

**ALASKA DEPARTMENT OF ENVIRONMENTAL CONSERVATION  
AIR QUALITY CONSTRUCTION PERMIT**



Permit No. **9933-AC012**

Date: **November 17, 1999**

**ALASKA POWER & TELEPHONE COMPANY  
TOK POWER GENERATING STATION**

The Department of Environmental Conservation, under the authority of AS 46.03, AS 46.14, and 18 AAC 50.315, issues an Air Quality Construction Permit to:

**Operator: Alaska Power & Telephone Company  
191 Otto Street  
P.O. BOX 222  
Port Townsend, WA 98368**

**Location: Tok, Alaska. UTM Coordinates 7,023,500 N; 401,000 E; Zone 7.**

The Department authorizes the Permittee to modify the Tok Power Generating Station by replacing one existing Fairbanks-Morse 32 series engine with one Caterpillar 3516B diesel engine in accordance with the terms and conditions of this permit and subsequent submittals listed in Exhibit AA.

This construction permit revises the permit terms and conditions of Air Quality Control Permit to Operate No. 9533-AA001 and develops owner-requested provisions, as listed in 18 AAC 50.305(a)(4), to enable AP&T to avoid classification under as a PSD major facility.

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John M. Stone, P.E.  
Manager, Air Permits Program

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Date

## **PERMIT TERMS AND CONDITIONS**

### **A. Permit Continuity 18 AAC 50.340(i)**

1. Except as revised or rescinded herein or as superseded by an Air Quality Permit issued under AS 46.14.170, the Permittee shall comply with terms and conditions of Air Quality Control Permit to Operate No. 9533-AA001.
2. If permit terms and conditions listed in this permit conflict with those of Permit No. 9533-AA001, the Permittee shall comply with terms and conditions listed herein.

### **B. Standard Permit Conditions**

3. The Permittee shall comply with each permit term and condition; noncompliance constitutes a violation of AS 46.14, 18 AAC 50, and the Clean Air Act and is grounds for:
  - 3.1. An enforcement action;
  - 3.2. Permit termination, revocation and reissuance, or modification in accordance with AS 46.14.280; or
  - 3.3. Denial of an operating permit application.
4. It is not a defense in an enforcement action to claim that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with a permit term or condition.
5. Each permit term or condition is independent of the permit as a whole and remains valid regardless of a challenge to any other part of the permit.
6. Compliance with the permit terms and conditions is considered to be compliance with those requirements that are:
  - 6.1. Included and specifically identified in the permit; or
  - 6.2. Determined in writing in the permit to be inapplicable.
7. The permit may be modified, reopened, revoked and reissued, or terminated for cause; a request by the permittee for modification, revocation and reissuance, or termination or a notification of planned changes or anticipated noncompliance does not stay any permit condition.
8. The permit does not convey any property rights of any sort, nor any exclusive privilege.

9. The Permittee shall allow an officer or employee of the Department, or an inspector authorized by the Department, upon presentation of credentials and at reasonable times, with the consent of the owner or operator, to:
  - 9.1. Enter upon the premises where a source subject to the permit is located or where records required by the permit are kept;
  - 9.2. Have access to and copy any records required by the permit;
  - 9.3. Inspect any facilities, equipment, practices, or operations regulated by or referenced in the permit; and
  - 9.4. Sample or monitor substances or parameters to assure compliance with the permit or other applicable requirements.
10. The Permittee shall furnish to the Department, within a reasonable time, any information the Department requests in writing to determine whether cause exists to modify, revoke and reissue, or terminate the permit, or to determine compliance with the permit; upon request, the permittee shall furnish to the Department copies of records required to be kept; the Department, in its discretion, will require the permittee to furnish copies of those records directly to the federal administrator.
11. The Permittee shall certify all reports, compliance certifications, or other documents submitted to the Department under this permit as required by 18 AAC 50.205.

### **C. Record Keeping, Reporting, and Testing Conditions**

12. Except as provided for in Conditions 18 and 19, submit two copies of all test plans, reports, certifications, and notices as required under conditions and exhibits of Permit No. 9533-AA001 and this permit to the Department's Air Permits Program, 610 University Avenue, Fairbanks, AK 99709, telephone (907) 451-2139; facsimile (907) 451-2187.
13. Keep records of required monitoring data and support information for at least five years after the date of the collection; support information includes calibration and maintenance records, original strip-chart recordings for continuous monitoring instrumentation, and copies of reports required by this permit. Keep monitoring and compliance records as required by the Clean Air Act and applicable federal air-quality regulations.
14. If requested by the Department, conduct source tests of unit exhausts and report results as described in 18 AAC 50.220. Comply with all applicable federal requirements, and:
  - 14.1. Use the applicable test methods set out in 40 CFR Part 60, Appendix A, effective July 1, 1997, and 40 CFR Part 61, Appendix B, effective December 19, 1996, to ascertain compliance with applicable standards and permit requirements. The Permittee may propose alternative test methods if it can be shown to be of

equivalent accuracy, and will ensure compliance with the applicable standards or limits. Alternative test procedures must be approved by the Department prior to the test date.

14.1.1. Nitrogen Oxides, NO<sub>x</sub>, expressed as NO<sub>2</sub> (ppm, lb/MMBtu, and lb/hr): Reference Method 7E or Method 20 as specified in 40 CFR, Part 60, Appendix A.

14.1.2. Oxygen, O<sub>2</sub> (percent): Reference Method 3 or 3A as specified in 40 CFR, Part 60, Appendix A.

14.1.3. Stack Velocity and Volumetric Flow Rate: Reference Methods 1-4 as specified in 40 CFR, Part 60, Appendix A.

14.1.4. Particulate Matter (grains/dscf, lb/MMBtu, and lb/hr): Reference Method 5 as specified in 40 CFR, Part 60, Appendix A.

14.1.5. Sulfur Dioxide, SO<sub>2</sub> (ppm, lb/MMBtu, and lb/hr): Reference Method 6 or 6C as specified in 40 CFR, Part 60, Appendix A.

14.1.6. Carbon Monoxide, CO (ppm, lb/MMBtu, and lb/hr): Reference Method 10 as specified in 40 CFR, Part 60, Appendix A.

14.2. Submit to the Department, within 60 days after receiving a request, and at least 30 days before the scheduled date of the tests, a complete plan for conducting the source tests;

14.3. Give the Department written notice of the tests 10 days before each series; and

14.4. Within 45 days after completion of the set of tests, submit the results, to the extent practical, in the format set out in *Source Test Report Outline* in Volume III, Section IV.3, of the State Air Quality Control Plan, adopted by reference in 18 AAC 50.030(8).

15. Conduct visible emissions Surveillance (Percent Opacity) in accordance with procedures set out in Reference Method 9 as specified in 40 CFR, Part 60, Appendix A, effective July 1, 1997. For emission units subject to only visible emission standards set out in 18 AAC 50.050(a) or 50.055(a), the Permittee is not required to reduce observation data as set out in 40 CFR 60 Appendix A, Paragraph 2.5.

16. If required by terms and conditions of this permit, install, calibrate, conduct applicable continuous monitoring system performance tests listed in 40 CFR 60, Appendix B, effective July 1, 1997, and certify test results; operate; and maintain air contaminant emissions and process monitoring equipment on the sources as described herein. Submit monitoring equipment siting, operation, maintenance plans, and procedures for approval by the Department.

For continuous emission monitoring systems, comply with each applicable monitoring system requirement, as listed in 40 CFR 60.13, 60.19, 40 CFR 60, Appendix A, Method 19, Appendix B, Performance Specifications 2 and 6, and Appendix F, and the *EPA Quality Assurance Handbook For Air Pollution Measurements Systems*, EPA/600 R-94/038b, effective July 1, 1997. Attach to the Facility Operating Report required by Condition 22: 1) a copy of each quarterly continuous emission monitoring system data assessment report for Quality Assurance Procedures conducted in accordance with 40 CFR 60, Appendix F; and 2) a copy of each quarterly monitoring systems performance report in accordance with 40 CFR 60.7.

17. The Permittee may seek Department approval of alternates to the monitoring, record keeping, and reporting requirements of this permit by submitting a written request to the Department. Until the Department approves an alternative of a monitoring, record keeping, or reporting requirement, comply with the requirements listed in this permit.
18. Excess emission reporting--Report excess emissions that present a potential threat to human health or safety as soon as possible to the Department's Division of Spill Prevention and Response (SPAR). From 8:00 AM to 4:30 PM, report the event to SPAR by telephone at (907) 451-2121, or by facsimile at (907) 451-2362. Outside of this time, report the event to SPAR by telephone at (800) 478-9300. Provide a complete description of the event. Detail any assistance required from the Department as a result of this event.
19. Excess emission reporting--In addition to reporting under Condition 18:
  - 19.1. Give the Department a verbal or written notice of all excess emissions or deviations from permit requirements within 24 hours of the event commencement or discovery. Submit a written notice within five working days after the event, unless previously provided to the Department. All notices shall be reported to the Department's Air Permits Program, Attention—Excess Emission Report, 555 Cordova Street, Anchorage, AK 99501, by facsimile (907) 269-7508, by telephone (907) 296-8888, or by e-mail to: *airreports@envircon.state.ak.us*. Complete and submit the Excess Emission Report (EER) form provided in Exhibit BB, or provide an alternative written notice with complete information for each element listed in the EER form. Except as provided for in Condition 19.2, certify the written notice in accordance with 18 AAC 50.205.
  - 19.2. The Permittee may certify the EER in accordance with 18 AAC 50.205 by attaching to the periodic Facility Operating Report required by Permit Condition 13 and Exhibit D of Permit to Operate No. 9533-AA001, a copy of the EER with the certification statement and signature of the responsible official.
20. Keep a copy of this permit, the State Air Quality Control Regulations 18 AAC 50, and Alaska Statutes 46.14, at the permitted facility.

21. Operate each source in compliance with the applicable emission standards specified by 18 AAC 50.040-070, by an applicable federal New Source Performance Standard (NSPS), or National Emission Standard for Hazardous Air Pollutants (NESHAP), by limits established as the result of a best available control technology (BACT) or lowest achievable emission rate (LAER) determination, or the requested emission limits.
22. Submit two copies of a Facility Operating Report, as required by Condition 13 and Exhibit D of Permit to Operate No. 9533-AA001.

**D. Operating Conditions**

23. Permittee is authorized to install the following source at the AP&T Tok Power Generating Station.

23.1. New Source—Replacement Unit 3

Source #	Model	Rated Capacity	Installation Date
Unit 3	Cat D3516B, Serial # TBD	1285 ekW	1999

23.2. Existing Sources

Source #	Model	Rated Capacity	Installation Date
Unit 4	Cat 3516, Serial # 73200308	1135 kW	1981
Unit 5	Cat D3516	1135 kW	1996
Unit 7	FBM 3316, Serial # 872033	1250 kW	1977
Unit 8	Cat D3508, Serial # 70Z00587	440 kW	1985
Unit 9	Cat D3516, Serial # 73Z00165	930 kW	1985
Tank		30,000 gal/113.6 m <sup>3</sup>	1995

24. Permittee may replace a diesel engine at the Tok Station with like-kind unit of a rated capacity no greater than the replaced units.

**E. 18 AAC 50.305(a)(4): Owner Requested Limits to Avoid Classification as PSD Major**

25. To avoid classification as a Prevention of Significant Deterioration Major Facility under 18 AAC 50.300(c), the Permittee shall limit NO<sub>x</sub> emissions to less than 235 tpy:

- 25.1. Limit the annual NO<sub>x</sub> emissions by limiting combined electrical generation from Units 3, 4, 5, 7, 8, and 9 to no more than 13.86 GWhr per twelve-month period adjusted for by the following equation:

$$25.1.1. \{[G3 * 1.038] + [(G4 + G5) * 1.1] + [G9 * 1.083] + [G7 + G8]\} \leq 13.86 \text{ GWhr}$$

where G<sub>n</sub> = power production from each emission Unit number, listed in Condition 23, during the 12-month period.

25.2. Remove existing Source No. 3 (F-M 3214, Serial # 881730) from the facility before installing replacement Unit 3 (Caterpillar 3516B).

26. Monitoring and Recording:

26.1. Monitor and record the electrical production for each fuel burning source listed in Condition 23 no less than once each calendar month. Calculate the electrical production for Units 3, 4, 5, 7, 8, and 9 to ensure compliance with the owner-requested limits listed in Condition 25. The fuel use may be estimated by measurement techniques and calculations approved by the Department.

26.2. Calculate and record NO<sub>x</sub> emissions from all fuel burning equipment listed in Condition 21 for each calendar month based on power production as set out Condition 25.1.1 and as follows:

Tok Power Generating Station NO<sub>x</sub> Calculations

Using expected operation level emission factor rate to calculate factor for electrical production limit formula.

Unit 3 = 0.0352 lb/ekW

Units 4 & 5 = 0.0373 lb/ekW

Units 7 & 8 = 0.0339 lb/ekW

Unit 9 = 0.0367 lb/ekW

26.2.1. For all sources, calculate the 12-month rolling total NO<sub>x</sub> emissions.

27. Reporting – Document compliance with Condition 27 by attaching to the Facility Operating Report required by Permit Condition 23:

27.1. The sulfur content analysis of distillate fuel oil consumed;

27.2. The monthly and 12-month rolling total fuel use, operating hours, and power production for all fuel burning equipment; and

27.3. The monthly and 12-month rolling total NO<sub>x</sub> emission rates.

**F. 40 CFR 60, Subpart Kb, Standard of Performance for Volatile Organic Liquid Storage Vessels**

28. Applicability and designation of affected facility, 40 CFR 60.110b. Volatile organic liquid storage tanks greater than 40 cubic meters in volume (10,567 gallons) for which construction, reconstruction, or modification commenced after July 23, 1984, are subject

to this Subpart as listed in 40 CFR 60.110b(a).

29. Monitoring of operations, 40 CFR 60.116b. Pursuant to 40 CFR 60.116b(a) and (b), keep readily accessible records showing the dimension of the storage vessels and an analysis showing the capacity of the storage vessel for each storage tank greater than or equal to 40 cubic meters (10,567 gallons). Keep these records on-site for the life of each tank. When storing a fuel oil with a true vapor pressure equal to or greater than 3.5 kPa, maintain a record of the Volatile Organic Liquid stored, the period of storage, and the maximum true vapor pressure of that liquid during the respective storage period pursuant to 40 CFR 60.116b(c).

#### **G. 18 AAC 50.055: Industrial Processes and Fuel-Burning Equipment**

For All Industrial Processes and Fuel-Burning Equipment:

30. Comply with 18 AAC 50.055(a)(1) and 18 AAC 50.055(b)(1), which state that visible emissions, excluding condensed water vapor, from an industrial process or fuel-burning equipment may not reduce visibility through the exhaust effluent by greater than 20 percent, for a total of more than three minutes in any one hour, and particulate matter emitted from an industrial process or fuel-burning equipment may not exceed, per cubic foot of exhaust gas corrected to standard conditions and averaged over three hours, 0.05 grains.
31. Comply with 18 AAC 50.055(c), which states that sulfur compound emissions, expressed as sulfur dioxide, may not exceed 500 ppm averaged over a period of three hours, by using fuel oil with a sulfur content not to exceed 0.50% by weight.
32. Monitoring and Recording:
  - 32.1. Upon Department request, verify compliance with 18 AAC 50.055(b)(1) by conducting a Particulate Matter source test in accordance with Condition 14.
  - 32.2. For Source Units 3, 4, and 5, and any other IC engine listed in Condition 23 that operates equal to or greater than 90 days during a calendar year, conduct a visible emission surveillance no less than once each calendar year as set out in Condition 15. For each source listed in Condition 23 that operates less than 90 days during a calendar year, conduct a visible emission surveillance as per Condition 32.3.
  - 32.3. Within 30 days after receiving the Department's request, verify compliance of each emission source listed in Condition 23 by conducting visible emission surveillance in accordance with Condition 15.
  - 32.4. Sample fuel oil using ASTM tests incorporated by reference in ASTM Method D 396 (or later publications of the same listing) for each delivery; or attach vendor certification that fuel delivered contains no greater than 0.50% fuel sulfur.

33. Reporting:

- 33.1. Report to the Department, in accordance with Condition 14.1.4, results of Department-requested particulate matter tests.
- 33.2. Attach the visible emission surveillance results to the Facility Operating Report required by Permit Condition 23.
- 33.3. Attach to the Facility Operating Report applicable analyses or vendor certification from Condition 32.4.

**I. 18 AAC 50.110: Air Pollution Prohibited**

- 34. Comply with 18 AAC 50.110, which states that no person may permit any emission which is injurious to human health or welfare, animal or plant life, or property, or would unreasonably interfere with the enjoyment of life or property as follows:
  - 34.1. Attach to the Facility Operating Report required under Condition 22, a written description of any public complaint regarding air pollution, including the date, time, nature of complaint, and measures taken to resolve the complaint;
  - 34.2. Take reasonable actions to address air pollution complaints resulting from emissions at the facility; and
  - 34.3. Notify the Department in advance of any planned modification or replacement of the fuel burning equipment, which might result in increased potential air-contaminant emissions. The notification must be in writing and must include a description of the proposed change and an estimate of any change in the quantity of emissions of each regulated air contaminant that may occur as the result of the modification or replacement.

**EXHIBIT AA**  
**PERMIT DOCUMENTATION**

## PERMIT DOCUMENTATION

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September 8, 1999	Modeling Compliance Demonstration submitted by Robert Grimm, AP&T, to ADEC.
September 1, 1999	Supplement to Application submitted by Robert Grimm, Alaska Power & Telephone (AP&T), to ADEC.
August 13, 1999	Supplement to Application submitted by Edward Settle, ThermoRetec, to ADEC.
July 23, 1999	Permit Application for Replacement of Unit 3 at Tok Power Generating Station, X79.
June 29, 1999	Air Quality Modeling Analysis report and disk submitted by Robert Grimm , AP&T, to ADEC.
June 23, 1999	Modeling Protocol submitted by Edward Settle, ThermoRetec, to ADEC.
April 11, 1999 (rec'd)	Air Quality Modeling Study submitted by Envirometrics, Inc., on behalf of AP&T, to ADEC.
April 15, 1999	Letter regarding Facility Modeling Report, requesting extension, from Robert Grimm, AP&T, to ADEC.
March 24, 1999	Request for extension of modeling study, from Robert Grimm, AP&T, to ADEC.
March 22, 1999	Letter regarding Tok Power Plant Replacement Unit Construction Permit Applicability and PSD applicability from ADEC to Robert Grimm, AP&T.
February 10, 1999	Tok Power Plant Replacement Unit Information Request information submitted by Robert Grimm, AP&T, to ADEC.
February 2, 1999	Tok Power Plant Information Request from ADEC to Marilyn O'Meara, AP&T.
January 12, 1999	Letter regarding Tok Power Plant unit replacement from Marilyn O'Meara, AP&T, to ADEC.

**EXHIBIT BB**

**EXCESS EMISSION NOTIFICATION FORM**

# Excess Emission Notification Form

Submit to: Facsimile: (907) 269-7508

Telephone: (907) 269-8888

Email: [airreports@envircon.state.ak.us](mailto:airreports@envircon.state.ak.us)

Company Name \_\_\_\_\_

Facility Name \_\_\_\_\_

## 1. Event Information (Use 24-hour clock):

	END Time:	START Time:	Duration (hr:min):
Date: _____	_____:	_____:	_____:
Date: _____	_____:	_____:	_____:
		<b>Total:</b>	_____:

## 2. Cause of Event (Check all that apply):

- |                                    |  |  |
|------------------------------------|--|--|
| <input type="checkbox"/> START UP  | <input type="checkbox"/> UPSET CONDITION       | <input type="checkbox"/> CONTROL EQUIPMENT |
| <input type="checkbox"/> SHUT DOWN | <input type="checkbox"/> SCHEDULED MAINTENANCE | <input type="checkbox"/> OTHER _____       |

*Provide a detailed description of what happened. Attach additional sheets as necessary.*

## 3. Sources Involved:

*Identify each Emission Source involved in the event, using the same identification number and name as in the Permit. List any Control Device or Monitoring System affected by the event. Attach additional sheets as necessary.*

Source ID No.	Source Name	Description	Control Device
_____	_____	_____	_____
_____	_____	_____	_____

## 4. Emission Standard Exceeded:

*Identify each Emission Standard and Permit Condition exceeded during the event. Describe in detail, the extent to which each Standard or Condition was exceeded. List ALL known or suspected injuries or health impacts. Attach additional sheets as necessary.*

Standard or Condition	Limit	Exceedence
_____	_____	_____
_____	_____	_____

## 5. Emission Reduction:

*Describe in detail, ALL of the measures taken to minimize and/or control emissions during the event. Attach additional sheets as necessary.*

## 6. Corrective Actions:

*Describe in detail, ALL of the corrective actions taken to restore the system to normal operation. Attach additional sheets as necessary.*

Based on information and belief formed after reasonable inquiry, I certify that the statements and information in and attached to this document are true, accurate, and complete.

Printed Name \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

# Excess Emission Notification Form

Submit to: Facsimile: (907) 269-7508  
Sheet \_\_\_\_\_ of \_\_\_\_\_ Sheets

Telephone: (907) 269-8888

Email: [airreports@envircon.state.ak.us](mailto:airreports@envircon.state.ak.us)

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