trail users may be inconvenienced by the construction activities in the corridor, and may have to seek alternative routes during this period. Fisherman access may also be temporarily reduced during construction, but they will see no long term impacts as the proposed action is described

B. Cumulative Impacts

The line was originally constructed in the early 1950's to provide power to Anchorage from the, then new, hydroelectric plant. Due to age, and changes in environmental planning and technology, portions of the line have been replaced and repaired. The line has multiple taps installed to feed MEA distribution substations. Other segments of the powerline have already had their wooden poles replaced with the double circuit steel poles. The useful life of this transmission will be extended by an anticipated 50 years or longer as a result of this action.

The additional impacts of this action will not result in cumulative impacts that have a materially greater impact on the human environment than presently exist or that would exist if the project was not undertaken. Cumulative impacts would be reduced by undertaking mitigation to minimize impacts of the proposed action and existing negative impacts from earlier activities.

C. Mitigation Measures

1. Vegetation cutting and clearing along the transmission line and access roads on Fort Richardson should be planned to protect the line, improve moose browse, reduce visual impacts, and enhance habitat.

Due to the variability in the above ground vegetation (i.e. diameter, height and previous clearing intervals) Trees above 8 inches in diameter or above must

be cut at the top to a 4 inch diameter limbed and transported to the Ft. Richardson free use firewood area. The tops, branches and anything under the 8 inch limit at 4 feet above the ground may be chipped and scattered on site

2. New or rebuilt power lines must be designed and configured to prevent the electrocution of raptors, in accordance the suggested practices for raptors protection on power lines (Avian Power Line Interaction Committee (APLIC) 1996)².
3. If reseeding of disturbed sites occurs, seed must be certified weed free.

V. CONSULTATION AND COORDINATION

A. Persons and Agencies Consulted:

Gary Casagrande, Facility Management Specialist, Ft. Richardson

B. List of Preparers:

List the preparers and indicate their area of expertise.

Kathy Stubbs, Realty Specialist

Donna Redding, Archaeologist

Bruce Seppi, Wildlife Biologist

Brian Sterbenz, Fire Management/Forestry

Dave Kelley, Surface Protection Specialist

Jeff Denton, Subsistence

Chuck Denton, Hydrology

Doug Ballou, Recreation

² Suggested Practices for Raptor Protection on Power Lines: The State of the Art in 1996. Edison Electric Institute/Raptor Research Foundation Washington, D.C.