



Pebble Project

NORTHERN DYNASTY MINES INC.

DRAFT ENVIRONMENTAL BASELINE STUDIES

2004 PROGRESS REPORTS

CHAPTER 13. SUBSISTENCE

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TABLE OF CONTENTS

TABLE OF CONTENTS 13-i

LIST OF TABLES 13-i

LIST OF FIGURES 13-i

ACRONYMS 13-ii

13. SUBSISTENCE..... 13-1

 13.1 Introduction 13-1

 13.2 Study Objectives..... 13-1

 13.3 Study Area 13-1

 13.4 Scope of Work 13-2

 13.5 Methods 13-3

 13.6 Results and Discussion 13-3

 13.7 Summary..... 13-3

 13.8 Bibliography 13-4

LIST OF TABLES

Table 13-1, Communities included in the subsistence baseline study area 13-2

LIST OF FIGURES (following document)

Figure 13-1, Subsistence Study Communities

ACRONYMS

ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADOT/PF	Alaska Department of Transportation and Public Facilities
agl	above ground level
AHRS	Alaska Heritage Resource Survey
ANCSA	Alaska Native Claims Settlement Act
APE	area of potential effect
ASTt	Arctic Small Tool tradition
BBNA	Bristol Bay Native Association
BLM	Bureau of Land Management
BP	before present
¹⁴ C	Carbon 14
CRM	cultural resources management
DEM	digital elevation model
EIS	environmental impact statement
EPA	Environmental Protection Agency
FAA	Federal Aviation Administration
FR	Federal Register
GIS	geographic information system
GMU	Game Management Unit
GPS	global positioning system
GLM	general linear model
LIDAR	light detection and ranging
M.A.	Master of Arts
MCHTWG	Mulchatna Caribou Herd Technical Working Group
mi ²	square mile(s)
MMS	Minerals Management Service
MODIS	moderate resolution imaging spectroradiometer
mph	miles per hour
NASA	National Aeronautics and Space Administration
NDM	Northern Dynasty Mines Inc.
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NPS	National Park Service

NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NWR	National Wildlife Refuge
PSD	Prevention of Significant Deterioration
QA	quality assurance
QAPP	quality assurance project plan
SHPO	State Historic Preservation Officer
SRB&A	Stephen R. Braund & Associates
SWE	snow water equivalent
USC	United States Code
USDA	United States Department of Agriculture
USFS	United States Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VHF	very high frequency

13. SUBSISTENCE

13.1 Introduction

This report presents the status of the subsistence studies through 2004. Stephen R. Braund & Associates (SRB&A), in collaboration with the Alaska Department of Fish and Game (ADF&G) Division of Subsistence, has initiated a study of subsistence uses in the vicinity of the proposed Pebble Mine Project and associated facilities as proposed in May 2004. The study team is conducting the literature review, designing interview protocols and questionnaires, contacting tribal councils and entering into research agreements, and scheduling interviews. Because of the lead times involved in doing these tasks, field interviews did not occur in 2004 but began in January 2005. Subsistence field work, as described in the 2004 and 2005 study plans (NDM, 2004, and NDM, in press, respectively), will be conducted by SRB&A and ADF&G.

13.2 Study Objectives

The objectives of the subsistence studies are to establish a sufficient baseline description to assess changes in subsistence uses in the project area over time resulting from development, operation, and closure of the Pebble Project (mine site, road and port, and power-transmission line) and to support National Environmental Policy Act (NEPA) processes.

Following are the specific study objectives:

- Characterize the existing subsistence activities in the project area and contributing areas.
- Provide environmental input into the analysis of project design options (e.g., waste storage, road/port, etc.) and their potential effects on subsistence uses.
- Compile data to assess the project's environmental effects on subsistence activities related to the facilities and activities associated with construction, operation, and closure.
- Identify alternative design or impact-mitigation measures.
- Recommend ongoing monitoring studies needed to ensure compliance with all state and federal permitting requirements.
- Perform the appropriate quantity and quality of studies/analyses necessary to expeditiously achieve all state and federal project-permitting requirements.

13.3 Study Area

The study area for the subsistence baseline study, as depicted in Figure 13-1 and listed in Table 13-1, includes those communities whose residents use the vicinity of the proposed mine site, road and transmission-line corridors, and the port for the harvest of subsistence resources or who harvest resources that migrate through or use these areas. This includes the communities in the Lake Clark and Lake

Iliamna areas; communities down river from the mine in drainages of the Koktuli, Mulchatna, and Nushagak rivers; communities down river from the mine in the Kvichak River drainage; and communities on the Kenai Peninsula that may use the Iniskin and/or Iliamna bay areas near the proposed port site.

TABLE 13-1
Communities included in the subsistence baseline study area

Aleknagik	Manokotak
Chinitna Bay- camp/fishing location	Naknek
Clark's Point	New Stuyahok
Dillingham	Newhalen
Ekuk	Ninilchik
Ekwok	Nondalton
Homer	Pedro Bay
Igiugig	Pile Bay - camp with caretaker
Iliamna	Port Alsworth
King Salmon	Portage Creek
Kokhanok	Seldovia
Koliganek	South Naknek
Levelock	

13.4 Scope of Work

Research for this study was initiated in 2004. Field work began in January 2005. SRB&A, in collaboration with the ADF&G Division of Subsistence, is leading the subsistence study on the mine site, road, port, and power-transmission line. The study is being conducted according to the approach described in the *Draft Environmental Baseline Studies, Proposed 2004 Study Plan* (NDM, 2004) as modified in the 2005 study plan (NDM, in press).

Work completed includes the following:

- Initial trip to Pedro Bay, Iliamna, Newhalen, Nondalton, and Port Alsworth in October 2004 to conduct public meetings on the proposed project.
- Follow-up discussion with Iliamna, Newhalen, and Pedro Bay tribal councils in November 2004.
- Initial literature review.
- Design of interview protocols and questionnaires.
- Coordination with Kevin Waring and Associates, who are conducting the socioeconomic, recreation, and land use baseline studies related to ADF&G household survey questions providing relevant socioeconomic information.
- Contact with tribal councils, and achievement of cooperative agreements with Nondalton, Newhalen, Iliamna, and Pedro Bay tribal councils for ADF&G household surveys.

- Consultations with Nondalton, Newhalen, Iliamna, Pedro Bay, and Port Alsworth regarding scheduling household interviews.

13.5 Methods

The subsistence study includes literature research related to subsistence activities and field work to investigate contemporary (i.e., last 10 years) and 2004 (or previous data year) subsistence use of the study area. In 2004, SRB&A initiated a review of literature and harvest data for communities in the study area. Literature reviewed and being reviewed by SRB&A includes:

- ADF&G technical reports,
- Minerals Management Service (MMS) technical reports,
- Ethnographies and historical descriptions, and
- Project Jukebox oral histories (University of Alaska, 2004).

In addition to a review of available literature for the study area, SRB&A also reviewed data pertaining to subsistence harvest amounts and harvest use areas by community. Data reviewed included:

- ADF&G harvest data (ADF&G, 2001),
- Bristol Bay Native Association (BBNA) Place Names Database (BBNA, n.d.), and
- Alaska Habitat Management Guide maps of subsistence harvest areas by community (ADF&G, 1985).

This information is currently being synthesized and formatted for inclusion in the subsistence baseline report.

13.6 Results and Discussion

SRB&A is currently in the process of synthesizing available literature and existing data. Subsistence field interviews did not occur in 2004. Therefore, a discussion of results is not possible.

13.7 Summary

In 2004, SRB&A initiated a review of literature and harvest data to study community subsistence harvest patterns and activities. As contemporary subsistence access often follows past geographic patterns using modern modes of transportation, it is necessary to review these data to determine contemporary subsistence harvest patterns. SRB&A and ADF&G designed interview protocols and questionnaires, contacted tribal councils and entered into research agreements with initial communities for ADF&G household surveys, and scheduled household interviews. The subsistence field interviews began in January of 2005.

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FIGURES

