Fact Sheet

Date: November 17, 1999
NPDES Permit Number: AK-004335-4

The U.S. Environmental Protection Agency (EPA) Plans to Reissue a Wastewater Discharge Permit to:

ARCO Alaska, Inc.
700 G Street
P.O. Box 100360
Anchorage, Alaska 99510-0360

EPA Proposes NPDES Permit Reissuance.

EPA proposes to reissue a *National Pollutant Discharge Elimination System* (NPDES) permit to ARCO Alaska, Inc. The proposed permit sets conditions on the *discharge of pollutants* from the **Kuparuk Seawater Treatment Plant** to Simpson Lagoon of the Beaufort Sea off Alaska's North Slope. 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 and places other conditions on the facility.

This Fact Sheet includes:

- the tentative determination of EPA to issue the permit,
- information on public comment, public hearing, and appeal procedures,
- a description of the *facility* and proposed discharge,
- a map and description of the discharge location,
- a listing of past and proposed effluent limitations, schedules of compliance, and other conditions, and
- technical material supporting the conditions in the permit.

EPA Invites Comments on the Proposed Permit.

EPA will consider all substantive comments before reissuing the final NPDES permit. Those wishing to comment on the proposed permit may do so in writing by the expiration date of the Public Notice. After the Public Notice expires and the public comments have been considered, EPA Region 10's Office of Water Director will make a final decision regarding permit reissuance.

If no substantive comments are received, the tentative conditions in the proposed permit will become final and the permit will become effective upon issuance. If comments are received, EPA will respond to the comments and the permit will become effective 30 days after its issuance date, unless a request for an evidentiary hearing is submitted within 30 days.

Documents Are Available for Review.

The proposed NPDES permit and related documents can be reviewed at EPA's Regional Office in Seattle between 9:00 a.m. and 4:00 p.m., Monday through Friday. To request copies and other information, contact the NPDES Permits Unit at:

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

The fact sheet and proposed permit are also available at:

Alaska Department of Environmental Conservation, South-central Office
PO Box 1709
Valdez, Alaska, 99686
attention: Judy Kitagawa
(907) 835-4698

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1 APPLICANT

ARCO Alaska, Inc.
700 G Street
P.O. Box 100360
Anchorage, Alaska 99510-0360

2 TYPE OF FACILITY AND ACTIVITY

2.1 Facility Location and Description

ARCO Alaska, Inc. (ARCO) is the operator of the Kuparuk Seawater Treatment Plant (STP) on Oliktok Point, Alaska. The STP is a self-contained process plant which treats seawater drawn from Simpson Lagoon of the Beaufort Sea for injection into the Kuparuk River Oil Field (Kuparuk). The STP is located at Latitude 70°30'45" N, Longitude 149°51'30" W, at the tip of Oliktok Point, approximately 12 miles east of the Colville River Delta (Appendix A, Figure 1).

The primary components of the Kuparuk waterflood system consist of the STP, two clarifiers (summer time use only), a low-pressure supply pipeline, three seawater injection pumps (SIPs) located at each of the three central processing facilities, and a network of high-pressure seawater distribution pipelines with intermediate manifold facilities and injection wells (Appendix A, Figure 2).

2.2 Process Description

The STP is a key component of a waterflood project designed to enhance the recovery of hydrocarbons from the oil-bearing zone of the Kuparuk reservoir. Treated seawater is injected into the oil production zone of the hydrocarbon reservoir to maintain reservoir pressure and "sweep" oil to the producing wells, thereby extending the yield and useful life of the field.

The STP was originally designed and built for an output of 18.5 million gallons per day (MGD). However, due to subsequent refinements in the STP, an output of 25 MGD can be achieved during winter operation. The STP's summer operation uses a coagulating clarifier system that reduces intake seawater solids to a level within seawater filter design limitations and limits output to about 18 MGD.

The overall function of the STP is to heat, filter, deoxygenate, biotreat and distribute necessary volumes of waterflood source seawater from Simpson Lagoon to the SIPs. Seawater at the STP is treated: (a) to heat the seawater in order to assist in the deaeration process and to maintain a minimum 4°C (40°F) temperature in the supply lines as a freeze-protection measure, (b) to remove suspended solids in order to prevent plugging of the porous reservoir rock, (c) to remove oxygen (to less than 30 ug/l) in order to minimize pipeline corrosion, and (d) to remove bacteria in order to minimize microbiologically induced corrosion and the bacterial production of hydrogen sulfide.

2.3 Permit and Application History

EPA issued NPDES permit no. AK-004335-4 to ARCO for the Kuparuk waterflood project's STP in September of 1980, and reissued this permit on November 27, 1989. The permit expired on December 27, 1994, and has been administratively extended pending the present reissuance. ARCO submitted timely and complete Forms 1 and 2C to EPA Region 10 on June 27, 1994, in application for renewal of the permit.

3 PROPOSED DISCHARGE

3.1 Nature, Amount, and Composition of Discharge

Operation of the STP results in two continuous discharges into Simpson Lagoon. The continuous discharges are from the strainer/filter backwash disposal system (strainer/filter backwash; Discharge 001) and the marine life return system (MLRS; Discharge 002). Sanitary and domestic wastewater is transferred, treated, and injected downhole into the oil field at the Kuparuk Wastewater Treatment Plant, which discharges under its separate permit.

The strainer/filter backwash is discharged through an outfall pipe into approximately eight (8) feet of water 800 feet northwest of the STP (Appendix A, Figure 1). In the winter the depth of free water under ice is reduced to a minimum of about two (2) feet. The effluent discharged is seawater containing the natural sediment particles removed from the seawater injection stream, spent flocculant/coagulant, and intermittent trace amounts of total residual chlorine (TRC).

The MLRS returns seawater to Simpson Lagoon through a separate outfall pipe into approximately eight (8) feet of water 300 feet northwest of the STP.

An "over ice line" discharge may result from implementation of freeze-protection measures during emergency shutdown conditions or during maintenance work on the STP plant distribution line. This "over ice line" is only used on rare occasions and only after ARCO has obtained agency permission.

A slipstream of chlorine-free heated seawater may be used in the intake structure of the STP to prevent ice formation. Since the MLRS may take in some of this heated water, the use of this anti-icing measure is minimized to maintain the MLRS within permitted temperature levels

3.2 Treatment of Wastewater Prior to Discharge

Biocides (chlorine and a glutaraldehyde/quaternary amine blend) are used to control biofouling and bacterial activity within the STP. The latter chemicals are only used downstream of the filters. Because of the design and operation of the STP facilities, they do not enter the effluent stream and should not be discharged to the Beaufort Sea.

Similarly, under present operating conditions, chlorine is introduced continuously downstream of the filters to control biofouling in the distribution system. However, chlorine is

used intermittently to directly treat the filters. Following such treatments, trace levels of chlorine may be introduced into the effluent during the next filter backwash cycle. In order to minimize total residual chlorine (TRC) in the strainer/filter backwash water, a dechlorination step was added to the treatment process in 1992. An oxygen scavenger (sodium metabisulfite) is used, as needed, to neutralize chlorine in the strainer/filter backwash water.

3.3 Compliance History

The permittee has generally met its permit limits throughout its history of operations under this permit. The facility has been in 100% compliance with limits on flow, total suspended solids (TSS), temperature, pH, and total residual chlorine (TRC).

4 RECEIVING WATER

4.1 Nature of Simpson Lagoon and the Beaufort Sea

Within the Beaufort Sea, the relatively shallow shelf depths act as a mixing zone for the clearer, generally colder and more saline ocean waters to interact with the more turbid, sediment-bearing, fresher inflows from the Colville, Sagavanirktok, Putuligayuk, and other rivers.

Simpson Lagoon is similar to numerous other coastal embayment and barrier island systems in the Arctic Ocean in that at least two distinct seasonal changes occur each year. For three to four months of each year, the nearshore waters are essentially ice-free and the dynamic processes associate with wind and wave forces attain their highest levels of activity. Some time between mid-September and mid-October, freeze-up of the waters usually begins in the lagoons, inlets, and bay as the water temperature drops to about -1.8EC. By late spring (March to April), the ice layer has usually achieved its maximum thickness and large areas of the bay are frozen from top to bottom. Then, the thickness of the ice is normally about 2 meters, but occasionally may be as thick as 2.6 meters. Ice melt in the ocean and nearshore lagoons usually starts in early June. On average, the nearshore waters are open by late July or early August, with pack ice laying offshore 10 to 20 kilometers. The transition periods between open-water and ice-cover are characterized by broken and mobile ice flows which scour and grind the nearshore waters to depths of 12 and sometimes in excess of 20 ft MLLW.

4.2 Beneficial Uses of Simpson Lagoon and the Beaufort Sea

Simpson Lagoon and the Beaufort Sea are classified by the Alaska Water Quality Standards as Classes II A(i)(ii)(iii), B(i)(ii), C and D for use in aquaculture, seafood processing and industrial water supply, water contact and secondary recreation, growth and propagation of fish, shellfish, aquatic life and wildlife, and harvesting for consumption of raw mollusks or other raw aquatic life.

4.3 Issues of Site-specific Interest

Arctic marine waters are characterized by fewer species, with larger numbers of individuals per species than in temperate waters. Shorter food chains, or less complex food webs, exist. Because of this relative simplicity of food web composition, arctic marine systems have been deemed less diverse, and therefore more susceptible to disruption and fluctuation. While large fluctuations in community composition do occur, they are probably more related to the harsh realities of the physical environment than to the intrinsic lack of diversity.

Phytoplankton has always been considered the base of the food web in the Arctic, with the implication that the massive bloom of the short open-water season sustains the communities throughout the year, or that most invertebrates are in a "resting stage" during the winter. However, recent work has found that terrestrial plant material eroded into the marine system is an important component of the food web base as well. Beyond the shallow inshore zone of ice scour, sessile, long-lived organisms such as kelps, sponges, mollusks, and soft corals exist.

Distribution, abundance, and species diversity of the macroinvertebrates of the Beaufort Sea is strongly influenced by the physical-chemical environment. Carey et al. (1974) considered the following species particularly important to the macroinvertebrate community:

- Sediment character and distribution
- Ice scouring out to the middle continental shelf
- Water and routes of organic material input to the sea floor
- Uniformly cold temperatures
- Stability of the overlying water column

Structurally, the macrofauna of the western Beaufort Sea is dominated by annelids, mollusks, and arthropods. Annelids were the most abundant group found and comprised from 32 to 87 percent of the total number of infauna collected. Mollusks and arthropods ranked equally in abundance after annelids. Numerical density of macroinfauna increased across the continental shelf and down the upper continental slope to a depth of 700 meters.

Fish in Simpson Lagoon can be classified into three general categories:

- Marine species live in the marine or brackish environment. Marine species in the Simpson Lagoon region include Arctic cod, Arctic flounder, Pacific sand lance, slender eel blenny, snailfish, capelin, and four-horn sculpin. Of these, only the Arctic cod and four-horn sculpin have been captured in large numbers.

- Freshwater species, which occasionally move into the Beaufort Sea when salinity is low, may live in the plumes of large rivers. However, such freshwater species do not occur in Simpson Lagoon in significant numbers.

- Anadromous species are freshwater forms that migrate to the sea in summer and return to freshwater to overwinter or spawn. Several species of anadromous fishes have been taken from Simpson Lagoon. Least and Arctic cisco and dolly varden char are considered to be "key" species. Both species of cisco prey mostly on mysids and amphipods. The diet of dolly varden char in Simpson Lagoon is dominated by amphipods, juvenile Arctic cod, and mysids.

Approximately 60 fish species have been reported in the Alaskan Beaufort Sea, as compared to over 300 in the Bering Sea and Gulf of Alaska. This relatively low diversity has been attributed to low temperature, low productivity, and severe ice conditions in the nearshore area during the winter period. Approximately 30 species occur in nearshore areas, including 16 anadromous species. During the open-water period, anadromous species become concentrated in the warmer, less saline waters around the Sagavanirktok and other major river deltas for feeding, particularly within 100 meters of the shoreline. Certain anadromous fish, such as whitefish and least cisco, spawn in the Sagavanirktok River and do not appear to disperse far from their river of origin.

Marine mammals which occur regularly in the Beaufort Sea include the beluga whale, ringed seal, spotted seal, bearded seal, walrus, and polar bear. Species which occur occasionally or rarely include the harbor porpoise, killer whale, narwhal, and hooded seal. In general, these mammals occur in much greater concentrations in the western Beaufort Sea.

5 BASIS FOR EFFLUENT LIMITATIONS AND MONITORING

5.1 General Approach

EPA followed the Clean Water Act, state regulations, and EPA's 1991 *Technical Support Document for Water Quality-Based Toxics Control* to develop the proposed effluent limits. In general, the Clean Water Act requires that the effluent limit for a particular pollutant be the more stringent of either the *technology-based limit* or the *water quality-based limit*. This proposed permit includes both technology-based and water quality-based limits. Technology-based limits are established based upon the level of treatment that is achievable using available technology. Water quality-based limits are designed to prevent exceedance of the Alaska Water Quality Standards (AWQS) in the receiving water.

5.2 Summary of Effluent Limitations, Past and Proposed

Table I: Comparison of Permit Limits				
Parameter, Discharge no.	**Past Average**	**Past Maximum**	**Proposed Average**	**Proposed Maximum**
Strainer/filter backwash; Discharge 001				
Flow, 001	no limit	2.2 MGD	no limit	2.2 MGD
TSS, 001	no limit	170,000 lbs/day	no limit	no limit
TRC in open-water conditions, 001	no limit	426 Fg/L	212 Fg/L	426 Fg/L
TRC in under-ice conditions, 001	no limit	125 Fg/L	62 Fg/L	125 Fg/L
pH, 001	no limit	no more than 9, no less than 6, and no more than 0.5 from ambient	no limit	no more than 9, no less than 6, and no more than 0.5 from ambient
Temperature, 001	Weekly mean not to exceed 10EC above ambient	no limit	no limit	Not to exceed 10EC above ambient
Coagulants, approval required	no limit	1 mg/L	no limit	no limit
Marine life return system, Discharge 002				
Flow, 002	no limit	no limit	no limit	no limit
Temperature, 002	Not to exceed 1EC above ambient	no limit	Not to exceed 1EC above ambient	Not to exceed 2EC above ambient

Extensive monitoring has demonstrated that water quality is protected within the receiving waters outside of the State-authorized mixing zone and that measured changes in water quality and marine life within the mixing zone are neglible.

5.3 Technology-based Evaluation

Section 301 of the Clean Water Act requires particular categories of industrial dischargers 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 and municipal *point sources* across the country based on currently available treatment technologies while allowing a discharger to choose and use any available pollution control technique to meet the limitations. Where EPA has not yet developed guidelines for a particular industry, EPA can establish permit limitations using Best Professional Judgment (BPJ; 40 CFR §§ 122.43, 122.44 and 125.3).

EPA has not established technology-based effluent guidelines for seawater treatment or marine life return systems.

5.4 Mixing Zone and Other Variances to State Water Quality Standards

The State of Alaska, through ADEC, can authorize a number of site-specific variances to the Alaska Water Quality Standards. *Variances* to AWQS include site-specific water quality criteria (18 AAC §§ 70.220 and 70.235), a *mixing zone* wherein AWQS may be exceeded (18 AAC § 70.240), a *zone of deposit* wherein the AWQS criteria for settleable residues may be exceeded (18 AAC § 70.210), and short-term variances from the anti-degradation policy standard or the water quality criteria (18 AAC § 70.200). In addition, ADEC may exercise enforcement discretion in determining whether to initiate an enforcement action on a water quality violation (18 AAC § 70.900).

In the case of this permit, ARCO Alaska has received in the past and will re-apply for a mixing zone of 100 m radius around each of its wastewater outfalls 001 and 002 for temperature, pH, turbidity, and floating and suspended residues. ADEC has indicated that it will continue these variances in its State certification of the NPDES permit.

5.5 Water Quality-based Evaluation

Water quality-based limits are derived from the Alaska Water Quality Standards to protect the water quality and beneficial uses of Alaskan waters. The NPDES regulation at 40 CFR § 122.44(d)(1) 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." The limits must be stringent enough to ensure that State water quality standards are met, and must be consistent with any available wasteload allocation established in the assessment of a total maximum daily load of pollutant discharges to a receiving water. Based upon permittee's monitoring of its effluents and its receiving waters, water quality-based limits are justified for flow and three pollutants: temperature, total residual chlorine (TRC), and coagulants.

The most stringent State criteria for each pollutant regulated under the State's water quality standards is utilized in determining water quality-based limits within an NPDES permit. Temperature, pH, TRC, coagulants, turbidity, sediment, plant debris and other residues are potential pollutant discharges at the facility.

Of these potential pollutants, there is no addition of turbidity, sediment, and plant debris and other residues in the facility's concentration of these elements in its process which produces particulate-free seawater for injection and the return of "dirty" seawater to the Simpson Lagoon. The permit limits the discharge of these pollutants through the narrative critieria for residues in the Alaska water quality standards (AWQS). AWQS state that an effluent discharge "may not, alone or in combination with other substances or wastes, make the (receiving) water unfit or unsafe for the use; cause a film, sheen, or discoloration on the surface of the water or adjoining shorelines, cause leaching of toxic or deleterious substances; or cause a sludge, solid, or emulsion to be deposited beneath or upon the surface of the water, within the water column, on the bottom, or upon adjoining shorelines."

Of the potential pollutants, the addition of heat, pH, TRC, and coagulants to effluent discharges serves as a basis for water quality-based permit limits. State criteria for

temperature are that the temperature of a discharge may not exceed 15EC or cause the weekly average to increase by more than 1EC, and that normal daily temperature cycles may not be altered in amplitude or frequency. State criteria for total residual chlorine (TRC) are concentrations may not exceed 2 Fg/L for salmonid fish, or 10.0 Fg/L for other marine organisms. State criteria for pH is that it may not be less than 6.5 nor greater than 8.5, and may not vary more than 0.1 pH unit from natural conditions.

As presented in the above table, limits are imposed on flow, temperature, pH, TRC, and coagulants. These limits continue limits from the expired permit, with some modifications which insure consistency with current EPA permit practices and other NPDES permits for seawater treatment plants on the North Slope and which respond both to changes in facility operations (e.g., dechlorination) and to effluent and environmental monitoring data.

- The limit on maximum flow of 2.2 MGD in Discharge 001 is continued due to its significance in modeling dilution and its historical application; the limit on average flow is discontinued as unnecessary to the protection of Alaska water quality standards for the pollutants of concern.

- The limit on weekly mean (i.e., *average*) temperature which shall not exceed 10EC above ambient in Discharge 001 is discontinued and replaced with the more stringent limit on *maximum* temperature which shall not exceed 10EC above ambient. This change from weekly mean temperature difference to instantaneous maximum temperature difference will provide a more realistic and practicable parameter for controlling effluent temperature. The facility's record of effluent monitoring demonstrates that this temperature limit is achievable.

- The limit on pH is continued with the expectation that the permittee will submit data demonstrating that effluent pH remains within 0.2 pH units of influent pH and therefore does not risk violations of AWQS outside of the zone of initial dilution nor the proposed mixing zone.

- The maximum daily limits (MDL) on TRC are retained and average monthly limits (AML) are developed assuming a coefficient of variation of 0.6 and a ratio of 2.01 for MDL/AML. The AML for open-water conditions is 212 Fg/L TRC and for under-ice conditions is 62 Fg/L TRC. The implementation of average monthly limits on TRC insures protection of AWQS. The facility's record of effluent monitoring demonstrates that these limits on the average monthly discharge of TRC are achievable.

- The limits on coagulants are retained, including procedures for testing and approving new coagulant additives.

It is EPA's best professional judgment that the Alaska water quality criteria will be met outside of the 100 m mixing zones; nearly two decades of water quality monitoring around these discharges supports this view.

Antidegradation of Water Quality. In proposing to reissue this permit, EPA has considered the State's antidegradation policy [18 AAC 70.015]. This policy states, in part, that in Alaska: "the existing water uses and the level of water quality necessary to protect the existing uses must be maintained and protected (and), if the quality of a water exceeds levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality must be maintained and protected unless the department (ADEC)... allows the reduction in water quality...". The permit, as stated above, limits effluent discharges of total residual chlorine (TRC), temperature, coagulants, toxic compounds, floating solids, and visible foam. The limits in the draft permit are consistent with and protective of the State water quality standards and the water quality of the receiving water. The draft permit is consistent with the State's antidegradation policy.

5.6 Summary of Effluent Monitoring

The Clean Water Act requires that monitoring shall be included in permits to determine compliance with effluent limitations. Monitoring may also be required to gather data for future effluent limitations or to monitor effluent impacts on the receiving water. The permittee will be responsible for conducting the monitoring and for reporting the results to EPA. Table II presents the proposed monitoring requirements based on the minimum sampling necessary to adequately monitor the facility's performance. For comparison purposes, the table also shows the monitoring requirements in the past permit.

TABLE II. Comparison of Monitoring Requirements

Parameter, Discharge no.	Past Sample Type and Frequency	Proposed Sample Type and Frequency
Strainer/filter backwash, Discharge 001		
Flow, 001	Recording, continuous	Recording, continuous
Total suspended solids, 001	Estimate, daily	No monitoring
Total residual chlorine, 001	Grab, 6/day	Grab, daily
pH, 001	Meter or grab, daily	Meter or grab, weekly
Temperature, 001	Recording or meter, hourly	Recording or meter, daily
Marine life return system Discharge 002		
Flow, 002	Recording or meter, daily	Recording or meter, weekly
Temperature, 002	Recording or meter, daily	Recording or meter, weekly

Sampling of bypass and upset. The proposed permit requires sampling whenever a bypass, spill, or non-routine discharge of pollutants occurs, if such a discharge could cause a violation of an effluent limit.

6 BASIS FOR BEST MANAGEMENT PRACTICES PLAN

The Clean Water Act and federal regulations authorize EPA to require *best management practices*, or BMPs, in NPDES permits. BMPs are measures for controlling the generation of pollutants and their release to waterways. For many facilities, these measures are typically included in the facility Operation & Maintenance plans (O&M) plans. BMPs are important tools for waste minimization and pollution prevention. EPA encourages facilities to incorporate BMPs into their O&M plans and to revise them as new practices are developed. The permittee has promoted its control of pollutant discharges through the use of BMP plans in the past and will continue these practices into the future. The proposed permit requires the permittee to maintain and implement a BMP plan at the facility.

7 ENVIRONMENTAL MONITORING

The proposed permit discontinues the monitoring of the receiving water and sea floor. Through its environmental monitoring programs across nearly two decades (e.g., ARCO Alaska 1995 et al.), the permittee has demonstrated that the discharge does not violate Alaska water quality standards outside of the mixing zone and that the discharge does not produce measurable degradation on the marine life of the receiving waters.

8 BASIS FOR ANNUAL REPORT

The proposed permit requires the permittee to complete and submit an annual report which compiles effluent and environmental monitoring data and reports permit violations, upset conditions, by-pass conditions, plant or process changes, and corrective actions undertaken to improve wastewater treatment and pollution prevention at the facility. The annual report provides a comprehensive record of wastewater discharge at the facility and its effect on the receiving water and supports improved understanding and management of the discharges and discussion of these discharges by the permittee and government representatives. Title 40 of the Code of Federal Regulations provides the regulatory basis for this requirement at sections 122.41 (“Conditions applicable to all permits”), 122.44(i) (“Monitoring requirements”), and 122.48 (“Requirements for recording and reporting of monitoring results”).

9 PERMIT CONDITIONS FOR COMPLIANCE, RECORDING, REPORTING, AND OTHER GENERAL PROVISIONS

Sections § VI through VIII of the draft permit contain standard regulatory language that is required to be in all NPDES permits. The following sections of the permit are based largely upon 40 CFR Part 122, subpart C, “Permit Conditions” and on other referenced laws and regulations.

- Duty to Comply from 40 CFR § 122.41(a),
- Proper Operation and Maintenance from 40 CFR § 122.41(e),
- Duty to Mitigate from 40 CFR § 122.41(d),
- Toxic Pollutants from 40 CFR § 122.41(a)(1-2), § 122.44(b, e), and § 125.3,
- Removed Substances from 40 CFR § 122.41(a)(1) and (o) and CWA § 405(A),

- Need to Halt or Reduce Activity not a Defense from 40 CFR § 122.41(c),
- *Bypass* of Wastewater Treatment from 40 CFR § 122.41(m),
- *Upset* Conditions from 40 CFR § 122.41(n),
- Inspection and Entry from 40 CFR § 122.41(i),
- Penalties for Violations of Permit Conditions from 40 CFR § 122.41(a)(2-3),
- Duty to Provide Information from 40 CFR § 122.41(h),
- Records Contents from 40 CFR § 122.41(j)(3),
- Submittal of Reports from 40 CFR § 122.41(h, j, and l),
- Retention of Records and Reports from 40 CFR § 122.41(j)(2),
- On-site Availability of Records and Reports from 40 CFR § 122.41(i)(2),
- Availability of Reports for Public Review from 40 CFR § 122.1(e) and § 122.7(1) and 40 CFR § 2.101,
- Planned Changes from 40 CFR § 122.41(l)(1),
- Changes in the Discharge of Toxic Substances from 40 CFR § 122.42(a),
- Anticipated Noncompliance from 40 CFR § 122.41(l)(2),
- Reporting of Noncompliance from 40 CFR § 122.41(l)(6-7) and § 122.44(g),
- Permit Actions from 40 CFR § 122.44(c) and 40 CFR § 122.61 - § 122.64,
- Duty to Reapply from 40 CFR § 122.41(b),
- Incorrect Information and Omissions from 40 CFR § 122.41(l)(8),
- Signatory Requirements from 40 CFR § 122.41(k),
- Property Rights from 40 CFR § 122.41(g),
- Severability from 40 CFR § 124.16,
- Transfers from 40 CFR § 122.41(l)(3),
- Oil and Hazardous Substance Liability from 40 CFR § 125.3, 40 CFR part 300, 33 CFR § 153.10(e), and section 311 of the Act,
- State Laws from 40 CFR § 122.1(f) and section 510 of the Act, and
- Reopening of the Permit from 40 CFR § 122.41(f) and § 122.44(c).

10 OTHER LEGAL REQUIREMENTS

10.1 State Water Quality Standards and Certification

EPA is requesting State officials to review and provide appropriate certification to this NPDES permit pursuant to 40 CFR § 124.53. Since State waters are involved in the draft permit, the provisions of Section 401 of the Clean Water Act apply, requiring EPA to seek State certification that the permit is protective of the State Water Quality Standards before issuing a final permit. This certification by the State ensures that federally issued permits are in compliance with the laws of the State (see 40 CFR § 124.55). In particular, ADEC must provide written stipulation for a water quality study of the receiving water and authorization of mixing zones and a zone of deposit in its certification of the permit. In accordance with 40 CRF §124.10(c)(1), public notice of the draft permit has been provided to the State agencies having jurisdiction over fish, shellfish and wildlife resources, and over coastal zone management plans.

10.2 Endangered Species Act

Pursuant to 40 CFR § 122.49(c), EPA has concluded that the localized effluent discharges authorized by this permit will have no effect on the continued existence of any endangered or threatened species and will not adversely affect their critical habitat. Endangered species found in the vicinity of the discharge include bowhead and gray whales and the arctic peregrine falcon.

The draft permit, fact sheet and consistency determination will be submitted to the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) for review at the time of public notice. EPA is requesting concurrence from USFWS and NMFS on the draft permit, and will consider their comments in the final permit decision. EPA will initiate consultation should new information reveal impacts not previously considered, should the activities be modified in a manner beyond the scope of the original opinion, or should the activities affect a newly listed threatened or endangered species.

10.3 Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act requires EPA to consult with NMFS with respect to the reissuance of this NPDES permit concerning its impacts on any essential fish habitat and to provide a description of the measures proposed to avoid, mitigate, and offset the impact of this permitted discharge on such habitat. EPA finds that the permitted discharge will comply with Alaska Water Quality Standards outside of the authorized zones of variance, that decreases in marine life within these zones will be compensated by increases in the abundance of marine life in surrounding zones of organic enrichment, and that issuance of this permit is not likely to adversely affect any species in the vicinity of the discharge. EPA provides this fact sheet to describe the discharge, the draft permit, and the permit's limits, conditions, and measures of mitigation.

10.4 Coastal Zone Management Act

The Applicant has certified that the activities authorized by this draft permit are consistent with the Alaska Coastal Management Plan. The draft permit, fact sheet and consistency determination will be submitted to the State for review at the time of public notice. Pursuant to 40 CFR § 122.49(d), requirements for State coastal zone management review and approval must be satisfied before the permit may be issued.

10.5 Pollution Prevention Act

It is national policy that, whenever feasible, pollution should be prevented or reduced at the source, that pollution which cannot be prevented should be recycled in an environmentally safe manner, and that disposal or release into the environment should be employed only as a last resort and should be conducted in an environmentally safe manner. The permittee will discharge at the facility in accordance with best management practices which will address the provisions of the Pollution Prevention Act.

10.6 Oil Spill Requirements

Section 311 of the Clean Water Act prohibits the discharge of oil and hazardous materials in harmful quantities. Discharges specifically controlled by the draft permit are excluded from the provisions of Section 311 because these discharges are limited to amounts and concentrations which are deemed to be protective of State water quality standards. However, this permit does not preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties for other unauthorized discharges of toxic pollutants which are covered by Section 311 of the Act.

11 MODIFICATION OF PERMIT LIMITS OR OTHER CONDITIONS

When EPA receives information that demonstrates the existence of reasonable cause to modify the permit in accordance with 40 CFR § 122.62(a), EPA may modify the permit. "Reasonable cause" includes alterations or additions to the facility or activity, new federal regulations or standards, new state water quality standards, the completion or modification of total maximum daily loads or wasteload allocations for the receiving water of the facility (also, see 40 CFR § 122.44(d)((1)(vii)(B)), failure of the permit to protect state water quality standards, a change in a permittee's qualification for net limits, any relevant compliance schedule, the need to incorporate or revise a pretreatment or land application plan, when pollutants which are not limited in the permit exceed the level which can be achieved by technology-based treatment, the correction of technical mistakes and legal misinterpretations of law made in determining permit conditions, and the receipt of new information relevant to the determination of permit conditions. Minor modifications to a permit may be made by EPA with the consent of a permittee in order to correct typographical errors, change an interim compliance schedule, allow for a change in ownership, change a construction schedule, or delete an outfall. Pursuant to 40 CFR § 122.63, such minor modifications may be made without public notice and review.

12 PERMIT EXPIRATION

This permit will expire five years from its effective date. In accordance with 40 CFR § 122,6(a), the conditions of an expired permit continue in force under 5 U.S.C. § 558(c) until the effective date of a new permit when a permittee submits an application for permit reissuance 180 days before the expiration of the permit. Permits which are continued because EPA has not reissued a new permit remain fully effective and enforceable.

13 GLOSSARY OF TERMS AND ACRONYMS

§ means section or subsection.

AAC means Alaska Administrative Code.

ADEC means Alaska Department of Environmental Conservation.

Average monthly discharge means the average of “daily discharges” over a monitoring month, calculated as the sum of all daily discharges measured during a monitoring month divided by the number of daily discharges measured during that month. It may also be referred to as the "monthly average discharge."

Best management practices (“BMPs”) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of “waters of the United States.” BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or **waste** disposal, or drainage from raw material storage.

BOD5 means five-day biochemical oxygen demand.

Bypass means the intentional diversion of waste streams from any portion of a treatment facility.

EC means degrees Celsius.

CFR means Code of Federal Regulations.

CWA means the Clean Water Act, (formerly referred to as the Federal Water Pollution Control Act or Federal Water Pollution Control Act Amendments of 1972) Public Law 92-500, as amended by Public Law 95-217, Public Law 95-576, Public Law 96-483 and Public Law 97-117, 33 U.S.C. 1251 et seq.

Daily discharge means the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Daily maximum discharge means the highest allowable "daily discharge" and is also referred to as the "maximum daily discharge."

Discharge of a pollutant means any addition of any "pollutant" or combination of pollutants to "waters of the United States" from any "point source" or any addition of any pollutant or combination of pollutants to the waters of the “contiguous zone” or the ocean from any point source other than a vessel or other floating craft which is being used as a means of transportation.

Discharge Monitoring Report (“DMR”) means the EPA uniform national form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees. DMRs must be used by “approved States” as well as by EPA.

Effluent limitation means any restriction imposed by the Director on quantities, discharge rates, and concentrations of “pollutants” which are “discharged” from “point sources” into “waters of the United States,” the waters of the “contiguous zone,” or the ocean.

EPA means U.S. Environmental Protection Agency.

ESA means the Endangered Species Act.

EF means degrees Fahrenheit.

Facility or activity means any NPDES “point source” or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program.

lb means pound.

Maximum means the highest measured discharge or pollutant in a waste stream during the time period of interest.

Maximum daily discharge limitation means the highest allowable “daily discharge.”

MGD means million gallons per day.

mg/L means milligrams per liter.

Mixing zone means the zone of dilution authorized by the Alaska Department of Environmental Conservation under 18 AAC 70.032 wherein pollutant concentrations may exceed the criteria of the Alaska Water Quality Standards for the proscribed pollutants.

MLLW means mean lower low water.

NMFS means National Marine Fisheries Service.

National Pollutant Discharge Elimination System (“NPDES”) means the national program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under sections 307, 402, 318, and 405 of CWA.

OW means EPA Region 10’s Office of Water.

P.L. means (U.S.) Public Law.

Point source means any discernible, confined, and discrete conveyance, including but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, rolling stock, concentrated animal feeding operation, landfill leachate collection system,

vessel or other floating craft from which pollutants are or may be discharged. This term does not include return flows from irrigated agriculture or agricultural storm water runoff.

Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water.

Process wastewater means any water which, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, byproduct, or waste product.

Sanitary wastes means human body waste discharged from toilets and urinals.

Severe property damage means substantial physical damage to property, damage to the treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

Sewage means human body wastes and the wastes from toilets and other receptacles intended to receive or retain body wastes.

sp. means species.

Technology-based limit means a permit limit or condition based upon EPA's technology-based effluent limitation guidelines or EPA's best professional judgment.

TSS means total suspended solids.

USFWS means U.S. Fish and Wildlife Service.

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

Variance means any mechanism or provision under section 301 or 316 of CWA or under 40 CFR part 125, or in the applicable ``effluent limitations guidelines'' which allows modification to or waiver of the generally applicable effluent limitation requirements or time deadlines of CWA. This includes provisions which allow the establishment of alternative limitations based on fundamentally different factors or on sections 301(c), 301(g), 301(h), 301(i), or 316(a) of CWA.

Water quality-based limit means a permit limit derived from a state water quality standard or an appropriate national water quality criteria.

Waters of the United States or waters of the U.S. means:
(a) All waters which are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
(b) All interstate waters, including interstate wetlands;
(c) All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds the use, degradation, or destruction of which would affect or could affect interstate or foreign commerce including any such waters:
(1) Which are or could be used by interstate or foreign travelers for recreational or other purposes;
(2) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
(3) Which are used or could be used for industrial purposes by industries in interstate commerce;
(d) All impoundments of waters otherwise defined as waters of the United States under this definition;
(e) Tributaries of waters identified in paragraphs (a) through (d) of this definition;
(f) The territorial sea; and
(g) Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) through (f) of this definition.

14 REFERENCES

ARCO Alaska. 1995. Final report: Kuparuk Seawater Treatment Plant environmental monitoring program. Prepared by Kinnetic Laboratories, Inc., Anchorage, Alaska.

USEPA. 1991. Technical support document for water quality-based toxics control. Office of Water, Washington, D.C. EPA/505/2-90-001.

USEPA. 1993. Guidance manual for developing best management practices (BMP). Office of Water, Washington, D.C. EPA/833/2-93-004.

USEPA. 1996. NPDES permit writers' manual. Office of Wastewater Management, Washington, D.C. EPA/833/B-96-003.

Figure 1: Location of the ARCO's Kuparuk Seawater Treatment Plant

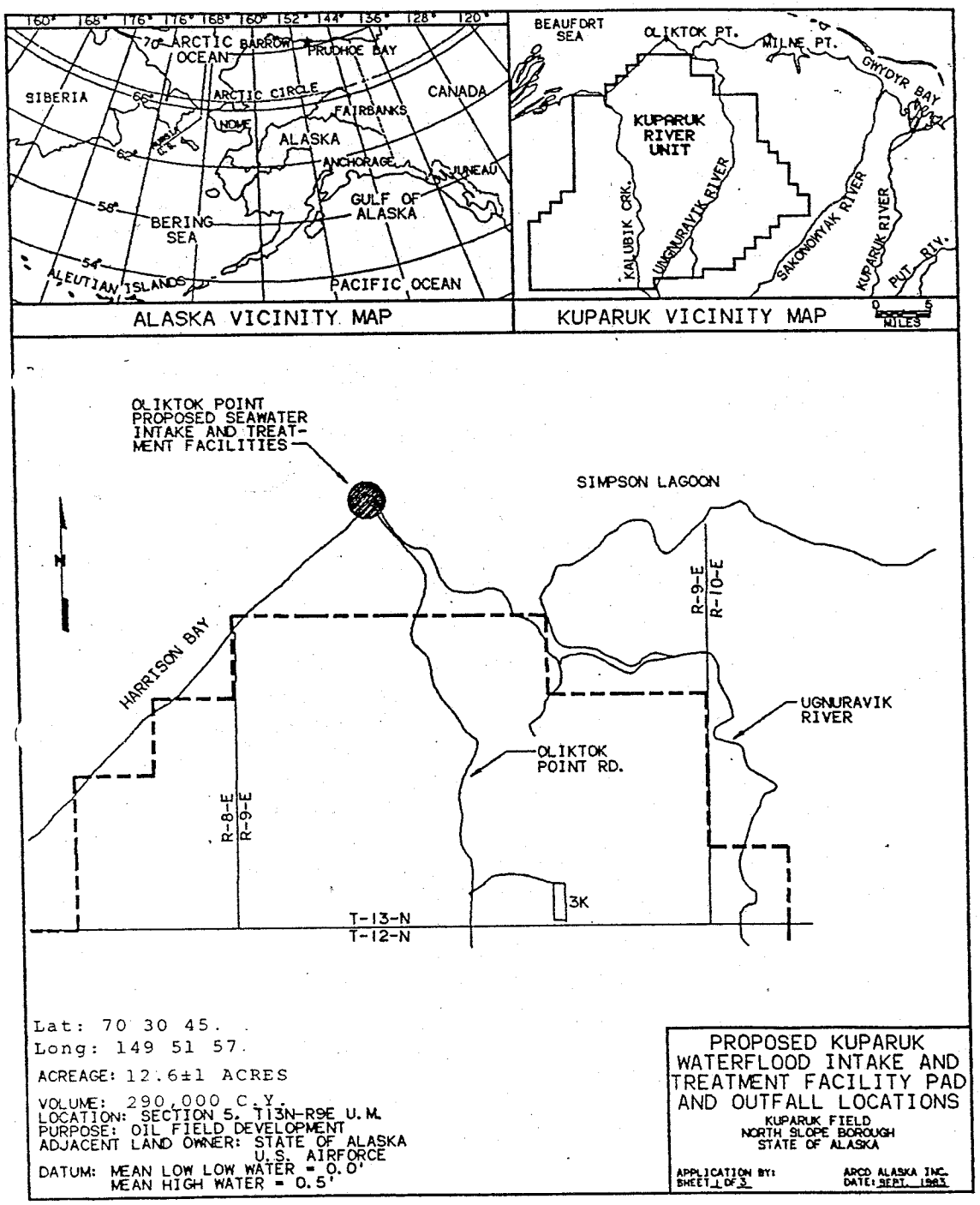

Figure 2: Diagram of the ARCO's Kuparuk Seawater Treatment Plant