



**DRAFT ENVIRONMENTAL BASELINE STUDIES
2005 STUDY PLANS**

CHAPTER 3. NOISE

JUNE 2005

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ACRONYMS

AASHTO	American Association of State and Highway Transportation Officials
ABA	Acid Base Accounting
ACHP	Advisory Council on Historic Preservation
ACLS	Alternative Cleanup Levels
ADEC	Alaska Department of Environmental Conservation
agl	above ground level
AHRS	Alaska Heritage Resource Survey
APE	Area of Potential Effect
ARD/ML	Acid Rock Leaching/Metal Leaching
ASCI	Alaska Stream Condition Index
BEESC	Bristol Environmental & Engineering Services Corporation
CC	Comprehensive Stations with Continuous Stage Monitoring
CH2M	CH2M HILL, Inc.
CIR	Color Infrared
CWOC	Comprehensive Stations without Continuous Stage monitoring
DECD	Alaska Department of Economic and Community Development
DNR	State of Alaska Department of Natural Resources
DO	Dissolved Oxygen
DOT&PF	State of Alaska Department of Transportation & Public Facilities
DQOs	Data Quality Objectives
EC	Environmental Consequences
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
EBR	Environmental Baseline Document
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FSP	Field Sampling Plan
GIS	Geographic Information System
GPS	Global Positioning System
HGM	Hydrogeomorphic
IM	Initial Monitoring Station
BMR	Baseline Monitoring Report
mg/L	milligrams per liter
mm	millimeters

MRLs	Method Reporting Limits
NDM	Northern Dynasty Mines Inc.
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOAA	National Oceanic & Atmospheric Administration
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory
ORP	Oxidation Reduction Potential
PJD	Preliminary Jurisdictional Determination
PSD	Prevention of Significant Deterioration
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
SHPO	State Historic Preservation Officer
SOPs	Standard Operating Procedures
SWANCC	Solid Waste Agency of Northern Cook County v. U.S. Army Corp of Engineers
SWE	Snow-Water equivalent
TOC	Table of Contents
TPH	Total Petroleum Hydrocarbons
USACE	United States Army Corp of Engineers
USFWS	United States Fish & Wildlife Service
USGS	United States Geological Survey
WMP	Water Monitoring Plan

3. NOISE

The section outlines the methodology for collecting existing noise data at noise sensitive locations in the vicinity of the proposed project. Because there are no noise sensitive human receivers at the mine site, this task will be primarily performed in populated areas, such as Iliamna, Newhalen and Pedro Bay. Noise monitoring will be performed during winter and summer months, and include a variety of data sampling, including short-term monitoring with noise source identification and unattended long-term noise monitoring, which provides a snap-shot of 24-hours (or more) of continuous noise level data. Michael Minor and Associates will lead the noise baseline study.

3.1 Objectives of Study

The objective of the baseline noise study is to quantify the existing noise levels and noise sources in the vicinity of the proposed project. This information used in the noise impact analysis as a baseline noise level by which noise producing activities related to the proposed mine project can be evaluated. Ambient noise levels can vary greatly depending on the time of day and time of year the measurements are taken. Therefore, baseline noise level information must be obtained during winter and summer months, and during several different times throughout the day.

3.2 Proposed Study Plan

3.2.1 Study Area/Scope

The scope of this task primarily involves collection of ambient noise levels at several different locations in populated areas near the mine project. Preliminary noise monitoring sites were selected during initial scoping with project staff. It was determined that baseline monitoring would be conducted at up to 14 locations: two or three sites would be in or near the community of Iliamna, two sites would be on the road between Iliamna and Nondalton, and an additional two or three sites would be in Pedro Bay. Noise monitoring would be divided into two sessions, one during winter months and one during summer months. This method was selected to better quantify noise producing activities from snow machines and other winter activities.

Intended noise monitoring sites are described below:

- On the existing road between Iliamna and the south end of Sixmile Lake:
 - Proposed ADOT Pebble access road corridor crossing of the Newhalen River
 - Residences closest to this proposed river crossing
- Iliamna Airport
- Iliamna — Newhalen Post Office
- Iliamna Community

- Roadhouse Inn residence
- Waterfront near rental units used for summer fishing
- Iliamna Trading Company Store
- Newhalen
 - Newhalen Public School, near the Tribal Headquarters
 - Newhalen residences on the north edge of town
- Pedro Bay
 - Tribal Center
 - Home closest to currently proposed ADOT access road corridor
 - Pedro Bay School
 - Southern end of Pedro Bay

3.2.2 Methods/Approach

All noise measurements will be taken in accordance with the American National Standards Institute (ANSI) procedures for community noise measurements. The measurement location will be at least 5 feet from any solid structure to prevent acoustical reflections and at a height of 5 feet above the ground as required by ANSI Standards. The equipment used will be Bruel & Kjaer Type 2231 Sound Level Meter(s) equipped with a Bruel & Kjaer BZ-7101 Statistical Analysis Module or a Bruel & Kjaer Type 2238 Sound Level Meter(s). The meter(s) will be calibrated prior to, and after the measurement period using a Bruel & Kjaer Type 4231 Sound Level Calibrator. Complete system calibration is performed by Bruel & Kjaer Instruments. System calibration is traceable to the National Institute of Standards and Testing (NIST). All noise monitoring systems will meet or exceed ANSI Type 1 noise measurement system requirements.

- 24-hour Noise Monitoring Methodology: Unattended noise monitoring systems will be used to record hourly data for 24 hours (or more) at several of the monitoring sites. Data recorded will include the following hourly information: Leq, L₀₁, L₀₅, L₁₀, L₅₀, L₉₀, L_{max}, and L_{min}. This range of data will provide a complete view of the noise environment over the measurement period.
- Short-term Noise Monitoring Methodology: Hand-held noise level measurements will be taken at sites not used for long-term noise monitoring. The monitoring will be performed at each site during four different time periods: Morning (7:00 a.m. to 10:00 a.m.), Daytime (2:00 p.m. to 5:00 p.m.), Evening (8:00 p.m. to 11:00 p.m.), and Nighttime (1:00 a.m. to 4:00 a.m.). During the short-term measurement sessions, notes will be taken on the noise sources and traffic counts will be taken when appropriate.

The 24-hour and short-term data will be downloaded into Excel spreadsheets for final analysis. Graphs and tables will be prepared that will aid in the understanding of the measured noise levels. Comparisons will be made with noise levels measured in other similar communities, and typical noise levels published in the Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety, Environmental Protection Agency (EPA) 1974. Methods/Approach

3.2.3 Major Activities

The following major activities are planned:

- Perform winter baseline noise level measurements at the above identified locations.
- Complete reduction of the winter 24-hour and short-term data, to include:
 - Export data in to Excel spreadsheets for final analysis.
 - Develop graphs and tables of the data to be used for analysis.
 - Perform comparisons of measured noise levels with the EPA guidelines, and similar communities, and data from other mining projects in Alaska.
- Perform summer baseline noise level measurements at the same location as used for the winter noise level measurements.
- Complete reduction of the summer 24-hour and short-term data, as described above.
- Develop plots of data to provide an easy comparison between summer and winter noise levels.
- Identify the major differences in area noise levels and sources during winter and summer months.

3.3 Deliverables

The following deliverables will be prepared during and following the noise monitoring sessions:

- 2005 Plan of Study
- Initial Environmental Evaluation Report
- Detailed Baseline Noise Report, including:
 - existing noise conditions and noise level summaries
 - maps of the existing land use, noise monitoring locations and sensitive noise receivers locations
 - Comparative tables to aid in the understanding of area noise levels