

STATE OF ALASKA

FRANK H. MURKOWSKI, GOVERNOR

**DEPT. OF ENVIRONMENTAL CONSERVATION
DIVISION OF SPILL PREVENTION AND RESPONSE
CONTAMINATED SITE PROGRAM**

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File # 475.38.010

September 20, 2005

Jim Kulas
Superintendent, Environmental
Teck Cominco Alaska Incorporated
Red Dog Operations
3105 Lakeshore Dr., Bldg. A, Suite 101
Anchorage, Alaska 99517

RE: Approval of Exponent's "Draft Field Sampling and Analysis Plan for 2005 Marine Sediment Sampling" dated September 2005

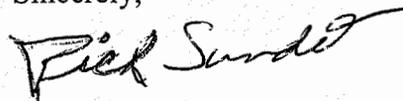
Dear Mr. Kulas;

The Contaminated Sites Program (CSP) within the Department of Environmental Conservation (DEC) have reviewed your consultant Exponent's "Draft Field Sampling and Analysis Plan for 2005 Marine Sediment Sampling" dated September 2005. DEC received the draft plan from Exponent on September 14, 2005 via e-mail. On September 15, we approved of the plan via e-mail so that you could begin sampling sooner. This letter follows up that approval and provides written documentation. As we noted in our e-mail to Mr. Scott Shock of Exponent, DEC requests that the report of the sampling effort include information about conditions preceding and during the sampling. Specifically, we are interested in knowing the general weather (wind) conditions in the week leading up to the sampling and the general loading schedule. The latter would ideally include how many barges were loaded each day in the preceding week, whether lead or zinc concentrate was loaded and if the loading schedule is typical or heavier/lighter than usual.

To continue on our efforts with informing the public, we will be posting the sampling plan and our approval letter on our webpage at <http://www.dec.state.ak.us/spar/csp/sites/reddog.htm>.

If you have any questions regarding this letter, please do not hesitate to contact me at 907-269-7578.

Sincerely,



Rich Sundet
CSP Project Manager

Cc Scott Shock, Exponent, Bellevue, WA (by mail and facsimile)
Jerry Booth, Booth & Associates, Greenacres, WA
John Wood, P.E., AIDEA, Anchorage
Larry Hartig, Hartig, Rhodes, Hoge & Lekisch, Anchorage
Paul Glavinovich, Nana Corporation, Anchorage
Marc Stifelman, EPA Region X, Seattle
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Draft

**Field Sampling and Analysis Plan
for 2005 Marine Sediment Sampling**

Prepared for

Teck Cominco Alaska Inc.
3105 Lakeshore Drive
Building A, Suite 101
Anchorage, AK 99517

Prepared by

Exponent
15375 SE 30th Place, Suite 250
Bellevue, WA 98007

September 2005

Field Sampling and Analysis Plan for 2005 Marine Sediment Sampling

1. Purpose

The purpose of this sediment sampling program is to evaluate current metals concentrations in surface sediments in the Chukchi Sea in the vicinity of the shiploader. The sampling program is a continuation of marine sediment monitoring that was conducted prior to and during the shipping seasons in 2003 and 2004 (Exponent 2003, 2004). However, in light of the decreasing trend in metals concentrations in marine sediments near the port and the relatively low concentrations reported in 2004 (concentrations were below risk-based sediment screening benchmarks; Exponent 2005), the 2005 sampling program will be focused on a subset of stations assessed in previous monitoring events and will be conducted as a single event in September to reflect conditions during the active shipping period only.

Major shiploader and lightering barge improvements were made before the 2003 shipping season to further control fugitive concentrate dust emissions at the port. Thus, the 2005 sediment sampling will assess current conditions and monitor changes 1 year after the last sampling event, and 2 years after the implementation of improved fugitive dust controls.

2. Sampling and Analytical Procedures

For consistency with previous marine sediment assessment, sampling and laboratory analyses will be conducted using established methods described in the *Phase II Field Sampling and Analysis Plan for the DMTS Fugitive Dust Risk Assessment* (Exponent 2004). These procedures are outlined briefly in the sections below.

2.1 Sampling Locations

Seven marine sediment stations assessed in 2003 and 2004 will be revisited in the 2005 program (Figure 1). These locations include the four stations where chemicals exceeded sediment screening benchmarks in 2003 (i.e., NMD, NMGZ, NML, and NMM), and also represent a range of concentrations observed historically in the prevailing down-current direction, based on data collected previously (RWJ 1997; Exponent 2005). These stations were selected to allow evaluation of gradients of chemical concentrations in relation to sources, as well as temporal changes in chemical concentrations (i.e., by resampling stations from previous studies). Station coordinates are provided in Table 1.

Table 1. Station coordinates for 2005 during-shipping marine sediment sampling

Station	Easting	Northing	Longitude	Latitude
NMAA	410500.455667	4968124.242694	-164.072123	67.578642
NMD	411805.168632	4967048.223807	-164.063051	67.575621
NMGZ	411638.576358	4967167.271172	-164.064139	67.575703
NML	411767.115373	4967206.924116	-164.063443	67.575859
NMM	411690.385617	4967337.62316	-164.063810	67.576081
NMN	411450.369427	4967686.117732	-164.065306	67.577025
NMO	411219.917833	4968111.186716	-164.067186	67.578189

Note: Eastings and northings in state plane NAD27; latitude and longitude in Alaska NAD27

2.2 Sampling Procedures

Surface sediment samples (0–2 cm) will be collected using a modified Ponar grab sampler, following relevant procedures described in Section 3.3.8 (*Surface Sediment Collection*) of the Phase II field sampling plan (Exponent 2004). One sediment sample will be collected at each of the seven stations, and one field duplicate will be collected to assess the variability of chemical concentrations at a location, for a total of eight sediment samples. In addition, one equipment

rinsate blank will be collected to help identify possible contamination from the sampling environment or the sampling equipment (e.g., sediment grab sampler, bowls, or spoons). As they are collected, samples will be containerized, fully labeled, recorded in the field logbook, and stored in a secure location at $4\pm 2^{\circ}\text{C}$. Samples will be shipped on ice, under chain of custody, to the analytical laboratory by express delivery. As noted above, procedures for sample collection, sample identification, field quality control, sample handling, and documentation as outlined in Exponent (2004) will be followed during this sampling event.

2.3 Analytical Procedures

Chemical analyses of the sediment samples will be performed by Columbia Analytical Services in Kelso, Washington. The samples will be analyzed for cadmium, lead, and zinc.

The testing laboratory will use the methods and data quality objectives provided in the quality assurance project plan (QAPP) (Exponent 2004, Appendix A). The procedures and requirements described in the QAPP will apply to all phases of project quality assurance management, sample collection, handling and analysis, data validation and management, and data interpretation for the study described in this memorandum.

3. References

Exponent. 2003. Phase I field sampling and analysis plan for the DMTS fugitive dust risk assessment. Prepared for Teck Cominco Alaska Incorporated, Anchorage, Alaska. Exponent, Bellevue, WA.

Exponent. 2004. Phase II field sampling and analysis plan for the DMTS fugitive dust risk assessment. Prepared for Teck Cominco Alaska Incorporated, Anchorage, Alaska. Exponent, Bellevue, WA.

Exponent. 2005. DMTS fugitive dust risk assessment. Volume I – report. Draft. Prepared for Teck Cominco Alaska Incorporated, Anchorage, Alaska. Exponent, Bellevue, WA.

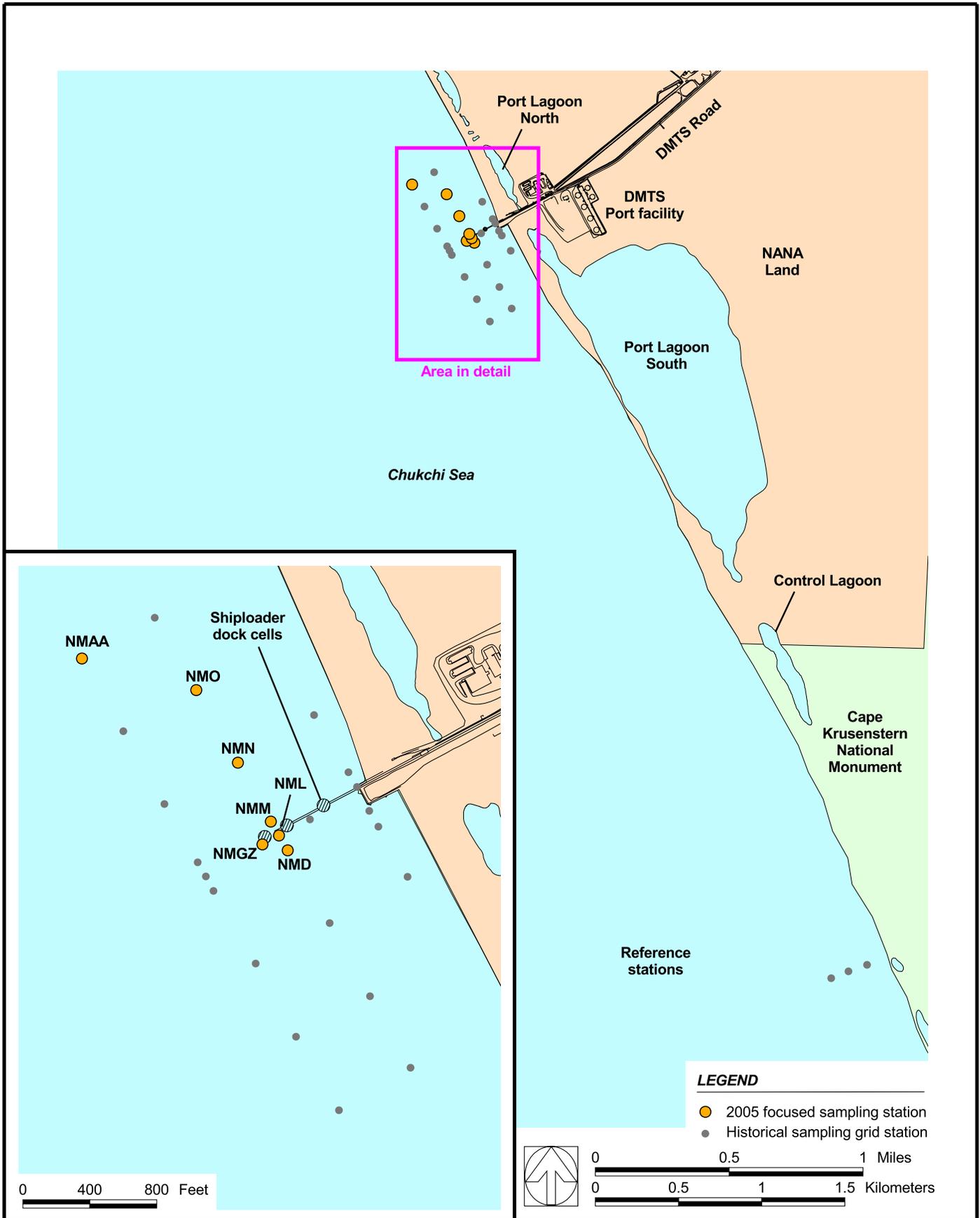


Figure 1. Station locations for 2005 marine sediment sampling