



NATIVE VILLAGE OF EKLUTNA

7/14/03

Gary Prokosch  
Division of Mining, Land & Water  
Water Resources Section  
550 West 7<sup>th</sup> Avenue, Suite 900A  
Anchorage, AK 99501-3577

Dear Gary,

Enclosed is Native Village of Eklutna's processing fee of \$1,500.00 for the three Eklutna River complex instream flow reservation applications we submitted earlier.

Thank You,

Marc Lamoreaux  
Land and Environment Director

DEPARTMENT OF  
NATURAL RESOURCES  
DIV. OF MINING, LAND & WATER

JUL 17 2003

DIRECTOR'S OFFICE  
ANCHORAGE

26339 Eklutna Village Rd. • Chugiak, Alaska 99567 • (907) 688-6020 • Fax (907) 688-6021

DIVISION OF MINING, LAND & WATER  
 WATER RESOURCES SECTION



550 West 7th Ave., Suite 900A  
 Anchorage, AK 99501-3577  
 907-269-8503  
 Fax: 269-8947

400 Willoughby, 4th Floor  
 Juneau, AK 99801  
 907-465-3400  
 Fax: 586-2954

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	Office Use Only Date/Time Stamp <div style="color: red; font-size: 1.2em; font-weight: bold; text-align: center;">JUN - 2 2003</div>	
DNR-WATER MINING, SURFACE MINING & LAND		

<b>Office Use Only</b> LAS # <span style="font-size: 1.2em; color: blue;">24335</span>	<b>Office Use Only</b> CID # <span style="font-size: 1.2em; color: blue;">42784</span>	<b>Office Use Only</b> Receipt Type <span style="font-size: 1.2em;">WR</span>
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**APPLICATION FOR RESERVATION OF WATER**

**Instructions**

- Complete one application per stream segment or water body – **Incomplete applications will not be accepted**
- Attach map(s) indicating all sections from the beginning to the end of stream segment or for all parts of the lake or water body – **Map must include sections lines**
- Submit filing fee of \$500.00 – **Non-refundable**
- Attach extra pages for each section, as needed

Native Village of Eklutna (Tribe)	Marc Lamoreaux
Business Name	Contact Person
26339 Eklutna Village Rd.	Chugiak
Mailing Address	City
(907) 688-6020	(907) 688-6021
Phone Number	Fax Number
	ave@mtaonline.net
	E-mail Address
	AK 99567
	State Zip Code

Location of Proposed Reservation of Water <span style="font-size: 1.2em; color: blue;">25 miles N.E. of Anchorage, AK</span>					
Name of the Stream or Water Body in which Water is Proposed to be Reserved <span style="font-size: 1.2em; color: blue;">Eklutna River Segment 1</span>					
Meridian	Township	Range	Section	Quarter Sections	
Seward	T16N	R1E	29	SE ¼	SW ¼
Seward	T16N	R1E	29	NW ¼	¼
Seward	T16N	R1E	30	NW ¼	SE ¼
Seward	T16N	R1W	25	SE ¼	¼
				¼	¼
				¼	¼
				¼	¼
				¼	¼
				¼	¼
				¼	¼

Describe the location of the point or points defining the boundary of the proposed reservation of water by river mile index, river mile, geographical or cultural landmark, etc., on the stream or water body.

This is segment 1 of the three Eklutna complex segments we are applying to reserve flow for. It is on the Eklutna River, from the exit of the AWWU aquaduct from the Eklutna River Canyon, downriver to the Eklutna River confluence with Thunderbird Creek. The segment is approximately three miles in length.

Attach a US Geological Survey map at 1:63,360 scale, or 1:250,000 scale if 1:63,360 scale is unavailable for the area, clearly identifying the following for the proposed reservation of water:

1. Sections, townships, range and meridians
2. The stream or water body in which the reservation of water is proposed
3. Specific point or points defining the boundary of the proposed reservation of water
4. Permanent, temporary or planned locations of water measurement devices (such as gauging stations, weirs, staff gages)
5. Permanent, temporary or planned bench marks

#### Water Use

Identify the purpose(s) of the proposed reservation of water by checking the appropriate box(es).

Protection of fish and wildlife habitat, migration, and propagation

Recreation and park purposes

Navigation and transportation purposes

Sanitary and water quality purposes

Describe in detail the purpose(s) of the proposed reservation, including, when appropriate; species and life stage, type of recreation, vehicle, or water quality parameter, or other relevant information.

This segment provides spawning habitat for chum and coho salmon below the old dam, and good potential habitat above the dam. Dolly varden, rainbow trout, and burbot are found here as well. Dolly varden are common in the reach above the dam. These fish are traditional and trust resources for the Native Village of Eklutna Tribe. (See attached Eklutna River Fish Periodicity charts and Fish Counts.) The AWWU water pipe could provide much needed flushing flows to clean spawning gravels on this river segment, and facilitate sediment transport after dam removal. This segment of river canyon is the most popular area for ice climbing in Alaska.

Is the water currently being used for the purpose(s) applied for?

Yes

No If no, when will use for this purpose begin? Specify approximate date \_\_\_\_\_

**Water Quantity**

Water requested to be reserved – **Check one**

- To maintain a specific instream flow rate, measured in cubic feet per second
- To maintain a specific level of surface water, flow or volume, measured in cubic feet or acre feet
- To maintain a specific surface water elevation, measured in relation to a permanent benchmark

Quantify the specific amount of water requested to be reserved. Identify and quantify, as appropriate; flow rates, quantities, surface water elevations, depths, etc., as they relate to the daily duration and months of the year during which the reservation is proposed. Include any flow release schedules from projects upstream of the proposed reservation that would apply.

See Attachment 1A.

**Methodology and Monitoring**

Attach and submit with this application documentation or reports showing facts to support the following:

- (a) The need for the proposed reservation of water, including reasons why the reservation is being requested.
- (b) Identify and describe the methodology, data, and data analysis used to substantiate the need for and the quantity of water requested for the proposed reservation of water, including:
  1. Name and description of method used
  2. Who conducted the study and analysis
  3. Schedule of when data collection and analysis occurred
  4. Type(s) of instrument(s) used to collect and analysis data
  5. Description of data and how the data was collected, including when applicable, (A) selection of stream reach, study site and transect selection, (B) flow, survey, elevation, and depth measurements, (C) pertinent physical, biological, water chemistry and socio-economic data
  6. Description of how data was analyzed, and
  7. Maps, photos, aerial photos, calculations, and any other documents supporting this application

If there are provisions for monitoring this proposed reservation of water, include the following:

- (a) Description of monitoring equipment (such as gauging stations, staff gages, weirs)
- (b) Location of monitoring equipment
- (c) Provisions for payment of monitoring
- (d) Reporting system

The information presented in this application is true and correct to the best of my knowledge.

by: Lee Stephan  
Signature

Lee Stephan  
Name (please print)

5/29/03  
Date

CEO  
Title

Attachment 1A  
NATIVE VILLAGE OF EKLUTNA  
APPLICATION OF RESERVATION OF WATER  
EKLUTNA RIVER ABOVE THUNDERBIRD CREEK  
(SEGMENT 1)

Water Quantity

A reservation of 100% of the remaining flow in Eklutna River segment 1 is requested. Monthly means in cfs, for ice free months, as presented in the attached – 2002 Eklutna River Discharges at Three Sites, under Station 1580100, are the best available data to support this application. Five years of similar data are requested by USGS to minimally represent discharge variability between years. 2002 was a dry Summer and Fall, so the figures presented may be low relative to longer-term averages. Eklutna Lake water has only been released into the Eklutna River once in the last ten years, due to an unexpected flood. The vast majority of Eklutna River's natural flow from its headwater glaciers is diverted from the River at the Eklutna Lake Dam. This instream flow application, and the two associated applications should not be interpreted to lock in, or further legitimize this complete diversion.

Methodology and Monitoring

a) The need for the proposed reservation of water, including reasons why the reservation is being requested:

Eklutna River salmonids are a public resource, and a trust resource for the Native Village of Eklutna Tribe, representing Dena'ina Athabascan Natives who have relied on these natural resources since time immemorial.

This river section is currently greatly degraded, suffering high turbidity, temperature, and pH in summer, and high substrate embededness with deep fines accumulations, with low flows being both a problem and a cause of the other problems. Even so, NVE documented a healthy population of spawning chum salmon (with many bears), spawning coho, dolly varden, rainbow trout, sculpins, and even a burbot in this river section. King salmon were not observed in this section, likely due to low water height. These problem variables are likely near to tolerance levels for salmon habitat. Several USFS, ADF&G, and USF&WS Hydrologists and Biologists who visited this river section after some rains opined that no fish could survive in the turbidity they observed. Increased flows and flushing flows are desirable to facilitate fisheries in this system. Decreased flows would likely compound these problems and further impact fisheries.

b) Identify and describe the methodology, data, and data analysis used to substantiate the need for and the quantity of water requested for the proposed reservation of water, including:

1. Name and description of method used, 2. Who conducted the study and analysis, 3. Schedule of when data collection and analysis occurred, 4. Type(s) of instrument(s) used to collect and analyze data, 5. Description of data and how the data was collected, including

when applicable, (A) selection of stream reach, study site and transect section, (B) flow, survey, elevation and depth measurements, (C) pertinent physical, biological, water chemistry, and socio-economic data, and 6. Description of how data was analyzed, (a) description of monitoring equipment, (b) location of monitoring equipment, (c) provisions for payment of monitoring, and (d) reporting system:

USGS Standard Discharge methods were followed for the most part. Data collected on USGS data sheets, with training from a USGS Hydrologist. Raw data are available at the NVE offices. NVE personnel used a Global Flow Probe FP101 flow meter. This provided mean velocity in fps for each 40 second measure. Discharge was calculated (by multiplying unit width, depth, and velocity, then summing these discharges) using Excel spreadsheets, on an ongoing basis as data was collected. Mean monthly discharges were calculated as averages of the observed daily discharge measures. 100% of mean monthly discharges are requested for the reservation.

A USGS hydrologist worked with NVE Natural Resources Director to set up a stage gauge in Eklutna River about 3/10 mile above the confluence with Thunderbird Creek. Stage measures were taken before each discharge measure. All discharge measures used here to calculate monthly mean discharges were taken manually by NVE's NR Director. The USGS Hydrologist took five additional discharge measures at this station, partially to check and train the NVE personnel. The USGS measures corresponded well with the NVE measures, especially after the first run. NVE's NR Director was paid with NVE funds from a BIA Water Resources management grant. The USGS Hydrologist was paid from this same grant under subcontract MOA to NVE, and with matching USGS funds.

Discharge measures were taken approximately once per week. The study site selected was on the Eklutna River, upstream of, and near the confluence with Thunderbird Creek, to capture the Eklutna River mainstem discharge before Thunderbird Creek's contribution. Flow measurement transects were selected for a variety of characteristics, according to USGS protocols, including: constrained channel with no side channels and regular substrate. We sought to avoid transects with excessively slow and shallow water zones and angular flows.

Fish periodicity and fish count data tables are attached. These were obtained by walking the river section with data sheets and recording observations of adult fish according to protocols developed for a USF&WS project. The results of this study are confidential to protect the timing, location, and numbers of these sensitive salmon runs. We request that these periodicity tables also not be distributed widely. Actual observations were supplemented by an ADF&G Sport Fisheries Biologist, by comparison with similar local rivers, and best professional judgment (as noted). Minnow trapping was not conducted in this section.

Discharge data for this application is presented in the attached 2002 Eklutna River Complex at Three Sites (in CFS) Excel data table, under the middle three columns of data – Station 15280100. NVE discharge measures by date are presented in one column, and were used to calculate NVE monthly average discharges presented in the next column. USGS spot check discharge measures are presented in the next column for comparison, but were not used in the calculation of monthly means for this site. USGS and NVE also took one winter low discharge measure at this site using USGS ice methods, rendering a reading of 7.47 cfs on 1/17/03.

## EKLUTNA PERIODICITY TABLE 1

Eklutna River - from AWWU aquaduct exit downstream to confluence with Thunderbird Creek.

King Salmon	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Smolt												
Adult Passage												
Spawning												
Incubation												
Rearing												

No king salmon reported in this reach in 2002.

Coho Salmon	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Smolt					XXXX	XX						
Adult Passage									XXXX	XX		
Spawning									XXXX	XXXX	XX	
Incubation	XXXX	XXXX	XXXX	XXXX	XX				XXXX	XXXX	XXXX	XXXX
Rearing	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX

Only reported in September.

Pink Salmon	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Smolt												
Adult Passage												
Spawning												
Incubation												
Rearing												

None reported in this reach.

Chum Salmon	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Smolt				XX	XXXX	XX						
Adult Passage							XX	XXXX	XX			
Spawning								XXXX	XXXX	XX		
Incubation	XXXX	XXXX	XXXX	XXXX	XX			XXXX	XXXX	XXXX	XXXX	XXXX
Rearing				XX	XXXX	X						

Based on 2002 Eklutna data and Ship Creek

Dolly Varden	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Spawning								XX	XXXX	XX		
Incubation	XXXX	XXXX	XXXX	XXXX	XX			XX	XXXX	XXXX	XXXX	XXXX
Rearing	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX

Based on Ship Creek

Rainbow Trout	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Spawning				XX	XXXX	XX						
Incubation				XX	XXXX	XXXX	XXXX	XX				
Rearing	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX

Based on Ship Creek

Burbot	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Smolt												
Adult Passage												
Spawning												
Incubation												
Rearing	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX	XXXX

Based on our professional judgment

2002 Eklutna River Complex Discharges at Three Sites (in CFS)

Date	Station 15280200 E. River at Old Glenn		Station 15280100 Eklutna River Above Thunderbird			Thunderbird Creek (by Subtraction)	
	USGS Discharge Daily Mean	USGS Month X	NVE Discharge	NVE Month X	USGS Discharge	Discharge	Month X
20020510			15		13		
20020515	36						
20020516	38						
20020517	42		12			30	
20020518	48						
20020519	53						
20020520	61						
20020521	69						
20020522	72						
20020523	69						
20020524	75		13			62	
20020525	82						
20020526	97						
20020527	104						
20020528	91						
20020529	84						
20020530	87						
20020531	87	70	11	13		76	56
20020601	86						
20020602	85						
20020603	77				9		
20020604	74						
20020605	82						
20020606	82						
20020607	79		11			68	
20020608	80						
20020609	76						
20020610	75						
20020611	71						
20020612	70						
20020613	68						
20020614	74		11			63	
20020615	85						
20020616	90						
20020617	90						
20020618	87						
20020619	82						
20020620	81						
20020621	82		8			74	
20020622	80						
20020623	76						
20020624	74						
20020625	73						



20020626		72					
20020627		70					
20020628		71					
20020629		68					
20020630		66	78		10		68
20020701		62					
20020702		61					
20020703		61					
20020704		59					
20020705		58		8		50	
20020706		57					
20020707		55					
20020708		55					
20020709		55					
20020710		56					
20020711		55		8		8	47
20020712		54					
20020713		54					
20020714		53					
20020715		53					
20020716		53					
20020717		51					
20020718		53					
20020719		50					
20020720		52					
20020721		49					
20020722		48					
20020723		49					
20020724		51					
20020725		51					
20020726		50					
20020727		52					
20020728		50					
20020729		48		7		41	
20020730		48					
20020731		48	53		8		46
20020801		46					
20020802		47					
20020803		47					
20020804		49					
20020805		48					
20020806		48					
20020807		50					
20020808		52					
20020809		56					
20020810		52					
20020811		55					
20020812		59					
20020813		66		12		54	
20020814		70					
20020815		76					

20020816		76					
20020817		74					
20020818		69					
20020819		69					
20020820		73					
20020821		70					
20020822		71					
20020823		70		9		61	
20020824		76					
20020825		80					
20020826		72					
20020827		68					
20020828		65					
20020829		66					
20020830		68		7		7	61
20020831		70	63		9		59
20020901		69					
20020902		69					
20020903		67					
20020904		65					
20020905		65					
20020906		76		11		65	
20020907		71					
20020908		70					
20020909		74					
20020910		77					
20020911		77					
20020912		76					
20020913		73		7		66	
20020914		70					
20020915		68					
20020916		66					
20020917		64					
20020918		63					
20020919		61					
20020920		59		7		52	
20020921		57					
20020922		55					
20020923		54					
20020924		53					
20020925		53				7	
20020926		57					
20020927		57		8		49	
20020928		55					
20020929		55					
20020930		56	64		8		58
20021001		71					
20021002		73					
20021003		63					
20021004		63		10		53	
20021005		62					

20021006		61					
20021007		70					
20021008		66					
20021009		65					
20021010		64					
20021011		65					
20021012		64					
20021013		63					
20021014		63					
20021015		64		10		54	
20021016		64					
20021017		64					
20021018		66					
20021019		67					
20021020		68					
20021021		70					
20021022		70					
20021023		68					
20021024		68					
20021025		69		9		60	
20021026		70					
20021027		67					
20021028		67					
20021029		67					
20021030		66					
20021031		65	66		10		56
20021101		63		9		54	
20021102		60					
20021103		57					
20021104		56					
20021105		55					
20021106		55					
20021107		52					
20021108		48		8		40	
20021109		49					
20021110		68					
20021111		74					
20021112		46					
20021113		51					
20021114		44					
20021115		43					
20021116		41					
20021117		43					
20021118		43					
20021119		39					
20021120		38					
20021121		38					
20021122		37		9		28	
20021123		37					
20021124		37					
20021125		36					

20021126		36						
20021127		35						
20021128		34						
20021129		36						
20021130		37	46	11	9		26	37
20021201		34						
20021202		33						
20021203		33						
20021204		32						
20021205		32						
20021206		31						
20021207		30						
20021208		30						
20021209		30						
20021210		30						
20021211		29						
20021212		27						
20021213		29		9			20	
20021214		35						
20021215		28	31		9			20