



NORTHERN DYNASTY MINES INC.

**DRAFT ENVIRONMENTAL BASELINE STUDIES
PROPOSED 2007 STUDY PLANS**

**CHAPTER 2.
METEOROLOGY**

DRAFT

SEPTEMBER 2007

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2. Meteorology

Hoefler Consulting Group will lead the meteorology baseline study for Pebble Project in 2007. The objectives and scope of work for 2007 are the same as those described in the 2005 and 2006 study plans with the exceptions noted below.

Meteorological data will be collected at eight locations during 2007. The collection of Prevention of Significant Deterioration (PSD)-quality meteorological data will continue at the existing Pebble 1, Pebble 4, and Port Site 1 meteorological stations (Figure 2-1). Four new PSD-quality meteorological stations will be installed in June and July 2007: one each in the North Fork Koktuli Basin (Pebble 5), in the Upper Talarik Creek Basin (Pebble 6), at Williamsport, and on the east shore of Iliamna Bay (AC Point). “Official” data collection will begin on August 1, 2007, at those new stations, although actual data collection will likely begin before that date. The collection of non-PSD-quality data will continue at Pebble 3 in support of engineering and design for Pebble Project.

A summary of meteorological monitoring activities for 2004 through 2007 is shown in Table 2-1. The meteorological parameters that have been and will be monitored at each station are shown in Table 2-2. The methods and approaches described in Section 2.2.2 of the 2005 study plan have not changed.

TABLES

**Table 2-1
Pebble Project Environmental Studies
Meteorological Study Summary 2004-2007
Consultant: Hoefler Consulting Group**

Discipline	2004 Data Collected or Tasks Completed	2005 Data Collected or Tasks Completed	2006 Data Collected or Tasks Completed	2007 Tasks to be Completed
Meteorology	Mine Studies Area			
	Information Gathering	Information Gathering	Information Gathering	Information Gathering
	Scope, Schedule, Field Monitoring Plan	Scope, Schedule, Field Monitoring Plan	Scope, Schedule, Field Monitoring Plan	Scope, Schedule, Field Monitoring Plan
		Prepared Meteorology Chapter of 2005 Study Plan	Prepared 2006 Study Plan Summary	Prepare 2007 Study Plan Summary
		Site Visit with ADEC and EPA to Finalize PSD-Quality Meteorological Monitoring Station Locations	Continue Monitoring at Pebble 1 and Pebble 3	Continue Monitoring at Pebble 1, Pebble 3, and Pebble 4
	Install Meteorological Monitoring Stations at the Mill Site (Pebble 1) and the Tailings Impoundment Site (Pebble 2).	Upgraded Pebble 1 to PSD-Quality. Moved the Equipment at Pebble 2 to a New, Nearby Location (Renamed Pebble 3).	Installed Webcam at Pebble 1. Installed Pebble 4, a New PSD-Quality Meteorological Monitoring Station at the Pebble 2 Site. Enabled real-time data availability at Pebble 1 and Pebble 4.	Install Pebble 5 and Pebble 6, New PSD-Quality Meteorological Monitoring Stations in the North Fork Kuktuli and Upper Talarik Basins, Respectively.
			Submitted First Annual Data Report for Pebble 1 to ADEC for Review and Approval	Submit Second Annual Data Report for Pebble 1 and First Annual Data Report for Pebble 4 to ADEC for Review and Approval
			Drafted Chapter 2, Climate and Meteorology, of Environmental Baseline Document	Update Chapter 2, Climate and Meteorology, of Environmental Baseline Document to Include One Additional Year of Data
			Submitted Quality Assurance Project Plan (QAPP) to ADEC for Review and Approval	Update QAPP to Include Pebble 5 and Pebble 6
	Communication and Data Management	Communication and Data Management	Communication and Data Management	Communication and Data Management
	Coordination with NDM and Agencies	Coordination with NDM and Agencies	Coordination with NDM and Agencies	Coordination with NDM and Agencies
	Transportation Corridor			
	Information Gathering	Information Gathering	Information Gathering	Information Gathering
	Scope, Schedule, Field Monitoring Plan	Scope, Schedule, Field Monitoring Plan	Scope, Schedule, Field Monitoring Plan	Scope, Schedule, Field Monitoring Plan
		Prepared Meteorology Chapter of 2005 Study Plan	Prepared 2006 Study Plan Summary	Prepare 2007 Study Plan Summary
		Site Visit with ADEC and EPA to Finalize PSD-Quality Meteorological Monitoring Stations Locations	Continued Monitoring at Port Site 1	Continue Monitoring at Port Site 1
		Installed a PSD-Quality Meteorological Monitoring Station at the Port Site (Port Site 1).		Install New PSD-Quality Meteorological Monitoring Stations at Williamsport and on East Side of Iliamna Bay (AC Point).
			Submitted First Annual Data Report for Port Site 1 to ADEC for Review and Approval	Submit Second Annual Data Report for Port Site 1 to ADEC for Review and Approval
			Drafted Chapter 26, Climate and Meteorology, of Environmental Baseline Document	Update Chapter 26, Climate and Meteorology, of Environmental Baseline Document to Include One Additional Year of Data
			Submitted QAPP to ADEC for review and approval	Update QAPP to Include Williamsport and AC Point.
Communication and Data Management	Communication and Data Management	Communication and Data Management	Communication and Data Management	
Coordination with NDM and Agencies	Coordination with NDM and Agencies	Coordination with NDM and Agencies	Coordination with NDM and Agencies	

ADEC = Alaska Department of Environmental Conservation
EPA = U.S. Environmental Protection Agency

**Table 2-2.
Pebble Project Meteorological Sampling Locations
Period-of-Record Index**

Parameter	Year	Period-of-Record By Monitoring Station																																																												
		Pebble 1												Pebble 2												Pebble 3												Pebble 4												Pebble 5												
Month		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	
Wind Speed	2004																																																													
	2005	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X																																						
	2006	X	X	X	X	X	X	X	X	X	X	X	X												X	X	X	X	X	X	X	X	X	X	X	X													X	X	X	X	X	X	X	X	X	X	X	X		
	2007	X	X	X	X	X	X	X	X	X	X	X	X												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X														
Wind Direction	2004																																																													
	2005	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X																																							
	2006	X	X	X	X	X	X	X	X	X	X	X												X	X	X	X	X	X	X	X	X	X	X	X																											
	2007	X	X	X	X	X	X	X	X	X	X	X												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X															
Wind Sigma	2004																																																													
	2005	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X																																							
	2006	X	X	X	X	X	X	X	X	X	X	X												X	X	X	X	X	X	X	X	X	X	X	X																											
	2007	X	X	X	X	X	X	X	X	X	X	X												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X															
2-meter Temperature	2004																																																													
	2005	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X																																							
	2006	X	X	X	X	X	X	X	X	X	X	X												X	X	X	X	X	X	X	X	X	X	X	X																											
	2007	X	X	X	X	X	X	X	X	X	X	X												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X															
10-meter Temperature	2004																																																													
	2005	X	X	X	X	X	X	X	X	X	X	X																																																		
	2006	X	X	X	X	X	X	X	X	X	X	X																									X	X	X	X	X	X	X	X	X	X	X	X														
	2007	X	X	X	X	X	X	X	X	X	X	X												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X															
Delta Temperature	2004																																																													
	2005	X	X	X	X	X	X	X	X	X	X	X																																																		
	2006	X	X	X	X	X	X	X	X	X	X	X																									X	X	X	X	X	X	X	X	X	X	X	X														
	2007	X	X	X	X	X	X	X	X	X	X	X												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X															
Relative Humidity	2004																																																													
	2005	X	X	X	X	X	X	X	X	X	X	X																																																		
	2006	X	X	X	X	X	X	X	X	X	X	X																									X	X	X	X	X	X	X	X	X	X	X	X														
	2007	X	X	X	X	X	X	X	X	X	X	X												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X															
Barometric Pressure	2004																																																													
	2005	X	X	X	X	X	X	X	X	X	X	X																																																		
	2006	X	X	X	X	X	X	X	X	X	X	X																									X	X	X	X	X	X	X	X	X	X	X	X														
	2007	X	X	X	X	X	X	X	X	X	X	X												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X															
Solar Radiation	2004																																																													
	2005	X	X	X	X	X	X	X	X	X	X	X																																																		
	2006	X	X	X	X	X	X	X	X	X	X	X																									X	X	X	X	X	X	X	X	X	X	X	X														
	2007	X	X	X	X	X	X	X	X	X	X	X												X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X															
Precipitation	2004																																																													
	2005	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X																																							
	2006	X	X	X	X	X	X	X	X	X	X	X												X	X	X	X	X	X	X	X	X	X	X	X																											
	2007	X	X	X	X	X	X	X	X	X	X	X												X	X	X	X	X	X	X	X	X	X	X	X																											
Evaporation	2004																																																													
	2005				X	X	X	X	X								X	X	X	X	X																																									
	2006				X	X	X	X	X																													X	X	X	X	X																				
	2007				X	X	X	X	X																													X	X	X	X	X																				

**Table 2-2.
Pebble Project Meteorological Sampling Locations
Period-of-Record Index**

Parameter	Year	Period-of-Record By Monitoring Station																																																				
		Pebble 6												Port Site 1												AC Point												Williamsport																
	Month	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D					
Wind Speed	2004																																																					
	2005																					X	X	X	X																													
	2006													X	X	X	X	X	X	X	X	X	X	X	X																													
	2007								X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X											X	X	X	X	X											X	X	X	X
Wind Direction	2004																																																					
	2005																					X	X	X	X																													
	2006													X	X	X	X	X	X	X	X	X	X	X	X																													
	2007							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X											X	X	X	X	X											X	X	X	X	X
Wind Sigma	2004																																																					
	2005																					X	X	X	X																													
	2006													X	X	X	X	X	X	X	X	X	X	X	X																													
	2007							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X											X	X	X	X	X											X	X	X	X	X
2-meter Temperature	2004																																																					
	2005																					X	X	X	X																													
	2006													X	X	X	X	X	X	X	X	X	X	X	X																													
	2007							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X											X	X	X	X	X											X	X	X	X	X
10-meter Temperature	2004																																																					
	2005																					X	X	X	X																													
	2006													X	X	X	X	X	X	X	X	X	X	X	X																													
	2007							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X											X	X	X	X	X											X	X	X	X	X
Delta Temperature	2004																																																					
	2005																					X	X	X	X																													
	2006													X	X	X	X	X	X	X	X	X	X	X	X																													
	2007							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X											X	X	X	X	X											X	X	X	X	X
Relative Humidity	2004																																																					
	2005																					X	X	X	X																													
	2006													X	X	X	X	X	X	X	X	X	X	X	X																													
	2007							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X											X	X	X	X	X											X	X	X	X	X
Barometric Pressure	2004																																																					
	2005																					X	X	X	X																													
	2006													X	X	X	X	X	X	X	X	X	X	X	X																													
	2007							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X											X	X	X	X	X											X	X	X	X	X
Solar Radiation	2004																																																					
	2005																					X	X	X	X																													
	2006													X	X	X	X	X	X	X	X	X	X	X	X																													
	2007							X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X											X	X	X	X	X											X	X	X	X	X
Precipitation	2004																																																					
	2005																																																					
	2006																																																					
	2007							X	X	X	X	X																																										
Evaporation	2004																																																					
	2005																																																					
	2006																																																					
	2007							X	X																																													

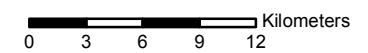
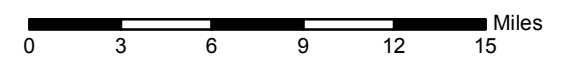
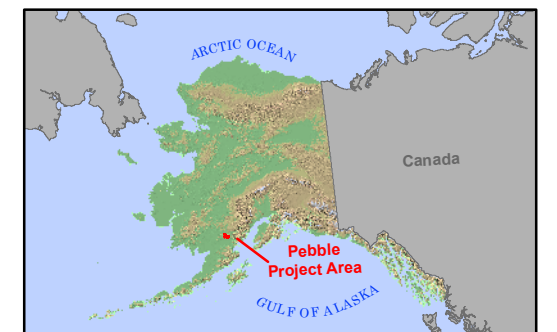
FIGURE

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**Figure 2-1
2007 Study Plan
Mine and Port
Meteorological Stations**

Legend

- Met Stations
- Communities
- Possible Port Site
- General Pit Outline



Scale 1:400,000

Alaska State Plane Zone 5 (units feet)
1983 North American Datum

