



AIR SCIENCES INC.

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**Annual
Air Quality Data Report
Village Air Monitoring
Noatak, Alaska
April 1, 2003 – March 31, 2004**

TECK COMINCO ALASKA
INCORPORATED

PROJECT 30-06
JUNE 2004



CONTENTS

Page

1.0 INTRODUCTION	1
1.1 Location	1
1.2 Program Description	1
1.3 Quality Control	3
2.0 LEAD SUMMARY	4

Tables

Table 2: Lead Data	4
Table 3: Quarterly Averages	5

Figures

Figure 1: Location of Noatak Sampling Station	2
Figure 2: Lead Concentrations for Noatak TSP Sampler	5

INTRODUCTION

This report summarizes the air quality data collected at the Red Dog Mine air monitoring station operated by Teck Cominco Alaska, Inc. (TCAK) for the period of April 1, 2003, through March 31, 2004. Monitoring was performed in accordance with the DEC-Settlement Agreement ADEC #00-354-84-214. The relevant monitoring guidelines include: *Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Specific Methods* (EPA/500/R-94/036b April 1994); *40CFR Part 50, Sec 50.12 to Appendix G*; *EPA Compendium Method IO-3.3 EPA 625/R-96/010a*; and *Village Air Monitoring Quality Assurance Project Plan Noatak, Alaska, Kivalina, Alaska* (January 2003). The purpose of the monitoring is to determine the lead levels of the fugitive dust in Noatak.

1.1 Location

The monitoring was performed in the village of Noatak, located 40 miles southwest of the mine facility, and 35 miles southeast of the port facility (Figure 1). Noatak is located at 67.58 degrees north of the equator and 163 degrees west of the prime meridian. Noatak is a village consisting of about 350 people. The sampler is located in the center of the village on the east edge of the main road. Most of the vehicular traffic consists of ATVs traveling on gravel roads. There is, to a smaller extent, some trucks and heavy machinery activity.

1.2 Program Description

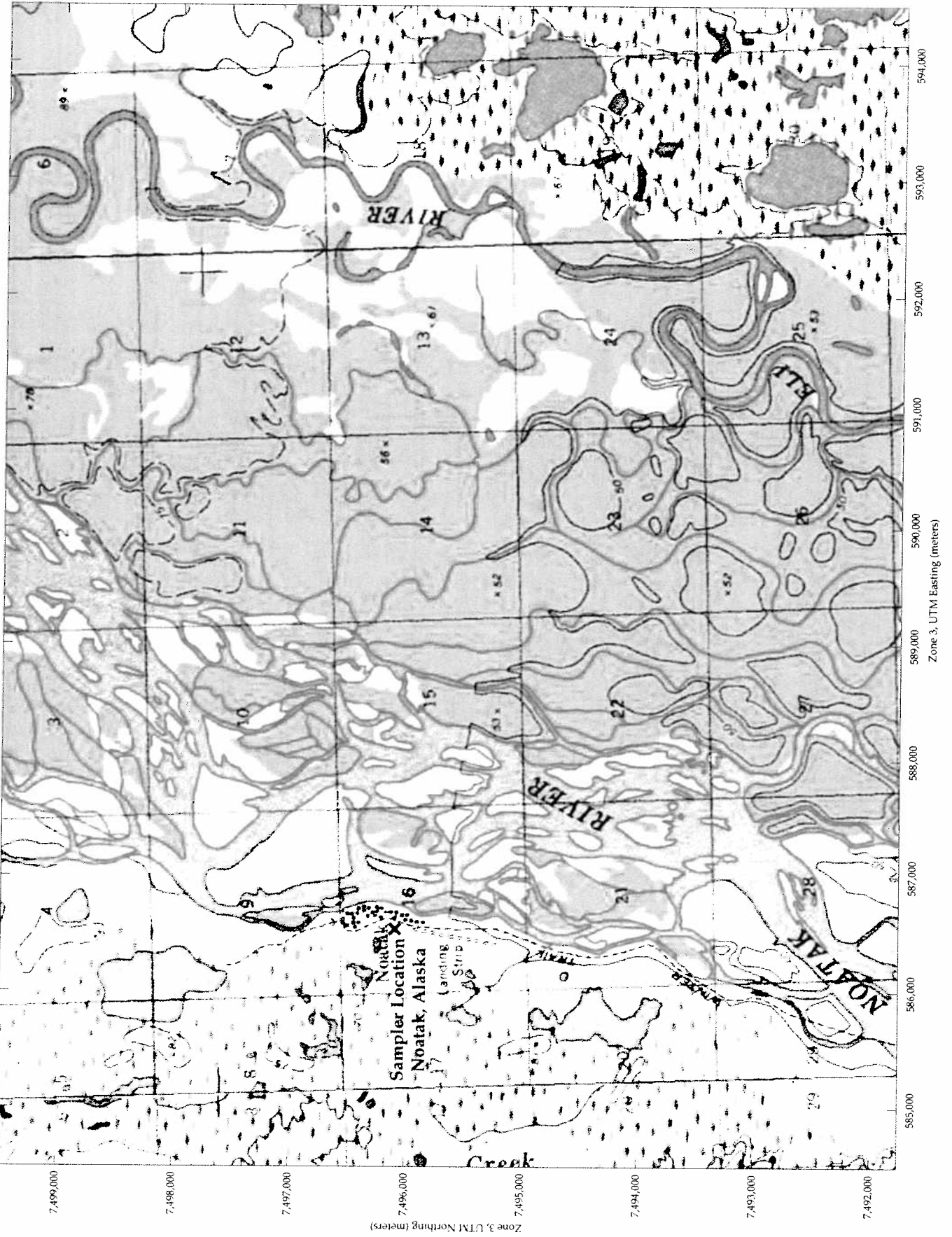
The monitoring equipment consists of a blower motor, critical orifice, and support screen on which a glass fiber filter is placed. The equipment is housed in an aluminum shelter equipped with a hinged roof. Control of the sampler is via relays activated by a Cambell Scientific CR10 data logger. The data logger is equipped with a pressure transducer, which records the actual flow at two-second intervals. Additionally, a thermistor located in a radiation shield is used to continually measure the temperature.

Line power is available to operate the equipment at the station. A U.S. Robotics modem is installed at the station for remote access of sampler and data downloading.

The lead analysis is performed by Cooper Environmental Services (CES) using a Spectrace QuanX analyzer. Some filters could not be analyzed by XRF due to heavy loading and were subbed out to Chester Labnet for analysis by wet chemistry.

Monitoring at Noatak began on January 3, 2003. Due to startup difficulties, the period of January through March 2003 was not included in the annual report. Noatak continued to sample through a fifth quarter (January 1 through March 31, 2004), and this quarter was used to complete the one year of monitoring at the Noatak site.

Figure 1: Location of Noatak Sampling Station



1.3 Quality Control

Quality assurance, equipment calibration, and audit procedures are based on U.S. EPA guideline documentation (EPA-450/4-87-007, Ambient Monitoring Guidelines for Prevention of Significant Deterioration [PSD]; and EPA 600/R-94/038d, Quality Assurance Handbook for Air Pollution Measurements, Volume II-Ambient Air Specific Methods, Section 2.8). Calibrations of the TSP samplers were performed by project technicians. System and performance audits were performed by Hoefler Consulting Group (HCG). All calibrations and performance audits performed were within acceptance criteria. The quality assurance on the lead analysis of the filters was performed by CES and Chester Labnet.

The data recovery rate for purposes of determining lead impact was 82 percent. The data loss was due to a combination of monitoring equipment and power malfunctions, and the difficulty to change filters on a fixed schedule.

SECTION 2

LEAD SUMMARY

The lead data for the year are presented in Table 2 and Figure 2. The average for the period was 0.00576 $\mu\text{g}/\text{m}^3$, which is well below the federal and Alaska State lead standards (primary and secondary) of 1.5 $\mu\text{g}/\text{m}^3$. The highest quarterly average was recorded during the summer months, April 1 through June 20, 2003, and was 0.00784 $\mu\text{g}/\text{m}^3$, which is still 200 times less than the 1.5 $\mu\text{g}/\text{m}^3$ standard. The winter quarter, October 1 through December 31, 2003, had the lowest quarterly average of 0.00386 $\mu\text{g}/\text{m}^3$.

Table 2: Lead Data
April 1, 2003 - March 31, 2004

Sampling Date	Lead Value $\mu\text{g}/\text{m}^3$	Sampling Date	Lead Value $\mu\text{g}/\text{m}^3$	Sampling Date	Lead Value $\mu\text{g}/\text{m}^3$
04/09/03	0.02393	07/11/03	0.00305	09/24/03	0.01774
04/12/03		07/14/03		09/27/03	0.00282
04/15/03	0.00342	07/17/03	0.01052	09/30/03	
04/18/03		07/20/03	0.00391	10/03/03	
04/21/03		07/23/03		10/06/03	
04/24/03		07/26/03		10/09/03	0.00371
04/27/03	0.00142	07/29/03	0.00203	10/12/03	
04/30/03		08/01/03		10/15/03	
05/03/03	0.00012	08/04/03		10/18/03	0.01537
05/06/03	0.00124	08/07/03	0.00647	10/21/03	0.00337
05/09/03	0.00000	08/10/03		10/24/03	
05/12/03		08/13/03	0.00481	10/27/03	
05/15/03	0.00093	08/16/03		10/30/03	0.00362
05/18/03		08/19/03		11/02/03	
05/21/03	0.00244	08/22/03	0.00147	11/05/03	0.00288
05/24/03		08/25/03		11/08/03	
05/27/03		08/28/03		11/11/03	0.00192
05/30/03	0.00769	08/31/03	0.00341	11/14/03	
06/02/03	0.00733	09/03/03		11/17/03	
06/05/03	0.00020	09/06/03		11/20/03	0.00605
06/08/03	0.03002	09/09/03		11/23/03	0.00000
06/23/03	0.01199	09/12/03	0.01941	12/05/03	
06/26/03	0.00749	09/15/03		12/08/03	0.00095
06/29/03	0.01901	09/18/03		12/11/03	
07/08/03	0.01092	09/21/03		12/14/03	

Sampling Date	Lead Value µg/m ³
12/17/03	0.00064
12/20/03	0.00136
12/23/03	0.00988
12/26/03	0.00011
12/29/03	0.00422
01/01/04	0.00419
01/04/04	0.01744
01/07/04	0.00440
01/10/04	0.00215
01/13/04	
01/16/04	0.00247
01/19/04	

Sampling Date	Lead Value µg/m ³
01/22/04	0.00210
01/25/04	0.00185
01/28/04	0.01174
01/31/04	0.00088
02/03/04	0.01187
02/06/04	0.01551
02/09/04	
02/12/04	0.00288
02/15/04	0.00399
02/18/04	0.00112
02/21/04	0.00177
02/24/04	0.00247

Sampling Date	Lead Value µg/m ³
02/27/04	0.00116
03/01/04	
03/04/04	0.00097
03/07/04	0.00182
03/10/04	0.00000
03/13/04	0.00012
03/16/04	
03/19/04	0.00133
03/22/04	
03/25/04	
03/28/04	0.00106

Table 3: Quarterly Averages

Date	Quarter	Average µg/m ³
April 1 - June 30, 2003	Q2	0.00784
July 1 - September 30, 2003	Q3	0.00716
October 1 - December 31, 2003	Q4	0.00386
January 1 - March 31, 2004	Q1	0.00421
Annual Average (April 1, 2003 - March 31, 2004)		0.00576

Figure 2: Lead Concentrations for Noatak TSP Sampler
April 1, 2003 - March 31, 2004

