FACT SHEET

NPDES Permit Number: AK-000134-1
Date: August 7, 2207
Public Notice Expiration Date: September 6, 2007
Technical Contact: Cindi Godsey (907) 271-6561 or
1-800-781-0983 (within Alaska)
godsey.cindi@epa.gov

**The United States Environmental Protection Agency (EPA)
Plans To Reissue A National Pollutant Discharge Elimination System (NPDES)
Permit to:**

Eielson AFB
Central Heat and Power Plant (CHPP)

EPA Proposes To Reissue NPDES Permit

EPA proposes to reissue the NPDES permit to the facility referenced above. The draft permit places conditions on the discharge of pollutants from the facility to waters of the United States. In order to ensure protection of water quality and human health, the permit places limits on the types and amounts of pollutants that can be discharged from the facility.

This Fact Sheet includes:

- information on public comment, public hearing, and appeal procedures
- a listing of proposed effluent limitations, and other conditions for the facility
- a map and description of the discharge locations
- technical material supporting the conditions in the permit

Alaska State Certification.

EPA requests that the Alaska Department of Environmental Conservation (ADEC) certify the NPDES permit for Eielson AFB Central Heat and Power Plant under section 401 of the Clean Water Act. EPA may not issue the NPDES permit until the state has granted, denied, or waived certification. The state of Alaska has provided a draft certification for the permit (See Appendix B). For more information concerning this review, please contact Shawn Stokes at (907) 269-7504.

Public Comment

Persons wishing to comment on, or request a Public Hearing for the draft permit for this facility may do so in writing by the expiration date of the Public Comment period. A

request for a Public Hearing must state the nature of the issues to be raised as well as the requester's name, address and telephone number. All comments and requests for Public Hearings must be in writing and should be submitted to EPA as described in the Public Comments Section of the attached Public Notice.

EPA will consider all comments before issuing the final permit. Those wishing to comment on the draft permit may do so in writing by the expiration date of the Public Notice. All comments should include name, address, phone number, a concise statement of basis of comment and relevant facts upon which it is based. All written comments should be addressed to the Office of Water & Watersheds Director at U.S. EPA, Region 10, 1200 Sixth Avenue, OW-130, Seattle, WA 98101; submitted by facsimile to (206) 553-0165; or comments on the draft permit may be submitted via e-mail to godsey.cindi@epa.gov

After the Public Notice expires and all significant comments have been considered, EPA's regional Director for the Office of Water & Watersheds will make a final decision regarding permit re-issuance. If no comments requesting a change in the draft permit are received, the tentative conditions in the draft permit will become final, and the permit will become effective upon issuance. If significant comments are received, EPA will address the comments and issue the permit along with a response to comments. The permit will become effective 30 days after the issuance date, unless the permit is appealed to the Environmental Appeals Board (EAB) within 30 days.

Persons wishing to comment on State Certification should submit written comments by the public notice expiration date to the Alaska Department of Environmental Conservation c/o Shawn Stokes, 555 Cordova Street, Anchorage, Alaska 99501 or Shawn.Stokes@alaska.gov

Documents are Available for Review.

The draft NPDES permit and related documents can be reviewed or obtained by visiting or contacting EPA's Regional Office in Seattle between 8:30 a.m. and 4:00 p.m., Monday through Friday (see address below).

United States Environmental Protection Agency
Region 10
1200 Sixth Avenue, OW-130
Seattle, Washington 98101
(206) 553-0523 or
1-800-424-4372 (within Alaska, Idaho, Oregon and Washington)

The draft permit and fact sheet can also be found by visiting the Region 10 website at www.epa.gov/r10earth/water.htm

The fact sheet and draft permit are also available at:

United States Environmental Protection Agency
Alaska Operations Office
222 W. 7th Avenue, Room 537
Anchorage, Alaska 99513

and

ADEC Division of Water
610 University Avenue
Fairbanks, Alaska, 99709

For technical questions regarding the Permit or Fact sheet, contact Cindi Godsey at (907) 271-6561 or godsey.cindi@epa.gov. Services can be made available to persons with disabilities by contacting Audrey Washington at (206) 553-0523.

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ACRONYMS

1Q10	1 day, 10 year low flow
7Q10	7 day, 10 year low flow
AML	Average Monthly Limit
BOD_5	Biochemical oxygen demand, five-day
BE	Biological evaluation
°C	Degrees Celsius
cfs	Cubic feet per second
CFR	Code of Federal Regulations
CV	Coefficient of Variation
CWA	Clean Water Act
DMR	Discharge Monitoring Report
EFH	Essential Fish Habitat
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
lbs/day	Pounds per day
LTA	Long Term Average
mg/L	Milligrams per liter
ml	milliliters
ML	Minimum Level
ug/L	Micrograms per liter
mgd	Million gallons per day
MDL	Maximum Daily Limit
NMFS	National Marine Fisheries Service
NPDES	National Pollutant Discharge Elimination System
OWW	Office of Water & Watersheds
O&M	Operations and maintenance
QAP	Quality assurance plan
RP	Reasonable Potential
RPM	Reasonable Potential Multiplier
s.u.	Standard Units
TOC	Total Organic Carbon
TRE	Toxicity Reduction Evaluation
TSD	Technical Support Document (EPA, 1991)
TSS	Total suspended solids
USFWS	U.S. Fish and Wildlife Service
USGS	United States Geological Service
WLA	Wasteload allocation
WQBEL	Water quality-based effluent limit

I. APPLICANT

Eielson Air Force Base (AFB)
Central Heat and Power Plant

354 CES/CC
2310 Central Avenue, Suite 100
Eielson AFB, Alaska 99702

Contact: Rana Evans, 354 CES/CEVQ, (907) 377-2922.

II. FACILITY INFORMATION

The Central Heat and Power Plant (CHPP) on Eielson AFB discharges cooling water under NPDES permit AK-000134-1. Cooling water is withdrawn from a cooling pond during the winter months (approximately October through April) and from a well during the summer months (approximately May through September). Winter and summer operations are described separately below.

Winter months (October through April): Water from the cooling pond is circulated through the plant and is discharged back into the cooling pond in a closed circuit. The pond was originally built in 1956 and covered 20 acres. In 1987-88, the pond was enlarged to 29 acres. It ranges from 15-25 feet deep. The water in the cooling pond ranges from 4.4º C to 6.7 º C. The cooling water is chlorinated before it enters the plant. Approximately 20 lbs of chlorine are used per day (2,600 lbs/year).

Summer months (May through September): Cooling water is withdrawn from wells and is circulated through the plant. This once-through cooling water is not chlorinated. Well water used for summer intake is in the range of 3.3º – 4.4º C. This heated once-through cooling water is then discharged into a ditch that enters French Creek. Temperatures at the point of discharge from the CHPP range from 26.7º to 29.4º C.

Occasionally during the summer months, when water levels are high in the cooling pond (due to excessive precipitation or snow melt), the level of water in the cooling pond will be lowered by discharging directly to the drainage ditch into French Creek. When this occurs, the pond water is not being used in the cooling system and is not expected to contain chlorine. In wet years this has occurred up to six times per year.

As described above, the base uses approximately 5,000 – 7,500 gpm of cooling water, which is either discharged to the ditch or the cooling pond depending on seasonal use. The cooling water is withdrawn from the well at approximately 5,000 gpm and from the cooling pond at approximately 7,500 gpm.

This permit was originally issued in 1973, modified in 1976, and expired in 1978. The previous permit had a flow limit of 0.10 mgd daily average and 0.20 mgd daily maximum. According to the facility, the plant currently uses an average daily of 6.6 mgd of cooling water (DMRs for calendar years 2005-2007, to date). The facility has request a maximum 10 mgd flow to accommodate planned base expansion and development, current facility remodel, increased Red Flag Alaska operation and housing fluctuation. For the past year, the base has temporarily closed approximately 300 on-base contractor managed housing units but housing capacity is expected to return in future years.

Summary information on the facility, including a map of the facility, is provided in Appendix A.

III. RECEIVING WATER

French Creek is classified by the Alaska State Water Quality Standards (WQS) as protected for classes 18 AAC 70.020(1)A-C for use as a drinking water, agricultural, aquaculture and industrial water supplies; primary contact water recreation, and growth and propagation of fish, shellfish, other aquatic life, and wildlife including water fowl and furbearers. The Alaska Department of Fish and Game (ADF&G) has classified the stretch of French Creek into which the cooling ditch discharges as an anadramous stream, and spawning and rearing of chum salmon are known to occur in this reach. However, the Department indicates that chum salmon do not spawn in the area of the Eielson AFB discharge or in the mixing zone (personal communication between EPA & OHMP, January 11, 2007).

A. Low Flow Conditions

Low flow values for French Creek were calculated during the Eielson AFB Central Heating and Power Plant Cooling (CHPP) Water Discharge study. Low flow conditions were projected using two different scenarios: monthly low flow conditions were calculated by USGS methods, and the 2-year, 3-day (3Q2), 5-year, 7-day (7Q5), and 10 year, 7-day (7Q10) low flows were estimated based on Alaska Department of Transportation (ADOT) procedures. The 10 year, 1-day (1Q10) calculation could not be made for French Creek because no regression coefficients for this calculation are available under the ADOT low flow methodology. The 7Q10 value for French Creek is 8.41 cfs (5.4 mgd). Therefore, during low flow periods, the cooling water discharge can contribute more than double to flows in French Creek. Low flow conditions are used to do the reasonable potential analysis, and to calculate water quality based effluent limits (see Appendix C).

B. Water Quality Standards

An NPDES permit must ensure that the discharge from the facility complies with the WQS. The WQS are composed of use classifications, numeric

and/or narrative water quality criteria, and an anti-degradation policy. The use classification system designates the beneficial uses (such as drinking, culinary, and food processing, or contact recreation, etc.) that each water body is expected to achieve. The numeric and/or narrative water quality criteria are the criteria deemed necessary, by the State, to support the beneficial use classification of each water body. The anti-degradation policy represents a three tiered approach to maintain and protect various levels of water quality and uses.

Effluent monitoring data submitted by the base for 1996 though summer 2000 was reviewed to determine compliance with permit limits. In general, the facility has been meeting its pH and temperature limits, although the facility violated its average daily temperature limits five times during the summer of 1996 and two more times during the summer of 1997. The facility did not violate average water temperature limits in 1998, 1999, or 2000, and the facility did not exceed its maximum daily temperature limit during the monitoring period evaluated. However, the facility did violate its flow limits (average and maximum daily) during every month during the monitoring period evaluated.

IV. EFFLUENT LIMITATIONS

A. Basis for Permit Effluent Limits

In general, the CWA requires that the limits for a particular pollutant be the more stringent of either technology-based effluent limits or water quality-based limits. Technology-based limits are set according to the level of treatment that is achievable using available technology. A water quality-based effluent limit is designed to ensure that the water quality standards of a waterbody are being met. The basis for the proposed effluent limits in the draft permit is provided in Appendix C.

B. Proposed Effluent Limitations

The following summarizes the proposed effluent limitations that are in the draft permit.

1. The pH range must be between 6.5 to 8.5 standard units.

2. There must be no discharge of any pollutants that cause floating oil on the surface or produce discoloration or a film or visible sheen on the surface of the receiving water.

3. Table 1, below presents the proposed average daily limit and the proposed maximum daily limit for flow and temperature.

Table 1: Effluent Limitations				
Parameters	**Average Monthly Limit**	**Average Daily Limit**	**Maximum Daily Limit**	**Instantaneous Maximum Limit**
Flow, mgd	5	---	10	---
Temperature, ºC	---	15	22	---

V. MONITORING REQUIREMENTS

A. Basis for Effluent and Surface Water Monitoring

Section 308 of the CWA and federal regulation 40 CFR 122.44(i) require monitoring in permits to determine compliance with effluent limitations. Monitoring may also be required to gather effluent and surface water data to determine if additional effluent limitations are required and/or to monitor effluent impacts on receiving water quality. The permittee is responsible for conducting the monitoring and for reporting results on Discharge Monitoring Reports (DMRs) to the U.S. Environmental Protection Agency (EPA).

B. Effluent Monitoring

Monitoring frequencies are based on the nature and effect of the pollutant, as well as a determination of the minimum sampling necessary to adequately monitor the facility's performance. Permittees have the option of taking more frequent samples than are required under the permit. These samples can be used for averaging if they are conducted using EPA approved test methods (40 CFR 136) and if the Method Detection Limits (MDLs) are less than the effluent limits.

The permittee's effluent may contain BOD, TSS, TOC, fecal coliform, and oil and grease; therefore, monitoring for these parameters is required for each permit application renewal process. Effluent monitoring requirements for these parameters has been included in the draft permit. In addition, evaluation of data from the permit application shows concentrations of ammonia (maximum value of 0.602 mg/L) that may be of concern. Because ammonia at certain levels may be toxic to aquatic life, effluent ammonia monitoring will be required for a future analysis to determine if the permittee has a reasonable potential to exceed the WQS for ammonia. To make a determination for ammonia, ambient pH and temperature data also need to be collected. Table 2 presents the monitoring requirements in the draft permit. The sampling location must be after the last treatment unit and prior to discharge to French Creek. If no discharge occurs during the reporting period, "no discharge" shall be reported on the DMR.

Table 2: Effluent Monitoring Requirements				
Parameter	**Unit**	**Sample Location**	**Sample Frequency**	**Sample Type**
Flow	mgd	Effluent	1/day	Measure
Temperature	°C	Effluent	1/day	Measure
BOD	mg/L	Effluent	1/2 months[1]	Grab
TSS	mg/L	Effluent	1/2 months[1]	Grab
COD	mg/L	Effluent	1/2 months[1]	Grab
TOC	mg/L	Effluent	1/2 months[1]	Grab
Fecal coliform bacteria	# colonies /100 mL	Effluent	1/2 months[1]	Grab
Oil and grease	mg/L	Effluent	1/2 months[1]	Grab
Total Ammonia as N	mg/L	Effluent	1/month[1]	Grab

Notes:
1 Monitoring required in the 4th and 5th years of the permit only.

C. Surface Water Monitoring

The permit requires ambient monitoring for flow and temperature upstream and downstream of the outfall location to verify the assumptions made during the mixing zone analysis. Because the ammonia standard is dependent on the pH and temperature of the receiving water, pH will also be monitored at the downstream location. Table 3 presents the proposed surface water monitoring requirements for the draft permit. The permittee shall use Monitoring Points 4 (MP-4: upstream) and 7 (MP-7: downstream) established during the Eielson AFB Central Heating and Power Plant Cooling Water Discharge study (October 2005).

Table 3: Surface Water Monitoring Requirements			
Parameter	**Sample Location**	**Sample Frequency**	**Sample Type**
Flow, mgd	MP4 and MP7	1/month	measure
Temperature, °C	MP4 and MP7	1/month	measure
Ammonia, mg/L	MP7	1/month (see note 1)	grab
pH, standard units	MP7	1/months	grab

Note:
1. Monitoring required in the 4th and 5th years of the permit only.

VI. OTHER PERMIT CONDITIONS

A. Quality Assurance Plan

The federal regulation at 40 CFR 122.41(e) requires the permittee to develop procedures to ensure that the monitoring data submitted is accurate and to explain data anomalies if they occur. The permittee is required to develop and implement a Quality Assurance Plan within 180 days of the effective date of the permit. The Quality Assurance Plan shall consist of standard operating procedures the permittee must follow for collecting, handling, storing and shipping samples, laboratory analysis, and data reporting. The plan shall be retained on site and made available to EPA and ADEC upon request.

B. Best Management Practices

Section 304(e) of the CWA requires EPA to include conditions in the NPDES permit that require the permittee to develop a BMP Plan and/or a Storm Water Pollution Prevention Plan (SWPPP) to control potential discharges such as runoff, spillage, and leaks. This permit requires a BMP Plan to control the discharge of toxics or hazardous pollutants by way of plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw material storage. This requirement is unchanged from the previous permit.

The intent of the BMP Plan is to recognize the hazardous nature of various substances used and produced by the facility and the way such substances may be accidentally dispersed. The BMP Plan should incorporate elements of pollution prevention as set forth in the Pollution Prevention Act of 1990, 42 U.S.C. 13101.

The BMP Plan must be amended whenever there is a change in the facility or in the operation of the facility which materially increases the potential for an increased discharge of pollutants.

C. Additional Permit Provisions

Sections II, III, and IV of the draft permits contain standard regulatory language that must be included in all NPDES permits. Because they are regulations, they cannot be challenged in the context of an NPDES permit action. The standard regulatory language covers requirements such as monitoring, recording, reporting requirements, compliance responsibilities,

and other general requirements.

VIII. OTHER LEGAL REQUIREMENTS

A. Endangered Species Act

The Endangered Species Act requires federal agencies to consult with the National Marine Fisheries Service (NMFS) and the U.S. Fish and Wildlife Service (USFWS) if their actions could beneficially or adversely affect any threatened or endangered (T&E) species. EPA requested species lists from the Services in November 2005 but will be requesting updated species lists from the USFWS and NMFS in conjunction with this draft permit. Previous lists have shown no T&E species listed in the vicinity of the discharge. Unless the updated lists show otherwise, EPA will determine that there is no affect on T&E species.

B. Essential Fish Habitat

Essential fish habitat (EFH) is the waters and substrate (sediments, etc.) necessary for fish to spawn, breed, feed, or grow to maturity. The Magnuson-Stevens Fishery Conservation and Management Act (January 21, 1999) requires EPA to consult with the NMFS when a proposed discharge has the potential to adversely affect (reduce quality and/or quantity of) EFH. Since the pollutant of concern in this permit is temperature and the data shows a distinct buoyancy of the warmer water of the discharge, it is anticipated that any salmon migrating up French Creek will be able to avoid the thermal effects of the discharge for the length of the mixing zone. Therefore, EPA has determined that the issuance of this permit will not affect any EFH species in the vicinity of the discharge. A copy of this determination will be sent to NMFS.

C. State Certification

Section 401 of the CWA requires EPA to seek State certification before issuing a final permit. As a result of the certification, the State may require more stringent permit conditions or additional monitoring requirements to ensure that the permit complies with water quality standards. A draft §401 Certification is included in Appendix B.

D. Permit Expiration

The permit will expire five years from the effective date.

IX. REFERENCES

Application package dated November 2005.

EPA 1991. *Technical Support Document for Water Quality-based Toxics Control*. Office of Water Enforcement and Permits, Office of Water Regulations and Standards. Washington, DC., March 1991. EPA/505/2-90-001.

18 AAC 70, the Alaska Department of Environmental Conservation's Water Quality Standards.

Alaska Water Quality Criteria Manual for Toxic and Other Deleterious Organic and Inorganic Substances.

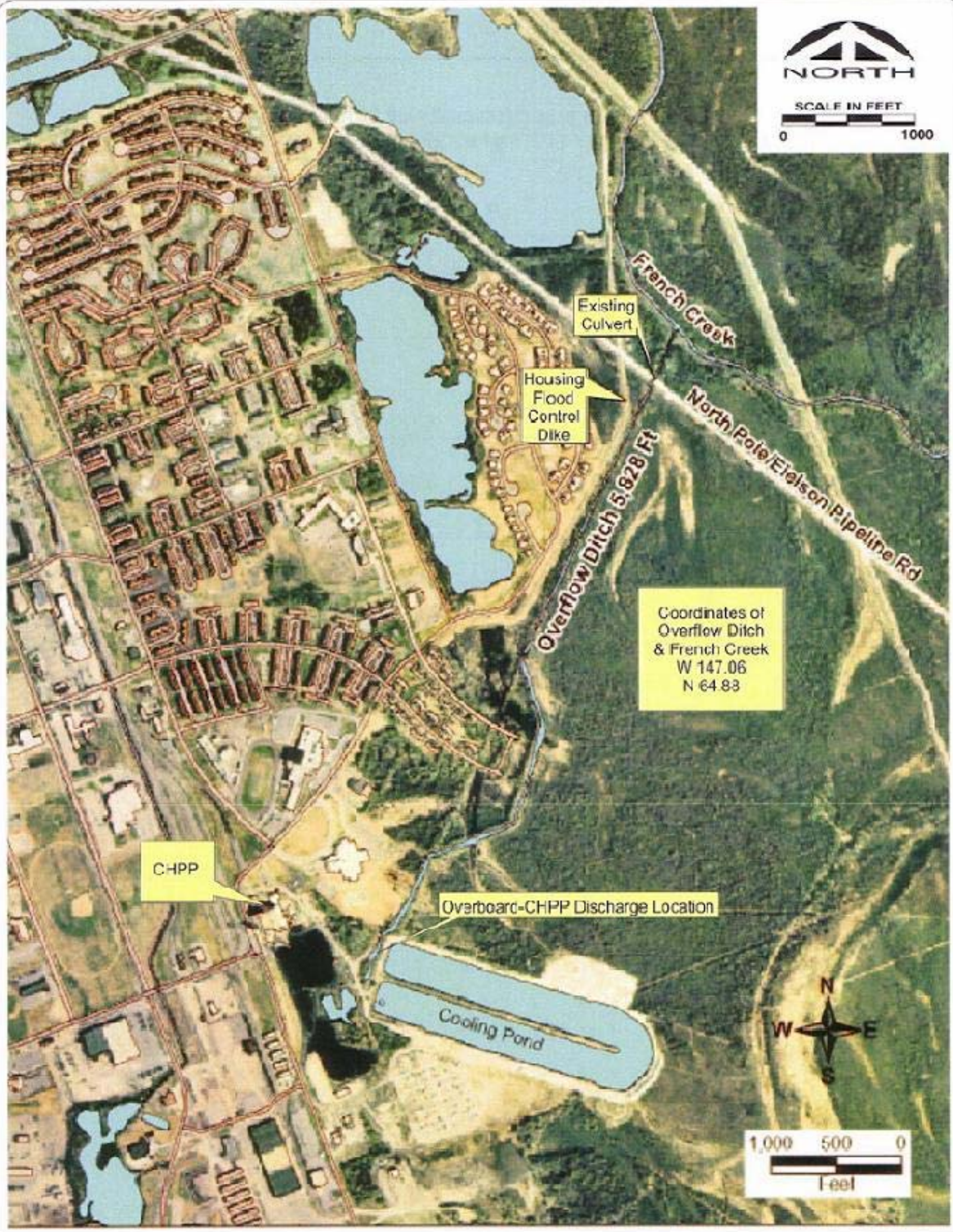
The Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes and its associated atlas (the Catalog and Atlas or AWC, found on the internet site http://www.sf.adfg.state.ak.us/SARR/FishDistrib/FDD_catalogs.cfm)

40 CFR 423 – Steam Electric Power Generating Point Source Category

Phone memo documenting January 11, 2007, conversation between Jim Durst, OHMP, and Cindi Godsey, EPA.

Appendix A – Facility Information

	Eielson AFB Central Heating and Power Plant
NPDES ID Number:	AK-000134-1
Mailing Address:	354 CES/CC 2310 Central Avenue, Suite 100 Eielson AFB, Alaska 99702
Facility Background:	The facility's existing permit became effective August 25, 1976. The current permit application was received in November 2005.
Facility Information	
Treatment Train:	Once through cooling water discharge
Design Flow:	N/A
Existing Flow:	6.6 mgd (average flow rate, 2005-2007)
Months when Discharge Occurs:	Variable; typically May through October
Outfall Location:	latitude: 64° 40' 12" N, latitude: 147° 04' 09" W
Receiving Water Information	
Receiving Water:	French Creek
Subbasin:	Tanana Flats (HUC 19040507,)
Designated Uses:	Drinking water, agricultural, aquaculture and industrial water supplies; contact water recreation, and growth and propagation of fish, shellfish, other aquatic life, and wildlife.
Water Quality Limited Segment:	None



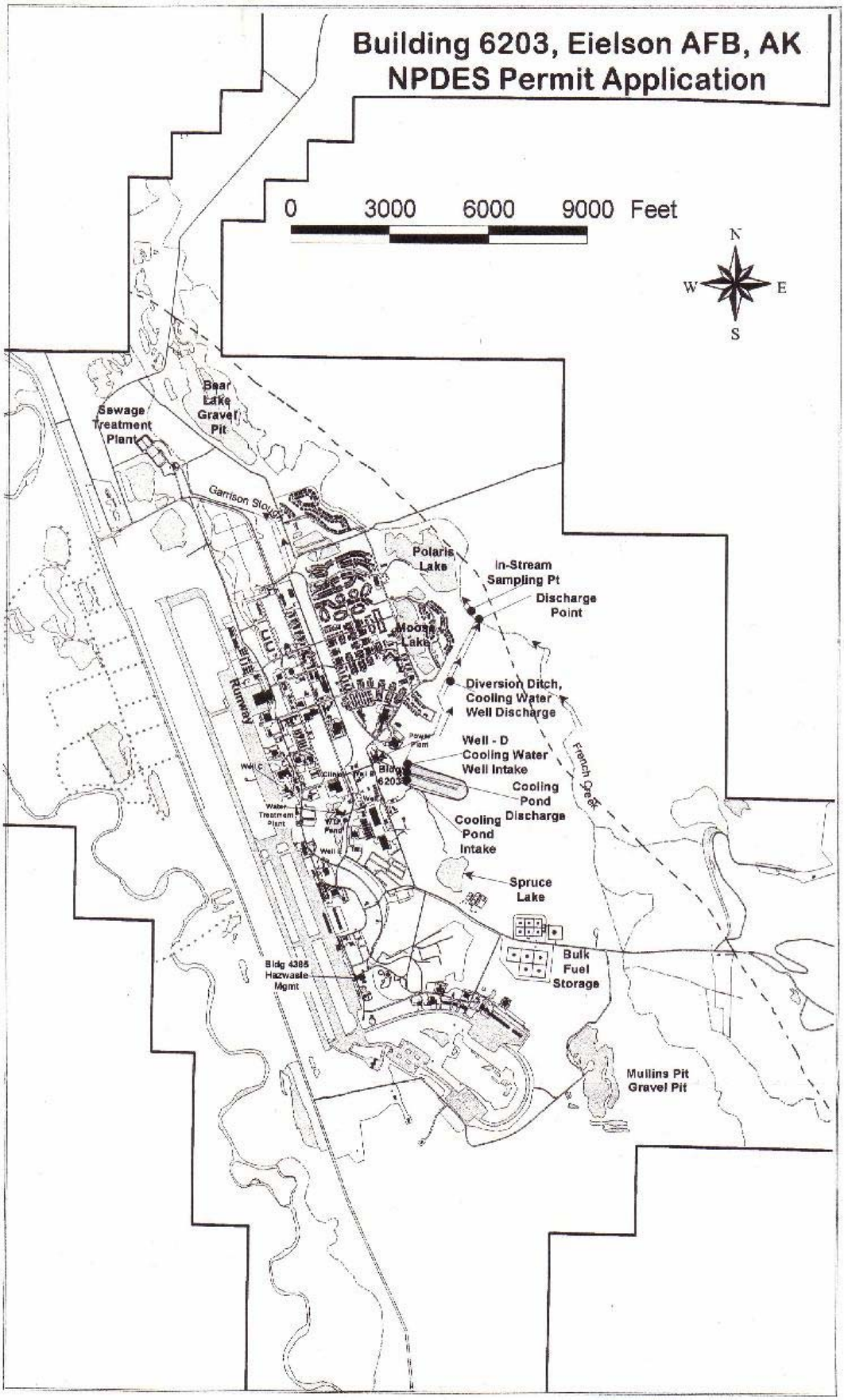
MWH
Anchorage, Alaska

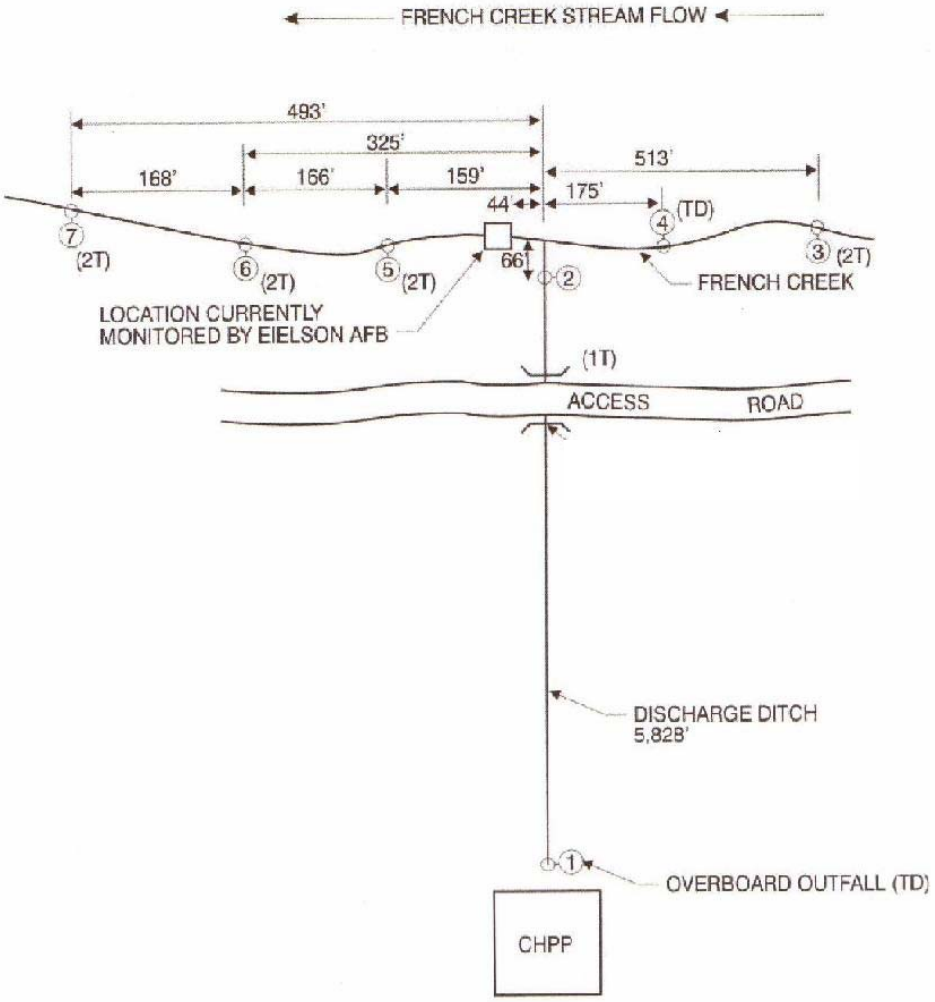
FIGURE 1-2 PAGE 1-7

EIELSON AFB CENTRAL HEATING & POWER PLANT
COOLING WATER DISCHARGE MONITORING DATA REPORT

POWER PLANT DISCHARGE LOCATION

JOB No: 1851035.0001C401 G:\WP\Proj\AFCEE\1851035-4FTOHS Eielson NPDES\05 07 Final Report\Figures\Fig1-2.cdr


Building 6203, Eielson AFB, AK
NPDES Permit Application
0 3000 6000 9000 Feet
N
W
E
S
Sewage Treatment Plant
Bear Lake Gravel Pit
Garrison Slough
Polaris Lake
In-Stream Sampling Pt
Discharge Point
Moose Lake
Diversion Ditch, Cooling Water Well Discharge
Runway
Well - D Cooling Water Well Intake
Cooling Pond Discharge
Cooling Pond Intake
French Creek
Spruce Lake
Bulk Fuel Storage
Bldg 4388 Hazwaste Mgmt
Mullins Pit Gravel Pit



LEGEND

(1) MONITORING POINT LOCATION

T THERMISTOR (ONE OR TWO PROBES, AS INDICATED)

TD STAGE RECORDER/PRESSURE TRANSDUCER WITH THERMISTOR (SINGLE PROBE)

MWH
Anchorage, Alaska

FIGURE 3-1 PAGE 3-17

EIELSON AFB CENTRAL HEATING & POWER PLANT
COOLING WATER DISCHARGE MONITORING DATA REPORT

MONITORING POINT LOCATION SCHEMATIC

Appendix B – Draft §401 Certification

STATE OF ALASKA

SARAH PALIN, GOVERNOR
610 University Avenue
Fairbanks, Alaska 99701
Phone: (907) 451-2106
Fax: (907) 451-2187
www.dec.state.ak.us

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF WATER
WASTEWATER DISCHARGE PROGRAM

July 27, 2007

File No: 107.48.010

Gary Schneider, Lt Col, USAF
354 CES/CC
2310 Central Avenue, Suite 100
Eielson AFB, AK 99702-2299

RE: Draft § 401 Certification of NPDES Permit AK-000134-1 Eielson AFB Central Heating and Power Plant

Dear Lt Col Schneider:

On May 4, 2007 EPA Region 10 requested a draft 401 certification for the reissue of NPDES Permit AK-000134-1, regulating discharge from the Eielson Central Heat and Power Plant (CHPP).

In accordance with Section 401 of the Clean Water Act and with Alaska Administrative Codes 18 AAC 15, 18 AAC 70 (Water Quality Standards) and 18 AAC 72 (Wastewater Discharge), the Alaska Department of Environmental Conservation (ADEC) issues the enclosed Draft Certificate of Reasonable Assurance for NPDES Permit AK-000134-1.

ADEC regulations provide that any person who disagrees with this decision may request an adjudicatory hearing in accordance with 18 AAC 15.195- 18 AAC 15.340 or an informal review by the Division Director in accordance with 18 AAC 15.185. Informal review requests must be delivered to the Director of Water, 555 Cordova Street, Anchorage, Alaska 99501, within 15 days of receipt of the permit decision. Adjudicatory hearing requests must be delivered to the Commissioner of the Department of Environmental Conservation, 410 Willoughby Avenue, Suite

303, PO Box 111800 Juneau, Alaska 99811-1800, within 30 days of the permit decision. If a hearing is not requested within 30 days, the right to appeal is waived.

Be advised, pursuant to 18 AAC 15.120(c), the certification of the NPDES permit constitutes the permit required under AS 46.03,100. Also, 18 AAC 15.120(c) states, "Any rights or privileges inuring to the benefit of EPA in the NPDES permit, including any right to enter, inspect, sample, and have access to records, also inure to the benefit of the department. Any reports or other information filed with EPA in accordance with the NPDES permit must be contemporaneously filed with the department."

By copy of this letter the Department advises the Environmental Protection Agency of our actions and encloses a copy of the draft certification for their use.

If you have any technical questions regarding this draft certification please contact me at (907) 465-5366 or shawn.stokes@alaska.gov.

Sincerely,

SIGNATURE ON FILE

Shawn Stokes
Industrial Permitting Manager

Enclosures: Draft Certificate of Reasonable Assurance for NPDES Permit AK-000134-1

cc: Cindi Godsey, EPA/Anchorage

STATE OF ALASKA
DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DRAFT CERTIFICATE OF REASONABLE ASSURANCE

A Certificate of Reasonable Assurance, as required by Section 401 of the Clean Water Act, has been requested by EPA for National Pollutant Discharge Elimination System (NPDES) Permit No. AK-000134-1, Eielson AFB Central Heating and Power Plant for the discharge of thermal wastewater to a 5,828 ft. overflow ditch that drains to French Creek via Outfall 001; latitude 64.67000, and longitude -147.06917.

Public Notice of the application for this certification will be made in accordance with 18 AAC 15.140.

Water Quality Certification is required for the proposed activity because the activity will be authorized by an Environmental Protection Agency (EPA) permit identified as NPDES No. AK-000134-1 and discharge onto State lands or into State waters will result from the proposed activity authorized under this permit.

Having reviewed the draft permit, ADEC certifies there is reasonable assurance the proposed activity, and the resultant discharge, is in compliance with the requirements of Section 401 of the Clean Water Act and the Alaska Water Quality Standards (18 AAC 70) provided that the terms and conditions of the final certification are adhered to.

Through this certification, in accordance with 18 AAC 15.120, the final permit will constitute the permit required under AS 46.03.100, provided that the stipulations of the final certification are made part of the final permit. The department is specifying the following permit stipulations under authority of AS 46.03.110(d).

State of Alaska Certification Stipulations:

1. The effluent temperature at Outfall 001 shall not exceed a daily maximum of 22˚C.

Rationale: In accordance with AS 46.03.110(d), the Department may specify in a permit the terms and conditions under which waste material may be disposed of. This requirement will be used to provide assurance to the Department of compliance with the State of Alaska Water Quality Standards, (18 AAC 70). This temperature limit is more restrictive than the previous limit of 26.7˚C, but still attainable based on measured temperatures from 2004 (see Attachment 1).

2. ADEC designates a mixing zone in French Creek for temperature for the thermal wastewater discharged from the Central Heating and Power Plant. The mixing zone boundaries shall be as follows:

    a. The boundaries in the vertical plane shall be from the receiving water surface to the bottom of the receiving water;

    b. The longitudinal boundaries shall be from the confluence of the overflow ditch with French Creek to a point 500 feet downstream; and

    c. The lateral boundaries shall be the banks of French Creek.

Rationale: In accordance with State regulations 18 AAC 70.240, the Department has authority to designate mixing zones in permits and certifications. Based on measured French Creek temperatures from 2004, the smallest practicable mixing zone is the area from the confluence of the overflow ditch and French Creek to 500 feet downstream from the confluence of the overflow ditch with French Creek (see Attachment 1). Although complete mixing is not reached at this point, monitoring data on file demonstrates that French Creek is stratified upstream of the overflow ditch. Temperatures near the surface are below the water quality standard limitation of 15˚C except during extreme conditions of high air temperature and low precipitation. Even during these extreme conditions, monitoring date documents that temperatures at mid-depth are below the 15˚C limit, with a zone of even cooler water at lower depths.

3. A monitoring point shall be established approximately 500 feet downstream of the confluence of the overflow ditch with French Creek. The permittee shall monitor monthly for temperature (°C) at 1/2 the depth at that point. After 2 calendar years of compliance with the temperature water quality standard limitation of 15˚C at the monitoring point, the permittee may request a reduction of the monthly monitoring to semi-monthly monitoring. The reduction of monitoring must be approved by ADEC and EPA. Monitoring for temperature at the monitoring point is required whenever there is a discharge to the over flow ditch that drains into French Creek.

Rationale: In accordance with State regulations 18 AAC 70.245, the Department has authority to ensure that existing uses of the waterbody outside the mixing zone are maintained and fully protected. The monitoring will provide evidence to the Department that the mixing zone size is adequate and that the most stringent water quality standard limitation for Temperature of 15˚C, 18 AAC 70.20(b)10, is being met outside of the mixing zone boundary.

DRAFT

Signature	Date
Sharmon Stambaugh	Environmental Program Manager III
Printed Name	Title

Attachment 1: 2004 Temperature Data (measured daily max in ˚C)

Date	Overboard (Outfall 001)	In Ditch (at culvert)	Fr. Creek (top)	Fr. Creek (bottom)	159 ft.	325 ft.	493 ft. (top)	493 ft. (bottom)
7-Jun	17.2	18.5	12.0	4.9	13.3	13.1	13.0	8.7
9-Jun	17.4	18.9	10.9	4.9	12.5	12.2	12.0	8.2
10-Jun	16.6	19.1	11.7	5.3	12.9	12.7	12.6	8.4
14-Jun	17.6	19.5	12.5	5.9	13.8	13.5	13.4	9.2
15-Jun	18.6	20.2	12.7	6.0	14.0	14.0	13.7	9.5
19-Jun	14.5	18.3	13.1	6.6	14.2	14.0	13.9	9.5
20-Jun	15.4	17.8	13.7	6.5	14.6	14.4	14.4	9.7
21-Jun	15.1	18.2	14.3	6.6	15.2	15.0	14.9	10.0
22-Jun	15.9	17.8	14.2	6.7	15.0	14.8	14.8	10.0
23-Jun	17.4	20.0	14.1	6.8	15.4	15.1	15.0	10.1
24-Jun	17.0	20.7	14.2	6.7	15.6	15.4	15.2	10.3
25-Jun	18.7	21.4	14.1	6.7	15.8	15.4	15.3	10.3
26-Jun	16.6	19.6	14.1	6.5	15.3	15.1	14.9	10.4
27-Jun	16.9	19.2	13.6	6.6	15.1	14.8	14.6	10.3
7-Jul	18.6	19.9	12.7	6.7	14.1	13.9	13.7	9.8
11-Jul	18.0	19.3	12.4	6.8	14.2	13.9	13.7	9.6
12-Jul	19.8	21.6	13.0	6.9	14.9	14.7	14.4	9.9
13-Jul	19.5	21.96	13.5	7.0	15.8	15.4	15.0	10.3
14-Jul	19.6	21.94	13.7	7.1	15.9	15.5	15.2	10.6
15-Jul	21.6	21.4	13.1	7.3	15.1	14.6	14.4	10.6
16-Jul	19.2	21.1	13.1	7.3	15.2	14.8	14.5	10.4
17-Jul	17.5	20.2	13.4	7.4	15.2	14.9	14.6	10.4
18-Jul	17.7	19.8	13.2	7.5	14.9	14.6	14.4	10.4
19-Jul	19.8	21.4	13.2	7.6	15.1	14.9	14.6	10.4
20-Jul	19.8	20.4	12.0	7.7	14.1	13.7	13.5	10.5
24-Jul	17.3	18.8	11.0	7.0	12.9	12.7	12.3	9.0
26-Jul	19.8	19.3	11.1	6.9	13.1	12.7	12.4	9.4
2-Aug	19.6	19.8	11.7	6.9	12.8	12.5	12.5	9.1
9-Aug	20.3	20.6	11.7	6.7	13.4	12.9	12.7	9.1
12-Aug	20.6	20.2	9.6	6.5	11.4	11.1	10.8	8.3

French Creek Temperatures (˚C) 500' Upstream of Discharge

Date	Top ⅓	Bottom ⅓
6/7/04	12.0	4.9
6/9/04	10.9	4.9
6/10/04	11.7	5.3
6/14/04	12.5	5.9
6/15/04	12.7	6.0
6/19/04	13.1	6.6
6/20/04	13.7	6.5
6/21/04	14.3	6.6
6/22/04	14.2	6.7
6/23/04	14.1	6.8
6/24/04	14.2	6.7
6/25/04	14.1	6.7
6/26/04	14.1	6.5
6/27/04	13.6	6.6
7/7/04	12.7	6.7
7/11/04	12.4	6.8
7/12/04	13.0	6.9
7/13/04	13.5	7.0
7/14/04	13.7	7.1
7/15/04	13.1	7.3
7/16/04	13.1	7.3
7/17/04	13.4	7.4
7/18/04	13.2	7.5
7/19/04	13.2	7.6
7/20/04	12.0	7.7
7/24/04	11.0	7.0
7/26/04	11.1	6.9
8/2/04	11.7	6.9
8/9/04	11.7	6.7
8/12/04	9.6	6.5

Appendix C - Basis for Effluent Limitations

This section discusses the basis for and the development effluent limitations and monitoring requirements for the draft permit. The discussions include a description of anti-backsliding provisions required by the CWA (Section A), the development of technology-based effluent limitations (Section B), and WQBELs (Section C).

EPA may find, by analyzing the effect of an effluent discharge on the receiving water, that technology-based effluent limitations are not sufficiently stringent to meet water quality standards. In such cases, EPA is required to develop more stringent water quality-based effluent limits, which are designed to ensure that the water quality standards of the receiving water are met. The NPDES regulation [40 CFR 122.44(d)(1)] implementing section 301(b)(1)(C) of the CWA requires that permits include limits for all pollutants or parameters which "are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality.

A. Antibacksliding Provisions

Under the anti-backsliding provisions of the CWA, any limit in a reissued permit must be at least as stringent as the current limits unless a change meets one of the exceptions listed in CWA Section 402(o)(2).

The draft permit contains effluent limitations for temperature that are more stringent than the limitations contained in the previous permit.

B. Technology-Based Effluent Limits

Section 301 of the CWA requires particular categories of industrial permittees to meet technology-based effluent limitation guidelines. The intent of a technology-based effluent limitation is to require a minimum level of treatment for industrial point sources based on currently available treatment technologies while allowing a permittee to choose and use any available control technique to meet the limitations.

EPA has been developing ELGs for existing industrial and commercial activities since 1972 as directed in the original Federal Water Pollution Control Act (40 CFR 403 through 471 inclusive). EPA reviewed ELGs that may apply as listed in 40 CFR Parts 402 through 699. In this case, technology-based effluent limitations for the steam electric point source category are contained in 40 CFR 423. Since the CHPP was constructed in 1973, prior to the promulgation of the ELGs, the BPT/BAT applicable to once through cooling water in 40 CFR Part 423 apply. The ELGs include limitations for free available chlorine under the Best Practicable Control Technology currently available (BPT), 40 CFR 423.12(b) and for total residual chlorine under Best Available Technology economically achievable (BAT), 40 CFR 423.13 for plants with total generating capacity of 25 megawatts or more.

The following technology-based effluent limitations from 40 CFR 423 apply to the CHPP:

a. **Polychlorinated biphenyls:** The prohibition on the discharge of polychlorinated biphenyl compounds such as those commonly used for transformer fluid is retained from the previous permit. 40 CFR 423.12(b)(2).

b. **Once through cooling water:** The quantity of pollutants discharged shall not exceed the concentrations listed in the following table:

Pollutant	Maximum Daily Limit	Average Monthly Limit
Free Available Chlorine	0.5 mg/L	0.2 mg/L
Total Residual Chlorine	0.2 mg/L	---

c. Both BPT and BAT require that neither free available chlorine nor total residual chlorine may be discharged from any unit for mare than two hours in any one day and not more than one unit in any plant may discharge free available or total residual chlorine at any one time unless the utility can demonstrate to the Regional Administrator that the units in a particular location cannot operate at or below this level of chlorination.

Chlorine is not used in the CHPP; therefore, the total residual chlorine and free available chlorine limits are not applicable. Since the facility does not use chlorine, the draft permit contains a condition requiring "no discharge of total residual chlorine or free available chlorine."

B. Water Quality-Based Effluent Limits

Section 301(b)(1) of the Act requires the establishment of limitations in permits necessary to meet water quality standards by July 1, 1977. All discharges to state waters must comply with state water quality standards, including the state's antidegradation policy. Discharges to state waters must also comply with limitations imposed by the state as part of its certification of NPDES permits under CWA §401.

The NPDES regulations at 40 CFR 122.44(d)(1) require that permits include water quality-based limits that "Achieve water quality standards established under CWA §303 including State narrative criteria for water quality.

EPA has determined that heat is a pollutant of concern in the discharge of once through cooling water.

ADEC provided a draft §401 Certification that mixing zones are protective of Alaska Water Quality Standards (WQS) under Section 401 of the CWA (see Appendix B). If the final 401 certification authorizes a different size mixing zone, the limits in the draft permit will be changed as necessary to ensure that WQS are

met at the edge of the mixing zone. If the final certification does not authorize a mixing zone for temperature, the permit will be changed to require meeting the WQS at the point of discharge.

The following discussion addresses the specific Water Quality-Based Effluent Limits found in the draft permit.

Temperature: The Eielson AFB Central Heating and Power Plant discharges once-through cooling water through Outfall 001. The primary concern regarding once-through cooling systems is the development and dissipation of thermal plumes. French Creek is classified by the State of Alaska as fresh water suitable for aquaculture water supply, and growth and propagation of fish, shellfish, other aquatic life, and wildlife. Under these classifications, the Alaska WQS state that the temperature of the waterbody cannot exceed 20°C at any time, and the following maximum temperatures may not be exceeded, where applicable:

Migration routes: 15°C
Spawning area: 13°C
Rearing areas: 15°C
Egg & fry incubation: 13°C

The *Catalog of Waters Important for the Spawning, Rearing or Migration of Anadromous Fishes* lists some areas of French Creek as spawning and rearing areas for chum salmon. However, the Department of Natural Resources, Office of Habitat Management and Permitting (OHMP) has stated that chum salmon do not spawn in the area of the Eielson AFB discharge so the appropriate WQS is 15°C.

Section 18 AAC 70.240 of the Alaska WQS Regulations allows for a mixing zone at ADEC's discretion. WQS may be exceeded within a mixing zone prescribed by ADEC, but must be met outside the mixing zone boundaries. Eielson AFB has requested a mixing zone for this permit, and prepared the Eielson AFB Central Heating and Power Plant Cooling Water Discharge Monitoring Study in support of this mixing zone.

Eielson AFB hired a consultant to measure temperature and flow rates in the discharge ditch and in French Creek to evaluate the impact of the cooling water discharge on French Creek in support of the renewal of Eielson AFB's NPDES permit. In addition, this information was to be used to support a request for a mixing zone from the Alaska Department of Environmental Conservation (ADEC), and a Fish Habitat (Title 41) permit from OHMP.

The Eielson AFB consultant performed field monitoring in May 2004, September 2004 and May 2005 to collect temperature and flow data from French Creek and the discharge ditch. The consultant then collected data

for other input parameters, including various meteorological data inputs, and stream geometry and hydrology.

Eielson AFB has requested a mixing zone for temperature in French Creek. The mixing zone is requested to be of the following dimensions:

i. The boundaries in the vertical plane shall be from the receiving water surface to the bottom;

ii. The longitudinal boundaries shall be from outfall 001 to a point 500 feet downstream of the confluence of the ditch with French Creek; and

iii. The lateral boundaries shall be the banks of French Creek.

ADEC reviewed Eielson AFB's Central Heating and Power Plant Cooling Water Discharge Monitoring study. The contractor used the critical low flows as required by 18 AAC 70.255 (f)(2), but the model results were not as useful as the field data contained in Appendix C of the 2005 Final Report. ADEC analyzed the actual creek temperatures which showed that the smallest practicable mixing zone is 500 feet from the confluence of the overflow ditch with French Creek (see Attachment 1 of the draft Certification in Appendix B). Although complete mixing is not reached at this point, temperatures at mid-depth and below are less than the water quality standard limitation of 15 degrees C. The data analyzed from upstream stations also indicate that French Creek temperatures are stratified upstream of the overflow ditch.

EPA has considered the data provided by ADEC and agrees with the conclusions in the draft Certification. EPA has determined that the proposed effluent temperature limits (maximum daily limit of 22º C and average daily limit of 15º C) will be protective of aquatic life.

pH: pH was limited in the previous permit at a range of 6.0 to 9.0 standard units (s.u.) so the new permit must contain a limit at least as stringent. The WQS require a pH range of 6.5 to 8.5 s.u. for waters protected for aquaculture water supply and contact recreation.

Residues: The previous permit contained a prohibition on the discharge of floating solids or visible foam in trace amounts. The draft permit contains this same requirement.

Chlorine: There is no reasonable potential to violate the WQS for chlorine since no chlorinated effluent is proposed to be discharged and the draft permit prohibits the discharge of total residual or free available chlorine.