Final
Phase II Remedial Investigation
Northeast Cape,
St. Lawrence Island, Alaska

Volume 2: Appendices A and C - H

Contract No. DACA85-93-D-0011
Delivery Order No. 0017
and
Contract No. DACA85-98-D-0007
Delivery Order No. 5
Montgomery Watson Job Number: 1189098.050101

August, 1999

Prepared for:

Department of the Army
United States Army Engineer District, Alaska
Corps of Engineers
P.O. Box 898
Anchorage, Alaska 99506-0898

Prepared by:

Montgomery Watson
4100 Spenard Road
Anchorage, Alaska 99517

TABLE OF CONTENTS

VOLUME 1: REPORT BODY

VOLUME 2: APPENDICES A and C through H
VOLUME 3: APPENDIX B, SITES 1 - 14
VOLUME 4: APPENDIX B, SITES 15-31

APPENDICES

LIST OF FIGURES

LIST OF TABLES

List of Section 5 Tables (Bound Separately in Appendix B)

LIST OF ACRONYMS

^{0}C	Degrees Celsius
^{0}F	Degrees Fahrenheit
AAC	Alaska Administrative Code
AC&W	Aircraft Control and Warning
ACHP	Advisory Council on Historic Preservation
ACM	asbestos containing materials
AC&WS	Aircraft Control and Warning Station
ADEC	Alaska Department of Environmental Conservation
Air Force	United States Air Force
Alaska District	United States Army Engineer District, Alaska District
ANCSA	Alaska Native Claims Settlement Act
ARAR	applicable or relevant and appropriate requirements
AS	Alaska statute
AST	aboveground storage tank
BD/DR	building demolition and debris removal
BM	benchmark
BTEX	benzene toluene ethylbenzene xylenes
C&D	construction and demolition debris
CDAP	Chemical Data Acquisition Plan
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CLEAN	Comprehensive Long-Term Environmental Action Navy
CON/HTRW	containerized hazardous toxic and radioactive waste
COPEC	chemicals of potential ecological concern
CQAR	Chemical Quality Assurance Report
DERP	Defense Environmental Restoration Program
DNR	Department of Natural Resources
DOD	United States Department of Defense
DOT	Department of Transportation
DRO	diesel range organics
DS-2	Decontamination Agent Number 2
E&E	Ecology and Environment, Inc.
EE/CA	Engineering Evaluation/Cost Analysis
EPA	United States Environmental Protection Agency
FR	Federal Register
FUDS	Formerly Used Defense Sites
gpm	gallons per minute
GPS	geographical positioning system
GRO	gasoline range organics
IDW	investigative-derived wastes
mg/g	milligrams per gram
mg/Kg	milligrams per kilogram
mg/L	milligrams per liter
MK	Morrison Knudsen
mR/h	millirads per hour
MSL	mean sea level

MW	monitoring well
NA	not applicable or not analyzed
NAVY	United States Department of the Navy
ND	not detected
NES	Northwest EnviroService, Inc.
NHPA	National Historic Preservation Act of 1966
NOAA	National Oceanographic and Atmospheric Administration
NPDL	North Pacific Division Laboratory
NR	not regulated
PAH	polynuclear aromatic hydrocarbons
PCB	polychlorinated biphenyls
pH	hydrogen ion activity
PL	public law
PLO	Public Land Order
POL	petroleum, oil, and lubricants
ppm	parts per million
QA	quality Assurance
QA/QC	quality assurance/quality control
QC	quality control
RAAM	Remedial Action Alternatives Technical Memorandum
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RI	Remedial Investigation and Feasibility Study
RRO	residual range organics
SARA	Superfund Amendments and Reauthorization Act
SHPO	State Historic Preservation Office
SQUIRT	Screening Quick Reference Tables
STB	super tropical bleach
SVOC	semivolatile organic compounds
TCLP	toxicity characteristic leachate procedure
TRPH	total recoverable petroleum hydrocarbons
TSCA	Toxic Substance Control Act
µmho	$(\text{micro ohms})^{-1}$
USACE	United States Army Corps of Engineers
USGS	United States Geological Survey
UST	underground storage tank
VOC	volatile organic compound

APPENDIX A

Site Photographs

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996
BORROW SITE SOUTH OF MAIN COMPLEX

BORROW AREA
LOOKING SOUTH

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

BORROW AREA- SOUTH OF THE MAIN COMPLEX

LOOKING SW FROM WHITE ALICE ROAD

SPRING AT BASE OF
COLLUVIAL SLOPE

LOADING DOCK
MAIN COMPLEX
IN BACKGROUND

LOOKING WEST,
COLLUVIAL SLOPE

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

SITE 8, FUEL LINE LEAK

LOOKING SW TOWARD
MAIN COMPLEX

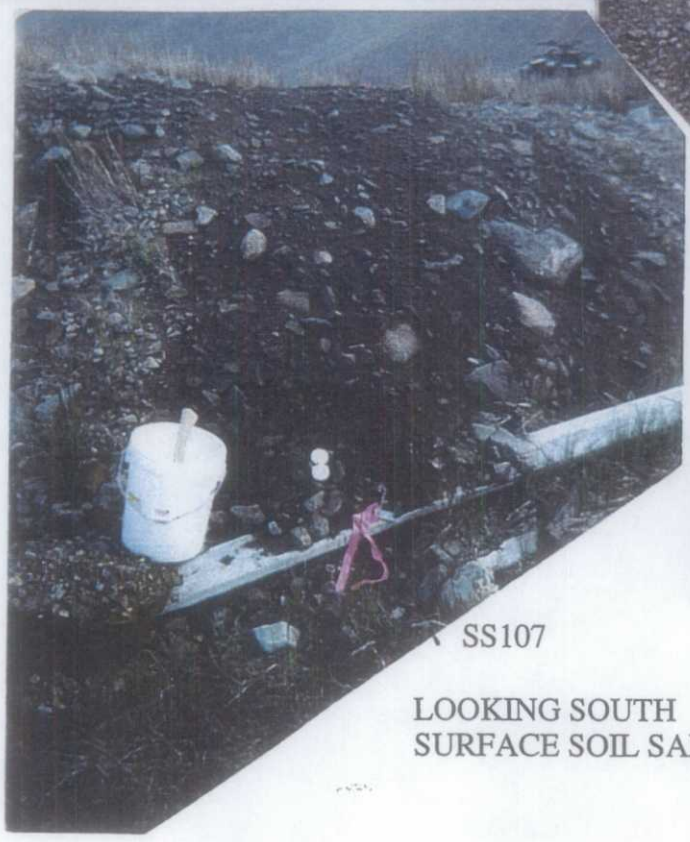
LOOKING NW

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

SITE 10, FROMER DRUM STORAGE

LOOKING SOUTHEAST
SITE 10 AT RIGHT

LOOKING FROM SITE 10



SS107

SS 108

LOOKING SOUTH
SURFACE SOIL SAMPLES

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

SITE 11, FUEL STORAGE

SITE 11 LOOKING NORTH TO EAST
NOTE: SURFACE SOIL STAINING

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

SITE 13, HEAT AND ELECTRIC POWER

LOOKING WEST, EAST SIDE

SOUTH SIDE

SE CORNER
NOTE: STAINED SOILS

NE CORNER
SURFACE
SOIL SAMPLE

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

SITE 14, EMERGENCY POWER PLANT / OPERATIONS, BLDG. 98

SOUTH SIDE
NOTE: TANK 14-1

SOUTH END
NOTE: FULL 55-gal.
DRUM ANTIFREEZE

N. SIDE

ELECTRIC CONDUIT BOX

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

SITE 16, PAINT DOPE STORAGE, BLGD. 112

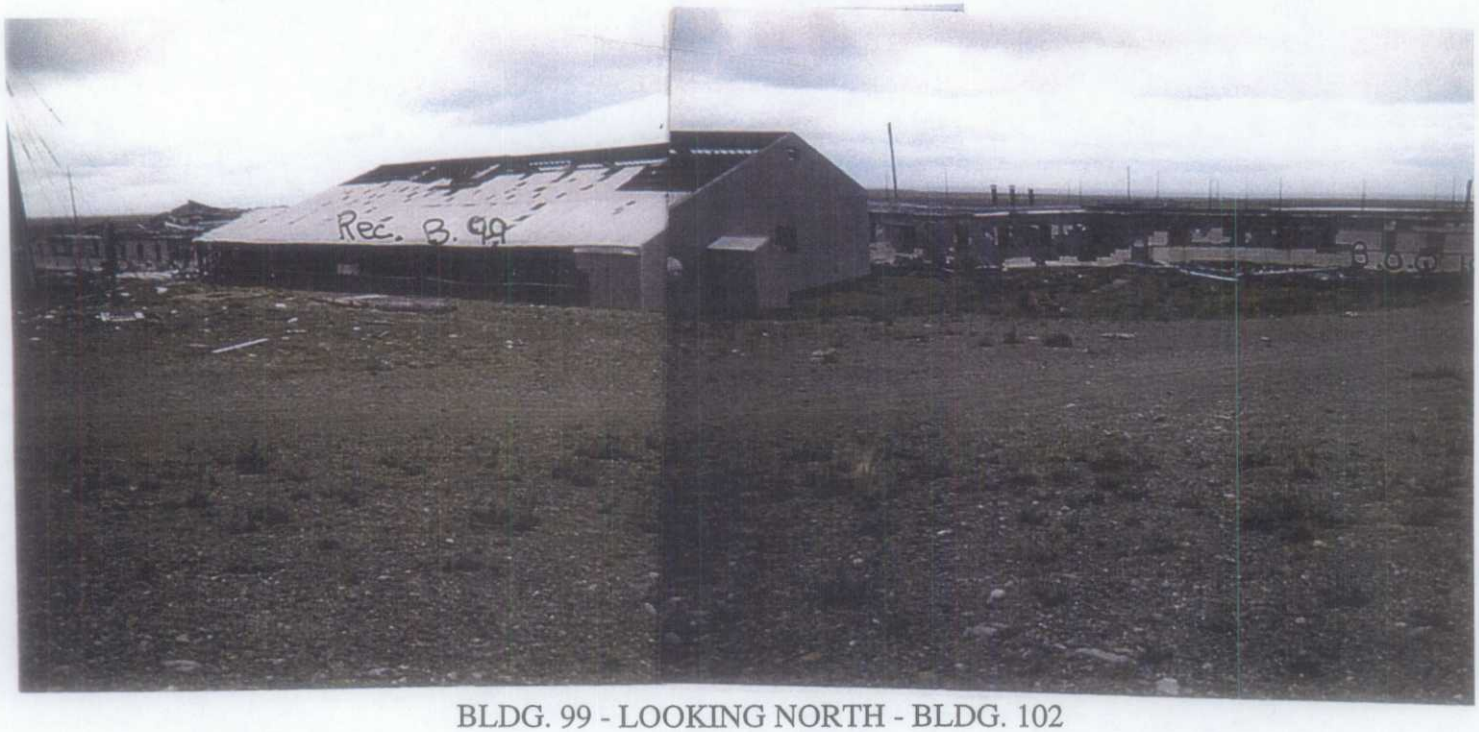
LOOKING SOUTH
REPORTED FUEL BURNING AREA IN FOREGROUND

LOOKING SOUTH
TANK 16-1 AT RIGHT

LOOKING NORTH.
MW 16-1 AT RIGHT

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

SITE 18, HOUSING COMPLEX



BLDG. 99 - LOOKING NORTH - BLDG. 102

LOOKING SOUTH
N. END B. 101 E

B. 106, E. END
MESS HALL

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

SITE 21, WASTEWATER TREATMENT FACILITY

LOOKING EAST

LOOKING EAST
METAL PIPING

WASTEWATER
HOLDING TANKS

LOOKING WEST
WOODEN PIPE
TO LEACHFIELD

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

SITE 27, FUEL PUMP ISLAND

VIEW SE TO SW : SITE 11 (TANKS), SITE 19 (BLGD. 108), SITE13 (BLDG. 110)

SURFACE SOIL STAINING

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

SITE 27, FUEL PUMP ISLAND

LOOKING SOUTH
SITE 13, B. 110 ON RIGHT
NOTE: STAINED SOIL
AT CULVERT

LOOKING SOUTH
MW 27-1 FOREGROUND
NOTE: STAINED SOIL

LOOKING NORTH

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

TANK AND MECHANIC PIT SAMPLING

TANK 16-1

TANK 13-2

TANK 14-1

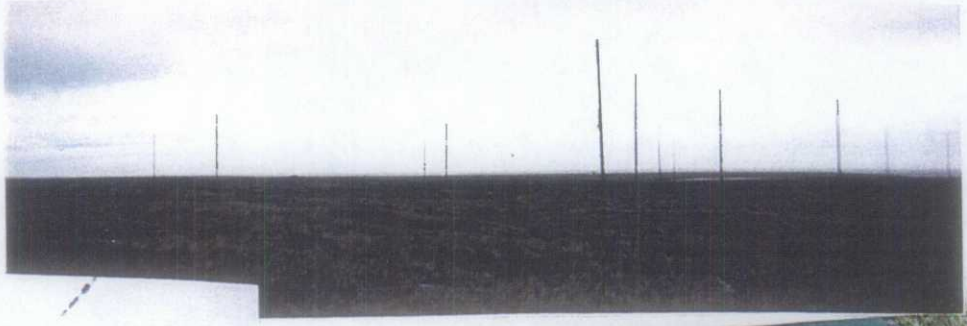
TANK 19-1

MECHANIC PIT

DRUM 14-2

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

GROUNDED WIRE



ANTENNA FIELD

ROLL COATED WIRE

MULTI-STRAND GROUNDED COPPER WIRE

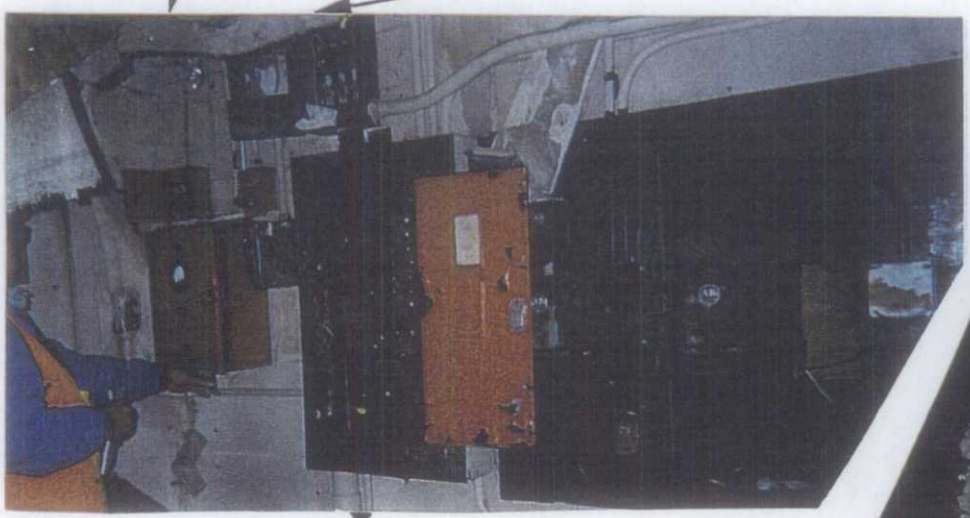
WIRE VICTIMS

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

FIRE ALARM AND SWITCH BOX, BLDG. 99, NORTH SIDE

SQUARE D
SAFETY SWITCH
SINGLE THROW

FIRE PULL, FIRE ALARM
RIGHT SIDE OF MAIN GROUP



EAST WALL GROUP
WASTINGHOUSE PANEL BOX-
15 BREAKERS

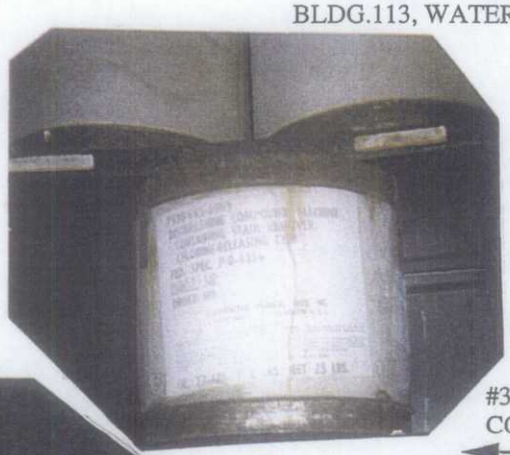
WEST WALL SWITCH BOX

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

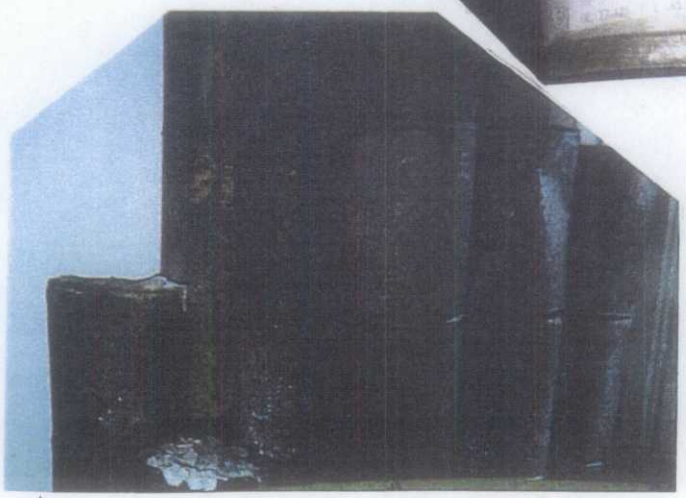
ADDITIONAL CON/HTW

#1. MILITARY CHEMICAL DECONTAMINATION AGENTS: STB & DS2, BLDG.101W

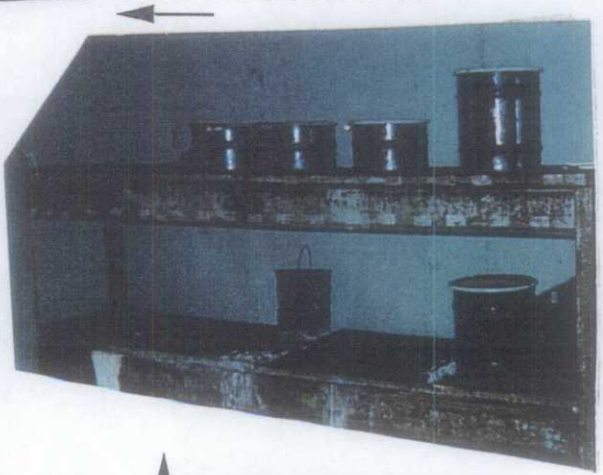
#2. ASBESTOS RETORT CEMENT, 1 GAL. CANS BLDG.113, WATER STORAGE



#3. MILITARY DISHWASHER COMPOUND, BLDG. 111



#4. MILITARY AIRCRAFT WASHING POWDER, BLGD. 109



#5. REPACKAGED LIQUIDS NO MARKINGS, BLDG. 112

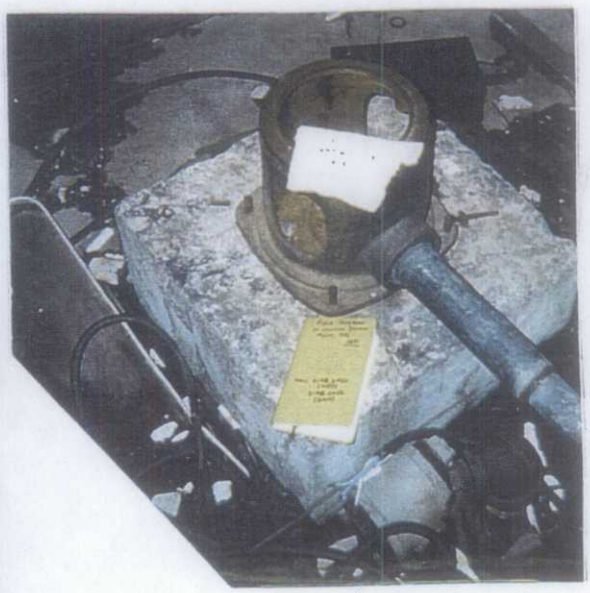
UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

MILITRARY WATER WELLS, SITE 22

WELL #1, SOUTH OF BLDG. 113

WELL #3, NORTH OF BLDG. 113

WELL # 2, BLDG. 114



WELL #4, SE OF
MAIN COMPLEX

UNITED STATES ARMY ENGINEER DISTRICT,
ALASKA
NORTHEAST CAPE, ALASKA
PHASE II REMEDIAL INVESTIGATION
AUGUST 1996

Site 16: Paint and Dope Storage Building, View from East side of building. MW 16-1 in foreground
Note: Paint spill (solidified)

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA
PHASE II REMEDIAL INVESTIGATION
AUGUST 1996

Stream Flow Measurement #8, Near bridge at Site #2
Victor Harris (Montgomery Watson)

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA PHASE II REMEDIAL INVESTIGATION,
AUGUST 1996

Main Complex looking South

Looking Southeast - Main Camp, Building 98 at right

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA PHASE II REMEDIAL INVESTIGATION,
AUGUST 1996

Aerial view of Bering Sea, looking Northeast

Site 4 Native Camp, looking North

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA PHASE II REMEDIAL INVESTIGATION,
AUGUST 1996

Site 2 looking South, runway in foreground

Station access road running North to South. (View looking North)

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

DRAINAGE BASIN, RUNNING NORTH TO EAST

FLOWING FROM SITE 11 AND 27,
NORTH,
NORTHEAST TO THE BERING SEA

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA PHASE II REMEDIAL INVESTIGATION,
AUGUST 1996

Stream Flow Measurement #8, Near Bridge at Site #2
Note Flotilla - used to time flow avg. of three clockings

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA PHASE II REMEDIAL INVESTIGATION,
AUGUST 1996

Drainage Basin; view from North, located just North of Site 27.
Stream Flow measurement #6
Note empty 55 gal. drum, manhole in center.
Site 13 in background

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA PHASE II REMEDIAL INVESTIGATION,
AUGUST 1996

Stream Flow Measurement #2, Stream leads to unnamed creek, View from South
Doug Quist (Montgomery Watson)

Stream Flow Measurement #2, Top View

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA PHASE II REMEDIAL INVESTIGATION,
AUGUST 1996

Drainage Basin; view from North, located just North of Site 27.
Stream Flow measurement #5
Note: drums and surface soil staining
Site 11 in left background

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA PHASE II REMEDIAL INVESTIGATION,
AUGUST 1996

Stream Flow Measurement #1, Unnamed creek upstream from confluence of Drainage basin; Victor Harris (Montgomery Watson)

Streamflow measurement #2, Stream leads to unnamed creek, view from North Doug Quist (Montgomery Watson)

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA PHASE II REMEDIAL INVESTIGATION,
AUGUST 1996

Stream Flow Measurement #8, Near Bridge at Site #2
Note Flotilla - used to time flow avg. of three clockings

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

DRAINAGE BASIN, RUNNING NORTH TO EAST

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

DRAINAGE BASIN, RUNNING NORTH TO EAST

FLOWING FROM SITE 11 AND 27,
NORTH,
NORTHEAST TO THE BERING SEA

UNITED STATES ARMY ENGINEER DISTRICT, ALASKA
NORTHEAST CAPE, ALASKA AUGUST 1996

DRAINAGE BASIN, RUNNING NORTH TO EAST

← LOOKING SOUTH ; 1. HEADWATERS AT CULVERT, 2. HEADWATER AT MANHOLE

PONDING S. of MAIN CAMP ▼

▲ LOOKING S. CULVERT DRAINAGE

▲ MANHOLE DRAINING NORTH

USACE - Northeast Cape DO5, - Photo CD "B"
1189098.050101
There are 3 folders on this CD. The FIRST is BGM #1 NEC
Pictures are not mis-numbered. The sequence is directly from the Photo CD.

BGM #1 NEC


Frame 001


Frame 002


Frame 004


Frame 005


Frame 006


Frame 007


Frame 008


Frame 010


Frame 011


Frame 012


Frame 013


Frame 014

USACE - Northeast Cape DO5, - Photo CD "B"
1189098.050101
There are 3 folders on this CD. The SECOND is HARRIS 01 NEC
Pictures are not mis-numbered. The sequence is directly from the Photo CD.

HARRIS 01 NEC


Frame 0


Frame 00


Frame 001


Frame 002


Frame 003


Frame 004


Frame 005


Frame 006


Frame 007


Frame 008


Frame 009


Frame 010


Frame 011


Frame 012


Frame 013


Frame 014


Frame 015


Frame 016

USACE - Northeast Cape DO5, - Photo CD "B"
1189098.050101
There are 3 folders on this CD. The FIRST is BGM #1 NEC
Pictures are not mis-numbered. The sequence is directly from the Photo CD.


Frame 015


Frame 016


Frame 017

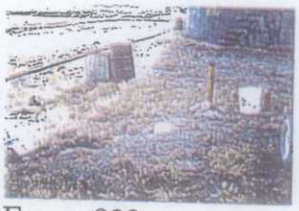

Frame 018


Frame 019


Frame 020


Frame 021


Frame 022


Frame 023


Frame 024


Frame 025

USACE - Northeast Cape DO5, - Photo CD "B"
1189098.050101
There are 3 folders on this CD. The SECOND is HARRIS 01 NEC
Pictures are not mis-numbered. The sequence is directly from the Photo CD.


Frame 017


Frame 018


Frame 019


Frame 020


Frame 021


Frame 022


Frame 023


Frame 024


Frame 025

USACE - Northeast Cape DO5, - Photo CD "B"
1189098.050101
There are 3 folders on this CD. The THIRD is VICTOR 04 NEC
Pictures are not mis-numbered. The sequence is directly from the Photo CD.

VICTOR 04 NEC


Frame 001


Frame 002


Frame 003


Frame 004


Frame 005


Frame 007


Frame 00a


Frame 013


Frame 014


Frame 015


Frame 016


Frame 017


Frame 018


Frame 019

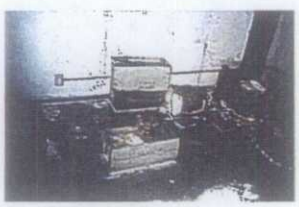

Frame 020


Frame 021

USACE - Northeast Cape DO5, - Photo CD "B"
1189098.050101
There are 3 folders on this CD. The THIRD is VICTOR 04 NEC
Pictures are not mis-numbered. The sequence is directly from the Photo CD.


Frame 022


Frame 023


Frame 024


Frame 025


Frame 0a

USACE - Northeast Cape DO5, - Photo CD "C"
1189098.050101
There are 3 folders on this CD. The FIRST is MISC NEC
Pictures are not mis-numbered. The sequence is directly from the Photo CD.


Frame 021


Frame 022

Frame 024


Frame 025

USACE - Northeast Cape DO5, - Photo CD "C"
1189098.050101
There are 3 folders on this CD. The SECOND is VICTOR ROLL02 NEC
Pictures are not mis-numbered. The sequence is directly from the Photo CD.

VICTOR ROLL02 NEC


Frame 00a


Frame 01a


Frame 02a


Frame 03a


Frame 04


Frame 05


Frame 06


Frame 07


Frame 08


Frame 09


Frame 0a


Frame 10


Frame 11


Frame 12


Frame 13


Frame 14


Frame 15

USACE - Northeast Cape DO5, - Photo CD "C"
1189098.050101
There are 3 folders on this CD. The SECOND is VICTOR ROLL02 NEC
Pictures are not mis-numbered. The sequence is directly from the Photo CD.


Frame 16


Frame 22


Frame 17


Frame 23


Frame 18


Frame 24


Frame 19


Frame 25


Frame 20


Frame 21

USACE - Northeast Cape DO5, - Photo CD "C"
1189098.050101
There are 3 folders on this CD. The THIRD is VICTOR ROLL02 NEC 091398
Pictures are not mis-numbered. The sequence is directly from the Photo CD.

Frame 025

USACE - Northeast Cape DO5, - Photo CD "C"
1189098.050101
There are 3 folders on this CD. The THIRD is VICTOR ROLL02 NEC 091398
Pictures are not mis-numbered. The sequence is directly from the Photo CD.

VICTOR ROLL02 NEC 091398


Frame 005


Frame 006


Frame 007


Frame 009

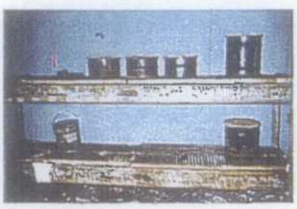

Frame 010


Frame 011


Frame 012


Frame 013


Frame 014


Frame 015


Frame 016


Frame 018


Frame 019


Frame 020


Frame 021


Frame 022


Frame 023


Frame 024

USACE - Northeast Cape DO5, - Photo CD "C"
1189098.050101
There are 3 folders on this CD. The THIRD is VICTOR ROLL02 NEC 091398
Pictures are not mis-numbered. The sequence is directly from the Photo CD.

Frame 025

APPENDIX C

Data Validation Report

LABORATORY DATA CONSULTANTS, INC.
7750 El Camino Real, Suite 2C Carlsbad, CA 92009 Phone: 760/634-0437 Fax: 760/634-0439

LDC Project#: 3417

U.S. Army Corps of Engineers
Alaska District
BLDG 21-702
Elmondorf AFB, AK 99506
Attn: Mr. Bret Walters

February 1, 1999

Subject: **Northeast Cape**
Project#: **99-094**

Dear Mr. Walters,

Enclosed is our EPA Level 3 Data Review Report for the "Northeast Cape" project. The analyses were performed by Quanterra Environmental Services in Anchorage Alaska. The laboratory data was received on December 15, 1998 under Sample Delivery Group Nos. 063161, 063183, 063188, 063189, 0631910, 063191, 063195, 063197, and 063336. Also received on December 15, 1998 was the referee laboratory QA split sample data performed by Analytica Alaska, Inc. in Anchorage Alaska. The Sample Delivery Group numbers are A809082, A809083, A809093, and 9809136.

Please feel free to call me at (760) 634-0437 if you have any questions.

Sincerely,

Richard M. Amano
President/PrincipalChemist

3417COV.ARM

Attachment 1

R1

LDC #3417 (USACE-Alaska / Northeast Cape)

RFQ 99-094

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		PAHs (SIM)		PCBs (8082)		Pb (6010)		Mn (6010)		GRO (101)		DRO RRO (102/3)		BTEX (8021)		Aromatic DRO RRO		Aliphatic DRO RRO		Dioxins (8290)		TOC (WB)		CH_4											
Matrix:	Water/Solid			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	A8-09-082	12-14-98	1-13-99	-	-	-	-	-	-	-	-	-	-	-	-	5	0	8	0	1	0	1	0	-	-	-	-	-	-										
B	A8-09-083	12-14-98	1-13-99	-	-	-	-	-	-	-	-	-	-	-	-	0	4	0	4	0	4	0	4	-	-	-	-	-	-										
C	A8-09-093	12-14-98	1-13-99	-	-	-	-	-	-	-	-	-	-	-	-	0	1	-	-	-	-	-	-	-	-	-	-	-	-										
D	98-09-136	12-14-98	1-13-99	4	0	1	4	1	4	3	0	3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-										
E	063161	12-15-98	1-13-99	-	-	7	0	-	-	-	-	1	0	2	0	7	0	9	0	-	-	-	-	-	-	-	-	-	-										
F	063183	12-15-98	1-13-99	10	0	9	6	9	6	5	0	-	-	8	0	21	6	21	6	1	6	1	6	0	1	-	-	-	-										
G	063188	12-15-98	1-13-99	-	-	0	5	0	2	-	-	-	-	-	-	0	9	0	5	0	9	0	9	-	-	0	3	-	-										
H	063189	12-15-98	1-13-99	-	-	0	2	0	2	-	-	-	-	-	-	0	2	-	-	0	2	0	2	-	-	-	-	-	-										
I	063190	12-15-98	1-13-99	-	-	-	-	-	-	-	-	-	-	-	-	3	0	4	0	-	-	-	-	-	-	-	-	-	-										
J	063191	12-15-98	1-13-99	-	-	-	-	0	4	-	-	-	-	-	-	0	7	0	4	0	2	0	2	-	-	0	2	-	-										
K	063195	12-15-98	1-13-99	-	-	1	0	-	-	-	-	-	-	2	0	1	0	1	0	-	-	-	-	-	-	-	-	-	-										
L	063197	12-15-98	1-13-99	-	-	2	3	-	-	-	-	1	0	1	0	3	6	3	5	0	3	0	3	-	-	2	6	1	0										
M	063336	12-15-98	1-13-99	-	-	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-										
Total				14	0	20	21	10	18	8	0	5	0	13	0	40	[illegible]	[illegible]16	24	2	26	2	26	0	1	2	11	1	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

3417ST.ANM

CHEMICAL DATA QUALITY REVIEW

Northeast Cape
USACE-Alaska Project # RFQ 99-094/LDC Project # 3417

This report details the findings of an EPA Level 3 documentation review of analytical chemistry results generated in support of the Northeast Cape project. Analyses were performed by Quanterra Environmental Services in Anchorage, Alaska (primary) and Analytica Alaska, Inc. in Anchorage, Alaska (referee). Samples were analyzed for GC/MS Volatiles by EPA SW 846 Method 8260B, GC/MS Polynuclear Aromatic Hydrocarbons by EPA SW 846 Method 8270-SIM, GC Polychlorinated Biphenyls by EPA SW 846 Method 8082, Metals by EPA SW 846 Methods 6010 and 7000, Gasoline Range Organics by Method AK101, Diesel Range Organics by Method AK102, Residual Range Organics by Method AK103, Total Organic Carbon by Walkley/Black Method, HRGC/HRMS Dioxins/Dibenzofurans by EPA SW 846 Method 8290, Aromatic Volatile Organics by EPA SW 846 Method 8021, and GC Methane by Method RSK175. Samples are referenced under the following Sample Delivery Groups: 063161, 063183, 063188, 063189, 063190, 063191, 063195, 063197, and 063336 for the sample identifications and analyses for the primary samples and A8-09-082, A8-09-083, A8-09-093, and 98-09-136 for the sample identifications and analyses for the referee lab QA split samples. See the Sample Analysis Table (Attachment 1) for the number of samples reviewed and the Sample Validation Table (Attachment 2) for the sample identifications and analyses for the samples.

The QC criteria used for review purposes is that specified in the National Functional Guidelines for Organic Data Review and the National Functional Guidelines for Inorganic Data Review, February 1994. Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience. The following items were evaluated during the review:

- Holding Times
- Sample Preservation
- Cooler Temperatures
- Initial Calibration
- Continuing Calibration
- Blanks
- Surrogates
- Matrix Spike/Matrix Spike Duplicates
- Duplicates
- Laboratory Control Samples
- Detection and Quantitation Limits

- Field QC Samples
- Referee Laboratory QA Split Sample Data

Only issues which require comment or action are discussed in this report. Data deficiencies are arranged by method, and presented as numbered findings. Potential effects of data anomalies have been described where possible.

I. Overall Data Assessment

Out-of-control events experienced by the laboratory have warranted the qualification of a portion of the data set as estimated (J), some detectable results were qualified as estimated (J), and some results reported as nondetectable were qualified as rejected (R) and are discussed in detail by finding. Based upon the information reviewed, the overall data quality is considered acceptable with the noted limitations.

The instrument performance check data, initial and continuing calibration data, and internal standard data were not provided for the GC/MS volatiles and the GC/MS polynuclear aromatic hydrocarbons analyses for SDG 98-09-136 and therefore were not reviewed.

The initial calibration data were not provided for the GC/MS polynuclear aromatic hydrocarbons analysis for SDG 063336 and therefore were not reviewed.

The GC/ECD instrument performance check data and initial and continuing calibration data were not provided for the GC PCB analysis for SDG 98-09-136 and therefore were not reviewed.

The initial and continuing calibration data, calibration blank data, and MSA data were not provided for the metals analysis for SDG 98-09-136 and therefore were not reviewed.

II. Chain of Custody/Cooler Temperatures/Preservation

The chain-of-custodies were reviewed for documentation of cooler temperatures and sample preservation. All appropriate samples were preserved and all cooler temperatures met validation criteria.

III. GC/MS Volatiles by EPA SW 846 Method 8260B

For GC/MS volatiles analysis, holding times, instrument performance checks, instrument calibrations, blanks, field QC, and all accuracy and precision results were within validation criteria with the following exceptions:

Finding 1: All technical holding time requirements were met with the following exceptions:

Sample	Total Days From Sample Collection Until Analysis	Required Holding Time (in Days) From Sample Collection Until Analysis	Flag
98NEC16GW801RE 98NEC16GW201RE 98NEC16GW802RE 98NECTB006RE 98NEC16GW801REMS 98NEC16GW801REMSD	18	14	J

Action: Samples were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

Finding 2: Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound TIC (RT in minutes)	Concentration	Associated Samples
9/21/98-BLK	9/21/98	Methylene chloride	2.3 ug/L	All samples in SDG 98-09-136

Action: Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound TIC (RT in minutes)	Reported Concentration	Modified Final Concentration
98NEC16GW301	Methylene chloride	4.7 ug/L	10U ug/L
98NECTB005	Methylene chloride	5.9 ug/L	10U ug/L

Samples 98NECTB006, 98NECTB006RE, and 98NECTB005 were identified as trip blanks. No volatile contaminants were found in these blanks with the following exceptions:

Trip Blank ID	Compound	Concentration (ug/L)
98NECTB006	Naphthalene	1.3
98NECTB005	Methylene chloride	5.9

Finding 3: Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag
98NEC16GW801 98NEC16GW201 98NEC16GW802 98NECTB006	All TCL compounds except 1,1-Dichloroethene Trichloroethene Benzene Toluene Chlorobenzene	The MS/MSD associated with these samples was not spiked with the required full list of target compounds.	The MS/MSD must be performed according to the QAPP.	None
98NEC16GW801RE 98NEC16GW201RE 98NEC16GW802RE 98NECTB006RE	2-Chloroethylvinyl ether	The MS/MSD associated with these samples was not spiked with the required full list of target compounds.	The MS/MSD must be performed according to the QAPP.	None

For the samples listed in the table above, surrogate, laboratory control sample and laboratory control sample duplicates were used to assess precision and accuracy. Since these were acceptable, the sample results were not qualified based on this finding. This is considered a protocol violation.

Finding 4: The MS/MSD percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag
98NEC16GW801REMS/MSD (98NEC16GW801RE 98NEC16GW201RE 98NEC16GW802RE 98NECTB006RE)	Carbon disulfide Acetone	- -	36.5 (70-130) -	65 (≤20) 38 (≤20)	J J

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag
98NEC16GW301MS/MSD (All samples in SDG 98-09-136)	2-Hexanone	-	-	42.1 (≤20)	J
	4-Methyl-2-pentanone	-	-	27.0 (≤20)	J

Action: Samples were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag
98NEC16GW801MS/MSD (98NEC16GW801 98NEC16GW201 98NEC16GW802 98NECTB006)	1,1-Dichloroethene	103 (72-102)	104 (72-102)	-	J (all detects)

Action: Sample results reported as detectable were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag
98NEC16GW301MS/MSD (All samples in SDG 98-09-136)	2-Chloroethylvinyl ether	0.00 (60-140)	0.00 (60-140)	-	J (all detects) R (all non-detects)

Action: Sample results reported as detectable were qualified as estimated (J) and results reported as nondetectable were qualified as unusable (R) as indicated above. This is considered a technical deficiency.

Finding 5: Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag
9/21/98-LCS/LCSD (All samples in SDG 98-09-136)	Dichlorodifluoromethane	55.0 (60-140)	-	24.0 (≤20)	J

Action: Samples were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

Finding 6: All compound quantitation and CRQLs were within validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag
All samples in SDG 063183	Bromoethane Chloroethane Chloromethane Dichlorodifluoromethane Vinyl chloride	Laboratory reporting limit reported at 2.0 ug/L	Reporting limit should be reported at 1.0 ug/L per the QAPP.	None
All samples in SDG 98-09-136	All TCL compounds except Trichlorofluoromethane Trichlorotrifluoromethane 1,2-Dibromo-3-chloropropane Acetone Acrylonitrile 2-Butanone Carbon disulfide trans-1,4-Dichloro-2-buten 2-Chloroethylvinyl ether 2-Hexanone Iodomethane 4-Methyl-2-pentanone tert-Butyl methyl ether	Laboratory reporting limit was higher than the QAPP.	QAPP reporting limits should be used.	None None None None None None None None None None None None None None

Action: Sample results were not qualified based on this finding. This is considered a protocol violation.

Samples 98NEC16GW801 and 98NEC16GW201, samples 98NEC16GW801RE and 98NEC16GW201RE, samples 98NEC16GW801 and 98NEC16GW201RE, and samples 98NEC16GW201 and 98NEC16GW801RE were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (Detection limit) (ug/L)				Difference	Disagreement /Major Disagreement (D/MD)
	98NEC16GW801		98NEC16GW201			
	Dilution: 1.0 Prep Date: 9/26/98 Analysis date: 9/27/98		Dilution: 1.0 Prep Date: 9/26/98 Analysis date: 9/27/98			
Naphthalene	4.2	1.0U	2.8	1.0U	2X	-

Compound	Concentration (Detection limit) (ug/L)				Difference	Disagreement /Major Disagreement (D/MD)
	98NEC16GW801		98NEC16GW201			
	Dilution: 1.0 Prep Date: 9/26/98 Analysis date: 9/27/98		Dilution: 1.0 Prep Date: 9/26/98 Analysis date: 9/27/98			
1,2,4-Trimethylbenzene	1.1	1.0U	1.0U	1.0U	1X	-

Compound	Concentration (Detection limit) (ug/L)				Difference	Disagreement /Major Disagreement (D/MD)
	98NEC16GW801RE		98NEC16GW201RE			
	Dilution: 1.0 Prep Date: 10/1/98 Analysis date: 10/1/98		Dilution: 1.0 Prep Date: 10/1/98 Analysis date: 10/1/98			
Naphthalene	2.6	1.0U	4.3	1.0U	2X	-

Compound	Concentration (Detection limit) (ug/L)				Difference	Disagreement /Major Disagreement (D/MD)
	98NEC16GW801		98NEC16GW201RE			
	Dilution: 1.0 Prep Date: 9/26/98 Analysis date: 9/27/98		Dilution: 1.0 Prep Date: 10/1/98 Analysis date: 10/1/98			
Naphthalene	4.2	1.0U	4.3	1.0U	1X	-
1,2,4-Trimethylbenzene	1.1	1.0U	1.0U	1.0U	1X	-

Compound	Concentration (Detection limit) (ug/L)				Difference	Disagreement /Major Disagreement (D/MD)
	98NEC16GW201		98NEC16GW801RE			
	Dilution: 1.0 Prep Date: 9/26/98 Analysis date: 9/27/98		Dilution: 1.0 Prep Date: 10/1/98 Analysis date: 10/1/98			
Naphthalene	2.8	1.0U	2.6	1.0U	1X	-

The comparability of the field duplicate sample data was considered technically acceptable.

Sample pairs 98NEC16GW201 (original) and 98NEC16GW301 (referee), samples 98NEC16GW801 (original) and 98NEC16GW301 (referee), samples 98NEC16GW801RE (original) and 98NEC16GW301 (referee), and samples 98NEC16GW201RE (original) and 98NEC16GW301 (referee) were compared. No volatiles were detected in the samples with the following exceptions:

Compound	Concentration (Detection limit) (ug/L)				Difference	Disagreement /Major Disagreement (D/MD)
	98NEC16GW801		98NEC16GW301			
	Dilution: 1.0 Prep Date: 9/26/98 Analysis date: 9/27/98		Dilution: 1.0 Prep Date: 9/21/98 Analysis date: 9/21/98			
Methylene chloride	1.0U	1.0U	4.7	10U	<5X	-
1,2,4-Trimethylbenzene	1.1	1.0U	1.4	2.0U	1X	-
4-Isopropyltoluene	1.0U	1.0U	0.92	2.0U	NC	-
Naphthalene	4.2	1.0U	4.9	2.0U	1X	-

Compound	Concentration (Detection limit) (ug/L)				Difference	Disagreement /Major Disagreement (D/MD)
	98NEC16GW201		98NEC16GW301			
	Dilution: 1.0 Prep Date: 9/26/98 Analysis date: 9/27/98		Dilution: 1.0 Prep Date: 9/21/98 Analysis date: 9/21/98			
Methylene chloride	1.0U	1.0U	4.7	10U	<5X	-
1,2,4-Trimethylbenzene	1.0U	1.0U	1.4	2.0U	1X	-
4-Isopropyltoluene	1.0U	1.0U	0.92	2.0U	1X	-
Naphthalene	2.8	1.0U	4.9	2.0U	2X	-

Compound	Concentration (Detection limit) (ug/L)				Difference	Disagreement /Major Disagreement (D/MD)
	98NEC16GW801RE		98NEC16GW301			
	Dilution: 1.0 Prep Date: 9/8/98 Analysis date: 9/10/98		Dilution: 1 Prep Date: 9/8/98 Analysis date: 9/25/98			
Methylene chloride	1.0U	1.0U	4.7	10U	<5X	-
1,2,4-Trimethylbenzene	1.0U	1.0U	1.4	2.0U	1X	-
4-Isopropyltoluene	1.0U	1.0U	0.92	2.0U	1X	-
Naphthalene	2.6	1.0U	4.9	2.0U	2X	-

Compound	Concentration (Detection limit) (ug/L)				Difference	Disagreement /Major Disagreement (D/MD)
	98NEC16GW201RE		98NEC16GW301			
	Dilution: 1.0 Prep Date: 10/1/98 Analysis date: 10/1/98		Dilution: 1.0 Prep Date: 9/21/98 Analysis date: 9/21/98			
Methylene chloride	1.0U	1.0U	4.7	10U	<5X	-
1,2,4-Trimethylbenzene	1.0U	1.0U	1.4	2.0U	1X	-
4-Isopropyltoluene	1.0U	1.0U	0.92	2.0U	1X	-
Naphthalene	4.3	1.0U	4.9	2.0U	1X	-

The comparability of the QA split sample referee data was considered technically acceptable. In cases where the detection limit of a non-detect result is greater than a detected result, the comparison of the data is not technically significant. These cases are flagged with a "NC" (not calculable) notation.

IV. GC/MS Polynuclear Aromatic Hydrocarbons (PAHs) by EPA SW 846 Method 8270-SIM

For GC/MS polynuclear aromatic hydrocarbons analysis, holding times, instrument performance checks, instrument calibrations, blanks, field QC, and all accuracy and precision results were within validation criteria with the following exceptions:

Finding 1: All technical holding time requirements were met with the following exceptions:

Sample	Total Days From Sample Collection Until Extraction	Required Holding Time (in Days) From Sample Collection Until Extraction	Flag
98NEC02SS801	46	14	J (all detects) R (all non-detects)

Action: Sample results reported as detectable were qualified as estimated (J) and results reported as nondetectable were qualified as unusable (R) as indicated above. This is considered a protocol violation.

Finding 2: Initial calibration was performed using required standard concentrations. Percent relative standard deviations (%RSD) were less than or equal to 30.0% for selected compounds with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag
10/24/98	2-Methylnaphthalene	45.670	98NECRCSD804 98NECDBSD801 98NECDBSD802 98NECDBSD803 98NEC09SS801 9/29/98-BLK	J

Action: Samples were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

Finding 3: Continuing calibration was performed at the required frequencies. All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were less than or equal to 25.0% with the following exceptions:

Date	Compound	%D	Associated Samples	Flag
10/25/98	2-Methylnaphthalene	25.7	98NECRCSD804	J

Date	Compound	%D	Associated Samples	Flag
10/22/98	2-Methylnaphthalene	47.3	98NECRCSD803 98NECRCSD802 98NECRCSD202 98NECRCSD801 98NECRCSD201 9/27/98-BLK	J
9/26/98	Chrysene	28.8	All samples in SDG 063195 All water samples in SDG 063197	J

Action: Samples were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

Finding 4: No polynuclear aromatic hydrocarbon contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
9/27/98-BLK	9/27/98	Phenanthrene	5.4 ug/Kg	All soil samples in SDG 063183
9/17/98-BLK	9/17/98	Naphthalene	0.023 ug/L	All water samples in SDG 98-09-136

Action: Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks. No data required qualification.

Surrogates were diluted out in samples 98NECDBSD801, 98NECDBSD802, 98NECDBSD803, 98NECRCSD804, and 98NEC03GW801. No data qualifications were performed based on diluted surrogate results.

Finding 5: Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag
All water samples in SDG 98-09-136 All soil samples in SDG 063183 All samples in SDGs 063188, 063161, 063189, 063195, 063197, and 063336	All TCL compounds	No MS/MSD associated with these samples.	MS/MSD required.	None

For the samples listed in the table above, surrogate, laboratory control sample and laboratory control sample duplicates were used to assess precision and accuracy. Since these were acceptable, the sample results were not qualified based on this finding. This is considered a protocol violation.

Finding 6: The MS/MSD percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag
98NECRCSW802MS/MSD (All water samples in SDG 063183)	Benzo(g,h,i)perylene Dibenz(a,h)anthracene Indeno(1,2,3-cd)pyrene	- - -	- - -	18 (≤14) 18 (≤15) 18 (≤15)	J J J
98NECRC302MS/MSD (All soil samples in SDG 98-09-136)	Benzo(b)fluoranthene Benzo(k)fluoranthene	- -	- -	46.8 (≤40) 47.7 (≤40)	J J

Action: Samples were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

The spike compounds Benzo(g,h,i)perylene, Phenanthrene, Anthracene, Fluoranthene, and Dibenz(a,h)anthracene were diluted out in the 98NECRC302MS/MSD sample. No data qualifications were performed based on diluted spike results.

Finding 7: Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag
9/17/98-LCS/LCSD (All water samples in SDG 98-09-136)	Naphthalene	33.5 (45-136)	35.5 (45-136)	-	J
	Acenaphthylene	44.0 (48-133)	32.0 (48-133)	-	J
	Acenaphthene	42.0 (48-121)	-	-	J
	Fluorene	46.0 (58-133)	-	54.0 (≤40)	J
	Phenanthrene	34.0 (54-140)	38.0 (54-140)	-	J
	Anthracene	34.0 (59-131)	26.0 (59-131)	-	J
	Fluoranthene	38.0 (51-140)	40.0 (51-140)	-	J
	Benzo(a)anthracene	54.0 (58-118)	34.0 (58-118)	-	J
	Chrysene	50.0 (55-139)	-	-	J
	Benzo(k)fluoranthene	54.0 (60-160)	560 (60-160)	165 (≤40)	J
	Pyrene	-	34.0 (46-135)	-	J
	Benzo(b)fluoranthene	-	480 (41-133)	166 (≤40)	J
	Indeno(1,2,3-cd)pyrene	-	170 (48-125)	106 (≤40)	J
	Dibenz(a,h)anthracene	-	280 (50-129)	139 (≤40)	J
	Benzo(g,h,i)perylene	-	168 (50-125)	105 (≤40)	J
	Benzo(a)pyrene	-	-	90.1 (≤40)	J
9/22/98-LCS/LCSD (All samples in SDG 063195 All water samples in SDG 063197)	Benzo(b)fluoranthene	-	-	20 (≤14)	J
	Dibenz(a,h)anthracene	-	-	20 (≤15)	J
	Indeno(1,2,3-cd)pyrene	-	-	20 (≤15)	J

Action: Samples were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

LCS ID	Compound	%R (Limits)	Associated Samples	Flag
9/27/98-LCS	Anthracene	110 (35-104)	All soil samples in SDG 063183	J (all detects)
9/29/98-LCS	Dibenz(a,h)anthracene	139 (20-126)	All soil samples in SDG 063197	J (all detects)
	Pyrene	144 (29-134)		J (all detects)

Action: Sample results reported as detectable were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

Finding 8: All internal standard areas and retention times were within QC limits with the following exceptions:

Sample	Internal Standards	Area (Limits)	Compound	Flag
98NECDBSD802	Acenaphthene-d10	2929 (3052-12208)	Naphthalene Acenaphthylene Acenaphthene Fluorene	J J J J
98NEC09SS801	Acenaphthene-d10	2388 (2442-9766)	Naphthalene Acenaphthylene Acenaphthene Fluorene	J J J J

Action: Samples were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

Sample	Internal Standards	Area (Limits)	Compound	Flag
98NECRCSD801	Acenaphthene-d10	7478 (7806-31224)	Naphthalene Acenaphthylene Acenaphthene Fluorene	J J J J
98NECDBSD803	Phenanthrene-d10	3888 (4055-16220)	Phenanthrene Anthracene Fluoranthene Pyrene	J J J J

Action: Samples were qualified as estimated (J) as indicated above. This is considered a protocol violation.

Sample	Internal Standards	Area (Limits)	Compound	Flag
98NECRCSD805	Phenanthrene-d10	58120 (12617-50466)	Phenanthrene Anthracene Fluoranthene Pyrene	J (all detects) J (all detects) J (all detects) J (all detects)
98NECBKSD801	Acenaphthene-d10	34510 (8203-32810)	Naphthalene Acenaphthylene Acenaphthene Fluorene	J (all detects) J (all detects) J (all detects) J (all detects)

Sample	Internal Standards	Area (Limits)	Compound	Flag
98NECBKSD802	Acenaphthene-d10	34681 (8203-32810)	Naphthalene Acenaphthylene Acenaphthene Fluorene	J (all detects) J (all detects) J (all detects) J (all detects)

Action: Sample results reported as detectable were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

Sample	Internal Standards	Area (Limits)	Compound	Flag
98NECRCSW806	Benzo(a)pyrene-d12	36125 (9023-36090)	Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Dibenzo(a,h)anthracene Benzo(g,h,i)perylene Indeno(1,2,3-cd)pyrene	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)
98NECBDSS802	Benzo(a)pyrene-d12	8721 (1848-7390)	Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Dibenzo(a,h)anthracene Benzo(g,h,i)perylene Indeno(1,2,3-cd)pyrene	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)
98NEC02SS801	Acenaphthene-d10	81144 (18215-72858)	Naphthalene Acenaphthylene Acenaphthene Fluorene	J (all detects) J (all detects) J (all detects) J (all detects)

Action: Sample results reported as detectable were qualified as estimated (J) as indicated above. This is considered a protocol violation.

No field blanks were identified in these SDGs.

Samples 98NECRCSD802 and 98NECRCSD202, samples 98NECRCSD801 and 98NECRCSD201, and samples 98NECRCSW802 and 98NECRCSW202 were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (Detection limit) (ug/Kg)				Difference	Disagreement /Major Disagreement (D/MD)
	98NECRCSD801		98NECRCSD201			
	Dilution: 1.0 Prep Date: 9/27/98 Analysis date: 10/22/98		Dilution: 1.0 Prep Date: 9/27/98 Analysis date: 10/22/98			
2-Methylnaphthalene	11U	11U	18	13U	2X	-
Naphthalene	11U	11U	14	13U	1X	-

The comparability of the field duplicate sample data was considered technically acceptable.

Sample pairs 98NECRCSD802 (original) and 98NECRC302 (referee), samples 98NECRCSD202 (original) and 98NECRC302 (referee), samples 98NECRCSD801 (original) and 98NECRC301 (referee), samples 98NECRCSD201 (original) and 98NECRC301 (referee), samples 98NECRCSW802 (original) and 98NECRCSW302 (referee), and samples 98NECRCSW202 (original) and 98NECRCSW302 (referee) were compared. No polynuclear aromatic hydrocarbons were detected in the samples with the following exceptions:

Compound	Concentration (Detection limit) (ug/Kg)				Difference	Disagreement /Major Disagreement (D/MD)
	98NECRCSD801		98NECRC301			
	Dilution: 1.0 Prep Date: 9/27/98 Analysis date: 10/22/98		Dilution: 1.0 Prep Date: 9/18/98 Analysis date: 10/23/98			
Naphthalene	11U	11U	4.9	3.5U	NC	-
2-Methylnaphthalene	11U	11U	8.5	3.5U	NC	-
Phenanthrene	11U	11U	13	3.5U	1X	-
Fluoranthene	11U	11U	3.5	3.5U	NC	-
Pyrene	-	11U	8.5	3.5U	Not calculable	-

Compound	Concentration (Detection limit) (ug/Kg)				Difference	Disagreement /Major Disagreement (D/MD)
	98NECRCSD201		98NECRC301			
	Dilution: 1.0 Prep Date: 9/27/98 Analysis date: 10/22/98		Dilution: 1.0 Prep Date: 9/18/98 Analysis date: 10/23/98			
Naphthalene	14	13U	4.9	3.5U	3X	-
2-Methylnaphthalene	18	13U	8.5	3.5U	2X	-
Phenanthrene	13U	13U	13	3.5U	1X	-
Fluoranthene	13U	13U	3.5	3.5U	NC	-
Pyrene	13U	13U	8.5	3.5U	NC	-

Compound	Concentration (Detection limit) (ug/Kg)				Difference	Disagreement /Major Disagreement (D/MD)
	98NECRCSD802		98NECRC302			
	Dilution: 1.0 Prep Date: 9/27/98 Analysis date: 10/22/98		Dilution: 1.0 Prep Date: 9/18/98 Analysis date: 10/23/98			
Naphthalene	9.3U	9.3U	3.6	3.0U	NC	-
2-Methylnaphthalene	9.3U	9.3U	6.0	3.0U	NC	-
Phenanthrene	9.3U	9.3U	3.0	3.0U	NC	-

Compound	Concentration (Detection limit) (ug/Kg)				Difference	Disagreement /Major Disagreement (D/MD)
	98NECRCSD202		98NECRC302			
	Dilution: 1.0 Prep Date: 9/27/98 Analysis date: 10/22/98		Dilution: 1.0 Prep Date: 9/18/98 Analysis date: 10/23/98			
Naphthalene	9.6U	9.6U	3.6	3.0U	NC	-
2-Methylnaphthalene	9.6U	9.6U	6.0	3.0U	NC	-

Compound	Concentration (Detection limit) (ug/Kg)				Difference	Disagreement /Major Disagreement (D/MD)
	98NECRCSD202		98NECRC302			
	Dilution: 1.0 Prep Date: 9/27/98 Analysis date: 10/22/98		Dilution: 1.0 Prep Date: 9/18/98 Analysis date: 10/23/98			
Phenanthrene	9.6U	9.6U	3.0	3.0U	NC	-

The comparability of the QA split sample referee data was considered technically acceptable. In cases where the detection limit of a non-detect result is greater than a detected result, the comparison of the data is not technically significant. These cases are flagged with a "NC" (not calculable) notation.

V. GC Polychlorinated Biphenyls (PCBs) by EPA SW 846 Method 8082

For GC polychlorinated biphenyls analysis, holding times, instrument calibrations, instrument performance checks, blanks, field QC, and all accuracy and precision results were within validation criteria with the following exceptions:

Finding 1: The percent differences (%D) of calibration factors in continuing standard mixtures were within the 15.0% QC limits with the following exceptions:

Date	Standard	Column	Compound	%D	Associated Samples	Flag
10/16/98	CCV	Not Specified	Aroclor-1260	15.7	All water samples in SDG 063183	J

Action: Samples were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

Surrogates were diluted out in samples 98NEC13SS801, 98NEC13SS803, and 98NECRCSD806. No data qualifications were performed based on diluted surrogate results.

Finding 2: Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag
All samples in SDGs 063191 and 98-09-136	All TCL compounds	No MS/MSD associated with these samples.	MS/MSD required.	None

For the samples listed in the table above, surrogate and laboratory control samples were used to assess precision and accuracy. Since these were acceptable, the sample results were not qualified based on this finding. This is considered a protocol violation.

Finding 3: The MS/MSD percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag
98NECRCSD802MS/MSD (All soil samples in SDGs 063183, All samples in SDGs 063188, 063189, and 063191)	PCB-1016	-	-	25 (≤21)	J
98NECRC302MS/MSD (All soil samples in SDG 98-09-136)	PCB-1260 PCB-1016	- -	- -	75.9 (≤50) 92.7 (≤50)	J J

Action: Samples were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

Although the percent recoveries were out for PCB-1260 and PCB-1016, no data qualifications were performed because of the high native concentration of these compounds in the unspiked sample.

Samples 98NECRCSW802 and 98NECRCSW202, samples 98NECRCSD802 and 98NECRCSD202, and samples 98NECRCSD801 and 98NECRCSD201 were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples.

Sample pairs 98NECRCSW802 (original) and 98NECRCSW302 (referee), 98NECRCSD802 (original) and 98NECRC302 (referee), 98NECRCSD801 (original) and 98NECRC301 (referee), 98NECRCSW202 (original) and 98NECRCSW302 (referee), 98NECRCSD202 (original) and 98NECRC302 (referee), and 98NECRCSD201 (original) and 98NECRC301 (referee) were compared. No polychlorinated biphenyls were detected in the samples.

VI. Metals by EPA SW 846 Methods 6010 and 7000

For metals analysis, holding times, instrument calibrations, instrument performance checks, blanks, internal standards, field QC, and all accuracy and precision results were within validation criteria with the following exceptions:

Finding 1: Matrix spike (MS) analyses were reviewed for each matrix as applicable with the following exceptions:

Sample	Analyte	Finding	Criteria	Flag
All samples in SDGs 063197 and 063161	Manganese	No MS associated with these samples.	MS required.	None

For the samples listed in the table above, laboratory control sample were used to assess accuracy. Since these were acceptable, the sample results were not qualified based on this finding. This is considered a protocol violation.

Finding 2: The MS/MSD percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag
98NEC16GW801MS/MSD (All samples in SDG 063183)	Lead	32.5 (75-125)	45.0 (75-125)	-	J

Action: Samples were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

Finding 3: Duplicate (DUP) sample analyses were reviewed for each matrix as applicable.

Sample	Analyte	Finding	Criteria	Flag
All samples in SDG 063197 and 063161	Manganese	No DUP associated with these samples.	DUP required.	None

Action: Sample results were not qualified based on this finding. This is considered a protocol violation.

Samples 98NEC16GW801 and 98NEC16GW201 were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (Detection limit, mg/L)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NEC16GW801		98NEC16GW201			
	Dilution: 5 Prep Date: 9/29/98 Analysis date: 9/30/98		Dilution: 5 Prep Date: 9/29/98 Analysis date: 9/30/98			
Lead	0.026	0.006U	0.026	0.006U	1X	-

Sample pairs 98NEC16GW801 (original) and 98NEC16GW301 (referee) and 98NEC16GW201 (original) and 98NEC16GW301 (referee) were compared. Metals were detected in the samples as follows:

Analyte	Concentration (Detection limit, mg/L)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NEC16GW801		98NEC16GW301			
	Dilution: 5 Prep Date: 9/29/98 Analysis date: 9/30/98		Dilution: 5 Prep Date: 9/29/98 Analysis date: 9/30/98			
Lead	0.026	0.006U	0.022	0.001U	1X	-
Manganese	NR	NR	0.0015	0.00001U	-	-

Analyte	Concentration (Detection limit, mg/L)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NEC16GW201		98NEC16GW301			
	Dilution: 5 Prep Date: 9/29/98 Analysis date: 9/30/98		Dilution: 5 Prep Date: 9/29/98 Analysis date: 9/30/98			
Lead	0.026	0.006U	0.022	0.001	1X	-
Manganese	NR	NR	0.0015	0.00001U	-	-

NR = Not reported by the laboratory

The comparability of the QA split sample referee data was considered technically acceptable.

VII. Gasoline Range Organics by Alaska Method AK101

For gasoline range organic analysis, holding times, instrument calibrations, blanks, field QC, and all accuracy and precision results were within validation criteria with the following exceptions:

Finding 1: Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag
All samples in SDGs 063161, 063195, and 063197	All TCL compounds	No MS/MSD associated with these samples.	MS/MSD required.	None

For the samples listed in the table above, surrogate, laboratory control sample and laboratory control sample duplicates were used to assess precision and accuracy. Since these were acceptable, the sample results were not qualified based on this finding. This is considered a protocol violation.

Finding 2: Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Analysis Date	Compound	Concentration	Associated Samples
LB980929N1	9/29/98	Gasoline range organics	0.14 mg/L	All samples in SDGs 063195 and 063197

Action: Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks.

Samples 98NECTB001 and 98NECTB007 were identified as trip blanks. No gasoline range organic contaminants were found in these blanks.

No field duplicates were identified in this SDG.

No QA split sample referee data samples were identified in this SDG.

VII. Diesel Range Organics and Residual Range Organics by Alaska Methods AK102 and AK103

*Indicates sample was analyzed for Aromatics
**Indicates sample was analyzed for Aliphatics

For diesel range analysis and residual range analysis, holding times, instrument calibrations, blanks, field QC, and all accuracy and precision results were within validation criteria with the following exceptions:

Finding 1: All technical holding time requirements were met with the following exceptions:

Sample	Total Days From Sample Collection Until Analysis	Required Holding Time (in Days) From Sample Collection Until Analysis	Flag
98NECBKSD801** 98NECBKSD801* 98NECBKSD802** 98NECBKSD802* 98NEC10SS801** 98NEC10SS801*	37	14	J (all detects) R (all non-detects)
98NEC14SS802* 98NEC14SS802** 98NEC00SS801* 98NEC00SS801**	43	14	J (all detects) R (all non-detects)
98NECDBSD801* 98NECDBSD801** 98NECDBSD802* 98NECDBSD802** 98NECDBSD803* 98NECDBSD803** 98NECDBSS806* 98NECDBSS806** 98NECBDSS801* 98NECBDSS801**	33	14	J (all detects) R (all non-detects)

Sample	Total Days From Sample Collection Until Analysis	Required Holding Time (in Days) From Sample Collection Until Analysis	Flag
98NECDBSS807* 98NECDBSS807** 98NECDBSS808* 98NECDBSS808** 98NECDBSS809* 98NECDBSS809** 98NECBDSS802* 98NECBDSS802**	34	14	J (all detects) R (all non-detects)
98NECRCSW302* 98NECRCSW302**	52	14	J (all detects) R (all non-detects)

Action: Sample results reported as detectable were qualified as estimated (J) and results reported as nondetectable were qualified as unusable (R) as indicated above. This is considered a technical deficiency.

Finding 2: Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Surrogate	%R (Limits)	Compound	Flag
98NEC27SW801	Tricontane	17 (50-150)	Residual range organics	J
98NECBKSW802	Tricontane	13 (50-150)	Residual range organics	J
98NECDBSD801**	Tricontane	23 (50-150)	Residual range organics	J
98NECRC302*	o-Terphenyl	36 (50-150)	Diesel range organics Residual range organics	J J
98NECRC302**	Squalene	44 (50-150)	Diesel range organics Residual range organics	J J

Action: Samples were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

Sample	Surrogate	%R (Limits)	Compound	Flag
98NEC10GW801	o-Terphenyl Tricontane	0 (50-150) 0 (50-150)	Diesel range organics Residual range organics	J (all detects) R (all non-detects) J (all detects) R (all non-detects)
98NEC10GW201	o-Terphenyl Tricontane	0 (50-150) 0 (50-150)	Diesel range organics Residual range organics	J (all detects) R (all non-detects) J (all detects) R (all non-detects)
98NEC10GW802	o-Terphenyl Tricontane	0 (50-150) 0 (50-150)	Diesel range organics Residual range organics	J (all detects) R (all non-detects) J (all detects) R (all non-detects)
98NEC07GW801	o-Terphenyl	0 (50-150)	Diesel range organics	J (all detects) R (all non-detects)
98NEC09GW801	o-Terphenyl	0 (50-150)	Diesel range organics	J (all detects) R (all non-detects)
98NEC09GW802	o-Terphenyl	0 (50-150)	Diesel range organics	J (all detects) R (all non-detects)
98NEC00GW801	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECRCSD806*	o-Terphenyl	0 (50-150)	Diesel range organics	J (all detects) R (all non-detects)
98NEC13GW802	Tricontane	7.3 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NEC10SS801**	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECDBSD801*	o-Terphenyl	0 (50-150)	Diesel range organics	J (all detects) R (all non-detects)
98NECDBSS806*	o-Terphenyl	0 (50-150)	Diesel range organics	J (all detects) R (all non-detects)

Sample	Surrogate	%R (Limits)	Compound	Flag
98NECDBSS808**	Pentacosane	0 (50-150)	Diesel range organics	J (all detects) R (all non-detects)
98NECDBSS809**	Pentacosane	0 (50-150)	Diesel range organics	J (all detects) R (all non-detects)
98NECDBSD802*	Phenanthrene-d10	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECDBSD803*	Phenanthrene-d10	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECDBSS807	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECDBSS808	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECDBSS809	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECBDSS802	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECBDSS802**	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECBDSS801	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECBDSS801**	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECDBSS806	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NEC14SS802*	o-Terphenyl	9.1 (50-150)	Diesel range organics	J (all detects) R (all non-detects)
98NEC00SS801*	o-Terphenyl	0 (50-150)	Diesel range organics	J (all detects) R (all non-detects)

Sample	Surrogate	%R (Limits)	Compound	Flag
98NEC02SS801	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NEC02SS201	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NEC14SS802	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NEC14SS802**	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NEC00SS801**	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECRCSW801*	o-Terphenyl	3.1 (50-150)	Diesel range organics	J (all detects) R (all non-detects)
98NECRCSD804*	o-Terphenyl	0 (50-150)	Diesel range organics	J (all detects) R (all non-detects)
98NECRCSD803*	o-Terphenyl	1.5 (50-150)	Diesel range organics	J (all detects) R (all non-detects)
98NECRCSD802	o-Terphenyl Tricontane	0 (50-150) 0 (50-150)	Diesel range organics Residual range organics	J (all detects) R (all non-detects) J (all detects) R (all non-detects)
98NECRCSD802*	o-Terphenyl	3.9 (50-150)	Diesel range organics	J (all detects) R (all non-detects)
98NECRCSD202*	o-Terphenyl	3.1 (50-150)	Diesel range organics	J (all detects) R (all non-detects)
98NECRCSD801*	o-Terphenyl	5.3 (50-150)	Diesel range organics	J (all detects) R (all non-detects)
98NECRCSD201*	o-Terphenyl	3.5 (50-150)	Diesel range organics	J (all detects) R (all non-detects)

Sample	Surrogate	%R (Limits)	Compound	Flag
98NEC27GW001	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECRCSD804	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECRCSD803	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECRCSD803**	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECRCSD802**	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECRCSD202	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECRCSD202**	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECRCSD801	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECRCSD801**	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECRCSD201	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)
98NECRCSD201**	Tricontane	0 (50-150)	Residual range organics	J (all detects) R (all non-detects)

Action: Sample results reported as detectable were qualified as estimated (J) and results reported as nondetectable were qualified as unusable (R) as indicated above. This is considered a technical deficiency.

Surrogates were diluted out in samples 98NEC06SS802, 98NEC10SS801, 98NEC13GW802, 98NECDBSD801, 98NECDBSD801**, 98NECDBSD802, 98NECDBSD802*, 98NECDBSD802**, 98NECDBSD803, 98NECDBSD803*,

98NECDBSD803**, 98NEC00SS801, and 98NECRC301, 98NECRC302, 98NEC11GW802, 98NEC13GW001, 98NEC15GW801, 98NEC19GW801, 98NEC19GW201, 98NEC19GW802, 98NECRCSD804, and 98NECRCSD804**. No data qualifications were performed based on diluted surrogate results.

Finding 3: Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag
All samples in SDGs 063190, 063161, 063189, 063195, 063197, and 063188	All TCL compounds	No MS/MSD associated with these samples.	MS/MSD required.	None

For the samples listed in the table above, surrogate, laboratory control sample and laboratory control sample duplicates were used to assess precision and accuracy. Since these were acceptable with the exceptions noted in the previous and following tables, sample results were not qualified based on this finding. This is considered a protocol violation.

Finding 4: The MS/MSD percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag
K809083-02BMS/MSD (98NECRC301** 98NECRC302**)	Aliphatics: Diesel range organics Residual range organics	 - -	 - -	 40.1 (≤20) 49.1 (≤20)	 J J
K809083-02BMS/MSD (98NECRC301* 98NECRC302*)	Aromatics: Diesel range organics Residual range organics	 - -	 49.2 (50-150 46.9 (50-150)	 - -	 J J
98NEC19GW301MS/MSD (All samples in SDG A8-09-082)	Diesel range organics	-	-	152 (≤20)	J
98NEC19GW801MS/MSD (All water samples in SDG 063183)	Diesel range organics	-	-	300 (≤20)	J
98NEC19GW201MS/MSD (All water samples in SDG 063183)	Diesel range organics Residual range organics	- -	- -	100 (≤20) 64 (≤20)	J J

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag
98NECRCSD802MS/MSD (All soil samples in SDG 063183)	Residual range organics	-	-	67 (≤20)	J

Action: Samples were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

Although the percent recoveries were out for Residual range organics in 98NEC02SS801MS/MSD, Diesel range organics in 98NEC19GW301MS/MSD and 98NEC19GW801MS/MSD, and Diesel range organics and Residual range organics in 98NEC19GW201MS/MSD and 98NECRCSD802MS/MSD, no data qualifications were performed because of the high native concentration of these compounds in the unspiked sample.

Finding 5: Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Flag
LCS/LCSD (All water samples in SDG 063183)	Residual range organics	59.8 (60-120)	-	-	J

Action: Samples were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

Samples 98NEC1GW801 and 98NEC10GW201, samples 98NEC19GW801 and 98NEC19GW201, samples 98NECRCSD802 and 98NECRCSW202, samples 98NECRCSD802 and 98NECRCSD202, samples 98NECRCSD801 and 98NECRCSD201, samples 98NECRCSD801** and 98NECRCSD201**, samples 98NECRCSD802** and 98NECRCSD202**, samples 98NECRCSD802* and 98NECRCSD202*, and samples 98NECRCSD801* and 98NECRCSD201* were identified as field duplicates. No total petroleum hydrocarbons as diesel were detected in any of the samples with the following exceptions:

Compound	Concentration (Detection limit, ug/l)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NEC10GW801		98NEC10GW201			
	Dilution: 1 Prep Date: 9/18/98 Analysis date: 9/30/98		Dilution: 1 Prep Date: 9/18/98 Analysis date: 9/30/98			
Diesel range organics	100U	100U	110	100U	1X	-

Compound	Concentration (Detection limit, ug/L)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NEC19GW801		98NEC19GW201			
	Dilution: 10 Prep Date: 9/19/98 Analysis date: 10/22/98		Dilution: 10 Prep Date: 9/19/98 Analysis date: 10/22/98			
Diesel range organics	16000	1000U	18000	1000U	1X	-

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NECRCSD802		98NECRCSW202			
	Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/29/98		Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/29/98			
Residual range organics	77	19U	47	19U	2X	-

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NECRCSD802		98NECRCSD202			
	Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/29/98		Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/29/98			
Diesel range organics	130	7.4U	11	7.7U	12X	MD
Residual range organics	77	19U	47	19U	2X	-

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NECRCSD801		98NECRCSD201			
	Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/29/98		Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/29/98			
Diesel range organics	20	8.5U	36	11U	2X	-
Residual range organics	110	21U	170	26U	2X	-

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NECRCSD801**		98NECRCSD201**			
	Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/31/98		Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/31/98			
Aliphatic: Diesel range organics	21U	21U	28	26U	1X	-

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NECRCSD802**		98NECRCSD202**			
	Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/31/98		Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/31/98			
Aliphatic: Diesel range organics	110	19U	19U	19U	6X	MD

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NECRCSD802*		98NECRCSD202*			
	Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/31/98		Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/31/98			
Aromatic: Residual range organics	81	37U	44	38U	2X	-

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NECRCSD801*		98NECRCSD201*			
	Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/31/98		Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/31/98			
Aromatic: Residual range organics	93	43U	180	53U	2X	-

The comparability of the field duplicate sample data was considered technically acceptable with the following exceptions of Diesel range organics in sample pairs 98NECRCSD802 and 98NECRCSD202 and 98NECRCSD802** and 98NECRCSD202**. No specific reason for this difference was identified during the review of QA/QC results. Sample homogeneity or subsampling could possibly account for this problem. In cases where the detection limit of a non-detect result is greater than a detected result, the comparison of the data is not technically significant. These cases are flagged with a "NC" (not calculable) notation.

Sample pairs 98NEC10GW801 (original) and 98NEC10GW301 (referee), 98NEC10GW201 (original) and 98NEC10GW301 (referee), 98NEC10GW801 (original) and 98NEC19GW301 (referee), 98NEC10GW201 (original) and 98NEC19GW301 (referee), 98NECRCSD801** (original) and 98NECRC301 (referee), 98NECRCSD801* (original) and 98NECRC301 (referee), 98NECRCSD801 (original) and 98NECRC301 (referee), 98NECRCSD201 (original) and 98NECRC301 (referee), 98NECRCSD201* (original) and 98NECRC301 (referee), 98NECRCSD201** (original) and 98NECRC301 (referee), 98NECRCSD802* (original) and 98NECRC302 (referee), 98NECRCSD802** (original) and 98NECRC302 (referee), 98NECRCSD202* (original) and 98NECRC302 (referee), 98NECRCSD202** (original) and 98NECRC302 (referee), 98NECRCSD802 (original) and 98NECRC302 (referee), and 98NECRCSD202 (original) and 98NECRC302 (referee) were compared. Gasoline range organics were detected in the samples as follows:

Compound	Concentration (Detection limit, ug/L)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NEC10GW801		98NEC10GW301			
	Dilution: 1 Prep Date: 9/18/98 Analysis date: 9/30/98		Dilution: 1 Prep Date: 9/18/98 Analysis date: 10/12/98			
Diesel range organics	100U	100U	270	190U	3X	D
Residual range organics	200U	200U	300	190U	2X	-

Compound	Concentration (Detection limit, ug/L) 98NEC10GW201 Dilution: 1 Prep Date: 9/18/98 Analysis date: 9/30/98		98NEC10GW301 Dilution: 1 Prep Date: 9/18/98 Analysis date: 10/12/98		Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
Diesel range organics	110	100U	270	190U	2X	-
Residual range organics	200U	200U	300	190U	2X	-

Compound	Concentration (Detection limit, ug/L) 98NEC19GW801 Dilution: 10 Prep Date: 9/19/98 Analysis date: 10/22/98		98NEC19GW301 Dilution: 1 Prep Date: 9/18/98 Analysis date: 10/13/98		Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
Diesel range organics	16000	1000U	14000	190U	1X	-
Residual range organics	2500U	2500U	930	190U	NC	-

Compound	Concentration (Detection limit, ug/L) 98NEC19GW201 Dilution: 10 Prep Date: 9/19/98 Analysis date: 10/22/98		98NEC19GW301 Dilution: 1 Prep Date: 9/18/98 Analysis date: 10/13/98		Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
Diesel range organics	18000	1000U	14000	190U	1X	-
Residual range organics	2500U	2500U	930	190U	NC	-

Compound	Concentration (Detection limit, ug/L) 98NECRC301 Dilution: 1 Prep Date: 9/25/98 Analysis date: 11/3/98		98NECRCSD801** Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/31/98		Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
Aliphatic: Diesel range organics	29	10U	21U	21U	1X	-

Compound	Concentration (Detection limit, ug/L)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NECRC301		98NECRCSD801**			
	Dilution: 1 Prep Date: 9/25/98 Analysis date: 11/3/98		Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/31/98			
Aliphatic: Residual range organics	66	26U	43U	43U	2X	-

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NECRC301		98NECRCSD801*			
	Dilution: 1 Prep Date: 9/25/98 Analysis date: 11/3/98		Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/31/98			
Aromatic: Residual range organics	60	26U	93	43U	2X	-

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NECRC301		98NECRCSD801			
	Dilution: 5 Prep Date: 9/23/98 Analysis date: 10/19/98		Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/29/98			
Diesel range organics	210	52U	20	8.5U	11X	MD
Residual range organics	1600	52U	110	21U	15X	MD

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NECRC301		98NECRCSD201			
	Dilution: 5 Prep Date: 9/23/98 Analysis date: 10/19/98		Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/29/98			
Diesel range organics	210	52U	36	11U	6X	MD
Residual range organics	1600	52U	170	26U	9X	MD

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NECRC301		98NECRCSD201**			
	Dilution: 1 Prep Date: 9/25/98 Analysis date: 11/3/98		Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/31/98			
Aliphatic: Diesel range organics	29	10U	28	26U	1X	-
Aliphatic: Residual range organics	66	26U	53U	53U	1X	-

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NECRC301		98NECRCSD201*			
	Dilution: 1 Prep Date: 9/25/98 Analysis date: 11/3/98		Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/31/98			
Aromatic: Residual range organics	60	26U	180	53U	3X	-

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NECRC302		98NECRCSD802**			
	Dilution: 1 Prep Date: 9/25/98 Analysis date: 11/3/98		Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/31/98			
Aliphatic: Diesel range organics	15	7.3U	110	19U	7X	MD
Aliphatic: Residual range organics	32	18U	37U	37U	NC	-

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NECRC302		98NECRCSD802*			
	Dilution: 1 Prep Date: 9/25/98 Analysis date: 11/3/98		Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/31/98			
Aromatic: Residual range organics	26	18U	81	37U	3X	-

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NECRC302		98NECRCSD202**			
	Dilution: 1 Prep Date: 9/25/98 Analysis date: 11/3/98		Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/31/98			
Aliphatic: Diesel range organics	15	7.3U	19U	19U	NC	-
Aliphatic: Residual range organics	32	18U	38U	38U	NC	-

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NECRC302		98NECRCSD202*			
	Dilution: 1 Prep Date: 9/25/98 Analysis date: 11/3/98		Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/31/98			
Aromatic: Residual range organics	26	18U	44	38U	2X	-

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NECRC302		98NECRCSD802			
	Dilution: 5 Prep Date: 9/23/98 Analysis date: 10/17/98		Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/29/98			
Diesel range organics	64	37U	130	7.4U	2X	-
Residual range organics	380	37U	77	19U	5X	D

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NECRC302		98NECRCSD202			
	Dilution: 5 Prep Date: 9/23/98 Analysis date: 10/17/98		Dilution: 1 Prep Date: 9/27/98 Analysis date: 10/29/98			
Diesel range organics	64	37U	11	7.7U	6X	MD
Residual range organics	380	37U	47	19U	8X	MD

The comparability of the QA split sample referee data was considered technically acceptable with the following exceptions of Diesel range organics in sample pairs 98NEC10GW301 and 98NEC10GW801, Diesel range organics and Residual range organics in sample pair 98NECRC301 and 98NECRCSD801, sample pair 98NECRC301 and 98NECRCSD201, and sample pair 98NECRC302 and 98NECRCSD202, and Residual range organics in sample pair 98NECRC302 and 98NECRCSD802. No specific reason for this difference was identified during the review of QA/QC results. Sample homogeneity or subsampling could possibly account for this problem. In cases where the detection limit of a non-detect result is greater than a detected result, the comparison of the data is not technically significant. These cases are flagged with a "NC" (not calculable) notation.

IX. GC Aromatic Volatile Organics (Benzene, Ethylbenzene, Toluene, & Xylenes) by EPA SW 846 Method 8021

For GC BTEX analysis, holding times, instrument calibrations, instrument performance checks, blanks, field QC, and all accuracy and precision results were within validation criteria with the following exceptions:

Finding 1: Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 15.0% QC limits with the following exceptions:

Date	Column	Compound	%D	Associated Samples	Flag
9/25/98	Not specified	Benzene	36.5	98NECRCSW806 98NECRCSW805 98NECRCSW804 98NECRCSW803 98NECRCSW802 98NECRCSW801 98NECRCSW802MS 98NECRCSW802MSD	J

Action: Samples were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

Samples 98NECTB001, 98NECTB002, 98NECTB003, 98NECTB004, and 98NECTB007 were identified as trip blanks. No aromatic volatile organic contaminants were found in these blanks.

Surrogates were diluted out in samples 98NECRC301 and 98NECRC302. No data qualifications were performed based on diluted surrogate results.

Finding 2: Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag
All samples in SDGs 063161, 063195, 063188, and 063190	All TCL compounds	No MS/MSD associated with these samples.	MS/MSD required.	None

For the samples listed in the table above, surrogate, laboratory control sample and laboratory control sample duplicates were used to assess precision and accuracy. Since these were acceptable with the exceptions noted in the previous and following tables, sample results were not qualified based on this finding. This is considered a protocol violation.

Finding 3: The MS/MSD percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag
98NEC19GW801MS/MSD (All water samples in SDG 063183)	Benzene	-	-	13 (≤6)	J
	Toluene	-	-	7.9 (≤6)	J
	Xylene	-	-	9.0 (≤6)	J

Action: Samples were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

Samples 98NEC10GW801 and 98NEC10GW201, samples 98NEC15GW801 and 98NEC15GW201, and samples 98NEC19GW801 and 98NEC19GW201 were identified as field duplicates. No aromatic volatile organics were detected in any of the samples with the following exceptions:

Compound	Concentration (Detection limit, ug/L)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NEC15GW801		98NEC15GW201			
	Dilution: 1 Prep Date: N/A Analysis date: 9/25/98		Dilution: 1 Prep Date: N/A Analysis date: 9/25/98			
Xylene, total	23	3.0U	26	3.0U	1X	-

Compound	Concentration (Detection limit, ug/L)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NEC19GW801		98NEC19GW201			
	Dilution: 1 Prep Date: N/A Analysis date: 9/25/98		Dilution: 1 Prep Date: N/A Analysis date: 9/25/98			
Xylene, total	35	1.0U	34	1.0U	1X	-

The comparability of the field duplicate sample data was considered technically acceptable.

Sample pairs 98NEC15GW801 (original) and 98NEC15GW301 (referee), 98NEC19GW801 (original) and 98NEC19GW301 (referee), 98NEC19GW201 (original) and 98NEC19GW301 (referee), 98NECRCSD801 and 98NECRC301, 98NECRCSD201and 98NECRC301, 98NECRCSD802 and 98NECRC302, 98NECRCSD202 and 98NECRC302 were compared. No aromatic volatile organics were detected in the samples with the following exceptions:

Compound	Concentration (Detection limit, ug/L)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NEC15GW801		98NEC15GW301			
	Dilution: 1 Prep Date: N/A Analysis date: 9/25/98		Dilution: 1 Prep Date: N/A Analysis date: 9/29/98			
Xylene, total	23	3.0U	5.0	1.0U	5X	MD
Ethylbenzene	1.0U	1.0U	1.5	1.0U	2X	-

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NEC15GW201		98NEC15GW301			
	Dilution: 1 Prep Date: N/A Analysis date: 9/25/98		Dilution: 1 Prep Date: N/A Analysis date: 9/29/98			
Xylene, total	26	3.0U	5.0	1.0U	5X	MD
Ethylbenzene	1.0U	1.0U	1.5	1.0U	2X	-

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NEC19GW801		98NEC19GW301			
	Dilution: 1 Prep Date: N/A Analysis date: 9/25/98		Dilution: 1 Prep Date: N/A Analysis date: 9/29/98			
Toluene	1.0U	1.0U	1.4	1.0U	1X	-
Xylene, total	35	1.0U	32	1.0U	1X	-

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NEC19GW801		98NEC19GW301			
	Dilution: 1 Prep Date: N/A Analysis date: 9/25/98		Dilution: 1 Prep Date: N/A Analysis date: 9/29/98			
Toluene	1.0U	1.0U	1.4	1.0U	1X	-

Compound	Concentration (Detection limit, mg/Kg)				Difference Factor (X)	Disagreement /Major Disagreement (D/MD)
	98NEC19GW801		98NEC19GW301			
	Dilution: 1 Prep Date: N/A Analysis date: 9/25/98		Dilution: 1 Prep Date: N/A Analysis date: 9/29/98			
Xylene, total	34	1.0U	32	1.0U	1X	-

The comparability of the QA split sample referee data was considered technically acceptable with the following exceptions of Xylene, total in sample pair 98NEC15GW801 and 98NEC15GW301 and 98NEC15GW201 and 98NEC15GW301. No specific reason for this difference was identified during the review of QA/QC results. Sample homogeneity or subsampling could possibly account for this problem. In cases where the detection limit of a non-detect result is greater than a detected result, the comparison of the data is not technically significant. These cases are flagged with a "NC" (not calculable) notation.

X. HRGC/HRMS Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans by EPA SW 846 Method 8290

For HRGC/HRMS Polychlorinated Dibenzo-p-Dioxins and Polychlorinated Dibenzofurans analysis, holding times, instrument performance checks, instrument calibrations, blanks, field QC, and all accuracy and precision results were within validation criteria with the following exceptions:

Finding 1: The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria with the following exceptions:

Sample	Compound	Finding	Criteria	Flag
All samples in SDG 063183	All TCL compounds	Cooler temperature was reported at 21°C upon receipt by the laboratory.	Cooler temperature must be ≤10°C .	J

Action: Samples were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

No field blanks were identified in this SDG.

No field duplicates were identified in this SDG.

No QA split samples were identified in this SDG.

XI. Total Organic Carbon by Walkley/Black Method

For Total organic carbon analysis, holding times, instrument calibrations, blanks, field QC, and all accuracy and precision results were within validation criteria with the following exceptions:

Finding 1: All technical holding time requirements were met with the following exceptions:

Sample	Analyte	Total Days From Sample Collection Until Analysis	Required Holding Time (in Days) From Sample Collection Until Analysis	Flag
98NECBKSW801 98NECBKSW802 98NECBKSW801MS 98NECBKSW801MSD	Total organic carbon	31	28	J

Action: Samples were qualified as estimated (J) as indicated above. This is considered a protocol violation.

Finding 2: Matrix spike (MS) and matrix spike duplicate (MSD) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag
98NECBKSW801MS/MSD (All water samples in SDG 063197)	Total organic carbon	0 (75-125)	0 (75-125)	-	J (all detects) R (all non-detects)

Action: Sample results reported as detectable were qualified as estimated (J) and results reported as nondetectable were qualified as unusable (R) as indicated above. This is considered a technical deficiency.

No field blanks were identified in these SDGs.

No field duplicates were identified in these SDGs.

No QA split samples were identified in these SDGs.

XII. GC Methane by Method SOP RSK175

For GC Methane analysis, holding times, instrument calibrations, instrument performance checks, blanks, field QC, and all accuracy and precision results were within validation criteria with the following exceptions:

Finding 1: All of the routine calibration percent differences (%D) between the initial calibration RRF and the routine calibration RRF were less than or equal to 20.0% for unlabeled compounds and less than or equal to 30.0% for labeled compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
10/17/98	2,3,7,8-TCDD	25	LB1009A	J	A
	1,2,3,7,8-PeCDF	22		J	
	2,3,4,7,8-PeCDF	22		J	
	2,3,4,6,7,8-HxCDF	24		J	
	1,2,3,7,8,9-HxCDF	33		J	
	1,2,3,4,7,8-HxCDD	21		J	
	1,2,3,4,7,8,9-HpCDF	22		J	
	^{13}C-1,2,3,7,8-PeCDF	33		J	
	^{13}C-1,2,3,4,6,7,8-HpCDF	36		J	

Action: Samples were qualified as estimated (J) as indicated above. This is considered a technical deficiency.

Finding 2: Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable with the following exceptions:

Sample	Compound	Finding	Criteria	Flag
All samples in SDG 063197	All TCL compounds	No MS/MSD associated with these samples.	MS/MSD required.	None

For the samples listed in the table above, laboratory control sample and laboratory control sample duplicates were used to assess precision and accuracy. Since these were acceptable with the exceptions noted in the previous and following tables, sample results were not qualified based on this finding. This is considered a protocol violation.

No field blanks were identified in these SDGs.

No field duplicates were identified in these SDGs.

No QA split samples were identified in these SDGs.

R1

LDC #3417 (USACE-Alaska / Northeast Cape)

RFQ 99-094

LDC	SDG#	DATE REC'D	DATE DUE	VOA (8260B)		PAHs (SIM)		PCBs (8082)		Pb (6010)		Mn (6010)		GRO (101)		DRO RRO (102/3)		BTEX (8021)		Aromatic DRO RRO		Aliphatic DRO RRO		Dioxins (8290)		TOC (WB)		CH_4											
Matrix:	Water/Solid			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	A8-09-082	12-14-98	1-13-99	-	-	-	-	-	-	-	-	-	-	-	-	5	0	8	0	1	0	1	0	-	-	-	-	-	-										
B	A8-09-083	12-14-98	1-13-99	-	-	-	-	-	-	-	-	-	-	-	-	0	4	0	4	0	4	0	4	-	-	-	-	-	-										
C	A8-09-093	12-14-98	1-13-99	-	-	-	-	-	-	-	-	-	-	-	-	0	1	-	-	-	-	-	-	-	-	-	-	-	-										
D	98-09-136	12-14-98	1-13-99	4	0	1	4	1	4	3	0	3	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-										
E	063161	12-15-98	1-13-99	-	-	7	0	-	-	-	-	1	0	2	0	7	0	9	0	-	-	-	-	-	-	-	-	-	-										
F	063183	12-15-98	1-13-99	10	0	9	6	9	6	5	0	-	-	8	0	21	6	21	6	1	6	1	6	0	1	-	-	-	-										
G	063188	12-15-98	1-13-99	-	-	0	5	0	2	-	-	-	-	-	-	0	9	0	5	0	9	0	9	-	-	0	3	-	-										
H	063189	12-15-98	1-13-99	-	-	0	2	0	2	-	-	-	-	-	-	0	2	-	-	0	2	0	2	-	-	-	-	-	-										
I	063190	12-15-98	1-13-99	-	-	-	-	-	-	-	-	-	-	-	-	3	0	4	0	-	-	-	-	-	-	-	-	-	-										
J	063191	12-15-98	1-13-99	-	-	-	-	0	4	-	-	-	-	-	-	0	7	0	4	0	2	0	2	-	-	0	2	-	-										
K	063195	12-15-98	1-13-99	-	-	1	0	-	-	-	-	-	-	2	0	1	0	1	0	-	-	-	-	-	-	-	-	-	-										
L	063197	12-15-98	1-13-99	-	-	2	3	-	-	-	-	1	0	1	0	3	6	3	5	0	3	0	3	-	-	2	6	1	0										
M	063336	12-15-98	1-13-99	-	-	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-										
otal				14	0	20	21	10	18	8	0	5	0	13	0	40	35	46	24	2	26	2	26	0	1	2	11	1	0	0	0	0	0	0	0	0	0	0	0

Shaded cells indicate Level IV validation (all other cells are Level III validation)

SDG#: A8-09-093	VALIDATION SAMPLE TABLE	LDC#: 3417C
Project Name: Northeast Cape	Parameters/Analytical Method	RFQ 99-094

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	BTEX (8021)	DRO RRO (102)	Aromatic DRO RRO	Aliphatic DRO RRO									
98NEC02SS301	A809093-01	split	soil	9-14-98		X											

TB = Trip Blank, R = Rinsate, EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate, DL = Dilution, RE = Re[illegible]sis/Reextraction

SDG#: 063183 | **VALIDATION SAMPLE TABLE** | **LDC#: 3417F**

Project Name: Northeast Cape | Parameters/Analytical Method | **RFQ 99-094**

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (8260B)	PAHs (SIM)	PCBs (8082)	Lead (6010)	GRO (101)	DRO RRO (102/3)	BTEX (8021B)	Aromatic DRO RRO	Aliphatic DRO RRO	Dioxins (8290)			
98NEC11GW801	0631830001		water	9-13-98						X	X						
98NEC11GW802	0631830002		water	9-13-98						X	X						
98NEC13GW001	0631830003		water	9-13-98						X	X						
98NEC15GW801	0631830004	DUP	water	9-13-98						X	X						
98NEC15GW201	0631830005	DUP	water	9-13-98							X						
98NEC16GW801	0631830006	DUP	water	9-13-98	X			X									
98NEC16GW201	0631830007	DUP	water	9-13-98	X			X									
98NEC16GW802	0631830008		water	9-13-98	X			X									
98NEC19GW801	0631830009	DUP	water	9-13-98						X	X						
98NEC19GW201	0631830010	DUP	water	9-13-98						X	X						
98NEC19GW802	0631830011		water	9-13-98						X	X						
98NEC27GW001	0631830012		water	9-13-98						X	X						
98NECTB006	0631830013	TB	water	9-13-98	X												
98NEC25SS801	0631830014		soil	9-13-98										X			
98NECRCSD804	0631830015		soil	9-13-98		X	X			X	X						
98NECRCSD804*	0631830015*		soil	9-13-98								X					
98NECRCSD804**	0631830015**		soil	9-13-98									X				
98NECRCSD803	0631830016		soil	9-13-98		X	X			X	X						
98NECRCSD803*	0631830016*		soil	9-13-98								X					
98NECRCSD803**	0631830016**		soil	9-13-98									X				
98NECRCSD802	0631830017	DUP	soil	9-13-98		X	X			X	X						
98NECRCSD802*	0631830017*	DUP	soil	9-13-98								X					
98NECRCSD802**	0631830017**	DUP	soil	9-13-98									X				
98NECRCSD202	0631830018	DUP	soil	9-13-98		X	X			X	X						

TB = Trip Blank, R = Rinsate, EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate, DL = Dilution, RE = Reanalysis/Reextraction

SDG#: 063183 | VALIDATION SAMPLE TABLE | LDC#: 3417F

Project Name: Northeast Cape | Parameters/Analytical Method | RFQ 99-094

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (8260B)	PAHs (SIM)	PCBs (8082)	Lead (6010)	GRO (101)	DRO RRO (102/3)	BTEX (8021B)	Aromatic DRO RRO	Aliphatic DRO RRO	Dioxins (8290)			
98NECRCSD202*	0631830018*	DUP	soil	9-13-98								X					
98NECRCSD202**	0631830018**	DUP	soil	9-13-98									X				
98NECRCSD801	0631830019	DUP	soil	9-13-98		X	X			X	X						
98NECRCSD801*	0631830019*	DUP	soil	9-13-98								X					
98NECRCSD801**	0631830019**	DUP	soil	9-13-98									X				
98NECRCSD201	0631830020	DUP	soil	9-13-98		X	X			X	X						
98NECRCSD201*	0631830020*	DUP	soil	9-13-98								X					
98NECRCSD201**	0631830020**	DUP	soil	9-13-98									X				
98NECRCSW806	0631830021		water	9-13-98		X	X		X	X	X						
98NECRCSW805	0631830022		water	9-13-98		X	X		X	X	X						
98NECRCSW804	0631830023		water	9-13-98		X	X		X	X	X						
98NECRCSW803	0631830024		water	9-13-98		X	X		X	X	X						
98NECRCSW802	0631830025	DUP	water	9-13-98		X	X		X	X	X						
98NECRCSW202	0631830026	DUP	water	9-13-98		X	X			X							
98NECRCSW801	0631830027		water	9-13-98		X	X		X	X	X						
98NECRCSW801*	0631830027*		water	9-13-98								X					
98NECRCSW801**	0631830027**		water	9-13-98									X				
98NEC16GW801RE	0631830028	DUP	water	9-13-98	X												
98NEC16GW201RE	0631830029	DUP	water	9-13-98	X												
98NEC16GW802RE	0631830030	DUP	water	9-13-98	X												
98NECTB006RE	0631830031	TB	water	9-13-98	X												
98NEC16GW801MS	0631830006MS	MS	water	9-13-98	X			X									
98NEC16GW801MSD	0631830006MSD	MSD	water	9-13-98	X			X									
98NEC19GW801MS	0631830009MS	MS	water	9-13-98						X	X						
98NEC19GW801MSD	0631830009MSD	MSD	water	9-13-98						X	X						

TB = T R = Rinsate, EB = Equipment Blank, FB = Field Blank, FD = Field Dup S = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate, DL =
RE = s/Reextraction

SDG#: 063183 | VALIDATION SAMPLE TABLE | LDC#: 3417F

Project Name: Northeast Cape | Parameters/Analytical Method | RFQ 99-094

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (8260B)	PAHs (SIM)	PCBs (8082)	Lead (6010)	GRO (101)	DRO RRO (102/3)	BTEX (8021B)	Aromatic DRO RRO	Aliphatic DRO RRO	Dioxins (8290)			
98NEC19GW201MS	0631830010MS	MS	water	9-13-98						X	X						
98NEC19GW201MSD	0631830010MSD	MSD	water	9-13-98						X	X						
98NECRCSW802MS	0631830025MS	MS	water	9-13-98		X	X		X	X	X						
98NECRCSW802MSD	0631830025MSD	MSD	water	9-13-98		X	X		X	X	X						

TB = Trip Blank, R = Rinsate, EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate, DL = Dilution, RE = Reanalysis/Reextraction

Attachment 2

SDG#: 063188 | VALIDATION SAMPLE TABLE | LDC#: 3417G

Project Name: Northeast Cape | Parameters/Analytical Method | RFQ 99-094

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (8260B)	PAHs (SIM)	PCBs (8082)	Lead (6010)	GRO (101)	DRO RRO (102/3)	BTEX (8021B)	Aromatic DRO RRO	Aliphatic DRO RRO	Dioxins (8290)	TOC (W/B)		
98NECDBSD801	0631880001		soil	9-12-98		X				X	X						
98NECDBSD801*	0631880001*		soil	9-12-98								X					
98NECDBSD801**	0631880001**		soil	9-12-98									X				
98NECDBSD802	0631880002		soil	9-12-98		X				X	X						
98NECDBSD802*	0631880002*		soil	9-12-98								X					
98NECDBSD802**	0631880002**		soil	9-12-98									X				
98NECDBSD803	0631880003		soil	9-12-98		X				X	X						
98NECDBSD803*	0631880003*		soil	9-12-98								X					
98NECDBSD803**	0631880003**		soil	9-12-98									X				
98NECDBSS803	0631880004		soil	9-12-98											X		
98NECDBSS804	0631880005		soil	9-12-98											X		
98NECDBSS805	0631880006		soil	9-12-98											X		
98NECDBSS806	0631880007		soil	9-12-98						X							
98NECDBSS806*	0631880007*		soil	9-12-98								X					
98NECDBSS806**	0631880007**		soil	9-12-98									X				
98NECDBSS807	0631880008		soil	9-12-98						X							
98NECDBSS807*	0631880008*		soil	9-12-98								X					
98NECDBSS807**	0631880008**		soil	9-12-98									X				
98NECDBSS808	0631880009		soil	9-12-98						X							
98NECDBSS808*	0631880009*		soil	9-12-98								X					
98NECDBSS808**	0631880009**		soil	9-12-98									X				
98NECDBSS809	0631880010		soil	9-12-98						X							
98NECDBSS809*	0631880010*		soil	9-12-98								X					
98NECDBSS809**	0631880010**		soil	9-12-98									X				

TB = T[illegible]k, R = Rinsate, EB = Equipment Blank, FB = Field Blank, FD = Field Dup[illegible] MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate, DL = [illegible],
RE = [illegible]ls/Reextraction

SDG#: 063[illegible]

VALIDATION SAMPLE TABLE

LDC#: 3417G

Project Name: Northeast Cape

Parameters/Analytical Method

RFQ 99-094

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (8260B)	PAHs (SIM)	PCBs (8082)	Lead (6010)	GRO (101)	DRO RRO (102/3)	BTEX (8021B)	Aromatic DRO RRO	Aliphatic DRO RRO	Dioxins (8290)	TOC (W/B)		
98NECBDSS802	0631880011		soil	9-12-98		X	X			X	X						
98NECBDSS802*	0631880011*		soil	9-12-98								X					
98NECBDSS802**	0631880011**		soil	9-12-98									X				
98NECBDSS801	0631880012		soil	9-12-98		X	X			X	X						
98NECBDSS801*	0631880012*		soil	9-12-98								X					
98NECBDSS801**	0631880012**		soil	9-12-98									X				

TB = Trip Blank, R = Rinsate, EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate, DL = Dilution, RE = Reanalysis/Reextraction

Attachment 2

SDG#: 063189 | **VALIDATION SAMPLE TABLE** | **LDC#:** 3417H

Project Name: Northeast Cape | Parameters/Analytical Method | RFQ 99-094

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (8260B)	PAHs (SIM)	PCBs (8082)	Lead (6010)	GRO (101)	DRO RRO (102/3)	BTEX (8021B)	Aromatic DRO RRO	Aliphatic DRO RRO	Dioxins (8290)	TOC (W/B)		
98NECRCSD805	0631890001		soil	9-12-98		X	X			X							
98NECRCSD805*	0631890001*		soil	9-12-98								X					
98NECRCSD805**	0631890001**		soil	9-12-98									X				
98NECRCSD806	0631890002		soil	9-12-98		X	X			X							
98NECRCSD806*	0631890002*		soil	9-12-98								X					
98NECRCSD806**	0631890002**		soil	9-12-98									X				

TB = T[illegible], R = Rinsate, EB = Equipment Blank, FB = Field Blank, FD = Field Dup[illegible], MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate, DL = RE = [illegible]s/Reextraction

SDG#: 063190 | VALIDATION SAMPLE TABLE | LDC#: 3417I

Project Name: Northeast Cape | Parameters/Analytical Method | RFQ 99-094

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (8260B)	PAHs (SIM)	PCBs (8082)	Lead (6010)	GRO (101)	DRO RRO (102/3)	BTEX (8021B)	Aromatic DRO RRO	Aliphatic DRO RRO	Dioxins (8290)	TOC (W/B)		
98NEC10GW801	0631900001	DUP	water	9-12-98						X	X						
98NEC10GW201	0631900002	DUP	water	9-12-98						X	X						
98NEC10GW802	0631900003		water	9-12-98						X	X						
98NECTB003	0631900004		water	9-12-98							X						

TB = Trip Blank, R = Rinsate, EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate, DL = Dilution, RE = Reanalysis/Reextraction

SDG#: 063191 | VALIDATION SAMPLE TABLE | LDC#: 3417J

Project Name: Northeast Cape | Parameters/Analytical Method | RFQ 99-094

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (8260B)	PAHs (SIM)	PCBs (8082)	Lead (6010)	GRO (101)	DRO RRO (102/3)	BTEX (8021B)	Aromatic DRO RRO	Aliphatic DRO RRO	Dioxins (8290)	TOC (W/B)		
98NEC02SS801	0631910001	DUP	soil	9-14-98						X	X						
98NEC02SS802	0631910002		soil	9-14-98						X	X						
98NEC02SS201	0631910003	DUP	soil	9-14-98						X							
98NEC14SS801	0631910004		soil	9-14-98			X										
98NEC14SS802	0631910005		soil	9-14-98						X	X				X		
98NEC14SS802*	0631910005*		soil	9-14-98								X					
98NEC14SS802**	0631910005**		soil	9-14-98									X				
98NEC13SS801	0631910006		soil	9-14-98			X										
98NEC13SS802	0631910007		soil	9-14-98			X										
98NEC13SS803	0631910008		soil	9-14-98			X										
98NEC00SS801	0631910009		soil	9-14-98						X	X				X		
98NEC00SS801*	0631910009*		soil	9-14-98								X					
98NEC00SS801**	0631910009**		soil	9-14-98									X				
98NEC02SS801MS	0631910001MS	MS	soil	9-14-98						X							
98NEC02SS801MSD	0631910001MSD	MSD	soil	9-14-98						X							

TB = Trip Blank, R = Rinsate, EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate, DL = D
RE = Reanalysis/Reextraction

SDG#: 063195 | VALIDATION SAMPLE TABLE | LDC#: 3417K

Project Name: Northeast Cape | Parameters/Analytical Method | RFQ 99-094

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (8260B)	PAHs (SIM)	PCBs (8082)	Lead (6010)	GRO (101)	DRO RRO (102/3)	BTEX (8021B)	Aromatic DRO RRO	Aliphatic DRO RRO	Dioxins (8290)	TOC (W/B)		
98NEC27SW801	0631950001		water	9-16-98		X			X	X	X						
98NECTB007	0631950002	TB	water	9-16-98					X								

TB = Trip Blank, R = Rinsate, EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate, DL = Dilution, RE = Reanalysis/Reextraction

Attachment 2

SDG#: 063197 | **VALIDATION SAMPLE TABLE** | **LDC#:** 3417L

Project Name: Northeast Cape | Parameters/Analytical Method | **RFQ** 99-094

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (8260B)	PAHs (SIM)	PCBs (8082)	Mn (6010)	GRO (101)	DRO RRO (102/3)	BTEX (8021B)	Aromatic DRO RRO	Aliphatic DRO RRO	Dioxins (8290)	TOC (W/B)	CH_4	
98NECBKSW801	0631970001		water	9-15-98		X				X	X				X		
98NECBKSW802	0631970002		water	9-15-98		X				X	X				X		
98NEC13GW802	0631970003		water	9-15-98						X	X						
98NEC27GW801	0631970004		water	9-15-98				X	X								
98NEC00GW801	0631970005		water	9-15-98												X	
98NECBKSD801	0631970006		soil	9-15-98		X				X	X				X		
98NECBKSD801*	0631970006*		soil	9-15-98								X					
98NECBKSD801**	0631970006**		soil	9-15-98									X				
98NECBKSD802	0631970007		soil	9-15-98		X				X	X				X		
98NECBKSD802*	0631970007*		soil	9-15-98								X					
98NECBKSD802**	0631970007**		soil	9-15-98									X				
98NEC06SS801	0631970008		soil	9-15-98						X	X				X		
98NEC06SS802	0631970009		soil	9-15-98						X							
98NEC07SS802	0631970010		soil	9-15-98											X		
98NEC09SS801	0631970011		soil	9-15-98		X				X	X						
98NEC09SS802	0631970012		soil	9-15-98											X		
98NEC10SS801	0631970013		soil	9-15-98						X	X				X		
98NEC10SS801*	0631970013*		soil	9-15-98								X					
98NEC10SS801**	0631970013**		soil	9-15-98									X				

TB = Tr[illegible]nk, R = Rinsate, EB = Equipment Blank, FB = Field Blank, FD = Field Dup[illegible] MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate, DL = [illegible],
RE = [illegible]ls/Reextraction

SDG#: 063336 | VALIDATION SAMPLE TABLE | LDC#: 3417M

Project Name: Northeast Cape | Parameters/Analytical Method | RFQ 99-094

Client ID #	Lab ID #	QC Type	Matrix	Date Collected	VOA (8260B)	PAHs (SIM)	PCBs (8082)	Mn (6010)	GRO (101)	DRO RRO (102/3)	BTEX (8021B)	Aromatic DRO RRO	Aliphatic DRO RRO	Dioxins (8290)	TOC (W/B)	CH_4	
98NEC02SS801	0633360001	DUP	soil	9-14-98		X											

TB = Trip Blank, R = Rinsate, EB = Equipment Blank, FB = Field Blank, FD = Field Duplicate, MS = Matrix Spike, MSD = Matrix Spike Duplicate, DUP = Duplicate, DL = Dilution, RE = Reanalysis/Reextraction

LDC #: 3417D1 **VALIDATION COMPLETENESS WORKSHEET** Date: 9/21/98

SDG #: 98-09-136 ___EPA Level III X NFESC Level C Page: 1 of 1

Laboratory: Analytica Alaska, Inc. Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/13/98
II.	GC/MS Instrument performance check	N	Not provided, not required
III.	Initial calibration	N	↓
IV.	Continuing calibration	N	↓
V.	Blanks	SW	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	SW	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	Not provided, not required
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	SW	
XIII.	Tentatively identified compounds (TICs)	N	D=98NEC16GW201,1 (from SDG 063183)
XIV.	System performance	N	D=98NEC16GW801,1 ↓
XV.	Overall assessment of data	A	~~D=98NECTB006,2~~ D=98NECTB006RE,2
XVI.	Field duplicates (from SDG 063183)	SW	D=98NEC16GW201RE,1 D=98NEC16GW801RE,1
XVII.	Field blanks	SW	TB=2

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: all H2O

1	98NEC16GW301	11		21	
2	98NECTB005	12		22	
3	98NEC16GW301MS	13		23	
4	98NEC16GW301MSD	14		24	
5	9/21/98-blk	15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

LDC #: 34171D1
SDG #: 98-09-136

TARGET COMPOUND WORKSHEET

Reviewer: CP
2nd Reviewer

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

A. Chloromethane*	P. Bromodichloromethane	EE. Ethylbenzene**	TT. 1,2-Dibromoethane	III. n-Butylbenzene
B. Bromomethane	Q. 1,2-Dichloropropane**	FF. Styrene	UU. 1,1,1,2-Tetrachloroethane	JJJ. 1,2-Dichlorobenzene
C. Vinyl chloride**	R. cis-1,3-Dichloropropene	GG. Xylene, total	VV. Isopropylbenzene	KKK. 1,2,4-Trichlorobenzene
D. Chloroethane	S. Trichloroethene	HH. Vinyl acetate	WW. Bromobenzene	LLL. Hexachlorobutadiene
E. Methylene chloride	T. Dibromochloromethane	II. 2-Chloroethylvinyl ether	XX. 1,2,3-Trichloropropane	MMM. Naphthalene
F. Acetone	U. 1,1,2-Trichloroethane	JJ. Dichlorodifluoromethane	YY. n-Propylbenzene	NNN. 1,2,3-Trichlorobenzene
G. Carbon disulfide	V. Benzene	KK. Trichlorofluoromethane	ZZ. 2-Chlorotoluene	OOO. 1,3,5-Trichlorobenzene
H. 1,1-Dichloroethene**	W. trans-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	AAA. 1,3,5-Trimethylbenzene	PPP.
I. 1,1-Dichloroethane*	X. Bromoform*	MM. 1,2-Dibromo-3-chloropropane	BBB. 4-Chlorotoluene	QQQ.
J. 1,2-Dichloroethene	Y. 4-Methyl-2-pentanone	NN. Diethyl ether	CCC. tert-Butylbenzene	RRR.
K. Chloroform**	Z. 2-Hexanone	OO. 2,2-Dichloropropane	DDD. 1,2,4-Trimethylbenzene	SSS.
L. 1,2-Dichloroethane	AA. Tetrachloroethene	PP. Bromochloromethane	EEE. sec-Butylbenzene	TTT.
M. 2-Butanone	BB. 1,1,2,2-Tetrachloroethane*	QQ. 1,1-Dichloropropene	FFF. 1,3-Dichlorobenzene	UUU.
N. 1,1,1-Trichloroethane	CC. Toluene**	RR. Dibromomethane	GGG. p-Isopropyltoluene	VVV.
O. Carbon tetrachloride	DD. Chlorobenzene*	SS. 1,3-Dichloropropane	HHH. 1,4-Dichlorobenzene	WWW.

* = System performance check compounds (SPCC) for RF ; ** = Calibration check compounds (CCC) for %RSD.

Notes:

LDC #: 34171D1
SDG #: 98-09-136

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer:
2nd Reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a method blank associated with every sample in this SDG?
Y N N/A Was a method blank analyzed at least once every 12 hours for each matrix and concentration?
Y N N/A Was there contamination in the method blanks? If yes, please see the qualifications below.

Blank analysis date: 9/21/98
Conc. units: ug/L
Associated Samples: all (1-2)

Compound	Blank ID	Sample Identification								
	9/21/98	1	2							
Methylene chloride	2.3	4.7	5.9							
Acetone										
CRQL		10 U	10 U							
TICs:										
Hexamethyl-cyclotrisiloxane										
Octamethyl-cyclotetrasiloxane										

All results were qualified using the criteria stated below except those circled.

Note: Common contaminants such as Methylene chloride, Acetone, 2-Butanone, Carbon disulfide and TICs that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 34...1
SDG #: 98-09-136

VALIDATION FIN...GS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Pg: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD : GC/MS VOA (EPA SW 846 Method 8240/8260)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

(Y) N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y (N) N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits? lab limits (RPD ≤ 2x)

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
1		314	I2	0.00 (60-140)	0.00 (60-140)	(20)	all	J all & ND I A
			Z	75.0 (80-120)	( )	42.1 (≤ 20)		J I A
			Y	( )	( )	27.0 (↓)		U
			~~JJ a~~	( )	( )	~~240 (520 a)~~		~~J I A~~ a
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
H.	1,1-Dichloroethene	59-172%	≤ 22%	61-145%	≤ 14%
S.	Trichloroethene	62-137%	≤ 24%	71-120%	≤ 14%
V.	Benzene	66-142%	≤ 21%	76-127%	≤ 11%
CC.	Toluene	59-139%	≤ 21%	76-125%	≤ 13%
DD.	Chlorobenzene	60-133%	≤ 21%	75-130%	≤ 13%

MSD.1S

LDC #: 34771D1
SDG #: 98-09-136

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a LCS required?
Y (N) N/A Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?

lab limits (RPD ≤25)

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
1		9121198-LCS/LCSD	JJ	55.0 (60-140)	( )	24.0 (≤20)	all blank	J/A
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
H.	1,1-Dichloroethene				
S.	Trichloroethene				
V.	Benzene				
CC.	Toluene				
DD.	Chlorobenzene				

LCSLC

LDC #: 341_
SDG #: 98-09-136

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and CRQLs

Reviewer: AP
2nd Reviewer: AP

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N (N/A) Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?

Y N (N/A) Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?

#	Date	Sample ID	Finding	Associated Samples	Qualifications
1		all	1-chlorohexane not analyzed as required by QAPP		none/P
2		all	SOW RL > QAPP RL		
			SOW RL (ug/L) / QAPP RL (ug/L)		
			Dichlorodifluoromethane 5.0 / 1.0		none/P
			Chloromethane 5.0 / 1.0		
			Bromomethane 5.0 / 1.0		
			Chloroethane 5.0 / 1.0		
			Methylene Chloride 10 / 5.0		
			all analytes except those listed above and the following analytes - SOW RL = 2.0 ug/L and QAPP RL = 1.0 ug/L: Trichlorofluoromethane, Trichlorotrifluoroethane, 1,2-Dibromo-3-chloropropane, Acetone, Acrylonitrile, 2-Butanone, Carbon Disulfide, 2-Hexanone, Iodomethane, 4-methyl-2-Pentanone, Vinyl Acetate, tert-Butyl methyl ether, trans-1,4-Dichloro-2-butene, 2-Chloroethyl vinyl ether	

Comments: See sample calculation verification worksheet for recalculations

QA/QC REPORT

METHOD BLANK SUMMARY

PAGE: 3

CLIENT: USACE_AK

11 27/98

ORDER#: 9819136

SAMPLE ID	ANALYTE	UNITS	ANAL DATE	RESULT	LIMIT	DRIVE	RPEC FLAG	QC SPEC. LOW	QC SPEC. UPPER
MB1911_98F1	Volatiles by GC MS	ug L	09/21/98						
	Dichlorodifluoromethane			ND	2.0				
	Chloromethane			ND	2.0				
	Vinyl Chloride			ND	2.0				
	Bromomethane			ND	2.0				
	Chloroethane			ND	2.0				
	Trichlorofluoromethane			ND	2.0				
	1,1-Dichloroethene			ND	2.0				
	Trichlorotrifluoroethane			ND	2.0				
	Methylene Chloride			2.3	2.0				
	trans-1,2-Dichloroethene			ND	2.0				
	1,1-Dichloroethane			ND	2.0				
	2,2-Dichloropropane			ND	2.0				
	cis-1,2-Dichloroethene			ND	2.0				
	Bromochloromethane			ND	2.0				
	Chloroform			ND	2.0				
	1,1,1-Trichloroethane			ND	2.0				
	Carbon Tetrachloride			ND	2.0				
	1,1-Dichloropropene			ND	2.0				
	Benzene			ND	2.0				
	1,2-Dichloroethane			ND	2.0				
	Trichloroethene			ND	2.0				
	1,2-Dichloropropane			ND	2.0				
	Dibromomethane			ND	2.0				
	Bromodichloromethane			ND	2.0				
	cis-1,3-Dichloropropene			ND	2.0				
	Toluene			ND	2.0				
	trans-1,3-Dichloropropene			ND	2.0				
	1,1,2-Trichloroethane			ND	2.0				
	Tetrachloroethene			ND	2.0				
	1,3-Dichloropropane			ND	2.0				
	Dibromochloromethane			ND	2.0				
	1,2-Dibromoethane			ND	2.0				
	Chlorobenzene			ND	2.0				
	Ethylbenzene			ND	2.0				
	1,1,1,2-Tetrachloroethane			ND	2.0				
	m,p-Xylenes			ND	2.0				
	o-Xylene			ND	2.0				
	Styrene			ND	2.0				
	Bromoform			ND	2.0				
	Isopropylbenzene			ND	2.0				
	Bromobenzene			ND	2.0				
	n-Propylbenzene			ND	2.0				
	1,1,2,2-Tetrachloroethane			ND	2.0				
	1,2,3-Trichloropropane			ND	2.0				
	2-Chlorotoluene			ND	2.0				
	1,3,5-Trimethylbenzene			ND	2.0				
	4-Chlorotoluene			ND	2.0				

QA/QC REPORT

METHOD BLANK SUMMARY

PAGE: 4

CLIENT: USACE_AK

10/27/98

ORDER#: 9809136

SAMPLE ID	ANALYTE	UNITS	ANAL DATE	RESULT	LIMIT	SPIKE	%REC FLAG	QC SPECS LOW	QC SPECS UPPER
MB0921_98FL	Volatiles by GC/MS	ug/L	10/21/98						
	tert-Butylbenzene			ND	2.0 <1				
	1,2,4-Trimethylbenzene			ND	2.0 <1				
	sec-Butylbenzene			ND	2.0 <1				
	4-Isopropyltoluene			ND	2.0 <1				
	1,3-Dichlorobenzene			ND	2.0 <1				
	1,4-Dichlorobenzene			ND	2.0 <1				
	n-Butylbenzene			ND	2.0 <1				
	1,2-Dichlorobenzene			ND	2.0 <1				
	1,2-Dibromo-3-chloropropan			ND	10				
	1,2,4-Trichlorobenzene			ND	2.0 <1				
	Hexachlorobutadiene			ND	2.0 <1				
	Naphthalene			ND	2.0 <1				
	1,2,3-Trichlorobenzene			ND	2.0 <1				
	Acetone			ND	50				
	Acrylonitrile			ND	10				
	2-Butanone			ND	50				
	Carbon Disulfide			ND	2.0				
	trans-1,4-Dichloro-2-buten			ND	10				
	2-Chloroethyl Vinyl Ether			ND	10				
	2-Hexanone			ND	20				
	Iodomethane			ND	2.0				
	4-Methyl-2-pentanone			ND	20				
	Vinyl Acetate			ND	5.0				
	tert-Butyl methyl ether			ND	2.0				
	Dibromofluoromethane			47		50	94.0	80	120
	Toluene d-8			50		50	100	88	110
	p-Bromofluorobenzene			49		50	98.0	86	115

1-chlorohexane

LDC #: 7111D1
SDG #: 98-09-B6

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: [signature]
2nd reviewer: [signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

(Y) N N/A Were field blanks identified in this SDG?
(Y) N N/A Were target compounds detected in the field blanks?

Sample: 2 Field Blank / (Trip Blank) / Rinsate / Other _____ (circle one)

Compound	Concentration Units (ug/L)
Methylene chloride	5.9

Sample: _____ Field Blank / Trip Blank / Rinsate / Other_____ (circle one)

Compound	Concentration Units ( )

Sample: _____ Field Blank / Trip Blank / Rinsate / Other_____ (circle one)

Compound	Concentration Units ( )

LDC #: 3417F1 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/21/98

SDG #: 063183 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: DG

2nd Reviewer:

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 9/13/98
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	ASD, $r^2 \geq 0.990$
IV.	Continuing calibration	A	
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	SW	
XIII.	Tentatively identified compounds (TICs)	N	D=5, 98NEC16GW301 (from SDG 98-09-136) D=6, 98NEC16GW301
XIV.	System performance	N	D=2, 98NEC16GW301 (from SDG 98-09-136) D=1, 98NEC16GW301
XV.	Overall assessment of data	A	~~D=1,2~~ D=8, 98NECTB005
XVI.	Field duplicates	~~SW~~ SW	~~D=4, 98NEC16GW801 (from SDG 98-09-136)~~ D=1,2 D=5,6 D=1,6 D=2,5
XVII.	Field blanks	SW	TB=4,8* ND

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: all H2O

1	98NEC16GW801	1	11	9/26/98-Blk	1	21	
2	98NEC16GW201	1	12	10/1/98-Blk	2	22	
3	98NEC16GW802	1	13	98NEC16GW801RE MS	2	23	
4	98NECTB006	1	14	98NEC16GW801RE MSD	2	24	
5	98NEC16GW801RE	2	15			25	
6	98NEC16GW201RE	2	16			26	
7	98NEC16GW802RE	2	17			27	
8	98NECTB006RE	2	18			28	
9	98NEC16GW801MS	1	19			29	
10	98NEC16GW801MSD	1	20			30	

SDG #: 068183

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer:
2nd Reviewer:

All circled dates have exceeded the technical holding times.
(Y) N N/A Were all cooler temperatures within validation criteria?

METHOD : GC/MS VOA (EPA SW 846 Method 8240/8260)

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
5	H_2O	Y	9/13/98	NA	(10/1/98)	18	J/A
6	↓	↓	↓	↓	↓	↓	↓
7							
8							
13							
14							

TECHNICAL HOLDING TIME CRITERIA

Water unpreserved:	Aromatic within 7 days, non-aromatic within 14 days of sample collection.
Water preserved:	Both within 14 days of sample collection.
Soil:	Both within 14 days of sample collection.

LDC #: 34171F1
SDG #: 068193

TARGET COMPOUND WORKSHEET

Reviewer: AP
2nd Reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

A. Chloromethane*	P. Bromodichloromethane	EE. Ethylbenzene**	TT. 1,2-Dibromoethane	III. n-Butylbenzene
B. Bromomethane	Q. 1,2-Dichloropropane**	FF. Styrene	UU. 1,1,1,2-Tetrachloroethane	JJJ. 1,2-Dichlorobenzene
C. Vinyl chloride**	R. cis-1,3-Dichloropropene	GG. Xylene, total	VV. Isopropylbenzene	KKK. 1,2,4-Trichlorobenzene
D. Chloroethane	S. Trichloroethene	HH. Vinyl acetate	WW. Bromobenzene	LLL. Hexachlorobutadiene
E. Methylene chloride	T. Dibromochloromethane	II. 2-Chloroethylvinyl ether	XX. 1,2,3-Trichloropropane	MMM. Naphthalene
F. Acetone	U. 1,1,2-Trichloroethane	JJ. Dichlorodifluoromethane	YY. n-Propylbenzene	NNN. 1,2,3-Trichlorobenzene
G. Carbon disulfide	V. Benzene	KK. Trichlorofluoromethane	ZZ. 2-Chlorotoluene	OOO. 1,3,5-Trichlorobenzene
H. 1,1-Dichloroethene**	W. trans-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	AAA. 1,3,5-Trimethylbenzene	PPP.
I. 1,1-Dichloroethane*	X. Bromoform*	MM. 1,2-Dibromo-3-chloropropane	BBB. 4-Chlorotoluene	QQQ.
J. 1,2-Dichloroethene	Y. 4-Methyl-2-pentanone	NN. Diethyl ether	CCC. tert-Butylbenzene	RRR.
K. Chloroform**	Z. 2-Hexanone	OO. 2,2-Dichloropropane	DDD. 1,2,4-Trimethylbenzene	SSS.
L. 1,2-Dichloroethane	AA. Tetrachloroethene	PP. Bromochloromethane	EEE. sec-Butylbenzene	TTT.
M. 2-Butanone	BB. 1,1,2,2-Tetrachloroethane*	QQ. 1,1-Dichloropropene	FFF. 1,3-Dichlorobenzene	UUU.
N. 1,1,1-Trichloroethane	CC. Toluene**	RR. Dibromomethane	GGG. p-Isopropyltoluene	VVV.
O. Carbon tetrachloride	DD. Chlorobenzene*	SS. 1,3-Dichloropropane	HHH. 1,4-Dichlorobenzene	WWW.

* = System performance check compounds (SPCC) for RF ; ** = Calibration check compounds (CCC) for %RSD.

Notes:

LDC #: 3417F1
SDG #: 0603183

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer:
2nd Reviewer:

METHOD : GC/MS VOA (EPA SW 846 Method 8240/8260)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

(Y) N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y (N) N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
1		9/10	H	103 (72-102)	104 (72-102)	( )	~~All~~ 1-4	J (all) / A
				( )	( )	( )		
2		9/10	all except * (unbiased)	(all not) all analytes not spiked as 'neg'd' by QAPP (only compds listed below are spiked*)		( )	1-4	none / P
				( )	( )	( )		
3		13/14	II	analytes)	not spiked	as 'neg'd	5-8	none / P
				by QAPP)	( )	( )		
				( )	( )	( )		
4		13/14	G	( )	365 (70-130)	45 (≤20)	5-8	J / A
			F	( )	( )	38 (≤20)		↓
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
H.	1,1-Dichloroethene	59-172%	≤ 22%	61-145%	≤ 14%
S.	Trichloroethene	62-137%	≤ 24%	71-120%	≤ 14%
V.	Benzene	66-142%	≤ 21%	76-127%	≤ 11%
CC.	Toluene	59-139%	≤ 21%	76-125%	≤ 13%
DD.	Chlorobenzene	60-133%	≤ 21%	75-130%	≤ 13%

LDC #: 34T1
SDG #: 068183

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and CRQLs

Reviewer:
2nd Reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N (N/A) Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?

Y N (N/A) Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?

#	Date	Sample ID	Finding	Associated Samples	Qualifications
1		all	lab RL > QAPP RL		none
			lab RL (ug/L)	QAPP RL (ug/L)	
			Bromoethane 2.0	1.0	
			Chloroethane 2.0	1.0	
			chloromethane 2.0	1.0	
			Dichlorodifluoromethane 2.0	1.0	
			Vinyl Chloride 2.0	1.0	

Comments: See sample calculation verification worksheet for recalculations

SDG #: 063183

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: QC
2nd reviewer: R

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

(Y) N N/A Were field duplicate pairs identified in this SDG?

(Y) N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (Detection limit) (units ug/L) 4 Dilution 1.0 Prep Date 9/26/98 Analysis date 9/27/98	98NECTB005 Dilution 1.0 Prep Date NA Analysis date 9/21/98	Difference	Disagreement /Major Disagreement (D / MD)
Naphthalene	1.3 (1.0U)	2.0U	NC	
Methylene Chloride	1.0U	5.9 (~~5.0~~ 10U)	6	MD
Number of TICs: 0	Sum of Concentration: 0	Sum of Concentration: 0		

Compound	Concentration (Detection limit) (units ug/L) 8(RE) Dilution 1.0 Prep Date 10/1/98 Analysis date 10/1/98	98NECTB005 Dilution 1.0 Prep Date NA Analysis date 9/21/98	Difference	Disagreement /Major Disagreement (D / MD)
~~Naphthalene~~				
Methylene Chloride	1.0U	5.9 (10U 7.0U)	6	MD
Number of TICs: 0	Sum of Concentration: 0	Sum of Concentration: 0		

Compound	Concentration (Detection limit) (units ug/L) 1 Dilution 1.0 Prep Date 9/26/98 Analysis date 9/27/98	2 Dilution 1.0 Prep Date 9/27/98 Analysis date 9/27/98	Difference	Disagreement /Major Disagreement (D / MD)
Naphthalene	4.2 (1.0U)	2.8 (1.0U)	2	
1,2,4-Trimethylbenzene	1.1 (1.0U)	1.0U	1.1	
Number of TICs:	Sum of Concentration:	Sum of Concentration:		

LDC #: JH1F1
SDG #: 063183

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: DP
2nd reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

(Y) N N/A Were field duplicate pairs identified in this SDG?
(Y) N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (Detection limit) (units ug/L)		Difference	Disagreement /Major Disagreement (D / MD)
	5 (KE)	6 (KE)		
	Dilution 1.0 Prep Date 10/1/98 Analysis date 10/1/98	Dilution 1.0 Prep Date 10/1/98 Analysis date 10/1/98		
Naphthalene	2.6 (1.0U)	4.3 (1.0U)	2	
Number of TICs: Ø	Sum of Concentration: Ø	Sum of Concentration: Ø		

Compound	Concentration (Detection limit) (units ug/L)		Difference	Disagreement /Major Disagreement (D / MD)
	1 [illegible]	6 (KE)		
	Dilution 1.0 Prep Date 9/24/98 Analysis date 9/27/98	Dilution 1.0 Prep Date 10/1/98 Analysis date 10/1/98		
Naphthalene	4.2 (1.0U)	4.3 (1.0U)	1	
1,2,4-Trimethylbenzene	1.1 (1.0U)	1.0U	1.1	
Number of TICs: Ø	Sum of Concentration: Ø	Sum of Concentration: Ø		

Compound	Concentration (Detection limit) (units ug/L)		Difference	Disagreement /Major Disagreement (D / MD)
	2	5 (KE)		
	Dilution 1.0 Prep Date 9/24/98 Analysis date 9/27/98	Dilution 1.0 Prep Date 10/1/98 Analysis date 10/1/98		
Naphthalene	2.8 (1.0U	2.6 (1.0U)		
—		—		
Number of TICs: Ø	Sum of Concentration: Ø	Sum of Concentration: Ø		

LDC #: 3417F1
SDG #: 063183

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer:
2nd reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

Y N N/A Were field duplicate pairs identified in this SDG?
Y N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (Detection limit) (units ug/L)		Difference	Disagreement /Major Disagreement (D / MD)
	1	98NEC166W301 (from 106 98-09-136)		
	Dilution 1.0 Prep Date 9/24/98 Analysis date 9/21/98	Dilution 1.0 Prep Date 9/21/98 Analysis date 9/21/98		
Methylene Chloride (CH_2Cl_2)	1.0U	4.7 (1.0U)	5	D
1,2,4-Trimethylbenzene (1,2,4-TMB)	1.1 (1.0U)	1.4 (2.0U)	1	
4-Isopropyltoluene (4-IPT)	1.0U	0.92 J	1	
Naphthalene (Naph)	4.2 (1.0U)	4.9	1	
Number of TICs: Ø	Sum of Concentration: Ø	Sum of Concentration: Ø		

Compound	Concentration (Detection limit) (units ug/L)		Difference	Disagreement /Major Disagreement (D / MD)
	2	98NEC166W301 (from 106 98-09-136)		
	Dilution 1.0 Prep Date 9/24/98 Analysis date 9/21/98	Dilution 1.0 Prep Date 9/21/98 Analysis date 9/21/98		
$MeCl_2$	1.0U	4.7 (1.0U)	5	D
1,2,4-TMB	1.0U	1.4 (2.0U)	1	
4-IPT	1.0U	0.92 J	1	
Naph	2.8 (1.0U)	4.9	2	
Number of TICs: Ø	Sum of Concentration: Ø	Sum of Concentration: Ø		

Compound	Concentration (Detection limit) (units ug/L)		Difference	Disagreement /Major Disagreement (D / MD)
	5 (HE)	98NEC166W301 (from 106 98-09-136)		
	Dilution 1.0 Prep Date 10/1/98 Analysis date 10/1/98	Dilution 1.0 Prep Date 9/21/98 Analysis date 9/21/98		
$MeCl_2$	1.0U	4.7 (1.0U)	5	D
1,2,4-TMB	1.0U	1.4 (2.0U)	1	
4-IPT	1.0U	0.92 J	1	
Naph	2.6 (1.0U)	4.9	2	
Number of TICs: Ø	Sum of Concentration: Ø	Sum of Concentration: Ø		

LDC #: 34171F1
SDG #: 063183

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: [signature]
2nd reviewer: [signature]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

Y N N/A Were field duplicate pairs identified in this SDG?
Y N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (Detection limit) (units ug/L)		Difference	Disagreement /Major Disagreement (D / MD)
	6 (KE)	98NEC16GW301	(from SDG 98-09-136)	
	Dilution 1.0 Prep Date 10/1/98 Analysis date 10/1/98	Dilution 1.0 Prep Date 9/21/98 Analysis date 9/21/98		
Methylene Chloride	1.0U	4.7 (1.0U)	5	D
1,2,4-Trimethylbenzene	1.0U	1.4	(2.0U)	
4-Isopropyltoluene	1.0U	0.92 J		
Naphthalene	4.3 (1.0U)	4.9		
Number of TICs: Ø	Sum of Concentration: Ø	Sum of Concentration: Ø		

Compound	Concentration (Detection limit) (units ____)		Difference	Disagreement /Major Disagreement (D / MD)
	Dilution ____ Prep Date ____ Analysis date	Dilution ____ Prep Date ____ Analysis date		
Number of TICs:	Sum of Concentration:	Sum of Concentration:		

Compound	Concentration (Detection limit) (units ____)		Difference	Disagreement /Major Disagreement (D / MD)
	Dilution ____ Prep Date ____ Analysis date	Dilution ____ Prep Date ____ Analysis date		
Number of TICs:	Sum of Concentration:	Sum of Concentration:		

LDC #: 24112

SDG #: 03183

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: [illegible]

2nd reviewer: [illegible]

METHOD: GC/MS VOA (EPA SW 846 Method 8240/8260)

Y N N/A Were field blanks identified in this SDG?

Y N N/A Were target compounds detected in the field blanks?

Sample: 4 Field Blank / Trip Blank / Rinsate / Other _____ (circle one)

Compound	Concentration Units (ug/L)
Naphthalene	1.3

Sample: _____ Field Blank / Trip Blank / Rinsate / Other _____ (circle one)

Compound	Concentration Units ( )

Sample: _____ Field Blank / Trip Blank / Rinsate / Other _____ (circle one)

Compound	Concentration Units ( )

LDC #: 3417D2 **VALIDATION COMPLETENESS WORKSHEET** Date: 9 10/2/98

SDG #: 98-09-136 ___EPA Level III _X_NFESC Level C Page: 1 of 1

Laboratory: Analytica Alaska, Inc. Reviewer: JP

2nd Reviewer: D

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/13/98
II.	GC/MS Instrument performance check	N	Not provided, not reviewed
III.	Initial calibration	N	↓
IV.	Continuing calibration	N	
V.	Blanks	SW	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples 'SW'	~~SW~~ A	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	N	Not provided, not reviewed
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentatively identified compounds (TICs)	N	D=~~1~~ 3, 98NECRCSW202 (from SDG 063183)
XIV.	System performance	N	D= 3, 98NECRCSW202
XV.	Overall assessment of data	A	D= 2, 98NECRCSD802 D= 2, 98NECRCSD202
XVI.	Field duplicates per SDG 063183	A SW	D= 1, 98NECRCSD801 D= 1, 98NECRCSD201
XVII.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NECRC301 soil 1x, 2x, 4x	11		21	
2	98NECRC302 ↓ ↓	12		22	
3	98NECRCSW302 H_2O	13		23	
4	98NECRC302MS soil 1x, 2x, 4x	14		24	
5	98NECRC302MSD ↓ ↓	15		25	
6	9/17/98-Blk H_2O	16		26	
7	9/18/98-Blk soil	17		27	
8		18		28	
9		19		29	
10		20		30	

LDC #: 34172
SDG #: 98-09-136

VALIDATION FINDINGS WORKSHEET
Blanks

Page: 1 of
Reviewer:
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a method blank analyzed for each matrix?
Y N (N/A) Was a method blank analyzed for each concentration preparation level?
(Y) N N/A Was a method blank associated with every sample?
(Y) N N/A Was the blank contaminated? If yes, please see qualification below.

Blank extraction date: 9/17/98 **Blank analysis date:** 10/16/98
Conc. units: µg/L Associated Samples: all H2O (3)

Compound	Blank ID	Associated Samples / Sample Identification								
	9/17/98 BL									
Di-n-butylphthalate										
Butylbenzylphthalate										
Bis(2-ethylhexyl)phthalate										
Di-n-octylphthalate										
naphthalene	0.023	ND detect								
CRQL										
TICs:										
4-Hydroxy-4-methyl-2-pentanone										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Oil contaminants within five times the method blank concentration were also qualified as not detected, "U"

BLA.

LDC #: 341

SDG #: 98[illegible]134

VALIDATION FIN S WORKSHEET

Surrogate Recovery

Page: 1 of 1

Reviewer:

2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualification below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were percent recoveries (%R) for surrogates within QC limits stated below? lab limits

Y (N) N/A If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?

Y N (N/A) If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

#	Date	Sample ID	Surrogate	%R (Limits)	Qualifications
1		9/18/98-BLK	Anthracene d10	121 (43-116)	~~J (all detects) P~~ no qual
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

* QC limits are advisory	QC Limits (Soil)	QC Limits (Water)		QC Limits (Soil)	QC Limits (Water)
S1 (NBZ) = Nitrobenzene-d5	23-120	35-114	S5 (2FP) = 2-Fluorophenol	25-121	21-100
S2 (FBP) = 2-Fluorobiphenyl	30-115	43-116	S6 (TBP) = 2,4,6-Tribromophenol	19-122	10-123
S3 (TPH) = Terphenyl-d14	18-137	33-141	S7 (2CP) = 2-Chlorophenol-d4	20-130*	33-110*
S4 (PHL) = Phenol-d5	24-113	10-94	S8 (DCB) = 1,2-Dichlorobenzene-d4	20-130*	16-110*

LDC #: 34ND2
SDG #: 98 09-136

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / (Water) ~~draft specific~~ (insufficient sample)

Y (N) N/A Was a MS/MSD analyzed every 20 samples of each matrix? AP

Y (N) N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits? lab limits

#	Date	MS/MSD ID	~~see list~~ Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
1		415	LLL	49.1 (50-125)	45.5 (50-125)	( )	all soil	no qual (all)
			UU	39.5 (54-140)	37.8 (54-140)	( )		
			VV	40.0 (59-131)	36.7 (59-131)	( )		
			YY	38.2 (51-140)	36.7 (51-140)	( )		
			GGG	( )	( )	46.8 (540)		J/A
			HHH	( )	( )	47.7 ( )		
			KKK	( )	47.3 (50-129)	( )		no qual
				( )	( )	( )		
~~2~~		~~no H2O MS/MSD~~	~~all~~	( )	( )	( )	~~all H2O~~	~~no qual~~ none P
				( )	( )	( )		
2		no ~~H2O~~ MS/MSD in batch	all	( )	( )	( )	all H2O	~~no qual~~ (insufficient sample)
				( )	( )	( )		
		(not fild@C)		( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)		Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
A.	Phenol	26-90%	≤ 35%	12-110%	≤ 42%	G.	Acenaphthene	31-137%	≤ 19%	46-118%	≤ 31%
B.	2-Chlorophenol	25-102%	≤ 50%	27-123%	≤ 40%	H.	4-Nitrophenol	11-114%	≤ 50%	10-80%	≤ 50%
C.	1,4-Dichlorobenzene	28-104%	≤ 27%	36-97%	≤ 28%	I.	2,4-Dinitrotoluene	28-89%	≤ 47%	24-96%	≤ 38%
D.	N-Nitroso-di-n-propylamine	41-126%	≤ 38%	41-116%	≤ 38%	J.	Pentachlorophenol	17-109%	≤ 47%	9-103%	≤ 50%
E.	1,2,4-Trichlorobenzene	38-107%	≤ 23%	39-98%	≤ 28%	K.	Pyrene	35-142%	≤ 36%	26-127%	≤ 31%
F.	4-Chloro-3-methylphenol	26-103%	≤ 33%	23-97%	≤ 42%						

LDC #: 341
SDG #: 98-09-186

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: SP
2nd Reviewer: [signature]

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a LCS required?

Y (N) N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits? lab limits

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
1		9/H/98-66/67	D S	335 (45-136)	35.5 (45-136)	( )	All H2O #	J / A
			DD	44.0 (48-133)	32.0 (48-133)	31.6 ( )	lab	
			GG	42.0 (48-121)	( )	~~35.3~~ ( )		
			NN	46.0 (58-133)	( )	54.0 (≤40)		
			UU	34.0 (54-140)	38.0 (59-140)	~~26.7~~ ( )		
			VV	~~34.0 (59-131)~~	26.0 (59-131)	( )		
			YY	38.0 (51-140)	40.0 (51-140)	( )		
			CCC	64.0 (58-118)	~~54.0 (48-125) 5%~~	( )		
			DDD	50.0 (55-134)	~~54.0 + 5%~~	( )		
			HHH	64.0 (60-160)	56.0 (60-160)	165 (≤40)		
			ZZ	( )	34.0 (46-135)	~~39.1~~ ( )		J/A
			GGG	( )	480 (41-133)	1666 (≤40)		
			JJJ	( )	170 (48-125)	106 ( )		
			KKK	( )	280 (50-129)	139 ( )		
			LLL	( )	168 (50-125)	105 ( )		
			III	( )	( )	90.1 ( )		J/A
				( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)		Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
A.	Phenol					G.	Acenaphthene				
B.	2-Chlorophenol					H.	4-Nitrophenol				
C.	1,4-Dichlorobenzene					I.	2,4-Dinitrotoluene				
D.	N-Nitroso-di-n-propylamine					J.	Pentachlorophenol				
E.	1,2,4-Trichlorobenzene					K.	Pyrene				
F.	4-Chloro-3-methylphenol										

LDC #: 34172
SDG #: 98-09-136

VALIDATION FINDINGS WORKSHEET

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

A. Phenol	N. 2-Nitrophenol	AA. 2-Chloronaphthalene	NN. Fluorene	AAA. Butylbenzylphthalate
B. Bis (2-chloroethyl) ether	O. 2,4-Dimethylphenol	BB. 2-Nitroaniline	OO. 4-Nitroaniline	BBB. 3,3'-Dichlorobenzidine
C. 2-Chlorophenol	P. Bis(2-chloroethoxy)methane	CC. Dimethylphthalate	PP. 4,6-Dinitro-2-methylphenol	CCC. Benzo(a)anthracene
D. 1,3-Dichlorobenzene	Q. 2,4-Dichlorophenol	DD. Acenaphthylene	QQ. N-Nitrosodiphenylamine (1)	DDD. Chrysene
E. 1,4-Dichlorobenzene	R. 1,2,4-Trichlorobenzene	EE. 2,6-Dinitrotoluene	RR. 4-Bromophenyl-phenylether	EEE. Bis(2-ethylhexyl)phthalate
F. 1,2-Dichlorobenzene	S. Naphthalene	FF. 3-Nitroaniline	SS. Hexachlorobenzene	FFF. Di-n-octylphthalate
G. 2-Methylphenol	T. 4-Chloroaniline	GG. Acenaphthene	TT. Pentachlorophenol	GGG. Benzo(b)fluoranthene
H. 2,2'-Oxybis(1-chloropropane)	U. Hexachlorobutadiene	HH. 2,4-Dinitrophenol	UU. Phenanthrene	HHH. Benzo(k)fluoranthene
I. 4-Methylphenol	V. 4-Chloro-3-methylphenol	II. 4-Nitrophenol	VV. Anthracene	III. Benzo(a)pyrene
J. N-Nitroso-di-n-propylamine	W. 2-Methylnaphthalene	JJ. Dibenzofuran	WW. Carbazole	JJJ. Indeno(1,2,3-cd)pyrene
K. Hexachloroethane	X. Hexachlorocyclopentadiene	KK. 2,4-Dinitrotoluene	XX. Di-n-butylphthalate	KKK. Dibenz(a,h)anthracene
L. Nitrobenzene	Y. 2,4,6-Trichlorophenol	LL. Diethylphthalate	YY. Fluoranthene	LLL. Benzo(g,h,i)perylene
M. Isophorone	Z. 2,4,6-Trichlorophenol	MM. 4-Chlorophenyl-phenyl ether	ZZ. Pyrene	

Notes:

COM

LDC #: 3417E2 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/18/98
SDG #: 063161 ___EPA Level III __NFESC Level C Page: 1 of 1
Laboratory: Quanterra Environmental Services Reviewer:
2nd Reviewer:

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/11-12/98
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD, $r^2 \geq 0.990$
IV.	Continuing calibration	N	all ICAL
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates SW	~~A~~ N	~~client specific~~
VIII.	Laboratory control samples	A	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs of (0.25ug/L)	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate
N = Not provided/applicable R = Rinsate TB = Trip blank
SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples: all H_2O

1	98NEC03GW801 10X	11		21	
2	98NEC04GW801	12		22	
3	98NEC00GW801	13		23	
4	98NEC07GW801	14		24	
5	98NEC09GW801	15		25	
6	98NEC09GW802	16		26	
7	98NEC09GW803	17		27	
8	9/18/98-Blk	18		28	
9		19		29	
10		20		30	

LDC #: 34176E2
SDG #: 063161

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualification below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were percent recoveries (%R) for surrogates within QC limits stated below? lab limits
(Y) N N/A If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?
(Y) N N/A If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

#	Date	Sample ID	Surrogate	%R (Limits)	Qualifications
1		LCS (lab)	chrysene-d12	0.0 (10-131)	no qual (all)
			fluorene-d10	0.0 (17-110)	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

* QC limits are advisory

		QC Limits (Soil)	QC Limits (Water)
S1 (NBZ)	Nitrobenzene-d5	23-120	35-114
S2 (FBP)	2-Fluorobiphenyl	30-115	43-116
S3 (TPH)	Terphenyl-d14	18-137	33-141
S4 (PHL)	Phenol-d5	24-113	10-94
S5 (2FP)	2-Fluorophenol	25-121	21-100
S6 (TBP)	2,4,6-Tribromophenol	19-122	10-123
S7 (2CP)	2-Chlorophenol-d4	20-130*	33-110*
S8 (DCB)	1,2-Dichlorobenzene-d4	20-130*	16-110*

LDC #: 341.
SDG #: 063161

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: DP
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / (Water)

Y (N) N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y N (N/A) Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
1		no MS/MSD	all	( )	( )	( )	all	none / P
		mb for batch		( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)		Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
A.	Phenol	26-90%	≤ 35%	12-110%	≤ 42%	G.	Acenaphthene	31-137%	≤ 19%	46-118%	≤ 31%
B.	2-Chlorophenol	25-102%	≤ 50%	27-123%	≤ 40%	H.	4-Nitrophenol	11-114%	≤ 50%	10-80%	≤ 50%
C.	1,4-Dichlorobenzene	28-104%	≤ 27%	36-97%	≤ 28%	I.	2,4-Dinitrotoluene	28-89%	≤ 47%	24-96%	≤ 38%
D.	N-Nitroso-di-n-propylamine	41-126%	≤ 38%	41-116%	≤ 38%	J.	Pentachlorophenol	17-109%	≤ 47%	9-103%	≤ 50%
E.	1,2,4-Trichlorobenzene	38-107%	≤ 23%	39-98%	≤ 28%	K.	Pyrene	35-142%	≤ 36%	26-127%	≤ 31%
F.	4-Chloro-3-methylphenol	26-103%	≤ 33%	23-97%	≤ 42%						

LDC #: 3417F2 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/18/98

SDG #: 063183 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: JF

2nd Reviewer: A

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/13/98
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	RSD, $r^2 \geq 0.990$
IV.	Continuing calibration	SW	
V.	Blanks	SW	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	SW	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	SW	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentatively identified compounds (TICs)	N	D=12, 98NECRCSW802* (from SDG 98-09-(36) D=11, 98NECRCSW802*
XIV.	System performance	N	D=3, 98NECRC302 D=4, 98NECRC302
XV.	Overall assessment of data	A	D=5, 98NECRC301 D=6, 98NECRC901
XVI.	Field duplicates	~~SW~~ SW	D=11,12* D=3,4* D=5,6 * ND
XVII.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NECRCSD804 Soil 20X	11	98NECRCSW802 H2O	21	
2	98NECRCSD803	12	98NECRCSW202	22	
3	98NECRCSD802	13	98NECRCSW801	23	
4	98NECRCSD202	14	98NECRCSW802MS	24	
5	98NECRCSD801	15	98NECRCSW802MSD	25	
6	98NECRCSD201	16	9/27/98-Blk Soil	26	
7	98NECRCSW806 H2O	17	9/18/98-Blk H2O	27	
8	98NECRCSW805	18	98NECRCSD802MS Soil	28	
9	98NECRCSW804	19	98NECRCSD802MSD H2O	29	
10	98NECRCSW803	20		30	

LDC #: 34'

SDG #: Ch

VALIDATION FI[illegible]S WORKSHEET
Initial [illegible]ation

Pe: 1 of 1

[illegible]wer: SP

2nd Reviewer: A

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Did the laboratory conduct an acceptable 5 point calibration prior to sample analysis?

Y (N) N/A Were all relative standard deviations (%RSD) ≤30.0% and Relative Response Factors (RRF) ≥0.05?

#	Date	Standard ID	Compound	Finding %RSD (Limit: ≤30.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
1	01/24/98	1024BE04	2,4-DNP W	45.670		1	J/A
		5					
		6					
		7					
		8					
		9					

A. Phenol**
B. Bis(2-chloroethyl) ether
C. 2-Chlorophenol
D. 1,3-Dichlorobenzene
E. 1,4-Dichlorobenzene**
F. 1,2-Dichlorobenzene
G. 2-Methylphenol
H. 2,2'-Oxybis(1-chloropropane)
I. 4-Methylphenol
J. N-Nitroso-di-n-propylamine*
K. Hexachloroethane
L. Nitrobenzene
M. Isophorone
N. 2-Nitrophenol**
O. 2,4-Dimethylphenol
P. Bis(2-chloroethoxy)methane
Q. 2,4-Dichlorophenol**
R. 1,2,4-Trichlorobenzene
S. Naphthalene
T. 4-Chloroaniline
U. Hexachlorobutadiene**
V. 4-Chloro-3-methylphenol**
W. 2-Methylnaphthalene
X. Hexachlorocyclopentadiene*
Y. 2,4,6-Trichlorophenol**
Z. 2,4,5-Trichlorophenol
AA. 2-Chloronaphthalene
BB. 2-Nitroaniline
CC. Dimethylphthalate
DD. Acenaphthylene
EE. 2,6-Dinitrotoluene
FF. 3-Nitroaniline
GG. Acenaphthene**
HH. 2,4-Dinitrophenol*
II. 4-Nitrophenol*
JJ. Dibenzofuran
KK. 2,4-Dinitrotoluene
LL. Diethylphthalate
MM. 4-Chlorophenyl-phenyl ether
NN. Fluorene
OO. 4-Nitroaniline
PP. 4,6-Dinitro-2-methylphenol
QQ. N-Nitrosodiphenylamine (1)**
RR. 4-Bromophenyl-phenylether
SS. Hexachlorobenzene
TT. Pentachlorophenol**
UU. Phenanthrene
VV. Anthracene
WW. Carbazole
XX. Di-n-butylphthalate
YY. Fluoranthene**
ZZ. Pyrene
AAA. Butylbenzylphthalate
BBB. 3,3'-Dichlorobenzidine
CCC. Benzo(a)anthracene
DDD. Chrysene
EEE. Bis(2-ethylhexyl)phthalate
FFF. Di-n-octylphthalate**
GGG. Benzo(b)fluoranthene
HHH. Benzo(k)fluoranthene
III. Benzo(a)pyrene**
JJJ. Indeno(1,2,3-cd)pyrene
KKK. Dibenz(a,h)anthracene
LLL. Benzo(g,h,i)perylene
MMM. _____

* = System performance check compound (SPCC) for RRF; ** = Calibration check compound (CCC) for %RSD.

LDC #: 3417F2
SDG #: 063183

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a continuing calibration standard analyzed at least once every 12 hours of sample analysis for each instrument?

Y (N) N/A Were all percent differences (%D) ≤25.0% and Relative Response Factors ≥0.05?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
1	10/25/98	10258E02	W	25.7		1	J/A
2	10/22/98	10229E04	W	47.3		2-10 & 9/2-1198 B14	J/A - D,

A. Phenol**
B. Bis(2-chloroethyl) ether
C. 2-Chlorophenol
D. 1,3-Dichlorobenzene
E. 1,4-Dichlorobenzene**
F. 1,2-Dichlorobenzene
G. 2-Methylphenol
H. 2,2'-Oxybis(1-chloropropane)
I. 4-Methylphenol
J. N-Nitroso-di-n-propylamine*
K. Hexachloroethane
L. Nitrobenzene
M. Isophorone
N. 2-Nitrophenol**
O. 2,4-Dimethylphenol
P. Bis(2-chloroethoxy)methane
Q. 2,4-Dichlorophenol**
R. 1,2,4-Trichlorobenzene
S. Naphthalene
T. 4-Chloroaniline
U. Hexachlorobutadiene**
V. 4-Chloro-3-methylphenol**
W. 2-Methylnaphthalene
X. Hexachlorocyclopentadiene*
Y. 2,4,6-Trichlorophenol**
Z. 2,4,5-Trichlorophenol
AA. 2-Chloronaphthalene
BB. 2-Nitroaniline
CC. Dimethylphthalate
DD. Acenaphthylene
EE. 2,6-Dinitrotoluene
FF. 3-Nitroaniline
GG. Acenaphthene**
HH. 2,4-Dinitrophenol*
II. 4-Nitrophenol*
JJ. Dibenzofuran
KK. 2,4-Dinitrotoluene
LL. Diethylphthalate
MM. 4-Chlorophenyl-phenyl ether
NN. Fluorene
OO. 4-Nitroaniline
PP. 4,6-Dinitro-2-methylphenol
QQ. N-Nitrosodiphenylamine (1)**
RR. 4-Bromophenyl-phenylether
SS. Hexachlorobenzene
TT. Pentachlorophenol**
UU. Phenanthrene
VV. Anthracene
WW. Carbazole
XX. Di-n-butylphthalate
YY. Fluoranthene**
ZZ. Pyrene
AAA. Butylbenzylphthalate
BBB. 3,3' Dichlorobenzidine
CCC. Benzo(a)anthracene
DDD. Chrysene
EEE. Bis(2-ethylhexyl)phthalate
FFF. Di-n-octylphthalate**
GGG. Benzo(b)fluoranthene
HHH. Benzo(k)fluoranthene
III. Benzo(a)pyrene**
JJJ. Indeno(1,2,3-cd)pyrene
KKK. Dibenz(a,h)anthracene
LLL. Benzo(g,h,i)perylene
MMM. _____

* = System performance check compound (SPCC) for RRF; ** = Calibration check compound (CCC) for %RSD.

CON

LDC #: 34172
SDG #: 062183

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer:
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a method blank analyzed for each matrix?
Y N (N/A) Was a method blank analyzed for each concentration preparation level?
(Y) N N/A Was a method blank associated with every sample?
(Y) N N/A Was the blank contaminated? If yes, please see qualification below.

Blank extraction date: 9/27/98 **Blank analysis date:** 10/22/98
Conc. units: ug/kg Associated Samples: all soil

Compound	Blank ID	Associated Samples	Sample Identification							
	9/27/98 MB	MB + 8								
Di-n-butylphthalate										
Butylbenzylphthalate										
Bis(2-ethylhexyl)phthalate										
Di-n-octylphthalate										
Phenanthrene	5.4	MB dilution								
CRQL										
TICs:										
4-Hydroxy-4-methyl-2-pentanone										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated method blank concentration were qualified as not detected, "U". Other contaminants within five times the method blank concentration were also qualified as not detected, "U".

LDC #: 34477F2
SDG #: C168193

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualification below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were percent recoveries (%R) for surrogates within QC limits stated below?
(Y) N N/A If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?
(Y) N N/A If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

#	Date	Sample ID	Surrogate	%R (Limits)	Qualifications
1		1 (20X)	naphthalene-d8	276 (20-131)	no qual (20x dil)
			chrysene-d12	0 (46-139)	
			Fluorene-d10	261 (28-135)	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

* QC limits are advisory	QC Limits (Soil)	QC Limits (Water)
S1 (NBZ) = Nitrobenzene-d5	23-120	35-114
S2 (FBP) = 2-Fluorobiphenyl	30-115	43-116
S3 (TPH) = Terphenyl-d14	18-137	33-141
S4 (PHL) = Phenol-d5	24-113	10-94
S5 (2FP) = 2-Fluorophenol	25-121	21-100
S6 (TBP) = 2,4,6-Tribromophenol	19-122	10-123
S7 (2CP) = 2-Chlorophenol-d4	20-130*	33-110*
S8 (DCB) = 1,2-Dichlorobenzene-d4	20-130*	16-110*

LDC #: 34
SDG #: 060183

VALIDATION FIN. .S WORKSHEET
Matrix Spike/Matrix Spike Duplicates

.ge: 1 of 1
Reviewer: SP
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y (N) N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
1		14/15	benzo(ghi)perylene	( )	( )	18 (≤14)	all H2O	J/A
			Dibenz(a,h)anthracene	( )	( )	18 (≤15)		J
			Indeno(1,2,3-cd)pyrene	( )	( )	18 (≤15)		
				( )	( )	( )		
2		no spike	all	( )	( )	( )	all ND	none if
		ND in batch		( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)		Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
A.	Phenol	26-90%	≤ 35%	12-110%	≤ 42%	G.	Acenaphthene	31-137%	≤ 19%	46-118%	≤ 31%
B.	2-Chlorophenol	25-102%	≤ 50%	27-123%	≤ 40%	H.	4-Nitrophenol	11-114%	≤ 50%	10-80%	≤ 50%
C.	1,4-Dichlorobenzene	28-104%	≤ 27%	36-97%	≤ 28%	I.	2,4-Dinitrotoluene	28-89%	≤ 47%	24-96%	≤ 38%
D.	N-Nitroso-di-n-propylamine	41-126%	≤ 38%	41-116%	≤ 38%	J.	Pentachlorophenol	17-109%	≤ 47%	9-103%	≤ 50%
E.	1,2,4-Trichlorobenzene	38-107%	≤ 23%	39-98%	≤ 28%	K.	Pyrene	35-142%	≤ 36%	26-127%	≤ 31%
F.	4-Chloro-3-methylphenol	26-103%	≤ 33%	23-97%	≤ 42%						

LDC #: 34172
SDG #: 068183

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a LCS required?

Y (N) N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

lab limits

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
1		9127/BS LCS	Anthracene	110 (35-104)	( )	( )	all soil blk	J (all) / A
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)		Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
A.	Phenol					G.	Acenaphthene				
B.	2-Chlorophenol					H.	4-Nitrophenol				
C.	1,4-Dichlorobenzene					I.	2,4-Dinitrotoluene				
D.	N-Nitroso-di-n-propylamine					J.	Pentachlorophenol				
E.	1,2,4-Trichlorobenzene					K.	Pyrene				
F.	4-Chloro-3-methylphenol										

LDC #: 341
SDG #: 06183

VALIDATION FINDINGS WORKSHEET
Internal Standards

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all internal standard area counts within -50 to +100 of the associated calibration standard?

(Y) N N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Lab ID/Reference	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
1		5	Acenaphthene-d10	7478 (7886-31224)		J (+) assoc. cmpds #1
2		7	Benzo(a)pyrene-d12	36125 (9023-36090)		J (+) dets (+) assoc. cmpds
		#1 The following analytes are assoc'd to acenaphthene-d10:		naphthalene		
				acenaphthylene		
				acenaphthene		
				fluorene		
		#2 the following analytes are assoc'd to benzo(a)pyrene-d12:		benzo(a)anthracene		
				chrysene		
				benzo (k) fluoranthene		
				benzo (b) fluoranthene		
				benzo (a) pyrene		
				indeno (123 cd) pyrene		
				dibenzo (ah) anthracene		
				benzo (ghi) perylene		

QC limits are advisory

IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

SDG #: 502150

Field Duplicates

Reviewer: [illegible]
2nd reviewer: [illegible]

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270)

Y N N/A Were field duplicate pairs identified in this SDG?

Y N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (Detection limit) (units ug/kg) 5 Dilution 1.0 X Prep Date 9/27/98 Analysis date 10/22/98	6 Dilution 1.0 X Prep Date 9/27/98 Analysis date 10/22/98	Difference	Disagreement /Major Disagreement (D / MD)
2-Methylnaphthalene	11U	18 (13U)	2	
Naphthalene	11U	14 ↓	1	
Number of TICs: Ø	Sum of Concentration: Ø	Sum of Concentration: Ø		

Compound	Concentration (Detection limit) (units ug/kg) 5 Dilution 1.0 X Prep Date 9/27/98 Analysis date 10/22/98	98NECRC301 Dilution 1X 5X Prep Date 9/18/98 Analysis date 10/23/98	Difference	Disagreement /Major Disagreement (D / MD)
Naphthalene	11U	49 (3.5U)	NC	
2-Methylnaphthalene	11U	8.5	NC	
Phenanthrene	11U	13	1	
Fluoranthene	11U	3.5	NC	
Pyrene	11U	8.5 ↓	NC	
Number of TICs: Ø	Sum of Concentration: Ø	Sum of Concentration: Ø		

Compound	Concentration (Detection limit) (units) 6 Dilution 1.0X Prep Date 9/27/98 Analysis date 10/22/98	98NECRC301 Dilution 1X Prep Date 9/18/98 Analysis date 10/23/98	Difference	Disagreement /Major Disagreement (D / MD)
Naphthalene	14 (13U)	4.9 (3.5U)	3	
2-Methylnaphthalene	18 ↓	8.5	2	
Phenanthrene	13U	13	1	
Fluoranthene	↓	3.5	NC	
Pyrene	↓	8.5 ↓	NC	
Number of TICs: Ø	Sum of Concentration: Ø	Sum of Concentration: Ø		

SDG #: 98102

Field Duplicates

Reviewer: Q
2nd reviewer:

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270)

Y N N/A Were field duplicate pairs identified in this SDG?

Y N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (Detection limit) (units ug/L)		Difference	Disagreement /Major Disagreement (D / MD)
	11	12		
	Dilution 1.0 Prep Date 9/18/98 Analysis date 9/25/98	Dilution 1.0 Prep Date 9/18/98 Analysis date 9/25/98		
	no dilute			
Number of TICs: 4	Sum of Concentration: 7	Sum of Concentration: 0		

Compound	Concentration (Detection limit) (units ug/L)		Difference	Disagreement /Major Disagreement (D / MD)
	11	98NECCSW02		
	Dilution 1.0 Prep Date 9/18/98 Analysis date 9/25/98	Dilution 1.0 Prep Date 9/17/98 Analysis date 10/16/98		
	no dilute			
Number of TICs:	Sum of Concentration:	Sum of Concentration:		

Compound	Concentration (Detection limit) (units ug/L)		Difference	Disagreement /Major Disagreement (D / MD)
	12	98NECCSW02		
	Dilution 1.0 Prep Date 9/18/98 Analysis date 9/25/98	Dilution 1.0 Prep Date 9/17/98 Analysis date 10/16/98		
	no dilute			
Number of TICs:	Sum of Concentration:	Sum of Concentration:		

SDG #: C30252

Field Duplicates

Reviewer:
2nd reviewer:

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270)

(Y) N N/A Were field duplicate pairs identified in this SDG?

(Y) N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (Detection limit) (units ug/kg) 3 Dilution 1.0X Prep Date 9/27/98 Analysis date 10/22/98	4 Dilution 1.0 X Prep Date 9/27/98 Analysis date 10/22/98	Difference	Disagreement /Major Disagreement (D / MD)
	NO ANALYTES			
Number of TICs: 0	Sum of Concentration: 0	Sum of Concentration: 0		

Compound	Concentration (Detection limit) (units ug/kg) 3 Dilution 1.0 X Prep Date 9/27/98 Analysis date 10/22/98	98NECRC302 Dilution 1X Prep Date 9/18/98 Analysis date 10/23/98	Difference	Disagreement /Major Disagreement (D / MD)
Naphthalene	9.3U	3.6 (3.0U)	NC	
2-Methylnaphthalene	↓	6.0 ↓	NC	
Phenanthrene	↓	3.0 ↓	NC	
Number of TICs: 0	Sum of Concentration: 0	Sum of Concentration: 0		

Compound	Concentration (Detection limit) (units ug/kg) 4 Dilution 1.0 X Prep Date 9/27/98 Analysis date 10/22/98	98NECRC302 Dilution 1X Prep Date 9/18/98 Analysis date 10/23/98	Difference	Disagreement /Major Disagreement (D / MD)
Naphthalene	9.6U	3.6 (3.0U)	NC	
2-Methylnaphthalene	↓	6.0 ↓	↓	
Phenanthrene	↓	3.0 ↓	↓	
Number of TICs: 0	Sum of Concentration: 0	Sum of Concentration: 0		

LDC #: 3417G2 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/18/98

SDG #: 063188 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: _____

2nd Reviewer: _____

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/2/98
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	RSD, $r^2 \geq 0.990$
IV.	Continuing calibration	A	CCC ≤ 20 others ≤ 25
V.	Blanks	A	
VI.	Surrogate spikes	SW	w/
VII.	Matrix spike/Matrix spike duplicates	~~N~~ SW	~~client specific~~ None / J
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	SW	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: all soil

1	98NECDBSD801	10X	11		21	
2	98NECDBSD802	40X	12		22	
3	98NECDBSD803	20X	13		23	
4	98NECBDSS802		14		24	
5	98NECBDSS801		15		25	
6	9/25/98-BLK		16		26	
7			17		27	
8			18		28	
9			19		29	
10			20		30	

LDC #: 34176G2
SDG #: 063188

VALIDATION FINDINGS WORKSHEET
Initial Calibration

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Did the laboratory conduct an acceptable 5 point calibration prior to sample analysis?

Y (N) N/A Were all relative standard deviations (%RSD) ≤30.0% and Relative Response Factors (RRF) ≥0.05?

#	Date	Standard ID	Compound	Finding %RSD (Limit: ≤30.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
1	102498	10248E04	W	45.610		DB 1-3 & 10614	J | A
		5					
		6					
		7					
		8					
		9					

A. Phenol**
B. Bis(2-chloroethyl) ether
C. 2-Chlorophenol
D. 1,3-Dichlorobenzene
E. 1,4-Dichlorobenzene**
F. 1,2-Dichlorobenzene
G. 2-Methylphenol
H. 2,2'-Oxybis(1-chloropropane)
I. 4-Methylphenol
J. N-Nitroso-di-n-propylamine*
K. Hexachloroethane
L. Nitrobenzene
M. Isophorone
N. 2-Nitrophenol**
O. 2,4-Dimethylphenol
P. Bis(2-chloroethoxy)methane
Q. 2,4-Dichlorophenol**
R. 1,2,4-Trichlorobenzene
S. Naphthalene
T. 4-Chloroaniline
U. Hexachlorobutadiene**
V. 4-Chloro-3-methylphenol**
W. 2-Methylnaphthalene
X. Hexachlorocyclopentadiene*
Y. 2,4,6-Trichlorophenol**
Z. 2,4,5-Trichlorophenol
AA. 2-Chloronaphthalene
BB. 2-Nitroaniline
CC. Dimethylphthalate
DD. Acenaphthylene
EE. 2,6-Dinitrotoluene
FF. 3-Nitroaniline
GG. Acenaphthene**
HH. 2,4-Dinitrophenol*
II. 4-Nitrophenol*
JJ. Dibenzofuran
KK. 2,4-Dinitrotoluene
LL. Diethylphthalate
MM. 4-Chlorophenyl-phenyl ether
NN. Fluorene
OO. 4-Nitroaniline
PP. 4,6 Dinitro 2 methylphenol
QQ. N-Nitrosodiphenylamine (1)**
RR. 4-Bromophenyl-phenylether
SS. Hexachlorobenzene
TT. Pentachlorophenol**
UU. Phenanthrene
VV. Anthracene
WW. Carbazole
XX. Di-n-butylphthalate
YY. Fluoranthene**
ZZ. Pyrene
AAA. Butylbenzylphthalate
BBB. 3,3'-Dichlorobenzidine
CCC. Benzo(a)anthracene
DDD. Chrysene
EEE. Bis(2-ethylhexyl)phthalate
FFF. Di-n-octylphthalate**
GGG. Benzo(b)fluoranthene
HHH. Benzo(k)fluoranthene
III. Benzo(a)pyrene**
JJJ. Indeno(1,2,3-cd)pyrene
KKK. Dibenz(a,h)anthracene
LLL. Benzo(g,h,i)perylene
MMM. _____

* = System performance check compound (SPCC) for RRF; ** = Calibration check compound (CCC) for %RSD.

INICA

LDC #: 34t
SDG #: 063188

VALIDATION FIN[illegible] WORKSHEET
Surrogate Recovery

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualification below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were percent recoveries (%R) for surrogates within QC limits stated below?
(N) N N/A If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?
(N) N N/A If any %R was less than 10 percent, was a reanalysis performed to confirm %R?

#	Date	Sample ID	Surrogate	%R (Limits)	Qualifications
1		2 (40X)	Chrysene-d12	0.0 (46-139)	NO qual (dw)
			fluorene-d10	↓ (28-135)	
			naphthalene-d8	↓ (20-131)	
				( )	
2		1 (10X)	fluorene-d10	262 ( )	no qual (dw)
			naphthalene-d8	158 ( )	
				( )	
3		3 (20X)	chrysene-d12	0.0 ( )	no qual (dw)
			fluorene-d10	0.0 ( )	
			naphthalene-d8	163 ( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

QC limits are advisory	QC Limits (Soil)	QC Limits (Water)
1 (NBZ) = Nitrobenzene-d5	23-120	35-114
2 (FBP) = 2-Fluorobiphenyl	30-115	43-116
3 (TPH) = Terphenyl-d14	18-137	33-141
4 (PHL) = Phenol-d5	24-113	10-94

		QC Limits (Soil)	QC Limits (Water)
S5 (2FP)	2-Fluorophenol	25-121	21-100
S6 (TBP)	2,4,6-Tribromophenol	19-122	10-123
S7 (2CP)	2-Chlorophenol-d4	20-130*	33-110*
S8 (DCB)	1,2-Dichlorobenzene-d4	20-130*	16-110*

C #: 34762
G #: 063188

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: DP
2nd Reviewer:

ETHOD: GC/MS BNA (EPA SW 846 Method 8270)
ase see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(N) N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

(N) N/A Was a MS/MSD analyzed every 20 samples of each matrix?

N (N/A) Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	NO MS/MSD in this batch	all	( )	( )	( )	all	none
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)		Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
.	Phenol	26-90%	≤ 35%	12-110%	≤ 42%	G.	Acenaphthene	31-137%	≤ 19%	46-118%	≤ 31%
.	2-Chlorophenol	25-102%	≤ 50%	27-123%	≤ 40%	H.	4-Nitrophenol	11-114%	≤ 50%	10-80%	≤ 50%
.	1,4-Dichlorobenzene	28-104%	≤ 27%	36-97%	≤ 28%	I.	2,4-Dinitrotoluene	28-89%	≤ 47%	24-96%	≤ 38%
.	N-Nitroso-di-n-propylamine	41-126%	≤ 38%	41-116%	≤ 38%	J.	Pentachlorophenol	17-109%	≤ 47%	9-103%	≤ 50%
.	1,2,4-Trichlorobenzene	38-107%	≤ 23%	39-98%	≤ 28%	K.	Pyrene	35-142%	≤ 36%	26-127%	≤ 31%
.	4-Chloro-3-methylphenol	26-103%	≤ 33%	23-97%	≤ 42%						

DC #: 347
DG #: 063100

VALIDATION FINDI[illegible] WORKSHEET
Internal S[illegible]ards

Pa[illegible] 1 of 1
Revie[illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were all internal standard area counts within -50 to +100 of the associated calibration standard?
(Y) N N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Lab ID/Reference	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
1		4	Benzo(a)pyrene-d12	8721 (1848-7390)		J dets / P assoc'd cmpds
2		3	Phenanthrene-d10	3888 (4055-16220)		J / R assoc'd cmpds
3		2	Acenaphthene-d10	2929 (3052-12208)		J / A assoc'd cmpds
			* 1 The following analytes are assoc'd to benzo(a)pyrene-d12: benzo(a)anthracene chrysene benzo(k)fluoranthene benzo(b)fluoranthene benzo(a)pyrene indeno(123cd)pyrene dibenz.o(ah)anthracene benzo(ghi)perylene		
			* 2 the following analytes are assoc'd to phenanthrene-d10: ~~phenanthrene~~ phenanthrene anthracene		fluoranthene pyrene
			* 3 the following analytes are assoc'd to acenaphthene-d10: naphthalene acenaphthylene acenaphthene fluorene		

QC limits are advisory
IS1 (DCB) = 1,4-Dichlorobenzene-d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

LDC #: 3417H2 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/18/98

SDG #: 063189 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/12/98
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD, $r^2 \geq 0.990$
IV.	Continuing calibration	A	CCC ≤ 20 other ≤ 25
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW ~~N/A~~	~~client specific~~ none
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	SW	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: all soil

1	98NECRCSD805	11		21	
2	98NECRCSD806	12		22	
3	9/25/98-B1K	13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

DC #: 3417
DG #: 463189

VALIDATION FINDIN ORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: DP
2nd Reviewer:

ETHOD: GC/MS BNA (EPA SW 846 Method 8270)

ease see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(N) N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD Soil / Water.

(N) N/A Was a MS/MSD analyzed every 20 samples of each matrix?

N (N/A) Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
1		No MS/MSD in this batch	all	( )	( )	( )	all	none
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)		Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
A.	Phenol	26-90%	≤ 35%	12-110%	≤ 42%	G.	Acenaphthene	31-137%	≤ 19%	46-118%	≤ 31%
B.	2-Chlorophenol	25-102%	≤ 50%	27-123%	≤ 40%	H.	4-Nitrophenol	11-114%	≤ 50%	10-80%	≤ 50%
C.	1,4-Dichlorobenzene	28-104%	≤ 27%	36-97%	≤ 28%	I.	2,4-Dinitrotoluene	28-89%	≤ 47%	24-96%	≤ 38%
D.	N-Nitroso-di-n-propylamine	41-126%	≤ 38%	41-116%	≤ 38%	J.	Pentachlorophenol	17-109%	≤ 47%	9-103%	≤ 50%
E.	1,2,4-Trichlorobenzene	38-107%	≤ 23%	39-98%	≤ 28%	K.	Pyrene	35-142%	≤ 36%	26-127%	≤ 31%
F.	4-Chloro-3-methylphenol	26-103%	≤ 33%	23-97%	≤ 42%						

DC #: 34TH2
SDG #: 063189

VALIDATION FINDINGS WORKSHEET
Internal Standards

Reviewer: LV
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all internal standard area counts within -50 to +100 of the associated calibration standard?
Y N N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Lab ID/Reference	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
1		1	Phenanthrene-d10	58120 (12607-50466)		J detd/A assoc cmpds*
			* The following analytes are assoc'd to phenanthrene-d10:			
			phenanthrene			
			anthracene			
			fluoranthene			
			pyrene			

QC limits are advisory
1 (DCB) = 1,4-Dichlorobenzene-d4
2 (NPT) = Naphthalene-d8
3 (ANT) = Acenaphthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

LDC #: 3417K2 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/18/98

SDG #: 063195 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/16/98
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD, $r^2 \geq 0.990$
IV.	Continuing calibration	SW	CCC ≤20 others ≤25
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW N α	client specific
VIII.	Laboratory control samples	SW	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate
N = Not provided/applicable R = Rinsate TB = Trip blank
SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples: all H2O

1	98NEC27SW801	11		21	
2	9/22/98-Blk	12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

LDC #: 34171K2
SDG #: 06319

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a continuing calibration standard analyzed at least once every 12 hours of sample analysis for each instrument?

Y (N) N/A Were all percent differences (%D) ≤25.0% and Relative Response Factors ≥0.05?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
1	9/26/98	0926J02	DDD	28.8		all & blk	J/A

A. Phenol**
B. Bis(2-chloroethyl) ether
C. 2-Chlorophenol
D. 1,3-Dichlorobenzene
E. 1,4-Dichlorobenzene**
F. 1,2-Dichlorobenzene
G. 2-Methylphenol
H. 2,2'-Oxybis(1-chloropropane)
I. 4-Methylphenol
J. N-Nitroso-di-n-propylamine*
K. Hexachloroethane
L. Nitrobenzene
M. Isophorone
N. 2-Nitrophenol**
O. 2,4-Dimethylphenol
P. Bis(2-chloroethoxy)methane
Q. 2,4-Dichlorophenol**
R. 1,2,4-Trichlorobenzene
S. Naphthalene
T. 4-Chloroaniline
U. Hexachlorobutadiene**
V. 4-Chloro-3-methylphenol**
W. 2-Methylnaphthalene
X. Hexachlorocyclopentadiene*
Y. 2,4,6-Trichlorophenol**
Z. 2,4,5-Trichlorophenol
AA. 2-Chloronaphthalene
BB. 2-Nitroaniline
CC. Dimethylphthalate
DD. Acenaphthylene
EE. 2,6-Dinitrotoluene
FF. 3-Nitroaniline
GG. Acenaphthene**
HH. 2,4-Dinitrophenol*
II. 4-Nitrophenol*
JJ. Dibenzofuran
KK. 2,4-Dinitrotoluene
LL. Diethylphthalate
MM. 4-Chlorophenyl-phenyl ether
NN. Fluorene
OO. 4-Nitroaniline
PP. 4,6-Dinitro-2-methylphenol
QQ. N-Nitrosodiphenylamine (1)**
RR. 4-Bromophenyl-phenylether
SS. Hexachlorobenzene
TT. Pentachlorophenol**
UU. Phenanthrene
VV. Anthracene
WW. Carbazole
XX. Di-n-butylphthalate
YY. Fluoranthene**
ZZ. Pyrene
AAA. Butylbenzylphthalate
BBB. 3,3'-Dichlorobenzidine
CCC. Benzo(a)anthracene
DDD. Chrysene
EEE. Bis(2-ethylhexyl)phthalate
FFF. Di-n-octylphthalate**
GGG. Benzo(b)fluoranthene
HHH. Benzo(k)fluoranthene
III. Benzo(a)pyrene**
JJJ. Indeno(1,2,3-cd)pyrene
KKK. Dibenz(a,h)anthracene
LLL. Benzo(g,h,i)perylene
MMM. _____

* = System performance check compound (SPCC) for RRF; ** = Calibration check compound (CCC) for %RSD.

CONC

C #: 3417K
G #: 063195

VALIDATION FINDING WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: DJ
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / (Water)

Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y N (N/A) Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	NONE FOUND	ALL	( )	( )	( )	ALL	NONE
	NOT SPIKED		( )	( )	( )		
	BOTH		( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)		Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
A.	Phenol	26-90%	≤ 35%	12-110%	≤ 42%	G.	Acenaphthene	31-137%	≤ 19%	46-118%	≤ 31%
B.	2-Chlorophenol	25-102%	≤ 50%	27-123%	≤ 40%	H.	4-Nitrophenol	11-114%	≤ 50%	10-80%	≤ 50%
C.	1,4-Dichlorobenzene	28-104%	≤ 27%	36-97%	≤ 28%	I.	2,4-Dinitrotoluene	28-89%	≤ 47%	24-96%	≤ 38%
D.	N-Nitroso-di-n-propylamine	41-126%	≤ 38%	41-116%	≤ 38%	J.	Pentachlorophenol	17-109%	≤ 47%	9-103%	≤ 50%
E.	1,2,4-Trichlorobenzene	38-107%	≤ 23%	39-98%	≤ 28%	K.	Pyrene	35-142%	≤ 36%	26-127%	≤ 31%
F.	4-Chloro-3-methylphenol	26-103%	≤ 33%	23-97%	≤ 42%						

LDC #: 34782
SDG #: 060195

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of
Reviewer:
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a LCS required?

Y (N) N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
1		9122198-LCS/LCSD	Benzo(ghi)perylene	( )	( )	20 (≤14)	all soils	J/A
			Dibenzo(ah)perylene	( )	( )	20 (≤15)		↓
			Indeno(1,2,3-cd)pyrene	( )	( )	20 (↓)		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)		Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
A.	Phenol					G.	Acenaphthene				
B.	2-Chlorophenol					H.	4-Nitrophenol				
C.	1,4-Dichlorobenzene					I.	2,4-Dinitrotoluene				
D.	N-Nitroso-di-n-propylamine					J.	Pentachlorophenol				
E.	1,2,4-Trichlorobenzene					K.	Pyrene				
F.	4-Chloro-3-methylphenol										

LDC #: 3417L2 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/18/98
SDG #: 063197 ___EPA Level III __NFESC Level C Page: 1 of 1
Laboratory: Quanterra Environmental Services Reviewer: DA
2nd Reviewer: A

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: ~~9/15/98~~ 9/15/98
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	SW	RSD, r²0.990
IV.	Continuing calibration	SW	CCC ≤20 %Diff ≤25
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates SW	~~ND~~	~~client specific~~
VIII.	Laboratory control samples	SW	LCS/LCSD
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	SW	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate
N = Not provided/applicable R = Rinsate TB = Trip blank
SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

1	98NECBKSW801 H_2O	11		21	
2	98NECBKSW802 ~~Sed~~ H_2O	12		22	
3	98NECBKSD801 soil	13		23	
4	98NECBKSD802 ↓	14		24	
5	98NEC09SS801 snd	15		25	
6	9/22/98-Blk H_2O	16		26	
7	9/29/98-Blk Sed	17		27	
8		18		28	
9		19		29	
10		20		30	

LDC #: 34762
SDG #: 063197

VALIDATION FINDINGS WORKSHEET
Initial Calibration

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Did the laboratory conduct an acceptable 5 point calibration prior to sample analysis?

Y (N) N/A Were all relative standard deviations (%RSD) ≤30.0% and Relative Response Factors (RRF) ≥0.05?

#	Date	Standard ID	Compound	Finding %RSD (Limit: ≤30.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
1	102498	10248E04	W	45.670		5 & 9129198-B14	J1A
		5					
		6					
		7					
		8					
		9					
						ALL	

A. Phenol**
B. Bis(2-chloroethyl) ether
C. 2-Chlorophenol
D. 1,3-Dichlorobenzene
E. 1,4-Dichlorobenzene**
F. 1,2-Dichlorobenzene
G. 2-Methylphenol
H. 2,2'-Oxybis(1-chloropropane)
I. 4-Methylphenol
J. N-Nitroso-di-n-propylamine*
K. Hexachloroethane
L. Nitrobenzene
M. Isophorone
N. 2-Nitrophenol**
O. 2,4-Dimethylphenol
P. Bis(2-chloroethoxy)methane
Q. 2,4 Dichlorophenol**
R. 1,2,4-Trichlorobenzene
S. Naphthalene
T. 4-Chloroaniline
U. Hexachlorobutadiene**
V. 4-Chloro-3-methylphenol**
W. 2-Methylnaphthalene
X. Hexachlorocyclopentadiene*
Y. 2,4,6-Trichlorophenol**
Z. 2,4,5-Trichlorophenol
AA. 2-Chloronaphthalene
BB. 2-Nitroaniline
CC. Dimethylphthalate
DD. Acenaphthylene
EE. 2,6-Dinitrotoluene
FF. 3-Nitroaniline
GG. Acenaphthene**
HH. 2,4-Dinitrophenol*
II. 4-Nitrophenol*
JJ. Dibenzofuran
KK. 2,4-Dinitrotoluene
LL. Diethylphthalate
MM. 4-Chlorophenyl-phenyl ether
NN. Fluorene
OO. 4-Nitroaniline
PP. 4,6-Dinitro-2 methylphenol
QQ. N-Nitrosodiphenylamine (1)**
RR. 4-Bromophenyl-phenylether
SS. Hexachlorobenzene
TT. Pentachlorophenol**
UU. Phenanthrene
VV. Anthracene
WW. Carbazole
XX. Di-n-butylphthalate
YY. Fluoranthene**
ZZ. Pyrene
AAA. Butylbenzylphthalate
BBB. 3,3'-Dichlorobenzidine
CCC. Benzo(a)anthracene
DDD. Chrysene
EEE. Bis(2' ethylhexyl)phthalate
FFF. Di-n-octylphthalate**
GGG. Benzo(b)fluoranthene
HHH. Benzo(k)fluoranthene
III. Benzo(a)pyrene**
JJJ. Indeno(1,2,3-cd)pyrene
KKK. Dibenz(a,h)anthracene
LLL. Benzo(g,h,i)perylene
MMM. _____

* = System performance check compound (SPCC) for RRF; ** = Calibration check compound (CCC) for %RSD.

INICA

LDC #: 34r

SDG #: Qla

VALIDATION FIN[illegible] WORKSHEET

Continuin[illegible]ibration

Reviewer:

2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a continuing calibration standard analyzed at least once every 12 hours of sample analysis for each instrument?

Y (N) N/A Were all percent differences (%D) ≤25.0% and Relative Response Factors ≥0.05?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤25.0%)	Finding RRF (Limit: ≥0.05)	Associated Samples	Qualifications
1	9/26/98	092605O2	DDD	28.8		all H2O samples	J/A

A. Phenol**
B. Bis(2-chloroethyl) ether
C. 2-Chlorophenol
D. 1,3-Dichlorobenzene
E. 1,4-Dichlorobenzene**
F. 1,2-Dichlorobenzene
G. 2-Methylphenol
H. 2,2'-Oxybis(1-chloropropane)
I. 4-Methylphenol
J. N-Nitroso-di-n-propylamine*
K. Hexachloroethane
L. Nitrobenzene
M. Isophorone
N. 2-Nitrophenol**
O. 2,4-Dimethylphenol
P. Bis(2-chloroethoxy)methane
Q. 2,4-Dichlorophenol**
R. 1,2,4-Trichlorobenzene
S. Naphthalene
T. 4-Chloroaniline
U. Hexachlorobutadiene**
V. 4-Chloro-3-methylphenol**
W. 2-Methylnaphthalene
X. Hexachlorocyclopentadiene*
Y. 2,4,6-Trichlorophenol**
Z. 2,4,5-Trichlorophenol
AA. 2-Chloronaphthalene
BB. 2-Nitroaniline
CC. Dimethylphthalate
DD. Acenaphthylene
EE. 2,6-Dinitrotoluene
FF. 3-Nitroaniline
GG. Acenaphthene**
HH. 2,4-Dinitrophenol*
II. 4-Nitrophenol*
JJ. Dibenzofuran
KK. 2,4-Dinitrotoluene
LL. Diethylphthalate
MM. 4-Chlorophenyl-phenyl ether
NN. Fluorene
OO. 4-Nitroaniline
PP. 4,6-Dinitro-2 methylphenol
QQ. N-Nitrosodiphenylamine (1)**
RR. 4-Bromophenyl-phenylether
SS. Hexachlorobenzene
TT. Pentachlorophenol**
UU. Phenanthrene
VV. Anthracene
WW. Carbazole
XX. Di-n-butylphthalate
YY. Fluoranthene**
ZZ. Pyrene
AAA. Butylbenzylphthalate
BBB. 3,3' Dichlorobenzidine
CCC. Benzo(a)anthracene
DDD. Chrysene
EEE. Bis(2-ethylhexyl)phthalate
FFF. Di-n-octylphthalate**
GGG. Benzo(b)fluoranthene
HHH. Benzo(k)fluoranthene
III. Benzo(a)pyrene**
JJJ. Indeno(1,2,3-cd)pyrene
KKK. Dibenz(a,h)anthracene
LLL. Benzo(g,h,i)perylene
MMM. _____

* = System performance check compound (SPCC) for RRF; ** = Calibration check compound (CCC) for %RSD.

)C #: 34172
)G #: 063197

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: Q
2nd Reviewer:

ETHOD: GC/MS BNA (EPA SW 846 Method 8270)
)ase see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD (Soil) / Water.

(N) N/A Was a MS/MSD analyzed every 20 samples of each matrix?

N (N/A) Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		no MS/MSD in SDG batch	all	( )	( )	( )	all	none
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)		Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
A.	Phenol	26-90%	≤ 35%	12-110%	≤ 42%	G.	Acenaphthene	31-137%	≤ 19%	46-118%	≤ 31%
B.	2-Chlorophenol	25-102%	≤ 50%	27-123%	≤ 40%	H.	4-Nitrophenol	11-114%	≤ 50%	10-80%	≤ 50%
C.	1,4-Dichlorobenzene	28-104%	≤ 27%	36-97%	≤ 28%	I.	2,4-Dinitrotoluene	28-89%	≤ 47%	24-96%	≤ 38%
D.	N-Nitroso-di-n-propylamine	41-126%	≤ 38%	41-116%	≤ 38%	J.	Pentachlorophenol	17-109%	≤ 47%	9-103%	≤ 50%
E.	1,2,4-Trichlorobenzene	38-107%	≤ 23%	39-98%	≤ 28%	K.	Pyrene	35-142%	≤ 36%	26-127%	≤ 31%
F.	4-Chloro-3-methylphenol	26-103%	≤ 33%	23-97%	≤ 42%						

LDC #: 34
SDG #: 963197

VALIDATION FIN[illegible]S WORKSHEET
Laboratory Control Samples (LCS)

[illegible]ge: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a LCS required?

Y (N) N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

lab limits

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
1		9/22/98-LCS/LCSD	Benzo(ghi)perylene ( )	( )	20 (≤14)	all H2O samples	J (A)
			Dibenzo(ah)perylene ( )	( )	20 (≤15)		↓
			Indeno(123cd)pyrene ( )	( )	20 (↓)		↓
			( )	( )	( )		
2		9/29/98-LCS	Dibenzo(ah)anthracene ( )	( )	( )		
			→ 139 (20-121)	( )	( )	all soil samples	J (A) det
			Pyrene 144 (29-134)	( )	( )		↓
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)		Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
A.	Phenol					G.	Acenaphthene				
B.	2-Chlorophenol					H.	4-Nitrophenol				
C.	1,4-Dichlorobenzene					I.	2,4-Dinitrotoluene				
D.	N-Nitroso-di-n-propylamine					J.	Pentachlorophenol				
E.	1,2,4-Trichlorobenzene					K.	Pyrene				
F.	4-Chloro-3-methylphenol										

DC #: 34772
SDG #: 063A7

VALIDATION FINDINGS WORKSHEET
Internal Standards

Reviewer:
2nd Reviewer: SP

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all internal standard area counts within 50 to 100 of the associated calibration standard?

Y N N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Lab ID/Reference	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
1		5	acenaphthene-d10	2388 (2442-9766)		J/A assoc cmpds *
2		3	acenaphthene-d10	34510 (8203-32810)		J dets/A assoc cmpds *
3		4	acenaphthene-d10	34681 (8203-32810)		↓

* The following analytes are assoc'd w/ acenaphthene-d10:
naphthalene
acenaphthylene
acenaphthene
fluorene

QC limits are advisory
IS1 (DCB) = 1,4-Dichlorobenzene d4
IS2 (NPT) = Naphthalene-d8
IS3 (ANT) = Acenaphthene-d10
IS4 (PHN) = Phenanthrene d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

LDC #: 3417M2 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/18/98

SDG #: 063336 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: JP

2nd Reviewer: R

METHOD: GC/MS Polynuclear Aromatic Hydrocarbons (EPA SW 846 Method 8270-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 9/14/98
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD
IV.	Continuing calibration	N	all ICALs
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW ND	~~client specific~~ none / P
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	SW	
XI.	Target compound identification	N	
XII.	Compound quantitation/CRQLs	N	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: all SW

1	98NEC02SS801	11		21	
2	10/30/98-Blk	12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

SDG #: 063336

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Reviewer: D
2nd Reviewer: D

All circled dates have exceeded the technical holding times.
(Y) N N/A Were all cooler temperatures within validation criteria?

METHOD : GC/MS BNA (EPA SW 846 Method 8270)

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
1	Soil	NA	9/14/98	10/30/98	11/2/98	46	Jdets & RND

TECHNICAL HOLDING TIME CRITERIA

Water: Extracted within 7 days, analyzed within 40 days.
Soil: Extracted within 14 days, analyzed within 40 days.

C #: 34[illegible]
SDG #: 0633356

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: CP
2nd Reviewer: _____

METHOD: GC/MS BNA (EPA SW 846 Method 8270)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		MD MS/MSD	all	( )	( )	( )	all	none
		another batch		( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

	Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)		Compound	QC Limits (Soil)	RPD (Soil)	QC Limits (Water)	RPD (Water)
A.	Phenol	26-90%	≤ 35%	12-110%	≤ 42%	G.	Acenaphthene	31-137%	≤ 19%	46-118%	≤ 31%
B.	2-Chlorophenol	25-102%	≤ 50%	27-123%	≤ 40%	H.	4-Nitrophenol	11-114%	≤ 50%	10-80%	≤ 50%
C.	1,4-Dichlorobenzene	28-104%	≤ 27%	36-97%	≤ 28%	I.	2,4-Dinitrotoluene	28-89%	≤ 47%	24-96%	≤ 38%
D.	N-Nitroso-di-n-propylamine	41-126%	≤ 38%	41-116%	≤ 38%	J.	Pentachlorophenol	17-109%	≤ 47%	9-103%	≤ 50%
E.	1,2,4-Trichlorobenzene	38-107%	≤ 23%	39-98%	≤ 28%	K.	Pyrene	35-142%	≤ 36%	26-127%	≤ 31%
F.	4-Chloro-3-methylphenol	26-103%	≤ 33%	23-97%	≤ 42%						

LDC #: 34171M2
SDG #: 063336

VALIDATION FINDINGS WORKSHEET
Internal Standards

Reviewer: Q
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all internal standard area counts within -50 to +100 of the associated calibration standard?

(Y) N N/A Were the retention times of the internal standards within +/- 30 seconds of the retention times of the associated calibration standard?

#	Date	Lab ID/Reference	Internal Standard	Area (Limits)	RT (Limits)	Qualifications
1		1	acenaphthene-d10	81144 (18215-72858)		Tentatively identified compounds
			* The following analytes are assoc'd w/ acenaphthene-d10:			
				naphthalene		
				acenaphthylene		
				acenaphthene		
				fluorene		

QC limits are advisory

1 (DCB) = 1,4-Dichlorobenzene-d4
2 (NPT) = Naphthalene-d8
3 (ANT) = Acenaphthene-d10
IS4 (PHN) = Phenanthrene-d10
IS5 (CRY) = Chrysene-d12
IS6 (PRY) = Perylene-d12

LDC #: 3417D3 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-10-98

SDG #: 98-09-136 ___EPA Level III X NFESC Level C Page: (of 1

Laboratory: Analytica Alaska, Inc. Reviewer: AM

2nd Reviewer: A

METHOD: GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-13-98
II.	GC/ECD Instrument Performance Check	N	Not Provided Not Reviewed
III.	Initial calibration	N	" "
IV.	Continuing calibration	N	" "
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	No AQ MS/MSD Non-1P
VIII.	Laboratory control samples	A	LCS
IX.	Regional quality assurance and quality control	N	
Xa.	Florisil cartridge check	N	
Xb.	GPC Calibration	N	
XI.	Target compound identification	N	
XII.	Compound quantitation and reported CRQLs	N	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	A	FR= 3,21 See SDG 063183
XV.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate
N = Not provided/applicable R = Rinsate TB = Trip blank
SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

1FR	98NECRC301	SOIL	11		21	
2FR	98NECRC302	↓	12		22	
3FR	98NECRCSW302	AQ	13		23	
4	98NECRC302MS	SOIL	14		24	
5	98NECRC302MSD	↓	15		25	
~~6~~	MB-9801165	↓	16		26	
7	MB-9801151	AQ	17		27	
8			18		28	
9			19		29	
10			20		30	

LDC #: 34703
SDG #: 98-09-136

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: AD
2nd Reviewer: A

METHOD: GC ~~Pesticides~~/PCBs (EPA SW 846 Method 8080) 2

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG?
Y (N) N/A Was a MS/MSD analyzed every 20 samples for each matrix or whenever a sample extraction was performed?
Y (N) N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits stated below?

Level IV/D Only

Y N (N/A) Were the percent recoveries (%R) and the relative percent differences (RPD) recalculated?
Y N (N/A) Were the %R and RPD reported results within 10.0% of the recalculated results?

#	EXT. Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
1	9-17-98	415	G	579 (38-128)	-57.9 (38-128)	75.9 (≤50)	All Soil Samples	J/A for RPD
		Sample Conc. >2x	H	158 (↓)	( )	92.7 (↓)	↓	↓
		spiked amt for		( )	( )	( )		
		G		( )	No Qual	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

Letter Designation	Compound	Soil QC Limits % Recovery	Soil QC Limits RPD	Water QC Limits % Recovery	Water QC Limits RPD
A	gamma-BHC				
B	Heptachlor				
C	Aldrin				
D	Dieldrin				
E	Endrin				
F	4,4'-DDT				
G	PCB-1260	38-128	≤50 *		
H	PCB-1016				
I					
J					

* LDC limit used

LDC #: 3417F3 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-18-98
SDG #: 063183 ___EPA Level III __NFESC Level C Page: 1 of 1
Laboratory: Quanterra Environmental Services Reviewer: VM
2nd Reviewer:

METHOD: GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-13-98
II.	GC/ECD Instrument Performance Check	A	
III.	Initial calibration	A	%RSD
IV.	Continuing calibration	SW	%D
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Regional quality assurance and quality control	N	
Xa.	Florisil cartridge check	N	
Xb.	GPC Calibration	N	
XI.	Target compound identification	N	
XII.	Compound quantitation and reported CRQLs	N	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	ND	D_1 = 11,12 Replicate = 98NECRCSW302 from all SDG
XV.	Field blanks	N	D_2 = 3,4 Replicate = 98NECRC302 9B-09-13 6 D_3 = 5,6 Replicate = 98NECRC301

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NECRCSD804 SOIL	11 D_1	98NECRCSW802 AQ	21	
2	98NECRCSD803	12 D_1	98NECRCSW202	22	
3 D_2	98NECRCSD802	13	98NECRCSW801	23	
4 D_2	98NECRCSD202	14	98NECRCSW802MS	24	
5 D_3	98NECRCSD801	15	98NECRCSW802MSD	25	
6 D_3	98NECRCSD201	16	LCS 981015K (SOIL)	26	
7	98NECRCSW806 AQ	17	LCS 981017K SOIL	27	
8	98NECRCSW805	18	98NECRCSD802 MS	28	
9	98NECRCSW804	19	98NECRCSD802 MSD	29	
10	98NECRCSW803	20		30	

LDC # 3417F2
SDG # 08218

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: AD
2nd Reviewer: A

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8080) 2

Please see qualifications below for all questions answered "N" Not applicable questions are identified as "N/A"

What type of calibration verification calculation was performed? ✓ %D or RPD

(Y) N N/A Were Evaluation mix standards run before initial calibration and before samples?

(Y) N N/A Were Endrin & 4,4'-DDT breakdowns acceptable in the Evaluation Mix standard (≤20.0% for individual breakdowns)?

Y N (N/A) Was at least one Individual Mix standards A and/or B run daily to verify the working curve?

(Y) N N/A Were continuing standards analyzed at a frequency of every 10 samples to verify the working curve?

Y (N) N/A Did the continuing calibration standards meet the percent difference (%D) / relative percent difference (RPD) criteria of ≤15.0%?

Level IV/D Only

Y N (N/A) Were the retention times for all calibrated compounds within their respective acceptance windows?

Y N (N/A) Were the percent difference (%D) results recalculated? (Please see Calibration verification results verification worksheet.)

Y N (N/A) Were the (%D) recalculated results within 10.0% of the reported results?

#	Date	Standard ID	Column	Compound	%D / RPD (Limit ≤ 15.0)	RT (Limits)	Associated Samples	Qualifications
1	10-16-98	CCV	Not Specified	BB	15.7	( )	All AQ Samples EMK	J/A
	08:59					( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		
						( )		

A alpha BHC
B beta BHC
C delta BHC
D gamma BHC
E Heptachlor
F Aldrin
G Heptachlor epoxide
H Endosulfan I
I Dieldrin
J 4,4' DDE
K Endrin
L Endosulfan II
M 4,4' DDD
N Endosulfan sulfate
O 4,4' DDT
P Methoxychlor
Q Endrin ketone
R Endrin aldehyde
S alpha Chlordane
T gamma Chlordane
U Toxaphene
V Aroclor 1016
W Aroclor 1221
X Aroclor 1232
Y Aroclor-1242
Z Aroclor-1248
AA Aroclor-1254
BB Aroclor 1260
CC DB 608
DD DB 1701
EE _____
FF _____
GG _____
HH _____
II _____
JJ _____

CONC/

LDC #: 341

SDG #: 063184

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1

Reviewer: MM

2nd Reviewer: [illegible]

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8080) 2

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG?

(Y) N N/A Was a MS/MSD analyzed every 20 samples for each matrix or whenever a sample extraction was performed?

Y (N) N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits stated below?

Level IV/D Only

Y N (N/A) Were the percent recoveries (%R) and the relative percent differences (RPD) recalculated?

Y N (N/A) Were the %R and RPD reported results within 10.0% of the recalculated results?

#	Ext. Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
1	9-26-98	18119	G	( )	( )	25 (≤21)	All Soil Samples	J/A
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

Letter Designation	Compound	Soil QC Limits % Recovery	Soil QC Limits RPD	Water QC Limits % Recovery	Water QC Limits RPD
A	gamma-BHC				
B	Heptachlor				
C	Aldrin				
D	Dieldrin				
E	Endrin				
F	4,4'-DDT				
G	PCB-1016	32-156	≤21		
H	PCB-1260	38-168	≤29		
I					
J					

LDC #: 3417G3 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-17-98
SDG #: 063188 ___EPA Level III __NFESC Level C Page: 1 of 1
Laboratory: Quanterra Environmental Services Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC Polychlorinated Biphenyls (EPA SW 846 Method 8082)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-12-98
II.	GC/ECD Instrument Performance Check	A	
III.	Initial calibration	A	%RSD
IV.	Continuing calibration	A	%D
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS
IX.	Regional quality assurance and quality control	N	
Xa.	Florisil cartridge check	N	
Xb.	GPC Calibration	N	
XI.	Target compound identification	N	
XII.	Compound quantitation and reported CRQLs	N	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	N	
XV.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NECBDSS802 SOIL	11		21	
2	98NECBDSS801	12		22	
3	LB981017K (CBLK)	13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

LDC #: 341
SDG #: 083

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8080)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG?
(Y) N N/A Was a MS/MSD analyzed every 20 samples for each matrix or whenever a sample extraction was performed?
Y (N) N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits stated below?

Level IV/D Only

Y N (N/A) Were the percent recoveries (%R) and the relative percent differences (RPD) recalculated?
Y N (N/A) Were the %R and RPD reported results within 10.0% of the recalculated results?

#	Ext. Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
1	9-26-98	98NEERCSDP02 MS/MSD	G	( )	( )	25 (≤21)	All Soil Samples	J/A
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

Letter Designation	Compound	Soil QC Limits % Recovery	Soil QC Limits RPD	Water QC Limits % Recovery	Water QC Limits RPD
A	gamma BHC				
B	Heptachlor				
C	Aldrin				
D	Dieldrin				
E	Endrin				
F	4,4'-DDT				
G	PCB-1016	32-156	≤21		
H	PCB-1260	36-168	≤29		
I					
J					

LDC #: 3417F4 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/24/98

SDG #: 063183 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: MJ

2nd Reviewer: A

METHOD: Lead (EPA SW 846 Method 6010B)

Extra metals: _____

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/13/98
II.	Calibration	SW	
III.	Blanks	A	
IV.	ICP Interference Check Sample (ICS) Analysis	N	ICP not used
V.	Matrix Spike Analysis	SW	MS/MSD
VI.	Duplicate Sample Analysis	N	
VII.	Laboratory Control Samples (LCS)	A	LCS
VIII.	Internal Standard (ICP-MS)	N	ICP-MS not used
IX.	Furnace Atomic Absorption QC	A	MSA performed
X.	ICP Serial Dilution	N	ICP not used
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	SW	(1,2) (1, 98NEC16GW301) FROM SAG
XIV.	Field Blanks	N	(2, ↓) 98-0946

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NEC16GW801 AQ	11		21	
2	98NEC16GW201	12		22	
3	98NEC16GW802	13		23	
4	98NEC16GW801MS	14		24	
5	98NEC16GW801MSD	15		25	
6	PBW	16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

Notes: _____

DC #: 3417
DG #: 063183
METHOD: ~~Inorganics~~ metals, EPA Method See Cover

VALIDATION FINDINGS WORKSHEET
Calibration

Reviewer: MH
2nd Reviewer: A

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all instruments calibrated daily, each set-up time, and were the proper number of standards used?
Y (N) N/A Were all initial and continuing calibration verification percent recoveries (%R) within the control limits of 90-110% ?
Y N N/A Are all correlation coefficients ≥0.995 ?

LEVEL IV/D ONLY:

Y N (N/A) Were recalculated results acceptable? See Level IV Initial and Continuing Calibration Recaluculation Worksheet for recalulations.
Y N (N/A) Was a balance check conducted prior to the TDS analysis.?
Y N (N/A) Was the titrant normality checked?

#	Date	Calibration ID	Analyte	%R	Associated Samples	Qualifications
1	9/30/98	CCV1	Pb	88.0 % R	none	no qual.

Comments:

LDC #: 34174
SDG #: 062183

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: mf
2nd Reviewer: A

METHOD: Trace metals (EPA SW 846 Method 6010/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y (N) N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

(Y) (N) N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤35% for soil samples?

LEVEL IV ONLY:

Y N (N/A) Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Date	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
1		415	AQ	Pb	32.5	45.0		all	J/A

Comments:

MSD.

SDG #: 063183

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MM
2nd reviewer: K

METHOD: Trace metals (EPA SW 846 Method 6010/7000)

Y N N/A Were field duplicate pairs identified in this SDG?
Y N N/A Were target analytes detected in the field duplicate pairs?

Analyte	Concentration (Detection limit) (units ug/L) 1: 98MEC16GW801 Dilution 5 Prep Date 9/29/98 Analysis date 9/30/98	Concentration (Detection limit) (units ug/L) 2: 98MEC16GW901 Dilution 5 Prep Date 9/29/98 Analysis date 9/30/98	Difference	Disagreement / Major Disagreement (D / MD)
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	0.026 (0.006)	0.026 (0.006)	1	
Magnesium				
Manganese				
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				

Notes: _____

SDG #: 063183

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MG
2nd reviewer: A

METHOD: Trace metals (EPA SW 846 Method 6010/7000)

(Y) N N/A Were field duplicate pairs identified in this SDG?
(Y) N N/A Were target analytes detected in the field duplicate pairs?

Analyte	Concentration (Detection limit) (units mg/L) 98NEC16SW801 Dilution 5 Prep Date 9/29/98 Analysis date 9/30/98	98NEC16SW901 Dilution N/A Prep Date 10/1/98 Analysis date 10/7/98	Difference	Disagreement / Major Disagreement (D / MD)
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	0.026 (0.002)	0.022 (0.001)	1.2	
Magnesium				
Manganese	N/A	0.0015 (0.0001)	N/A	
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				
—				

Notes: _____

Lab #: _____
SDG #: 063183

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: mvl
2nd reviewer: VK

METHOD: Trace metals (EPA SW 846 Method 6010/7000)

Y N N/A Were field duplicate pairs identified in this SDG?
Y N N/A Were target analytes detected in the field duplicate pairs?

Analyte	Concentration (Detection limit) (units mg/L) 98NFC16CW301 Dilution 6 Prep Date 9/29/98 Analysis date 9/30/98	 98NFC16CW301 Dilution N/A Prep Date 10/1/98 Analysis date 10/7/98	Difference	Disagreement /Major Disagreement (D / MD)
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	0.026 (0.006)	0.022 (0.001)	1.2	
Magnesium				
Manganese	N/A	0.0015 (0.0010)	N/A	
Mercury				
Nickel				
Potassium				
Selenium				
Silver				
Sodium				
Thallium				
Vanadium				
Zinc				

Notes: _____

LDC #: 3417L4 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/24/98

SDG #: 063197 ____EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: MV

2nd Reviewer: KR

METHOD: ~~Lead~~ Manganese (EPA SW 846 Method 6010B)

Extra metals: _____

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/15/98
II.	Calibration	A	
III.	Blanks	A	
IV.	ICP Interference Check Sample (ICS) Analysis	A	
V.	Matrix Spike Analysis	N	no MS/Dup not IP
VI.	Duplicate Sample Analysis	N	
VII.	Laboratory Control Samples (LCS)	A	LCS
VIII.	Internal Standard (ICP-MS)	N	technique not used
IX.	Furnace Atomic Absorption QC	N	
X.	ICP Serial Dilution	A	
XI.	Sample Result Verification	N	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	N	
XIV.	Field Blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate
N = Not provided/applicable R = Rinsate TB = Trip blank
SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

1	98NEC27GW801 AQ	11		21	
2	RRSW ↓	12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

Notes: _____

LDC #: 3417E7 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-18-98

SDG #: 063161 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: Z. Pan

2nd Reviewer: [signature]

METHOD: Gasoline Range Organics (Method AK-101)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-11-98
IIa.	Initial calibration	A	%RSD < 25%
IIb.	Calibration verification	A	%D < 25%
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	~~SW~~ N	~~client specified~~ None / P
IVc.	Laboratory control samples	A	LCS/LCSD
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	ND	TB=2

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NEC00GW801 Water	11		21	
2 TB	98NECTB001	12		22	
3	LB980924N1 (BLK)	13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

Notes: _____

LDC #: 3417F7 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-18-98

SDG #: 063183 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: Z. Pan

2nd Reviewer: 0

METHOD: Gasoline Range Organics (Method AK-101)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-13-98
IIa.	Initial calibration	A	%RSD < 25%
IIb.	Calibration verification	A	%D < 25%
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS/LCSD
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate
N = Not provided/applicable R = Rinsate TB = Trip blank
SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

1	98NECRCSW806 Water	11		21	
2	98NECRCSW805	12		22	
3	98NECRCSW804	13		23	
4	98NECRCSW803	14		24	
5	98NECRCSW802	15		25	
6	98NECRCSW801	16		26	
7	98NECRCSW802MS	17		27	
8	98NECRCSW802MSD	18		28	
9	LB980925N1 (BLK)	19		29	
10		20		30	

Notes: _____

LDC #: 3417K7 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-18-98

SDG #: 063195 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: Z. Pan

2nd Reviewer: [signature]

METHOD: Gasoline Range Organics (Method AK-101)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-16-98
IIa.	Initial calibration	A	%RSD < 25%
IIb.	Calibration verification	A	%D < 25%
III.	Blanks	~~A~~ SW	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	~~SW~~ N	~~Client specified~~ have IP
IVc.	Laboratory control samples	A	LCS/LCSD
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	ND	TB=2

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; (TB) = Trip blank; EB = Equipment blank

Validated Samples:

1	98NEC27SW801 Water	11		21	
2 TB	98NECTB007	12		22	
3	LB980929N1 (BLK)	13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

Notes: _____

LDC #: 3417 k7
SDG #: 063195

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: Z. Par
2nd Reviewer:

METHOD: GC (✓TFH Volatiles (Gasoline)_ TFH Extractables (Diesel)_ CDOHS LUFT (✓~~EPA SW 846~~ Method ~~8015 Modified~~ AK101

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were all samples associated with a method blank?
(Y) N N/A Was a method blank analyzed for each matrix?
(Y) N N/A Was a method blank analyzed with each batch or extraction batch?
Y (N) N/A Was method blank contamination less than the RDL for all target compounds?

Level IV/D Only

Y N (N/A) (Gasoline only) Was a method blank analyzed with each 24 hour batch?
Y N (N/A) Was a method blank analyzed for each analytical/extraction batch of ≤20 samples?

Blank extraction date: N/A **Blank analysis date:** 9-29-98 **Associated samples:** All Samples VD
Conc. units: mg/L

Compound	Blank ID	Sample Identification								
[redacted]	LB980929A1									
GRO	0.14									
Reporting Limit	0.1									

Blank extraction date: **Blank analysis date:** **Associated samples:**
Conc. units:

Compound	Blank ID	Sample Identification								
[redacted]										

Blank extraction date: **Blank analysis date:** **Associated samples:**
Conc. units:

Compound	Blank ID	Sample Identification								
[redacted]										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 3417L7 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-18-98

SDG #: 063197 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: Z. Pan

2nd Reviewer: [signature]

METHOD: Gasoline Range Organics (Method AK-101)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-15-98
IIa.	Initial calibration	A	%RSD < 25%
IIb.	Calibration verification	A	%D < 25%
III.	Blanks	SW	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	N SW	~~client specified~~ by None IP
IVc.	Laboratory control samples	A	LCS/LCSD
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NEC27GW801 Water	11		21	
2	LB980929N1 ↓	12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

Notes: _____

LDC #: 24172

SDG #: 063197

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: Z. Pa.

2nd Reviewer:

METHOD: GC √TPH Volatiles (Gasoline) TPH Extractables (Diesel) CDOHS LUFT √EPA SW 846 Method ~~8015 Modified~~ Ak101

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were all samples associated with a method blank?

(Y) N N/A Was a method blank analyzed for each matrix?

(Y) N N/A Was a method blank analyzed with each batch or extraction batch?

Y (N) N/A Was method blank contamination less than the RDL for all target compounds?

Level IV/D Only

Y N (N/A) (Gasoline only) Was a method blank analyzed with each 24 hour batch?

Y N (N/A) Was a method blank analyzed for each analytical/extraction batch of ≤20 samples?

Blank extraction date: N/A **Blank analysis date:** 9-29-98 **Associated samples:** All Samples

Conc. units: mg/L

Compound	Blank ID	ND	Sample Identification							
	LB980929N1									
GRO	0.14									
Reporting Limit	0.1									

Blank extraction date: **Blank analysis date:** **Associated samples:**

Conc. units:

Compound	Blank ID	Sample Identification								

Blank extraction date: **Blank analysis date:** **Associated samples:**

Conc. units:

Compound	Blank ID	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT

All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 3417A8 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-16-98

SDG #: A8-09-082 ___EPA Level III _X_NFESC Level C Page: 1 of 1

Laboratory: Analytica Alaska, Inc. Reviewer: MC

2nd Reviewer: SY

METHOD: GC Diesel Range Organics & Residual Range Organics (Method AK102 & AK103)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 9-12-98 → 9-13-98
IIa.	Initial calibration	A	%RSD ≤25%
IIb.	Calibration verification	A	%R (75-125)
III.	Blanks	A	
IVa.	Surrogate recovery	~~A~~ SW A SY	
IVb.	Matrix spike/Matrix spike duplicates	SW	
IVc.	Laboratory control samples	A	LCS/LCSD
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	D_2 = 1 of 98NEC10GW801 & 98NEC10GW201 from SDG: 063180
X.	Field blanks	N	*D_1 = 2 of 98NECRCSW802 & 98NECRCSW202 from SDG: 063183. D_5 = 5 of 98NEC19GW801 & 98NEC19GW201 from SDG: 063183.

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank; *ND

Validated Samples:

1 D_2	98NEC10GW301	11		21	
2 D_1	98NECRCSW302	12		22	
3	98NECRCSW302*	13		23	
4	98NECRCSW302**	14		24	
5 D_5	98NEC19GW301	15		25	
6	98NEC19GW301MS	16		26	
7	98NEC19GW301MSD	17		27	
8	MB1 0918	18		28	
9	MB2 0918	19		29	
10	MB2 0917 SY	20		30	

Notes: * Aromatic, ** Aliphatic

LDC #: 34122O

SDG #: AB-09082

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: MK

2nd Reviewer: [illegible]

METHOD: ✓ GC ___ HPLC (EPA AK102 & 103)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all samples associated with a matrix spike (MS) and matrix spike duplicate (MSD)?

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix?

Y N N/A Were the MS/MSD percent recoveries (%R) and relative percent differences (RPD) within QC limits stated below?

Level IV/D Only

Y N N/A Were a MS/MSD analyzed for each analytical extraction batch of ≤20 samples?

Y N N/A Were the percent recoveries (%R) and relative percent differences (RPD) recalculated for all spiked compounds?

Y N N/A Were the percent recoveries (%R) and relative percent differences (RPD) reported results within 10.0% of the recalculated results?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
1	10-12-98	617	DRO	295 (60-120)	40.4 (60-120)	152 (20)	1-5	no qual (%R) J/A (RPD)
				( )	( )	( )		
				Sample Conc. is > 2X the spike amount.				
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )			
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

Letter Designation	Compound	Soil QC Limits		Water QC Limits	
		% Recovery	RPD	% Recovery	RPD
A	DRO	60-120	≤ 20		
B					
C					
D					
E					
F					
G					
H					
I					
J					

LDC #: 34178

SDG #: AR09-082

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MS

2nd reviewer: JC

METHOD: ✓GC ___ HPLC (EPA AK102 8103)

Y N N/A Were field duplicate pairs identified in this SDG?

Y N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (Detection limit) (units ug/kg) # 1	98NEC10GW801	Difference	Disagreement /Major Disagreement (D / MD)
	Dilution 1, Prep Date 9-18-98, Analysis date 10-12-98	Dilution 1, Prep Date 9-18-98, Analysis date 9-30-98		
DRO 270	~~0.27~~ (0.19)	ND (0.19)	3	D
RRO 300	~~0.30~~ (0.19)	ND (0.19)	2	—

Compound	Concentration (Detection limit) (units ug/kg) # 1	98NEC10GW201	Difference	Disagreement /Major Disagreement (D / MD)
	Dilution 1, Prep Date 9-18-98, Analysis date 10-12-98	Dilution 1, Prep Date 9-18-98, Analysis date 9-30-98		
DRO 270 (190)	0.27 (0.19)	110 (190)	2	—
RRO 300 (190)	0.30 (0.19)	ND (200)	2	—

Compound	Concentration (Detection limit) (units ug/L) 98NEC10GW801	98NEC10GW201	Difference	Disagreement /Major Disagreement (D / MD)
	Dilution 1, Prep Date 9-18-98, Analysis date 9-30-98	Dilution 1, Prep Date 9-18-98, Analysis date 9-30-98		
DRO	ND (100)	110 (100)	1	—

From 063183, 34178

LDC #: 341FF8
SDG #: AR-01-082

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MM
2nd reviewer: [illegible]

METHOD: ✓ GC ___ HPLC (~~EPA~~ AK 102 & 103)

Y N N/A Were field duplicate pairs identified in this SDG?
Y N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (Detection limit) (units ug/L)		Difference	Disagreement /Major Disagreement (D / MD)
	#5	98NEC19GW801		
	Dilution 1 Prep Date 9-18-98 Analysis date 10-13-98	Dilution 10 Prep Date 9-19-98 Analysis date 10-22-98		
DRO	14000 (190) ~~14 (0.19)~~	16000 (1000)	1	—
RRO	930 (190) ~~0.93 (0.19)~~	ND (2,500)	NC	—

Compound	Concentration (Detection limit) (units ug/L)		Difference	Disagreement /Major Disagreement (D / MD)
	#5	98NEC19GW201		
	Dilution 1 Prep Date 9-18-98 Analysis date 10-13-98	Dilution 10 Prep Date 9-19-98 Analysis date 10-22-98		
DRO	14000 (190) ~~14 (0.19)~~	18000 (1000)	1	—
RRO	930 (190) ~~0.93 (0.19)~~	ND (2,500)	NC	—

Compound	Concentration (Detection limit) (units ug/L)		Difference	Disagreement /Major Disagreement (D / MD)
	98NEC19GW801	98NEC19GW201		
	Dilution 10 Prep Date 9-19-98 Analysis date 10-22-98	Dilution 10 Prep Date 9-19-98 Analysis date 10-22-98		
DRO	16000 (1000)	18000 (1000)	1	—
RRO	ND (2,5	~~ND (2,5)~~		

From 341FF8, 063183

LDC #: 3417B8 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-16-98

SDG #: A8-09-083 ___EPA Level III _X_NFESC Level C Page: 1 of 1

Laboratory: Analytica Alaska, Inc. Reviewer: MA

2nd Reviewer: [illegible]

METHOD: GC Diesel Range Organics & Resudual Range Organics (Method AK102 & AK103)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-13-98
IIa.	Initial calibration	A	%RSD ≤ 25%
IIb.	Calibration verification	A	%R (75-125)
III.	Blanks	A	
IVa.	Surrogate recovery	SW	
IVb.	Matrix spike/Matrix spike duplicates	SW	
IVc.	Laboratory control samples	A	LCS/LCSD
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	see LDC:3417F8
X.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate
N = Not provided/applicable R = Rinsate TB = Trip blank
SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

1	DA	98NECRC301	5	11	98NECRC302MS**	5	21	
2	DA	98NECRC301*		12	98NECRC302MSD**		22	
3	DA	98NECRC301**		13	MB20925		23	
4	D6	98NECRC302		14	MB10923		24	
5	D6	98NECRC302*		15			25	
6	D6	98NECRC302**		16			26	
7		98NECRC302MS		17			27	
8		98NECRC302MSD		18			28	
9		98NECRC302MS*		19			29	
10		98NECRC302MSD*		20			30	

Notes: * Aromatic, ** Aliphatic

SDG # A8-09.026'S

VALIDATION FINDINDS WORKSHEET
Surrogate Recovery

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: ✓ GC ___ HPLC (EPA AK102 & 103)
Are surrogates required by the method? Yes Y or No
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Were surrogates spiked into all samples and blanks?
Y (N) N/A Did all surrogate recoveries (%R) meet the QC limits stated below?

#	Date	Lab ID/Reference	Column	Surrogate Compound	%R (Limits)	Associated Samples	Qualifications
1	10-17-98	[illegible] 1	Not Specified	A	D (60-120)	1	Dilution: 5 No qual
				B	D ( )	1	
2	10-17-98	[illegible] 4		A	( )	4	
		[illegible]		B	( )	4	
		5		[illegible] A	36 [illegible] (50-150)	5	J / A extractable
		6		[illegible] B	44 (50-150)	6	

Letter Designation	Surrogate Compound	Recovery QC Limits (Soil)	Recovery QC Limits (Water)	Comments
A	O-Terphenyl	60-120		
B	Squalane	60-120		

SDG #: AE 283

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

METHOD: ✓ GC ___ HPLC (EPA AK102 & 103)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all samples associated with a matrix spike (MS) and matrix spike duplicate (MSD)?

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix?

Y N N/A Were the MS/MSD percent recoveries (%R) and relative percent differences (RPD) within QC limits stated below?

Level IV/D Only

Y N N/A Were a MS/MSD analyzed for each analytical extraction batch of ≤20 samples?

Y N N/A Were the percent recoveries (%R) and relative percent differences (RPD) recalculated for all spiked compounds?

Y N N/A Were the percent recoveries (%R) and relative percent differences (RPD) reported results within 10.0% of the recalculated results?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
1	11-3-98	KB09083-02B	C	( )	( )	40.1 (20)	#3 & #6	J/A extractab.
			D	( )	( )	49.1 (20)		
			A	( )	49.2 (50-150)	( )	#2 & #5	
			B	( )	46.9 ( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )			
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

Letter Designation	Compound	Soil QC Limits % Recovery	Soil QC Limits RPD	Water QC Limits % Recovery	Water QC Limits RPD
A	Diesel Range ~~Aliphatics~~ Aromatics	50-150	20		
B	Residual Range Aromatics	50-150	20		
C	Diesel Range Aliphatics	50-150	20		
D	Residual Range Aliphatics	50-150	20		
E					
F					
G					
H					
I					
J					

LDC #: 3417C8 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-17-98

SDG #: A8-09-093 ____EPA Level III _X_NFESC Level C Page: 1 of 1

Laboratory: Analytica Alaska, Inc. Reviewer: JW

2nd Reviewer: JB

METHOD: GC Diesel Range Organics & Resudual Range Organics (Method AK102 & AK103)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-14-98
IIa.	Initial calibration	A	%RSD ≤25%
IIb.	Calibration verification	A	%R(75-125)
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS/LCSD
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance.	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NEC02SS301 Soil	11		21	
2	MB10923 ↓	12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

Notes: * Aromatic, ** Aliphatic

LDC #: 3417E8 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-21-98

SDG #: 063161 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: MR

2nd Reviewer: JC

METHOD: GC Diesel Range Organics & Resudual Range Organics (Method AK102 & AK103)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-11-98, 9-12-98
IIa.	Initial calibration	A	%RSD<25%, r²>.990
IIb.	Calibration verification	A	%D<25%
III.	Blanks	A	
IVa.	Surrogate recovery	SW	
IVb.	Matrix spike/Matrix spike duplicates	N	~~Client Specified~~ none/p
IVc.	Laboratory control samples	A	LCS/LCSD
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NEC03GW801 W	11		21	
2	98NEC04GW801	12		22	
3	98NEC00GW801	13		23	
4	98NEC07GW801	14		24	
5	98NEC09GW801	15		25	
6	98NEC09GW802	16		26	
7	98NEC09GW803	17		27	
8	LB980925IDRO	18		28	
9	LB980930IRRD	19		29	
10	LB980930IDRO	20		30	

Notes: _____

DC #: 34178
SDG #: 063161

VALIDATION FINDINDS WORKSHEET
Surrogate Recovery

Page: 1 of
Reviewer:
2nd Reviewer:

METHOD: / GC __ HPLC (WA AK102&103)
Are surrogates required by the method? Yes / or No
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
(Y) N N/A Were surrogates spiked into all samples and blanks?
Y (N) N/A Did all surrogate recoveries (%R) meet the QC limits stated below?

#	Date	Lab ID/Reference	Column	Surrogate Compound	%R (Limits)	Associated Samples	Qualifications
1	9/25/98	# 4	DB624	A	0 (50-150)	4	J/R/X (DRO)
2	9/26/98	5	↓	↓	( )	5	↓
3	9/30/98	6	↓	↓	( )	6	↓
4	9/25/98	3	↓	B	( )	3	(RRO)
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		

Letter Designation	Surrogate Compound	Recovery QC Limits (Soil)	Recovery QC Limits (Water)	Comments
A	O-Terphenyl		50-150	
B	Tricontane		50-150	

LDC #: 3417F8 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-21-98

SDG #: 063183 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: MK

2nd Reviewer: [illegible]

METHOD: GC Diesel Range Organics & Resudual Range Organics (Method AK102 & AK103)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9.13.98
IIa.	Initial calibration	A	%RSD ≤25, r2 ≥.990
IIb.	Calibration verification	A	%D ≤25
III.	Blanks	A	
IVa.	Surrogate recovery	SW	
IVb.	Matrix spike/Matrix spike duplicates	SW	
IVc.	Laboratory control samples	SW	LCS/LCSD
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	For D1 @ D5 see LDC # 3417A8, D6 = 15 → 20 @ 98NECRC302
X.	Field blanks	N	From SDG: A8.09-083. D7 = 21 → 26 @ 98NECRC301 from SDG: A8.09-083.

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

ND's = 20, 23

Validated Samples:

1	98NEC11GW801	W	11	98NECRCSD804**	S	21 D7	98NECRCSD801	S	31 D1	98NECRCSW802	W
2	98NEC11GW802		12	98NECRCSD803		22 D7	98NECRCSD801*		32 D1	98NECRCSW202	
3	98NEC13GW001		13	98NECRCSD803*		23 D7	98NECRCSD801**		33	98NECRCSW801	
4	98NEC15GW801		14	98NECRCSD803**		24 D7	98NECRCSD201		34	98NECRCSW801*	
5 D5	98NEC19GW801		15 D2	98NECRCSD802		25 D7	98NECRCSD201*		35	98NECRCSW801**	
6 D5	98NEC19GW201		16 D6	98NECRCSD802*		26 D7	98NECRCSD201**		36	98NEC19GW801MS	
7	98NEC19GW802		17 D8	98NECRCSD802**		27	98NECRCSW806	W	37	98NEC19GW801MSD	
8	98NEC27GW001		18 D2	98NECRCSD202		28	98NECRCSW805		38	98NEC19GW201MS	
9	98NECRCSD804	S	19 D6	98NECRCSD202*		29	98NECRCSW804		39	98NEC19GW201MSD	
10	98NECRCSD804*		20 D6	98NECRCSD202**		30	98NECRCSW803		40	98NECRCSW802MS	
42	98NECRCSD802MS Soil		43	98NECRCSD802MSD Soil					41	98NECRCSW802MSD	

Notes: *Aromatic, **Aliphatic LB 9810221 LB 9810222 LB 9810221A

DC #: 34178
DG #: 063183

VALIDATION FINDINDS WORKSHEET
Surrogate Recovery

Page: 1 of 1
Reviewer: MC
2nd Reviewer: SK

METHOD: X GC ___ HPLC (EPA AK102/103)
Are surrogates required by the method? Yes ___ or No
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y (N) N/A Were surrogates spiked into all samples and blanks?
Y (N) N/A Did all surrogate recoveries (%R) meet the QC limits stated below?

#	Date	Lab ID/Reference	Column	Surrogate Compound	%R (Limits)	Associated Samples		Qualifications
1	10/22/98	2	DB624	A	0 (50-150)	2	D:1: 20	no qual
		3			( )	3	D:1: 50	
	10/29/98	4			( )	4	D:1: 5.0	
	10/22/98	5			( )	5	D:1: 10	
		6			( )	6	D:1: 10	
	10/23/98	7			( )	7	D:1: 5.0	
	10/30/98	34			3.1 ( )	34	D:1: 1.0	J/R/A (DRO)
	10/29/98	9			0 ( )	9	D:1: 10	no qual
	10/30/98	10			( )	10	D:1: 1.0	J/R/A (DRO)
	10/31/98	13			1.5 ( )	13	D:1: 1.0	J/R/A (DRO)
	10/29/98	15			0 ( )	15		
	10/31/98	16			3.9 ( )	16		
		19			3.1 ( )	19		
		22			5.3 ( )	22		
		25			3.5 ( )	25		
	10/22/98	2		B	80 ( )	2	D:1: 20	no qual
		3			( )	3	D:1: 50	
	10/29/98	4			( )	4	D:1: 5	
	10/22/98	5			( )	5	D:1: 10	
		6			( )	6		
	10/23/98	7			( )	7	D:1: 5.0	
		8			( )	8	D:1: 1.0	J/R/A (RRO)
	10/29/98	9			( )	9		
	10/30/98	11			( )	11	D:1: 2.0	no qual

Letter Designation	Surrogate Compound	Recovery QC Limits (Soil)	Recovery QC Limits (Water)	Comments
DRO A	O-Terphenyl	50-150	50-150	
RRO B	Tricontane			

DC #: 3411
SDG #: 063183

VALIDATION FINDINGS WORKSHEET
Surrogate Recovery

Reviewer: MC 2
2nd Reviewer: SI

METHOD: ✓ GC HPLC (LFA 4K10249103)
Are surrogates required by the method? Yes or No
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
(Y) N N/A Were surrogates spiked into all samples and blanks?
Y (N) N/A Did all surrogate recoveries (%R) meet the QC limits stated below?

#	Date	Lab ID/Reference	Column	Surrogate Compound	%R (Limits)	Associated Samples	Qualifications
	10/29/98	12	DB624	B	0 (50-150)	12 D:1:10	J/R/A (RRO)
	10/30/98	14			( )	14	
	10/29/98	15			( )	15	
	10/31/98	17			( )	17	
	10/29/98	18			( )	18	
	10/31/98	20			( )	20	
	10/29/98	21			( )	21	
	10/31/98	23			( )	23	
	10/29/98	24			( )	24	
	10/31/98	26			( )	26	
		LB98102211A *		A	3.0 ( )	LB98102211A *	J/R/A (DRO)
		LB98102011A *			2.7 ( )	LB95102011A *	

Letter Designation	Surrogate Compound	Recovery QC Limits (Soil)	Recovery QC Limits (Water)	Comments
A	O-Terphenyl	50-150	50-150	
B	Tricontane			

LDC #: 34178
SDG #: 06383

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: MC
2nd Reviewer: SC

METHOD: / GC ___ HPLC (~~EPA~~ AK102 & 103)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were all samples associated with a matrix spike (MS) and matrix spike duplicate (MSD)?
(Y) N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix?
Y (N) N/A Were the MS/MSD percent recoveries (%R) and relative percent differences (RPD) within QC limits stated below?

Level IV/D Only

Y N (N/A) Were a MS/MSD analyzed for each analytical extraction batch of ≤20 samples?
Y N (N/A) Were the percent recoveries (%R) and relative percent differences (RPD) recalculated for all spiked compounds?
Y N (N/A) Were the percent recoveries (%R) and relative percent differences (RPD) reported results within 10.0% of the recalculated results?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
1	11/6/98	36/37	A	180 (50-150)	463 (50-150)	3001 20)	All Water Samples	Dil:1 J/A (RPD) no qual (%R
		38/39	A	700 ( )	340 ( )	100 ( )	Dil:10	
		38/39	B	24.8 ( )	48.2 ( )	64 ( )		J/A
		~~40/41 lcs~~		( )	( )	( )		
	56/56	98[illegible]0802	A	170 ( )	180 ( )	( )	All Soil Samples	no qual (%R)
		↓ LCS	B	( )	286 ( )	67 ( )		J/A (RPD)
				( )	( )	( )		
		For all the spikes: Sample conc is > 2X the spike amount						
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

Letter Designation	Compound	Soil QC Limits % Recovery	Soil QC Limits RPD	Water QC Limits % Recovery	Water QC Limits RPD
A	DRO	50-150	20	50-150	20
B	RRO	↓	↓	↓	↓
C					
D					
E					
F					
G					
H					
I					
J					

DC #: 3417
DG #: 063183

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Rev. 2
2nd Reviewer:

METHOD: / GC __ HPLC (EPA AK102/103)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Was a blank spike analyzed for each matrix or whenever a sample extraction was performed?

Y (N) N/A Were the blank spike percent recoveries (%R) and relative percent differences (RPD) within the QC limits stated below?

#	Date	Lab ID/Reference	Compound	%R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	11/6/98	LCS/LCSD	A	59.8 (60-120)	( )	All Water Samples & MB Water + blanks (LB9810221 LB9810222 LB9810221A)	J/A
				( )	( )		
				( )	( )		
				( )	( )		
				( )	( )		
				( )	( )		
				( )	( )		
				( )	( )		
				( )	( )		
				( )	( )		
				( )	( )		
				( )	( )		
				( )	( )		
				( )	( )		
				( )	( )		

Letter Designation	Compound	Soil QC Limits		Water QC Limits	
		% Recovery	RPD	% Recovery	RPD
A	RRO	60-120	20		
B					
C					
D					
E					
F					
G					
H					
I					
J					

LDC #: 541FB
SDG #: 063183

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MA
2nd reviewer: [illegible]

METHOD: ✓ GC ___ HPLC (EPA AK102 & 103)

(Y) N N/A Were field duplicate pairs identified in this SDG?
(Y) N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (Detection limit) (units mg/kg) #15 Dilution 1 Prep Date 9-27-98 Analysis date 10-29-98	#18 Dilution 1 Prep Date 9-27-98 Analysis date 10-29-98	Difference	Disagreement /Major Disagreement (D / MD)
DRO	130 (7.4)	11 (7.7)	12	MD
RRO	77 (19)	47 (19)	2	—

Compound	Concentration (Detection limit) (units mg/kg) #21 Dilution 1 Prep Date 9-27-98 Analysis date 10-29-98	#24 Dilution 1 Prep Date 9-27-98 Analysis date 10-29-98	Difference	Disagreement /Major Disagreement (D / MD)
DRO	20 (8.5)	36 (11)	2	—
RRO	110 (21)	170 (26)	2	—

Compound	Concentration (Detection limit) (units mg/kg) #23 Dilution 1 Prep Date 9-27-98 Analysis date 10-31-98	#26 Dilution 1 Prep Date 9-27-98 Analysis date 10-31-98	Difference	Disagreement /Major Disagreement (D / MD)
DRO, Aliphatic	ND (21)	28 (26)	1	—

LDC #: 34IFFX
SDG #: 063183

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MK
2nd reviewer: SL

METHOD: ✓ GC ___ HPLC (EPA AK102 & 103)

(Y) N N/A Were field duplicate pairs identified in this SDG?
(Y) N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (Detection limit) (units mg/kg) #17 Dilution 1 Prep Date 9-27-98 Analysis date 10-31-98	#20 Dilution 1 Prep Date 9-27-98 Analysis date 10-31-98	Difference	Disagreement /Major Disagreement (D / MD)
DRO, Aliphatic	110 (19)	ND (19)	6	MD

Compound	Concentration (Detection limit) (units mg/kg) #16 Dilution 1 Prep Date 9-27-98 Analysis date 10-31-98	#19 Dilution 1 Prep Date 9-27-98 Analysis date 10-31-98	Difference	Disagreement /Major Disagreement (D / MD)
~~DRO~~ RRO, Aromatic	81 (37)	44 (38)	2	—

Compound	Concentration (Detection limit) (units mg/kg) #22 Dilution 1 Prep Date 9-27-98 Analysis date 10-31-98	#25 Dilution 1 Prep Date 9-27-98 Analysis date 10-31-98	Difference	Disagreement /Major Disagreement (D / MD)
RRO, Aromatic	93 (43)	180 (53)	2	—

LDC #: 34175u
SDG #: 06314

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: ma
2nd reviewer: a

METHOD: ✓ GC __ HPLC (~~EPA~~ AK102 4103)

(Y) N N/A Were field duplicate pairs identified in this SDG?
Y/N N/A Were target compounds detected in the field duplicate pairs?

From 34178B

Compound	Concentration (Detection limit) (units mg/kg) 98NECRC301 Dilution 1 Prep Date 9-25-98 Analysis date 11-3-98	#2322 Dilution 1 Prep Date 9-27-98 Analysis date 10-31-98	Difference	Disagreement /Major Disagreement (D / MD)
DRO. Aliphatics	29 (10)	ND (21)	1	—
RRO, "	66 (26)	ND (43)	2	—
RRO, Aromatics	60 (26)	93 (43)	2	—
~~DRO~~ ~~RRO~~				

Compound	Concentration (Detection limit) (units mg/kg) 98NECRC301 Dilution 5 Prep Date 9-23-98 Analysis date 10-19-98	#21 Dilution 1 Prep Date 9-27-98 Analysis date 10-29-98	Difference	Disagreement /Major Disagreement (D / MD)
DRO	210 (52)	20 (8.5)	11	MD
RRO	1600 (52)	110 (21)	15	MD

Compound	Concentration (Detection limit) (units mg/kg) 98NECRC301 Dilution 5 Prep Date 9-23-98 Analysis date 10-19-98	#24 Dilution 1 Prep Date 9-27-98 Analysis date 10-29-98	Difference	Disagreement /Major Disagreement (D / MD)
DRO	210 (52)	36 (11)	6	MD
RRO	1600 (52)	170 (26)	9	MD

LDC #: 34178
SDG #: 06318.3

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MS
2nd reviewer: [illegible]

METHOD: √ GC ___ HPLC (EPA AK102/103)

Y N N/A Were field duplicate pairs identified in this SDG?
Y N N/A Were target compounds detected in the field duplicate pairs?

From 3417B8

Compound	Concentration (Detection limit) (units mg/kg)		Difference	Disagreement /Major Disagreement (D / MD)
	98NECRC301	25, 26		
	Dilution 1 Prep Date 9-25-98 Analysis date 11-3-98	Dilution 1 Prep Date 9-22-98 Analysis date 10-31-98		
DRO, Aliphatics	29 (10)	28 (26)	1	—
RRO, "	66 (26)	ND (53)		—
RRO, Aromatics	60 (26)	180 (53)	3	—

Compound	Concentration (Detection limit) (units mg/kg)		Difference	Disagreement /Major Disagreement (D / MD)
	98NECRC302	16, 17		
	Dilution 1 Prep Date 9-25-98 Analysis date 11-3-98	Dilution 1 Prep Date 9-22-98 Analysis date 10-31-98		
DRO, Aliphatics	15 (7.3)	110 (19)	7	MD
RRO, "	32 (18)	ND (37)	NC	—
RRO, Aromatics	26 (18)	81 (37)	3	—

Compound	Concentration (Detection limit) (units mg/kg)		Difference	Disagreement /Major Disagreement (D / MD)
	98NECRC302	19, 20		
	Dilution 1 Prep Date 9-25-98 Analysis date 11-3-98	Dilution 1 Prep Date 9-22-98 Analysis date 10-31-98		
DRO, Aliphatics	15 (7.3)	ND (19)	NC	—
RRO, "	32 (18)	ND (38)	NC	—
RRO, Aromatics	26 (18)	44 (38)	2	—

LDC #: 341T76
SDG #: 063183

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MA
2nd reviewer: [illegible]

METHOD: ✓GC ___ HPLC (EPA AK102 & 103)

Y N N/A Were field duplicate pairs identified in this SDG?
Y N N/A Were target compounds detected in the field duplicate pairs?

From 341788

Compound	Concentration (Detection limit) (units mg/kg)		Difference	Disagreement /Major Disagreement (D / MD)
	98NECRC302	15		
	Dilution 5 Prep Date 9-23-98 Analysis date 10-17-98	Dilution 1 Prep Date 9-27-98 Analysis date 10-29-98		
DRO	64 (37)	130 (7.4)	2	—
RRO	380 (37)	77 (19)	5	D

Compound	Concentration (Detection limit) (units mg/kg)		Difference	Disagreement /Major Disagreement (D / MD)
	98NECRC302	18		
	Dilution 5 Prep Date 9-23-98 Analysis date 10-17-98	Dilution 1 Prep Date 9-27-98 Analysis date 10-29-98		
DRO	64 (37)	11 (7.7)	6	MD
RRO	380 (37)	47 (19)	8	MD

Compound	Concentration (Detection limit) (units ____)		Difference	Disagreement /Major Disagreement (D / MD)
	Dilution ____ Prep Date ____ Analysis date	Dilution ____ Prep Date ____ Analysis date		

LDC #: 3417G8 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/21/98

SDG #: 063188 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: MZ

2nd Reviewer: JS

METHOD: GC Diesel Range Organics & Resudual Range Organics (Method AK102 & AK103)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 9-12-98
IIa.	Initial calibration	A	%RSD ≤ 25%; ~~r ≥ .990~~
IIb.	Calibration verification	~~SW~~ A	%D ≤ 25%
III.	Blanks	A	
IVa.	Surrogate recovery	SW	
IVb.	Matrix spike/Matrix spike duplicates	N	~~Client Specified~~ None ✓
IVc.	Laboratory control samples	A	LCS/LCSD
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NECDBSD801 S	11	98NECDBSS806* S	21	98NECDBSS809** S	31	LB981002IRRO S
2	98NECDBSD801*	12	98NECDBSS806**	22	98NECBDSS802	32	LB981002IRRO*
3	98NECDBSD801**	13	98NECDBSS807	23	98NECBDSS802*	33	LB981002IRRO**
4	98NECDBSD802	14	98NECDBSS807*	24	98NECBDSS802**	34	
5	98NECDBSD802*	15	98NECDBSS807**	25	98NECBDSS801	35	
6	98NECDBSD802**	16	98NECDBSS808	26	98NECBDSS801*	36	
7	98NECDBSD803	17	98NECDBSS808*	27	98NECBDSS801**	37	
8	98NECDBSD803*	18	98NECDBSS808**	28	LB981002IDRO	38	
9	98NECDBSD803**	19	98NECDBSS809	29	LB981002IDRO*	39	
10	98NECDBSS806	20	98NECDBSS809*	30	LB981002IDRO**	40	

Notes: *Aromatic, **Aliphatic

SDG #: 063188

Technical Holding Times

Page: ___ of ___

Reviewer: MC

2nd Reviewer: [illegible]

All circled dates have exceeded the technical holding times.

(Y) N N/A Were all cooler temperatures within validation criteria? _____

METHOD : / GC __ HPLC (EPA AK102 & 103)

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
2	Soil	N/A	9-12-98	10-15-98	10-27-98	33	J/> R/P
3					10-28-98		
5					10-27-98		
6					10-28-98		
8							
9							
11					10-27-98		
12							
14				10-16-98		34	
15							
17							
18							
20							
[illegible]							
[illegible]					10-28-98		
[illegible]							
26				10-15-98		33	
27							
[illegible]				9-30-98	10-27-98		J

TECHNICAL HOLDING TIME CRITERIA

VOLATILES:

Water unpreserved:	Aromatic within 7 days, non-aromatic within 14 days of sample collection.
Water preserved:	Both within 14 days of sample collection.
Soils:	Both within 14 days of sample collection.

EXTRACTABLES:

Water:	Extracted within 7 days, analyzed within 40 days.
Soil:	Extracted within 14 days, analyzed within 40 days.

LDC #: 34/1
SDG #: 063182

VALIDATION FIN , WORKSHEET
Surrogate Recovery

Reviewer: MK
2nd Reviewer: SC

METHOD: ✓ GC HPLC (EPA AK102/103)
Are surrogates required by the method? Yes ✓ or No
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Were surrogates spiked into all samples and blanks?
Y (N) N/A Did all surrogate recoveries (%R) meet the QC limits stated below?

#	Date	Lab ID/Reference	Column	Surrogate Compound	%R (Limits)	Associated Samples	Dil:	Qualifications
1	10/5/98	1	DB624	A	10 (50-150)	1	50	no qual
	10/27	2			0	2	1.0	J/R/A (DRO)
	10/28	3			0	3	10	no qual
	10/5	4			8.8	4	50	no qual
	10/27	5		B	0	5	2.0	
	10/28	6		C	0	6	50	
	10/5	7		A	6.1	7	50	
	10/28	8		C	0	8	2.0	
		9		C	0	9	50	
	10/27	11		A		11	1.0	J/R/A (DRO)
		18		C		18		
		21		D		21		
	10/5	1				1	5.0	no qual
	10/27	3			23	3	1.0	J/A (RRO)
	10/5	4			0	4	20	no qual
	10/27	5		B		5	1.0	J/R/A (RRO)
	10/28	6		D		6	50	no qual
		6		C		6		
	10/5	7		D		7	10	
	10/27	8		B		8	1.0	J/R/A (RRO)
	10/28	9		D		9	50	no qual
		9		C		9		
	10/5	10		D		10	1.0	J/R/A (RRO)
		13				13		J/R/A

Letter Designation	Surrogate Compound	Recovery QC Limits (Soil)	Recovery QC Limits (Water)	Comments
Diesel A	O-Terphenyl	50 - 150		
B	Phenanthrene-d10	DRO aromatic		
Oil/Plastic/DRO	Pentacosane			
RRO Surrogate D	Tricontane			

DC #: 341768
SDG #: 063188

VALIDATION FINDINDS WORKSHEET
Surrogate Recovery

Reviewer: MA
2nd Reviewer: SL

METHOD: / GC ___ HPLC (EPA AK102/103)
Are surrogates required by the method? Yes / or No
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Were surrogates spiked into all samples and blanks?
Y N N/A Did all surrogate recoveries (%R) meet the QC limits stated below?

#	Date	Lab ID/Reference	Column	Surrogate Compound	%R (Limits)	Associated Samples	Qualifications
	10/5/98	16	DB624	D	0 (50-150)	16 Dil: 1.0	J/R/A (RRO)
	10/27	~~18~~		~~C~~	( )	~~18~~	~~RSV~~
	↓	~~18~~			( )	~~18~~	
	10/5	19		D	( )	19	J/R/A (RRO)
	10/27	21			( )	21	
	10/5	22			( )	22	
	10/28	24			( )	24	
	10/5	25			( )	25	
	10/28	27			( )	27	
		18		C	~~0~~ first page	18	
				D	( )		

Letter Designation	Surrogate Compound	Recovery QC Limits (Soil)	Recovery QC Limits (Water)	Comments
A				
B				
C	Pentacosane	50-150		
D	Tricontane	↓		
SURR GC				

LDC #: 3417H8 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/21/98

SDG #: 063189 ___EPA Level III ___NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: MA

2nd Reviewer:

METHOD: GC Diesel Range Organics & Resudual Range Organics (Method AK102 & AK103)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-12-98
IIa.	Initial calibration	A	%RSD ≤ 25%, r^2 ≥ .990
IIb.	Calibration verification	A	%D ≤ 25%
III.	Blanks	A	
IVa.	Surrogate recovery	SW	
IVb.	Matrix spike/Matrix spike duplicates	N	~~Client Specified~~ None / D
IVc.	Laboratory control samples	A	LCS / LCSD
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NECRCSD805 S	11	LB981002IRRO* S	21		31	
2	98NECRCSD805*	12	LB981002IRRO** ↓	22		32	
3	98NECRCSD805**	13		23		33	
4	98NECRCSD806	14		24		34	
5	98NECRCSD806*	15		25		35	
6	98NECRCSD806**	16		26		36	
7	LB981002IDRO	17		27		37	
8	LB981002IDRO*	18		28		38	
9	LB981002IDRO**	19		29		39	
10	LB981002IRRO ↓	20		30		40	

Notes: *Aromatic, **Aliphatic

DC #: 341748
DG #: 063189

VALIDATION FINDINDS WORKSHEET
Surrogate Recovery

Page: 1 of 1
Reviewer: MC
2nd Reviewer: [illegible]

METHOD: / GC HPLC (LVK AK 102/102)
re surrogates required by the method? Yes / or No ____.
lease see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
N N/A Were surrogates spiked into all samples and blanks?
(N) N/A Did all surrogate recoveries (%R) meet the QC limits stated below?

#	Date	Lab ID/Reference	Column	Surrogate Compound	%R (Limits)	Associated Samples	Qualifications
1	10/28/98	5	DB624	A	0 (50-150)	5	J/R/X (DRO)
		LB981002IDRO *		↓	28 (↓)	LB981002IDRO *	↓

Letter Designation	Surrogate Compound	Recovery QC Limits (Soil)	Recovery QC Limits (Water)	Comments
A	O-Terphenyl	50-150		
B				

SOM GC

LDC #: 341718 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-21-98

SDG #: 063190 ____EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: ms

2nd Reviewer: a

METHOD: GC Diesel Range Organics & Resudual Range Organics (Method AK102 & AK103)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-12-98
IIa.	Initial calibration	A	%RSD ≤ 25%, r2 ≥ .990
IIb.	Calibration verification	A	%D ≤ 25%
III.	Blanks	A	
IVa.	Surrogate recovery	SW	
IVb.	Matrix spike/Matrix spike duplicates	N	~~Client Specified~~ None ?
IVc.	Laboratory control samples	A	LCS/LCSD
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	SW	see SDGA8-09-082 (LDC:341FA8)
X.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1 D_2	98NEC10GW801 W	11		21		31	
2 D_2	98NEC10GW201	12		22		32	
3	98NEC10GW802	13		23		33	
4	LB980930IDRO	14		24		34	
5	LB980930IRRO	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: *Aromatic, **Aliphatic

LDC #: 36178
SDG #: 063190

VALIDATION FINDINGS WORKSHEET
Surrogate Spikes

Page: 1 of 1
Reviewer: MA
2nd Reviewer: [signature]

✓ DRO & RRO

METHOD: GC___TFH Volatiles (Gasoline)___TFH Extractables (Diesel)___CDOHS LUFT___EPA SW 846 Method 8015 Modified. ✓AK102 & 103

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were surrogates spiked into all samples and blanks? (Not required)
Y (N) N/A Did all surrogate recoveries (%R) meet the QC limits stated below? ✓

#	Date	Sample ID	Surrogate Compound	%R (Limits)	Qualifications
1	9/30/98	1	A	0 (50-150)	J/A R/A ND (DRO)
2		2		( )	
		3		( )	(RRO)
		1	B	( )	
		2		( )	
		3		( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

Letter Designation	Surrogate Compound	Recovery QC Limits (Soil)	Recovery QC Limits (Water)	Comments
A	O-Terphenyl	50-150	50-150	
B	Tricontane		↓	

SUR.

LDC #: 3417J8 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-21-98

SDG #: 063191 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: MA

2nd Reviewer: [illegible]

METHOD: GC Diesel Range Organics & Resudual Range Organics (Method AK102 & AK103)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 9-14-98
IIa.	Initial calibration	A	%RSD≤20, r²≥.99
IIb.	Calibration verification	A	%D≤20
III.	Blanks	A	
IVa.	Surrogate recovery	SW	
IVb.	Matrix spike/Matrix spike duplicates	SW	
IVc.	Laboratory control samples	A	LCS/LCSD
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NEC02SS801 S	11	LB9810201A*RAO S	21		31	
2	98NEC02SS802	12	LB9810201DRO	22		32	
3	98NEC02SS201	13	LB9810201RAO	23		33	
4	98NEC14SS802	14	98NEC14SS802*	24		34	
5	98NEC00SS801	15	98NEC14SS802**	25		35	
6	98NEC02SS801MS	16	98NEC00SS801*	26		36	
7	98NEC02SS801MSD	17	98NEC00SS801**	27		37	
8	LB9810201A*DRO	18		28		38	
9	LB9810201A*DRO	19		29		39	
10	LB9810201ARRO**	20		30		40	

Notes: *Aromatic, **Aliphatic

SDG #: 063191

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer: MA
2nd Reviewer: JJ

All circled dates have exceeded the technical holding times.
(Y) N N/A Were all cooler temperatures within validation criteria?

METHOD: / GC HPLC EPA AK 102&103

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
15	Soil	N/A	9-14-98	10/27/98	10/30/98	43	J/R/ND/J
14							
17					10/31/98		
16							

TECHNICAL HOLDING TIME CRITERIA

VOLATILES:	Water unpreserved:	Aromatic within 7 days, non-aromatic within 14 days of sample collection.
	Water preserved:	Both within 14 days of sample collection.
	Soils:	Both within 14 days of sample collection.
EXTRACTABLES:		
	Water:	Extracted within 7 days, analyzed within 40 days.
	Soil:	Extracted within 14 days, analyzed within 40 days.

LDC #: 341 2
SDG #: 063191

VALIDATION FIN S WORKSHEET
Surrogate Recovery

Reviewer: MV
2nd Reviewer: JF

METHOD: / GC ___ HPLC (EPA AK102/103)
Are surrogates required by the method? Yes ✓ or No ___.
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
(Y) N N/A Were surrogates spiked into all samples and blanks?
Y (N) N/A Did all surrogate recoveries (%R) meet the QC limits stated below?

#	Date	Lab ID/Reference	Column	Surrogate Compound	%R (Limits)	Associated Samples	Dil:	Qualifications
1	10/30/98	14	DB624	A	9.1 (50-150)	14	10	J/R/A (DRO)
	10/26	5			0 ( )	5	20	ND qual
	10/31	16			( )	16	1.0	J/R/A (DRO)
	10/20	1		B	( )	1		(RRO)
		3			( )	3		(RRO)
	↓	4			( )	4		↓
	10/30	15			( )	15	↓	
	10/26	mb-14 5			( )	5	20	ND qual
	10/30	17	↓	↓	(↓)	17	1.0	J/R/A (RRO)
					( )			
					( )			
		LB98102o1ADRO*		A	2.7 ( )	LB98102o1ADRO*		J/R/A (DRO)
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			

Letter Designation	Surrogate Compound	Recovery QC Limits (Soil)	Recovery QC Limits (Water)	Comments
A	O-Terphenyl	50-150		
B	Tricontane	↓		

LDC #: 34178
SDG #: 06391

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: MK
2nd Reviewer: SI

METHOD: / GC ___ HPLC (EPA AK102 & 103)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were all samples associated with a matrix spike (MS) and matrix spike duplicate (MSD)?
(Y) N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix?
Y (N) N/A Were the MS/MSD percent recoveries (%R) and relative percent differences (RPD) within QC limits stated below?

Level IV/D Only

Y N (N/A) Were a MS/MSD analyzed for each analytical extraction batch of ≤20 samples?
Y N (N/A) Were the percent recoveries (%R) and relative percent differences (RPD) recalculated for all spiked compounds?
Y N (N/A) Were the percent recoveries (%R) and relative percent differences (RPD) reported results within 10.0% of the recalculated results?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
1	12/31/96	6/7	RRO	291 (50-150)	349 (50-150)	( )	All	~~J (all samples)~~
				( )	( )	( )		
				Sample Conc. is > 2X the spike amount				no qual
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )			
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

Letter Designation	Compound	Soil QC Limits		Water QC Limits	
		% Recovery	RPD	% Recovery	RPD
A					
B					
C					
D					
E					
F					
G					
H					
I					
J					

LDC #: 3417K8 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-21-98

SDG #: 063195 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: MS

2nd Reviewer: [illegible]

METHOD: GC Diesel Range Organics & Resudual Range Organics (Method AK102 & AK103)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-16-98
IIa.	Initial calibration	A	%RSD ≤25, r2 ≥.990
IIb.	Calibration verification	A	%D ≤25
III.	Blanks	A	
IVa.	Surrogate recovery	SW	
IVb.	Matrix spike/Matrix spike duplicates	N	~~Client specified~~ None ?
IVc.	Laboratory control samples	A	LCS/LCSD
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NEC27SW801 W	11		21		31	
2	MBDRO	12		22		32	
3	MBRRO	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes: *Aromatic, **Aliphatic

LDC #: 3417K8
SDG #: 063195

VALIDATION FINDINDS WORKSHEET
Surrogate Recovery

Page: 1 of 1
Reviewer: MA
2nd Reviewer: SC

METHOD: ___ GC ___ HPLC (~~EPA~~ KA102&103)
Are surrogates required by the method? Yes ✓ or No ____.
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
(Y) N N/A Were surrogates spiked into all samples and blanks?
Y (N) N/A Did all surrogate recoveries (%R) meet the QC limits stated below?

#	Date	Lab ID/Reference	Column	Surrogate Compound	%R (Limits)	Associated Samples	Qualifications
1	10/17/98	1	DB624	A	17 (50-150)	1	J/A (RRO)
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		
					( )		

Letter Designation	Surrogate Compound	Recovery QC Limits (Soil)	Recovery QC Limits (Water)	Comments
A	Tricontane		50-150	
B				

SURR

LDC #: 3417L8 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-21-98

SDG #: 063197 ___EPA Level III ___NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: MC

2nd Reviewer: [illegible]

METHOD: GC Diesel Range Organics & Resudual Range Organics (Method AK102 & AK103)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 9-15-98
IIa.	Initial calibration	A	%RSD≤25, r2≥.990
IIb.	Calibration verification	A	%D≤25
III.	Blanks	A	
IVa.	Surrogate recovery	SW	
IVb.	Matrix spike/Matrix spike duplicates	N	~~Client specified~~ none
IVc.	Laboratory control samples	A	LCS/LCSD
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NECBKSW801 W	11	98NEC06SS802 S	21	MBDROS* S	31	
2	98NECBKSW802	12	98NEC09SS801	22	MBRROS**	32	
3	98NEC13GW802	13	98NEC10SS801	23	MBRROS*	33	
4	98NECBKSD801 S	14	98NEC10SS801*	24		34	
5	98NECBKSD801*	15	98NEC10SS801**	25		35	
6	98NECBKSD801**	16	MBDROW W	26		36	
7	98NECBKSD802	17	MBRROW	27		37	
8	98NECBKSD802*	18	MBDROS S	28		38	
9	98NECBKSD802**	19	MBRROS	29		39	
10	98NEC06SS801	20	MBDROS**	30		40	

Notes: *Aromatic, **Aliphatic

SDG #: 06197

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer: MA
2nd Reviewer: SK

All circled dates have exceeded the technical holding times.
Y N N/A Were all cooler temperatures within validation criteria? _____

METHOD : ✓ GC __ HPLC (EPA) AK1038102

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
6	Soil	N/A	9-15-98	10/22/98	10/28/98	37	J/P R/P
5	↓	↓	↓	↓	↓	↓	↓
9							
8							
15							
14							

TECHNICAL HOLDING TIME CRITERIA

VOLATILES:
- Water unpreserved: Aromatic within 7 days. non-aromatic within 14 days of sample collection.
- Water preserved: Both within 14 days of sample collection.
- Soils: Both within 14 days of sample collection.

EXTRACTABLES:
- Water: Extracted within 7 days. analyzed within 40 days.
- Soil: Extracted within 14 days, analyzed within 40 days.

LDC #: 3411
SDG #: C63197

VALIDATION FIN[illegible] WORKSHEET
Surrogate Recovery

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: JV

METHOD: ___ GC ___ HPLC (EPA AK102 AK103)
Are surrogates required by the method? Yes ✓ or No ___.
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
(Y) N N/A Were surrogates spiked into all samples and blanks?
Y (N) N/A Did all surrogate recoveries (%R) meet the QC limits stated below?

#	Date	Lab ID/Reference	Column	Surrogate Compound	%R (Limits)	Associated Samples		Qualifications
1	10/17/98	3	DB624	A	0 (50-150)	3	D:1 : 10	ND qual
	10/29	11			( )	11	20	
	10/17	13		↓	( )	13	10	↓
	↓	2		B	13 ( )	2	1.0	J/A (RRO)
		3			7.3 ( )	3	↓	J/R/A (RRO)
	10/29	11			0 ( )	11	20	ND qual
	↓	13			( )	13	10	↓
	10/28	15	↓	↓	( )	15	1.0	J/R/A (RRO)
					( )			
		MBDRO5*		A	2.7 ( )	MBDRO5*		J/R/A (DRO)
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			
					( )			

Letter Designation	Surrogate Compound	Recovery QC Limits (Soil)	Recovery QC Limits (Water)	Comments
A	O-Terphenyl	50-150	50-150	
B	Tricontane	↓	↓	

LDC #: 3417A32 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-16-98

SDG #: A8-09-082 ___EPA Level III X NFESC Level C Page: 1 of 1

Laboratory: Analytica Alaska, Inc. Reviewer: MK2

2nd Reviewer: JL

METHOD: Aromatic Volatile Organics (EPA SW 846 Method 8021)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-12-98 → 9-13-98
IIa.	Initial calibration	A	%RSD
IIb.	Calibration verification	A	%R
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS/LCSD
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	~~SW~~	D_2^* = 1098NEC10GW801 1098NEC10GW201 from SDG a 2, D_3 = 3098NEC15GW801 from SDG 063t. D_5 = 5098NEC19GW801 1098NEC19GW201 from SDG=063183.
X.	Field blanks	ND	TB = 2

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

*ND

Validated Samples:

1 D2	98NEC10GW301	11		21	
2 TB	98NECTB004	12		22	
3 D3	98NEC15GW301	13		23	
4	98NEC15GW301RE	14		24	
5 D5	98NEC19GW301	15		25	
6	98NEC19GW301RE	16		26	
7	98NEC10GW301MS	17		27	
8	98NEC10GW301MSD	18		28	
9	MB 0924-1	19		29	
10	MB 0925-1	20		30	

Notes: _____

LDC #: 24117C2
SDG #: A8-09-082

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: MA
2nd reviewer: [illegible]

METHOD: ✓ GC ___ HPLC (EPA SW846 Method 8021)

(Y) N N/A Were field duplicate pairs identified in this SDG?
(Y) N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (Detection limit) (units ug/L) 98NEC14GW801 Dilution 1 Prep Date 9-25-98 Analysis date 9-25-98	98NEC19GW201 Dilution 1 Prep Date 9-25-98 Analysis date 9-25-98	Difference	Disagreement / Major Disagreement (D / MD)
Xylenes, Total	35 (3.0)	34) (3.0)	1	—
	already in SDG 063183			
			LDC 24173	

Compound	Concentration (Detection limit) (units_____) Dilution_____ Prep Date_____ Analysis date	Dilution_____ Prep Date_____ Analysis date	Difference	Disagreement / Major Disagreement (D / MD)

Compound	Concentration (Detection limit) (units_____) Dilution_____ Prep Date_____ Analysis date	Dilution_____ Prep Date_____ Analysis date	Difference	Disagreement / Major Disagreement (D / MD)

SDG #: AG-09-082

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: MV
2nd reviewer:

METHOD: ✓ GC ___ HPLC (EPA SW846 Method 8021

(Y) N N/A Were field duplicate pairs identified in this SDG?
(Y) N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (Detection limit) (units ug/L)		Difference	Disagreement /Major Disagreement (D / MD)
	#3	98NEC15G4801		
	Dilution 1 Prep Date N/A Analysis date 9.24.98	Dilution 1.0 Prep Date 9.25.98 Analysis date 9.25.98		
Ethylbenzene	1.5 (1.0)	ND (1.0)	2	—
Xylenes, Total	5.0 (1.0)	23 (3.0)	5	MD

Compound	Concentration (Detection limit) (units ug/L)		Difference	Disagreement /Major Disagreement (D / MD)
	#5	98NEC14GU801		
	Dilution 1 Prep Date N/A Analysis date 9.24.98	Dilution 1. Prep Date 9.25.98 Analysis date 9.25.98		
Toluene	1.4 (1.0)	ND (1.0)	1	—
Xylenes, Total	32 (1.0)	35 (3.0)	1	—

Compound	Concentration (Detection limit) (units ug/L)		Difference	Disagreement /Major Disagreement (D / MD)
	#5	98NEC19G4201		
	Dilution 1 Prep Date N/A Analysis date 9.24.98	Dilution 1 Prep Date 9.25.98 Analysis date 9.25.98		
Toluene	1.4 (1.0)	ND (1.0)	1	—
Xylenes (Total)	32 (1.0)	34 (3.0)	1	—

LDC #: 3417B32 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-16-98

SDG #: A8-09-083 ___EPA Level III _X_NFESC Level C Page: 1 of 1

Laboratory: Analytica Alaska, Inc. Reviewer: MR

2nd Reviewer: JH

METHOD: Aromatic Volatile Organics (EPA SW 846 Method 8021)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-13-98
IIa.	Initial calibration	A	%RSD
IIb.	Calibration verification	A	%R
III.	Blanks	A	
IVa.	Surrogate recovery	SW	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS/LCSD
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	~~see LDC #8033-3417F8 mc~~
IX.	Field duplicates	ND ~~SW~~ mc	(1, 98 NE CRCSD 801) (1, 98 NE CRCSD 201) =D, F from F-2
X.	Field blanks	N	(2, 98NECRCSD802) (2, 98NECRCSD802)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1 D	98NECRC301	11		21	
2 D	98NECRC302	12		22	
3	98NECRC302MS	13		23	
4	98NECRC302MSD	14		24	
5	MB0922-1	15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

Notes: _____

DC #: 3417B32
SDG #: A8-09-085

VALIDATION FINDINGS WORKSHEET
Surrogate Spikes

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: JC

METHOD: GC Volatiles (EPA SW 846 Method 8010/8020)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A"

Y (N) N/A Were surrogates spiked into all samples and blanks?

Y (N) N/A Did all surrogate percent recoveries (%R) meet the QC limits stated below?

#	Date	Sample ID	Column	Surrogate Compound	%R (Limits)	Qualifications
1	9-22-98	1	Not Specified	A	28 (60-120)	Dilution: 25
	↓	2	↓	↓	40 (↓)	↓ no qual
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	
					( )	

Letter Designation	Surrogate Compound	Recovery QC Limits (Soil)	Recovery QC Limits (Water)	Comments
A	P-BromoFluorobenzene	60-120		
B				
C				

SOP 29

LDC #: 3417E32 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-18-98

SDG #: 063161 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: Z. Pan

2nd Reviewer: Q

METHOD: Aromatic Volatile Organics (EPA SW 846 Method 8021B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-11-98 and 9-12-98
IIa.	Initial calibration	A	%RSD < 20% and $R^2 > 0.990$
IIb.	Calibration verification	A	%D < ~~25%~~ 15%
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	~~SW~~ N	~~Client specified~~ None IP
IVc.	Laboratory control samples	A	LCS
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N ~~SW~~	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	ND	TB= 4, 9

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NEC03GW801 Water		11		21	
2	98NEC04GW801		12		22	
3	98NEC00GW801		13		23	
4 TB	98NECTB001		14		24	
5	98NEC07GW801		15		25	
6	98NEC09GW801		16		26	
7	98NEC09GW802		17		27	
8	98NEC09GW803		18		28	
9 TB	98NECTB002		19		29	
10	LB980924N2 V		20		30	

Notes: _____

LDC #: 3417F32 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-21-98

SDG #: 063183 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: Z. Pan

2nd Reviewer: [illegible]

METHOD: Aromatic Volatile Organics (EPA SW 846 Method 8021B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-13-98
IIa.	Initial calibration	A	%RSD < 20% OR R^2 > 0.990
IIb.	Calibration verification	SW	%D < 15%
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	SW	
IVc.	Laboratory control samples	A	LCS
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	ND
VII.	System Performance	N	ND
VIII.	Overall assessment of data	A	D_6 = 12, 13 ; D_7 = 14, 15.
IX.	Field duplicates	SW	D_3 = 4,5, 98NEC15GW301 from SDG# AB-09-082
X.	Field blanks	N	D_5 = 6, 7, 98NEC19GW301 from SDG# AB-09-082 (14,15) (12,13)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NEC11GW801	Water	11	98NECRCSD803	Soil	21	98NECRCSW801	Water
2	98NEC11GW802		12 D_6	98NECRCSD802		22	98NEC19GW801MS	
3	98NEC13GW001		13 D_6	98NECRCSD202		23	98NEC19GW801MSD	
4 D_3	98NEC15GW801		14 D_7	98NECRCSD801		24	98NEC19GW201MS	
5 D_3	98NEC15GW201		15 D_7	98NECRCSD201		25	98NEC19GW201MSD	
6 D_5	98NEC19GW801		16	98NECRCSW806	Water	26	98NECRCSW802MS	
7 D_5	98NEC19GW201		17	98NECRCSW805		27	98NECRCSW802MSD	
8	98NEC19GW802		18	98NECRCSW804		28	LB980925N2 (BLK)	Water
9	98NEC27GW001		19	98NECRCSW803		29	LB980925N2A	
10	98NECRCSD804	Soil	20	98NECRCSW802		30		

Notes: _____

LDC # 341,
SDG # 063183

VALIDATION FII .S WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: Z. P
2nd Reviewer: gn

METHOD: GC Volatiles (EPA SW 846 Method 8010/8020)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A"
What type of continuing calibration calculation was performed? (%D) or RPD

(Y) N N/A Was at least one continuing standard run daily to verify the working curve?
(Y) N N/A Were continuing standards analyzed at a frequency of every 10 samples to verify the working curve?
Y (N) N/A Did the continuing calibration standards meet the percent difference (%D) and relative percent differences (RPD) criteria of ≤15.0%?

Level IV/D Only

Y N (N/A) Were the percent difference (%D) results recalculated? (Please see Calibration Verification results verification worksheet.)
Y N (N/A) Were the (%D) reported results within 10.0% of the recalculated results?

#	Date	Standard ID	Column	Compound	%D / RPD (Limit ≤ 15.0)	Associated Samples	Qualifications
1	9-25-98 20:09	8021B CCV	Not Specified	DD	36.5	#16-21; 26-27	J/A (aver. <15%)

A. Chloromethane
B. Bromomethane
C. Vinyl chloride
D. Chloroethane
E. Trichlorofluoromethane
F. 1,1-Dichloroethene
G. Methylene chloride
H. t-1,2-Dichloroethene
I. 1,1-Dichloroethane
J. c-1,2-Dichloroethene
K. Chloroform
L. 1,1,1-Trichloroethane
M. Carbon tetrachloride
N. 1,2-Dichloroethane
O. Trichloroethene
P. 1,2-Dichloropropane
Q. Bromodichloromethane
R. 2-Chloroethylvinyl ether
S. c-1,3-Dichloropropene
T. t-1,3-Dichloropropene
U. 1,1,2-Trichloroethane
V. Tetrachloroethene
W. Dibromochloromethane
X. Chlorobenzene
Y. Bromoform
Z. 1,1,2,2-Tetrachloroethane
AA. 1,3-Dichlorobenzene
BB. 1,4-Dichlorobenzene
CC. 1,2-Dichlorobenzene
DD. Benzene
EE. Toluene
FF. Ethylbenzene
GG. m,p-Xylene
HH. o-Xylene

LDC #: 3417F32
SDG #: 063183

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: Z. Pa
2nd Reviewer: A

METHOD: GC Volatiles (EPA SW 846 Method 8010/8020)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG?

(Y) N N/A Were a MS/MSD analyzed every 20 samples for each matrix and whenever a sample extraction was performed?

Y (N) N/A Were the MS/MSD percent recoveries (%R) and relative percent differences (RPD) within the QC limits stated below?

Level IV/D Only

Y N N/A Were the percent recoveries (%R) and relative percent differences (RPD) recalculated for all spiked compounds?

Y N N/A Were the %R and RPD reported results within 10.0% of the recalculated results?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
1		#22/23	A	( )	( )	13 (<6)	All Water Samples	J/A
			C	( )	( )	7.9 ( )		
			D	( )	( )	9.0 ( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

Letter Designation	Compound	Soil QC Limits % Recovery	Soil QC Limits RPD	Water QC Limits % Recovery	Water QC Limits RPD
A	Benzene			~~132~~ 62-132	<6%
B	Ethylbenzene			73-121	<6%
C	Toluene			59-117	<6%
D	Xylene			74-109	<6%
E					
F					
G					
H					
I					
J					

SDG #: 063183

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: Z. Parr
2nd reviewer: SJ

METHOD: V GC ___ HPLC (EPA 8021)

(Y) N N/A Were field duplicate pairs identified in this SDG?
(Y) N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (Detection limit) (units µg/L) #4 Dilution 1 Prep Date N/A Analysis date 9-25-98	#5 Dilution 1 Prep Date NA Analysis date 9-25-98	Difference	Disagreement /Major Disagreement (D / MD)
Xylenes	23 (3.0)	26 (3.0)	1	—

Compound	Concentration (Detection limit) (units µg/L) #4 Dilution 1 Prep Date N/A Analysis date 9-25-98	98NEC15GW301 Dilution 1 Prep Date NA Analysis date 9-24-98	Difference	Disagreement /Major Disagreement (D / MD)
Xylenes	23. (3.0)	5.0 (1.0)	5	MD
Ethylbenzene	ND (1.0)	1.5 (1.0)	2	—

Compound	Concentration (Detection limit) (units µg/L) #5 Dilution 1 Prep Date N/A Analysis date 9-25-98	98NEC15GW301 Dilution 1 Prep Date N/A Analysis date 9-24-98	Difference	Disagreement /Major Disagreement (D / MD)
Xylenes	26 (3.0)	5.0 (1.0)	~~5.2~~ 5	MD
Ethylbenzene	ND (1.0)	1.5 (1.0)	~~5~~ 2	—

LDC #: 7111 52
SDG #: 063182

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: Z. Pan
2nd reviewer:

METHOD: ✓ GC ___ HPLC (EPA 8021)

(Y) N N/A Were field duplicate pairs identified in this SDG?
(Y) N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (Detection limit) (units ug/L) #6 Dilution 1 Prep Date N/A Analysis date 9-25-98	#7 Dilution 1 Prep Date N/A Analysis date 9-25-98	Difference	Disagreement /Major Disagreement (D / MD)
Xylenes	35 (1.0)	34 (1.0)	1	—

Compound	Concentration (Detection limit) (units ug/L) #6 Dilution 1 Prep Date N/A Analysis date 9-25-98	98NEC19GW301 Dilution 1 Prep Date N/A Analysis date 9-24-98	Difference	Disagreement /Major Disagreement (D / MD)
Toluene	ND (1.0)	1.4 (1.0)	1	—
Xylenes	35 (1.0)	32 (1.0)	1	—

Compound	Concentration (Detection limit) (units ____) #7 Dilution 1 Prep Date N/A Analysis date 9-25-98	98NEC19GW301 Dilution 1 Prep Date N/A Analysis date 9-24-98	Difference	Disagreement /Major Disagreement (D / MD)
Toluene	ND (1.0)	1.4 (1.0)	1	—
Xylenes	34 (1.0)	32 (1.0)	1	—

LDC #: 3417G32 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-18-98

SDG #: 063188 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: Z. Pan

2nd Reviewer: A

METHOD: Aromatic Volatile Organics (EPA SW 846 Method 8021B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-12-98
IIa.	Initial calibration	A	%RSD < 20% and R^2 > 0.990
IIb.	Calibration verification	A	%D < 15%
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	N SW	client specified none IP
IVc.	Laboratory control samples	A	LCS
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NECDBSD801 Soil	11		21	
2	98NECDBSD802	12		22	
3	98NECDBSD803	13		23	
4	98NECBDSS802	14		24	
5	98NECBDSS801	15		25	
6	LB980923N2 (BLK)	16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

Notes: _____

LDC #: 3417I32 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-21-98

SDG #: 063190 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: Z. Ban

2nd Reviewer: 1

METHOD: Aromatic Volatile Organics (EPA SW 846 Method 8021B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-12-98
IIa.	Initial calibration	A	%RSD < 20%
IIb.	Calibration verification	A	%D < 15%
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	N SW	Client specified none?
IVc.	Laboratory control samples	A	LCS
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	ND	D_2 = 1, 2, 98NEC10GW301 from SDG# A8-09-082
X.	Field blanks	ND	TB = 4

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; (TB) = Trip blank; EB = Equipment blank

Validated Samples:

1 D_2	98NEC10GW801 Water	11		21	
2 D_2	98NEC10GW201	12		22	
3	98NEC10GW802	13		23	
4 TB	98NECTB003	14		24	
5	LB980924N2 (BLK)	15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

Notes: _____

LDC #: 3417J32 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-21-98
SDG #: 063191 ___EPA Level III __NFESC Level C Page: 1 of 1
Laboratory: Quanterra Environmental Services Reviewer: Z. Pan
2nd Reviewer: [illegible]

METHOD: Aromatic Volatile Organics (EPA SW 846 Method 8021B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-14-98
IIa.	Initial calibration	A	%RSD < 20%
IIb.	Calibration verification	A	%D < 15%
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NEC02SS801 Soil	11		21	
2	98NEC02SS802	12		22	
3	98NEC14SS802	13		23	
4	98NEC00SS801	14		24	
5	LB980928N2 (BLK)	15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

Notes: _____

LDC #: 3417K32 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-18-98
SDG #: 063195 ___EPA Level III __NFESC Level C Page: 1 of 1
Laboratory: Quanterra Environmental Services Reviewer: Z. Pan
2nd Reviewer: [illegible]

METHOD: Aromatic Volatile Organics (EPA SW 846 Method 8021B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-16-98
IIa.	Initial calibration	A	%RSD < 20% and R^2 > 0.990
IIb.	Calibration verification	A	%D < 15%
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	~~SW~~ N	Client specified one
IVc.	Laboratory control samples	A	LCS
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	ND	TB = 3

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NEC27SW801 Water	11		21	
2	LB980929N2B (BLK)	12		22	
3 TB	98NECTB007	13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

Notes: _____

LDC #: 3417L32 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-21-98

SDG #: 063197 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: Z. Ban

2nd Reviewer: Q

METHOD: Aromatic Volatile Organics (EPA SW 846 Method 8021B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-15-98
IIa.	Initial calibration	A	%RSD < 20% and R^2 > 0.990
IIb.	Calibration verification	A	%D < 15%
III.	Blanks	A	
IVa.	Surrogate recovery	A	
IVb.	Matrix spike/Matrix spike duplicates	A	
IVc.	Laboratory control samples	A	LCS
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate
N = Not provided/applicable R = Rinsate TB = Trip blank
SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

1	98NECBKSW801	Water	11		21	
2	98NECBKSW802	↓	12		22	
3	98NEC13GW802	↓	13		23	
4	98NECBKSD801	Soil	14		24	
5	98NECBKSD802	↓	15		25	
6	98NEC06SS801	↓	16		26	
7	98NEC09SS801	↓	17		27	
8	98NEC10SS801	↓	18		28	
9	LB980929N2A (BLK)	Water	19		29	
10	LB980929N2 (BLK)	Soil	20		30	

Notes: _____

LDC #: 3417F21 **VALIDATION COMPLETENESS WORKSHEET** Date: 2-21-98

SDG #: 063183 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A SW	Sampling dates: 9-13-98
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration	A	
IV.	Routine calibration	SW	
V.	Blanks	A	
VI.	Matrix spike/Matrix spike duplicates	N	~~what spiking~~ S mw/P
VII.	Laboratory control samples	A	LCS
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	A SW	
X.	Target compound identifications	N	
XI.	Compound quantitation and CRQLs	N	
XII.	System performance	N	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	N	
XV.	Field blanks	N	

Note: A = Acceptable ND = No compounds detected D = Duplicate
N = Not provided/applicable R = Rinsate TB = Trip blank
SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

1	98NEC25SS801 Soil	11		21	
2	LB981006-2	12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

Notes: _____

LDC #: 34172i
SDG #: DG3183

VALIDATION FINDINGS WORKSHEET

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total Hx CDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes:

#: 5-72
SDG #: 063183

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer:
2nd Reviewer:

All circled dates have exceeded the technical holding times.

Y [✓ N] N/A Were all cooler temperatures within validation criteria?

METHOD : HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)

Sample ID	Matrix	Preserved	Sampling Date	Extraction date	Analysis date	Total # of Days	Qualifier
All	cooler	temp	at 21°,	criteria < 11°C	J/~~[illegible]~~		

TECHNICAL HOLDING TIME CRITERIA

EXTRACTABLES

Water:	Extracted within 30 days, analyzed within 45 days.
Soil:	Extracted within 30 days, analyzed within 45 days.

LDC #: 341
SDG #: 063183

VALIDATION FIN S WORKSHEET
Routine Calibration

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA SW 846 Method 8290)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a routine calibration was performed at the beginning and end of each 12 hour period?
Y (N) N/A Were all percent differences (%D) of RRFs ≤ 20% for unlabeled compounds and ≤ 30% for labeled?
Y N (N/A) Did all routine calibration standards meet the Ion Abundance Ratio criteria?

#	Date	Standard ID	Compound	Finding %D (Limit: ≤30.0%)	Finding Ion Abundance Ratio	Associated Samples	Qualifications
1	10-17-98	ST1D17B (cont)	A	25		LB981009A	J/A
			I	22			
			J	22			
			M	24			
			N	33			
			C	21			
			P	22			
			Q	29			No quant. alg. used J/A (I, J, W) ↓ (O, P, Y)
			^{13}C-1,2,3,7,8-PeCDF	33			
			^{13}C-1,2,3,4,6,7,8-HpCDF	36			

	PCDDs	Selected Ions (m/z)	Ion Abundance Ratio
A.	Tetra-	M/M+2	0.65-0.89
B.	Penta-	M+2/M+4	1.32-1.78
C.	Hexa-	M+2/M+4	1.05-1.43
D.	Hexa-^{13}C-HxCDF (IS) only	M/M+2	0.43-0.59
E.	Hepta-^{13}C-HpCDF (IS) only	M/M+2	0.37-0.51
F.	Hepta-	M+2/M+4	0.88-1.20
G.	Octa-	M+2/M+4	0.76-1.02

	PCDFs	Selected Ions (m/z)	Ion Abundance Ratio
H.	Tetra-	M/M+2	0.65-0.89
I.	Penta-	M+2/M+4	1.32-1.78
J.	Hexa-	M+2/M+4	1.05-1.43
K.	Hexa-^{13}C-HxCDF (IS) only	M/M+2	0.43-0.59
L.	Hepta-^{13}C-HpCDF (IS) only	M/M+2	0.37-0.51
M.	Hepta-	M+2/M+4	0.88-1.20
N.	Octa-	M+2/M+4	0.76-1.02

LDC #: 3417G15 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/24/98
SDG #: 063188 ___EPA Level III __NFESC Level C Page: 1 of 1
Laboratory: Quanterra Environmental Services Reviewer: MF
2nd Reviewer: A

METHOD: Total organic carbon (Method Walkley/Black)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/12/98
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IVa.	Matrix Spike/(Matrix Spike) Duplicates	A	MS/MSD from another SDG.
IVb.	Laboratory control samples	A	LCS
V.	Sample result verification	N	
VI.	Overall assessment of data	A	
VII.	Field duplicates	N	
VIII.	Field blanks	V	

Note: A = Acceptable ND = No compounds detected D = Duplicate
N = Not provided/applicable R = Rinsate TB = Trip blank
SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

1	98NECDBSS803 Soil	11		21	
2	98NECDBSS804 C	12		22	
3	98NECDBSS805	13		23	
4	MB ↓	14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

Notes: 5

LDC #: 3417J15 **VALIDATION COMPLETENESS WORKSHEET** Date: 12/24/98

SDG #: 063191 ___EPA Level III __NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: MMJ

2nd Reviewer: [signature]

METHOD: Total organic carbon (Method Walkley/Black)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9/14/98
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IVa.	Matrix Spike/(Matrix Spike) Duplicates	A	MS/Dup from another SDG.
IVb.	Laboratory control samples	A	LCS
V.	Sample result verification	N	
VI.	Overall assessment of data	A	
VII.	Field duplicates	N	
VIII.	Field blanks	N	~~Blank = 0.0~~

Note: A = Acceptable ND = No compounds detected D = Duplicate
N = Not provided/applicable R = Rinsate TB = Trip blank
SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

1	98NEC14SS802	11		21	
2	98NEC00SS801	12		22	
3	MB	13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

Notes:

LDC #: 3417L15 **VALIDATION COMPLETENESS WORKSHEET** Date: 2/24/98
SDG #: 063197 ___EPA Level III X NFESC Level C Page: 1 of 1
Laboratory: Quanterra Environmental Services Reviewer: MY
2nd Reviewer:

METHOD: Total organic carbon (Method Walkley/Black)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	SW	Sampling dates: 9/15/98
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IVa.	Matrix Spike/(Matrix Spike) Duplicates	SW	Soil MS/MSD from another SDG.
IVb.	Laboratory control samples	A	LCS
V.	Sample result verification	N	
VI.	Overall assessment of data	A	
VII.	Field duplicates	N	
VIII.	Field blanks	N	~~Blanks~~ 1, 2, 3, 4, 8 MY

Note: A = Acceptable ND = No compounds detected D = Duplicate
N = Not provided/applicable R = Rinsate TB = Trip blank
SW = See worksheet FB = Field blank EB = Equipment blank

Validated Samples:

1	98NECBKSW801 AQ	11		21		
2	98NECBKSW802 ↓	12		22		
3	98NECBKSD801 Soil	13		23		
4	98NECBKSD802	14		24		
5	98NEC06SS801	15		25		
6	98NEC07SS802	16		26		
7	98NEC09SS802	17		27		
8	98NEC10SS801 ↓	18		28		
9	98NECBKSW801MS #7	19		29		
10	98NECBKSW801MSD ↓	20		30		

Notes:

SDG #: C63197

VALIDATION FINDINGS WORKSHEET
Technical Holding Times

Page: 1 of 1
Reviewer: MJ
2nd reviewer:

All circled dates have exceeded the technical holding time.
(Y) N N/A Were all samples preserved as applicable to each method ?
(Y) N N/A Were all cooler temperatures within validation criteria?

Method:		Walkley Black					
Parameters:		TOC					
Technical holding time:		28 days					
Sample ID	**Sampling date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Analysis date**	**Qualifier**
1	9/15/98	10/16/98	31 days				J | P
2	↓	↓					↓
3		9/30/98					no qual
4							
5							
6							
7							
8							↓
9		10/16/98	31 days				J | P
10	↓	↓					↓

LDC #: 34745
SDG #: 06397

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: MF
2nd Reviewer: [illegible]

METHOD: Inorganics, EPA Method See cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

(Y) N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y (N) N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

Y N (N/A) Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤35% for soil samples?

LEVEL IV ONLY:

Y N (N/A) Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Date	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
1		9/10	AQ	TOC	0	0		~~[illegible]~~ (all waters)	J/A det; RIA mr

Comments:

MSD

LDC #: 3417L51 **VALIDATION COMPLETENESS WORKSHEET** Date: 12-21-98

SDG #: 063197 ___EPA Level III ___NFESC Level C Page: 1 of 1

Laboratory: Quanterra Environmental Services Reviewer: MA

2nd Reviewer: M

METHOD: GC Methane, ~~Ethane & Ethene~~ (Method ~~AK102 & 103~~ RSK175 MA)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 9-15-98
IIa.	Initial calibration	A	%RSD≤25, ~~r² ≥ 990~~ M
IIb.	Calibration verification	A	RPD ≤25
III.	Blanks	A	
IVa.	Surrogate recovery	N	Not Required
IVb.	Matrix spike/Matrix spike duplicates	~~MSW~~	~~Client Specified~~ M
IVc.	Laboratory control samples	A	LCS/LCSD
V.	Target compound identification	N	
VI.	Compound Quantitation and CRQLs	N	
VII.	System Performance	N	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	N	
X.	Field blanks	N	

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	98NEC00GW801 W	11		21	
2	MB ↓	12		22	
3		13		23	
4		14		24	
5		15		25	
6		16		26	
7		17		27	
8		18		28	
9		19		29	
10		20		30	

Notes: _____

LDC #: 34171.51
SDG #: 06319F

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

METHOD: ✓GC ___ HPLC (EPA RSK175 _____)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y (N) N/A Were all samples associated with a matrix spike (MS) and matrix spike duplicate (MSD)?
Y (N) N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix?
Y N (N/A) Were the MS/MSD percent recoveries (%R) and relative percent differences (RPD) within QC limits stated below?

Level IV/D Only

Y N (N/A) Were a MS/MSD analyzed for each analytical extraction batch of ≤20 samples?
Y N N/A Were the percent recoveries (%R) and relative percent differences (RPD) recalculated for all spiked compounds?
Y N N/A Were the percent recoveries (%R) and relative percent differences (RPD) reported results within 10.0% of the recalculated results?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		No MS/MSD		( )	( )	( )	All Samples NB	
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )			
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

Letter Designation	Compound	Soil QC Limits		Water QC Limits	
		% Recovery	RPD	% Recovery	RPD
A					
B					
C					
D					
E					
F					
G					
H					
I					
J					

APPENDIX D

Biological Sampling Results

Appendix D
Biological Sampling

Samples were collected for phytoplankton, zooplankton, and benthic invertebrate identification and enumeration at four locations along the drainage basin and the unnamed stream. These samples were collected to determine if the unnamed creek has been significantly impacted by contamination in the drainage basin. This determination assists in documentation of existing conditions in the decision of which remedial action alternative will be recommended for the drainage basin area. Two of the sample locations are along the drainage basin before the confluence with the unnamed creek (96NEDB101 and 96NEDB102), a third was collected in the portion of the unnamed creek east of and prior to this confluence (96NEDB103), and a fourth was collected along the unnamed creek west of and subsequent to this confluence (96NEDB104). These four sample locations are shown on Figure 2-4.

Sample identification numbers, their associated sample locations, and selected field characteristics are listed below. The sample identification numbers listed below end with either BN, ZO, or PL for benthic, zooplankton, and phytoplankton samples, respectively.

Sample ID	Sample Location	Electrical Conductivity (umhos)	pH	Temperature (deg. C)	Dissolved Oxygen
96NEDB101	DB-5 along drainage basin	75	6.98	10	8.1
96NEDB102	Junction of drainage basin and unnamed creek	100	7.04	9	-
96NEDB103	DB-7 along unnamed creek; upstream of drainage basin confluence	50	7.29	9	7.9
96NEDB104	DB-8 along unnamed creek; downstream of drainage basin confluence	50	7.17	9	7.3

Sample ID	Stream Width (feet)	Stream Depth (feet)	Velocity (gpm)	Sediment Characteristics	Petroleum Odor/Sheen
96NEDB101	20-30	0.5-1.0	5	Muck-mud; organic	Yes/No*
96NEDB102	1-2	Riffle	10	Sludge; organic silt	Yes/Yes
96NEDB103	2-4	1-2	20	Silty	No/No
96NEDB104	3-5	3	20-30	Silty; sandy; organic	No/No*

* Sheen observed upon sediment disturbance

There is a recognizable relationship between the composition of the aquatic community and water quality. One commonly used method for evaluating water quality by looking at macroinvertebrates is indicator organisms. The concept of indicator organisms is based on the fact that every species has a certain range of physical and chemical conditions in which it can survive. Some organisms can survive in a wide range of conditions and are more tolerant of pollution. Others are very sensitive to changes in

conditions and are intolerant of pollution. The evaluation of water quality is linked to the numbers of pollution-tolerant organisms at the site compared with intolerant organisms (Mitchell and Stapp, 1992).

MEMORANDUM

MONTGOMERY WATSON

To:	Chris Brown	**Date:**	December 3, 1996
From:	Chuck Johnson	**Reference:**	2198.0460
Subject:	Methods Used for Biological Samples		

INTRODUCTION

The purpose of this memorandum is to identify the methodology used to sort, identify, and enumerate the benthic invertebrate, zooplankton, and phytoplankton samples collected on August 5, 1996, by the MW Anchorage, AK office. Upon completion of the sorting and identification process, a tabular report was generated and will accompany this memo.

METHODS

Benthic invertebrate samples were passed through a US Standard No. 30 sieve. Samples were then washed with a gentle stream of tap water to remove residual formalin and any silt or clay material that was small enough to pass through the openings. After sufficient washing, the sample was placed in a white enamel pan for the sorting process. Sorting was completed by placing small portions of the sample in the pan and covering the material with water, and scanning the contents with a low power microscope. Organisms were removed from the detritus with forceps. Samples were hand sorted three times to ensure that the majority of the organisms were found. Each benthic invertebrate sample was hand sorted in this manner, which consumes large volumes of time. Sorted samples were then placed in smaller containers and preserved with 70 percent ethyl alcohol for later identification and enumeration.

Identification of benthic invertebrates was completed using a dissecting microscope and a compound light microscope along with the appropriate taxonomic reference by Pennak (1953). Invertebrates were first sorted into general taxonomic groups according to Family level. Then each individual organism was viewed with a dissecting microscope and identified to the lowest taxonomic level possible. It is worth mentioning that the key used for taxonomy was developed for the continental United States. I feel, however, that it should be representative for genus level identification throughout North America. Each sample has also been archived for future use.

Zooplankton samples were reduced to smaller volumes using a 70 µm Wisconsin Style plankton net. This was done to condense the original 1 gallon samples and ensure a greater chance of viewing representative subsamples. This process reduces the original sample volume to 50-100 ml. Three 1 ml subsamples were then removed from the sample to identify and count organisms present. After this was accomplished, an average number of organisms per count was determined. The original sample volume collected from the site was 60 liters. By using this volume and the measured reduced sample size, the abundance numbers can then be calculated for comparative purposes, i.e., critters/liter.

Phytoplankton samples are first examined by viewing a wet mount slide at 400X to determine which taxa are present. A list of taxa is then developed and used in the counting process. To perform the count, a 1 ml subsample is placed in a Sedgewick Rafter Counting Cell and viewed at 100x magnification. Approximately 5% of this sample is counted using a random grid method. Each algal cell within the grid is counted and the number of grids counted represent a known area of the 1 ml Segdewick Rafter Cell. This count is then extrapolated to the entire cell volume to calculate sample densities.

REFERENCES

Pennak, R. W., 1953, Freshwater Invertebrates of the United States; New York, The Ronald Press, 769 p.

USGS, 1977, Methods for Collection and Analysis of Aquatic Biological and Microbiological Samples, Chapter A4; 331p.

NORTHEAST CAPE ECOLOGICAL RISK ASSESSMENT
BENTHIC BIOSURVEY RESULTS IN THE DRAINAGE BASIN

Station ID 96NEDB

Invertebrate Classification	101BN(A)	101BN(B)	101BN(C)	102BN(A)	102BN(B)	102BN(C)	103BN(A)	103BN(B)	103BN(C)	104BN(A)	104BN(B)
CLASS Insecta											
Order Diptera											
Family CHIRONOMIDAE (midge)											
SubFamily ORTHOCLADIINAE											
Genus *Orthocladius sp.*	81	68	46		1	1	26	33	45		61
SubFamily TANYPODINAE											
Genus *Procladius sp.*	9	76	57								
Family ANTHOMYIIDAE (related to housefly)											
Genus *Limnophora sp.*	1	2	2				2	2	1		
Family TIPULIDAE (crane Fly)											
Genus *Tipula sp.*	1	1		1		2					
Diptera Pupae ID Unknown	4	21	31								1
Diptera larvae ID Unknown		7	11								
Order Ephemeroptera (mayfly)											
Family BAETIDAE											
Genus *Baetis sp.*	1								1		2
Order Coleoptera (beetles)											
Family DYTISCIDAE											
Genus *Hygrotus sp.*		8	5								4
CLASS Arachnoidea (water mite)											
Order Hydrachnellae											
Family HYGROBATIDAE											
Genus *Atractides sp.*								6			
CLASS Mollusca (clam)											
Oder Pelecypoda											
Family SPHAERIIDAE											
Genus *Pisidium sp.*				5	3	2	8	4	17	1	
CLASS Oligochaeta (aquatic earthworm)											
ID unknown							2	1	8		
Total Organisms	97	183	152	6	4	5	38	46	72	1	68
Number of Taxa	6	7	6	2	2	3	4	5	5	1	4
Percent Contribution by Dominant Taxa	83.5	41.5	37.5	83.3	75.0	40.0	68.4	71.7	62.5	100	89.7
EPT Index	1	0	0	0	0	0	0	0	1	0	1

* Note Sample 96 NEDB104BN(A) also had 11 Caddisfly cases but there were no Caddis fly larvae.
Samples were Identified using Freshwater Invertebrates of the United States, Second Edition 1978 by Robert W. Pennak. Published by John Wiley & Sons, Inc.

TABLE X-5

NORTHEAST CAPE ECOLOGICAL RISK ASSESSMENT
PHYTOPLANKTON IDENTIFICATION AND ENUMERATION IN THE DRAINAGE BASIN

Sample Site: 96NEDB101 PL

Taxa	Total cells/ml
Desmids:	
Closterium	16
Cosmarium	21
Diatoms:	
Unidentified Diatoms	106954
Fragilaria	277
Melosira	4431
Synedra	2554
Tabellaria	954
Total Cells/ml	115207
Total Cells/Liter	1.15E+08

Comments:
Some green algal cells observed (Desmids).
Many individual diatom units seen.
Some short strands (colonies) of Fragilaria observed.
No strands (colonies) of Tabellaria observed.
Some Rotifers observed.

Sample Site: 96NEDB102 PL

Taxa	Total cells/ml
Desmids:	
Closterium	5
Diatoms:	
Amphora	123
Unidentified Diatoms	52300
Fragilaria	11000
Melosira	25450
Synedra	9100
Tabellaria	93400
Total Cells/ml	191378
Total Cells/Liter	1.91E+08

Comments:
Sample had many large strands (colonies) of Fragilaria and Tabellaria.
Many long strands (colonies) of Melosira seen as compared to sample 101.
No Rotifers observed.

TABLE X-5

NORTHEAST CAPE ECOLOGICAL RISK ASSESSMENT
PHYTOPLANKTON IDENTIFICATION AND ENUMERATION IN THE DRAINAGE BASIN

Sample Site: 96NEDB103 PL

Taxa	Total cells/ml
Desmids:	
Cosmarium	2
Diatoms:	
Unidentified Diatoms	460
Fragilaria	366
Melosira	164
Synedra	94
Tabellaria	478
Total Cells/ml	1564
Total Cells/Liter	1.56E+06

Comments:
Very few algal cells seen. Virtually all diatoms.
Some short strands (colonies) of Fragelaria and Tabellaria observed.
Very few Melosira strands (colonies) observed.
No Rotifers observed.

Sample Site: 96NEDB104 PL

Taxa	Total cells/ml
Desmids:	
Cosmarium	4
Staurastrum	2
Diatoms:	
Unidentified Diatoms	216
Fragilaria	106
Melosira	496
Synedra	30
Tabellaria	92
Total Cells/ml	946
Total Cells/Liter	9.46E+05

Comments:
Very few algal cells seen. Virtually all diatoms.
Very few short strands (colonies) of Fragelaria and Tabellaria observed.
Some Melosira strands (colonies) observed.
No Rotifers observed.

NORTHEAST CAPE ECOLOGICAL RISK ASSESSMENT
ZOOPLANKTON IDENTIFICATION AND ENUMERATION IN THE DRAINAGE BASIN

Sample Identification:	96NEDB101ZO		96NEDB103ZO		96NEDB102ZO		96NEDB104ZO	
Species	Size(mm)	Organisms/Liter	Size(mm)	Organisms/Liter	Size(mm)	Organisms/Liter	Size(mm)	Organisms/Liter
Leptodora kindtii	3	0.00	3	0.00	3	0.00	3	0.00
Diaphanasoma sp.	1.5	0.00	1.5	0.40	1.5	0.00	1.5	0.00
Ceriodaphnia sp.	1.2	0.00	1.2	0.80	1.2	0.00	1.2	0.00
Daphnia pulex	1.2	0.61	1.2	0.40	1.2	0.00	1.2	0.26
D. galaetea mendotae	1	0.00	1	0.00	1	0.00	1	0.00
D. retrocurva	1	0.00	1	0.00	1	0.00	1	0.00
D. schodleri	1	0.00	1	0.00	1	0.00	1	0.00
D. dubia	0.8	0.00	0.8	0.00	0.8	0.00	0.8	0.00
Calanoids	1	0.00	1	0.00	1	0.00	1	0.00
Cyclopoids	0.7	2.46	0.7	0.00	0.7	0.00	0.7	0.00
Daphnia juveniles	0.7	0.00	0.7	0.00	0.7	0.00	0.7	0.00
Bosmina sp.	0.5	1.85	0.5	2.83	0.5	2.30	0.5	3.39
Chydorus sp.	0.5	0.00	0.5	0.00	0.5	0.00	0.5	0.00
nauplii	0.5	0.00	0.5	0.00	0.5	0.00	0.5	0.00
Total		4.92		4.43		2.30		3.65

Zooplankton numbers are calculated in total number of organisms per liter of sample water.
To obtain numbers of organisms per cubic meter of sample water multiply the organisms/ liter value by 1000.

APPENDIX E

Streamflow Measurements

Appendix E
Stream Flow Measurements

Streamflow measurements were taken from eight locations in and effort to further characterize the unnamed creek the drainage basin and its tributaries. Figure 2-4 shows the locations of the streamflow measurements with respect to the drainage basin. The following are brief synopses of the conditions and results from each streamflow measurement. Streamflow data, calculations, and cross-sections are provided in this Appendix.

Streamflow 1

Streamflow 1 is located in the unnamed creek, upstream from its confluence with the drainage basin. The stream substrate consists of sand and gravel (roughly 50%/50%). Streamflow for this location was calculated to be 10.98 ft^3/s or 4,930 gpm. There was no visible sheen observed and the stream appeared to be healthy, with little to no bank erosion.

Streamflow 2

Streamflow 2 is a relatively small drainage which feeds the unnamed creek upstream from its confluence with the drainage basin. The stream bottom in this location consisted of silty organic material with occasional rocks. There were four empty 55-gallon drums upstream from this location. Streamflow for this location was calculated to be 0.20 ft^3/s or 91 gpm. There was no visible sheen observed and the stream is apparently healthy.

Streamflow 3

Streamflow 3 is located in the drainage basin approximately 200 feet south from its confluence with the unnamed creek. When the drainage basin is disturbed gross contamination bubbles to the surface and creates a sheen which is very odorous. No float measurements were conducted at this location as there was too much grass choking the basin. Streamflow for this location was estimated to be 1.83 ft^3/s or 823 gpm.

Streamflow 4

Streamflow 4 is located in the unnamed creek approximately 120 feet west (and downstream) of its confluence with the drainage basin. The stream bottom consisted of an organic matte with some fine sands and silts, occasional rocks and pebbles 0.5 to 3.0 inches in diameter. Medium to coarse sand is also present in some areas. When the banks of the creek are disturbed, a visible hydrocarbon sheen contamination bubbles to the surface accompanied by a distinct petroleum odor. However, the stream does appear to be healthy when undisturbed. Streamflow for this location was calculated to be 11.52 ft^3/s or 5,171 gpm.

Streamflow 5

Streamflow 5 is located within the artificial swale emanating from the culvert at Site 27. Flow was minimal at this location and no float measurements were possible. Materials consisted of disturbed gravel and sand. The northern embankment was stained from what appears to be seepage from Site 27. However, there is no visible sheen present in the surface water. Vegetation is sparse due to the disturbed nature of the soils. Streamflow for this location was visually estimated to be 1 to 3 gpm.

Streamflow 6

Streamflow 6 is located within the artificial drainage channel leading from the sewer manhole near Site 13. Flow was minimal and float measurements were prohibitive. Materials consisted of disturbed gravel and sands, similar to Streamflow 5. A visible sheen was present only after the sediments had been disturbed. The streamflow was visually estimated at 3 to 5 gallons per minute.

Streamflow 7

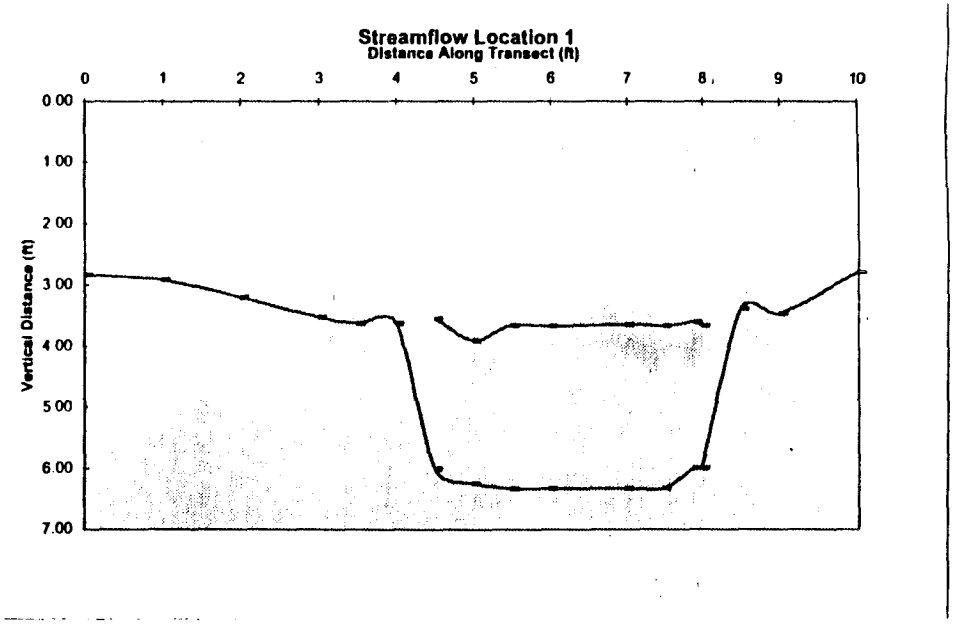
Streamflow 7 is located in the drainage basin approximately 700 feet south of its confluence with the unnamed creek. This area of the drainage basin consists of a series of four braided channels approximately 20 to 50 feet in width. The largest and deepest channel is also the westernmost. Flow could not be measured directly here because of the basins' indistinct nature. All of the channels are choked with grass and appear to have a maximum depth of 3 feet. Upon disturbing the sediments, gross contamination bubbles to the surface and is accompanied by a strong diesel odor and surface water sheen. However, there is no visually-apparent adverse effect of the contamination on the healthy vegetation.

Streamflow 8

Streamflow 8 is located in the unnamed creek approximately 800 feet west of the bridge near Site 2. The substrate consists of medium to coarse sand and moss with boulders 1 to 2.5 feet in diameter. A sheen is evident only upon disturbing the organic materials in the banks. It appears that the hydrocarbons are retained by the organic bank materials only. Streamflow for this location was calculated to be 12.19 ft^3/s or 5,471 gpm.

Streamflow calculations for Streamflow Location 1

Notes	Horizontal traverse distance from abitrary point at side of streambank (feet)	Vertical distance from ground or streambed to arbitrary vertical datum (feet)	Vertical distance from stream bottom to water surface (feet)	Vertical distance from arbirary datum to water surface feet)	Cross-sectional area of increment (feet^2)
		B	A	B-A	
	0.00	2.83			
	1.00	2.92			
	2.00	3.21			
	3.00	3.52			
	3.50	3.63			
	4.00	3.63			
Bank edge	4.50	6.00	2.46	3.54	1.23
(@4.3 ft)	5.00	6.25	2.34	3.91	1.17
	5.50	6.33	2.68	3.66	1.34
	6.00	6.33	2.67	3.67	2.00
	7.00	6.33	2.69	3.65	2.02
	7.50	6.33	2.67	3.67	1.20
	7.90	6.00	2.40	3.60	0.60
Bank edge	8.00	6.00	2.33	3.67	0.70
	8.50	3.40			
	9.00	3.48			
	10.00	2.79			
				Area of flow:	10.3



Float measurements:

(observed time in seconds):

42
46
46
38
39
37
37

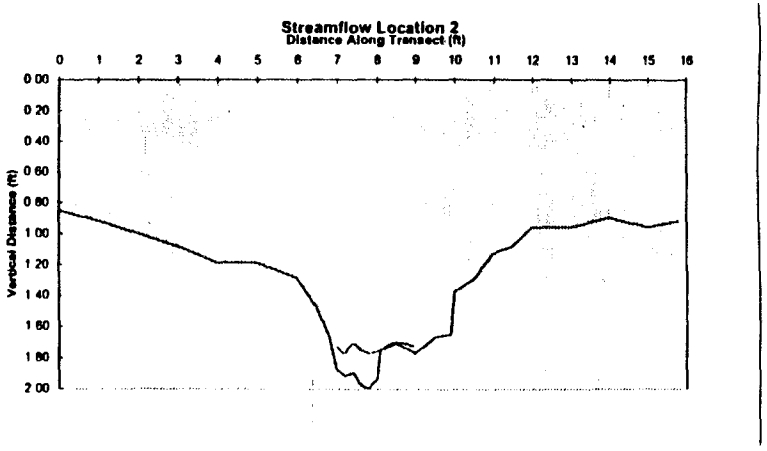
Distance=	50	feet
Average of fastest 3 observations:	37	seconds
Velocity based on fastest 3 measurements:	1.34	feet/second
Correction factor for average water column velocity:	0.8	
Calculated average velocity:	1.07	feet/second
Calculated streamflow:	10.98	feet^3/second
=	4,930	gallons/min

Stream substrate at this location consists of sand and gravel (roughly 50%/50%)
Stream appears to be healthy, with little to no bank erosion.
No sh[illegible] evident on the water.

Streamflow calculations for Streamflow Location 2

Notes	Horizontal traverse distance from abitrary point at side of streambank (feet)	Vertical distance from ground or streambed to arbitrary vertical datum (feet)	Vertical distance from stream bottom to water surface (feet)	Vertical distance from arbirary datum to water surface feet)	Cross-sectional area of increment (feet^2)
		B	A	B-A	
	0.00	0.85			
	1.00	0.92			
	2.00	1.00			
	3.00	1.08			
	4.00	1.19			
	5.00	1.19			
	6.00	1.29			
	6.50	1.48			
Bank edge	6.80	1.67			
	7.00	1.88	0.15	1.73	0.03
	7.20	1.92	0.15	1.77	0.03
	7.40	1.90	0.19	1.71	0.04
	7.60	1.98	0.23	1.75	0.05
	7.80	2.00	0.23	1.77	0.05
	8.00	1.94	0.18	1.76	0.03
	8.10	1.75	0.00	1.75	0.00
	8.50	1.71	0.01	1.70	0.00
Bank edge	9.00	1.77	0.04	1.73	0.02
	9.50	1.67			
	9.90	1.65			
	10.00	1.38			
	10.50	1.29			
	11.00	1.13			
	11.50	1.08			
	12.00	0.96			
	13.00	0.96			
	14.00	0.90			
	15.00	0.96			
	15.80	0.92			

Area of flow: 0.24 feet^2



Float measurements:

(observed time in seconds):

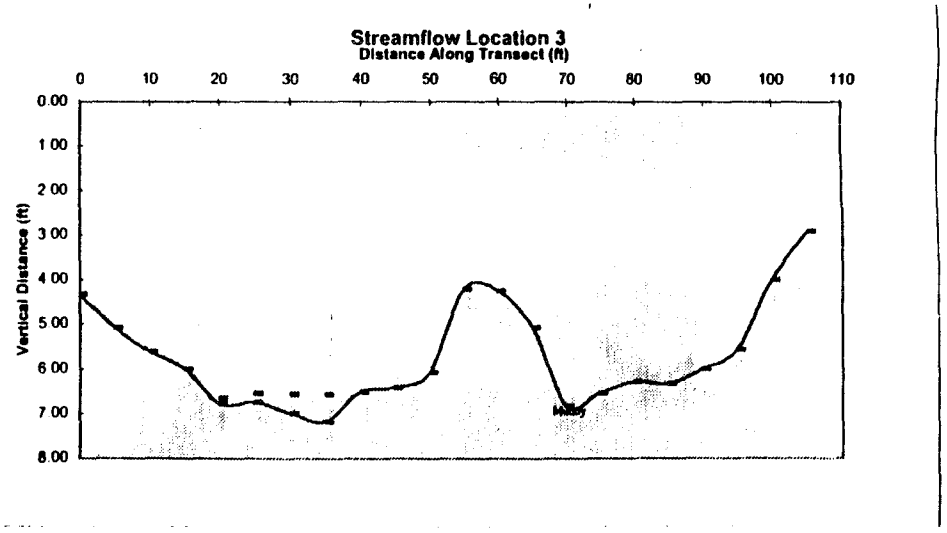
10
9.5
9.5
9.5
10
9.5
9.5

Distance=	10	feet
Average of fastest 3 observations:	9.5	seconds
Velocity based on fastest 3 measurements:	1.05	feet/second
Correction factor for average water column velocity:	0.8	
Calculated average velocity:	0.84	feet/second
Calculated streamflow:	0.20	feet^3/second
=	91	gallons/min

The stream bottom in this location consists of silty organic material with occassional rocks
This is a relatively small drainage that feeds the main stream (Streamflow locations 1 and 4)
Several rusted 55-g drums are located in channel upstream of this location (probably wind blown)
No sheen is observed in this location, stream is apparently healthy

Streamflow calculations for Streamflow Location 3

Notes	Horizontal traverse distance from abitrary point at side of streambank (feet)	Vertical distance from ground or streambed to arbitrary vertical datum (feet)	Vertical distance from stream bottom to water surface (feet)	Vertical distance from arbirary datum to water surface feet)	Cross-sectional area of increment (feet^2)
		B	A	B-A	
	0.00	4.33			
	5.00	5.08			
	10.00	5.63			
	15.00	6.00			
Water	20.00	6.79	0.13	6.67	0.63
choked	25.00	6.75	0.21	6.54	1.04
with	30.00	7.00	0.44	6.56	2.19
grass	35.00	7.19	0.60	6.58	3.02
	40.00	6.52	0.00	6.52	0.00
	45.00	6.42			
	50.00	6.08			
Mound	55.00	4.21			
	60.00	4.25			
	65.00	5.08			
Muddy	70.00	6.83			
	75.00	6.54			
	80.00	6.29			
	85.00	6.33			
	90.00	6.00			
	95.00	5.58			
	100.00	4.00			
	105.00	2.92			



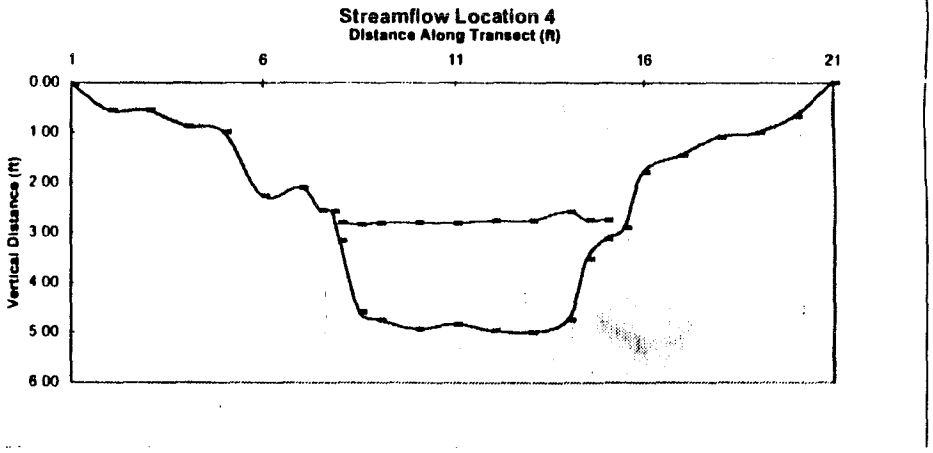
Area of flow: 6.88 feet^2

No float measurements (too much grass)

Distance=	10	feet
Estimated travel time:	30	seconds
Velocity based on estimated time:	0.33	feet/second
Correction factor for average water column velocity:	0.8	
Calculated average velocity:	0.27	feet/second
Calculated streamflow:	1.83	feet^3/second
=	823	gallons/min

Streamflow calculations for Streamflow Location 4

Notes	Horizontal traverse distance from abitrary point at side of streambank (feet)	Vertical distance from ground or streambed to arbitrary vertical datum (feet)	Vertical distance from stream bottom to water surface (feet)	Vertical distance from arbirary datum to water surface (feet)	Cross-sectional area of increment (feet^2)
		B	A	B-A	
	1.00	0.04			
	2.00	0.55			
	3.00	0.56			
	4.00	0.88			
	5.00	0.99			
	6.00	2.27			
	7.00	2.10			
	7.50	2.56			
Edge of flow	7.80	2.58			
	8.00	3.17	0.38	2.79	0.13
	8.50	4.58	1.75	2.83	0.88
	9.00	4.75	1.94	2.81	1.45
	10.00	4.94	2.14	2.80	2.14
	11.00	4.83	2.02	2.81	2.02
	12.00	4.96	2.20	2.76	2.20
	13.00	5.00	2.24	2.76	2.24
	14.00	4.75	2.17	2.58	1.63
	14.50	3.52	0.77	2.75	0.39
	15.00	3.13	0.38	2.75	0.19
Edge of flow	15.50	2.90			
	16.00	1.79			
	17.00	1.46			
	18.00	1.08			
	19.00	1.00			
	20.00	0.67	Area of flow:	13.25	feet^2
	21.00	0.00			



Float measurements (seconds):

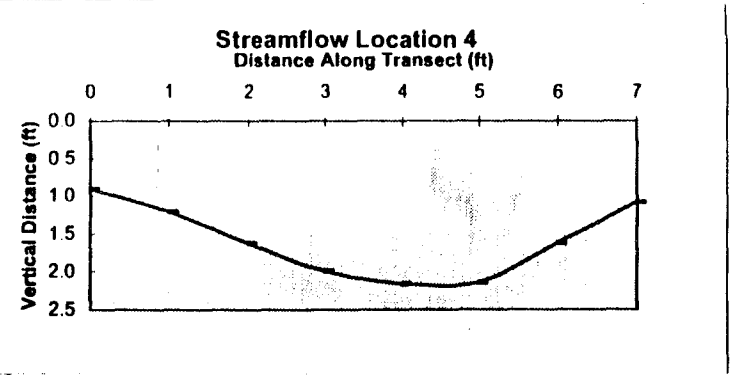
46
53 (hangup)
46
46
46
46
46

Distance=	50	feet
Measured travel time	46	seconds
Velocity based on estimated time:	1.09	feet/second
Correction factor for average water column velocity:	0.8	
Calculated average velocity:	0.87	feet/second
Calculated streamflow:	11.52	feet^3/second
=	5,171	gallons/min

Stream substrate at this location consists of an organic matt with some fine sand and silts, with occasional rocks and pebbles 0.5 to 3-inch diameter. Medium to coarse sand is also present in some areas

Streamflow calculations for Streamflow Location 5

Notes	Horizontal traverse distance from abitrary point at side of streambank (feet)	Vertical distance from ground or streambed to arbitrary vertical datum (feet)	Vertical distance from stream bottom to water surface (feet)	Vertical distance from arbirary datum to water surface (feet)	Cross-sectional area of increment (feet²)	
		B	A	B-A		
	0.00	0.92				
	1.00	1.21				
	2.00	1.63				
	3.00	2.00				
Minor flow	4.00	2.17	0.03	2.14	0.03	
	5.00	2.15				
	6.00	1.63				
	7.00	1.08				
				Area of flow:	0.03	feet²



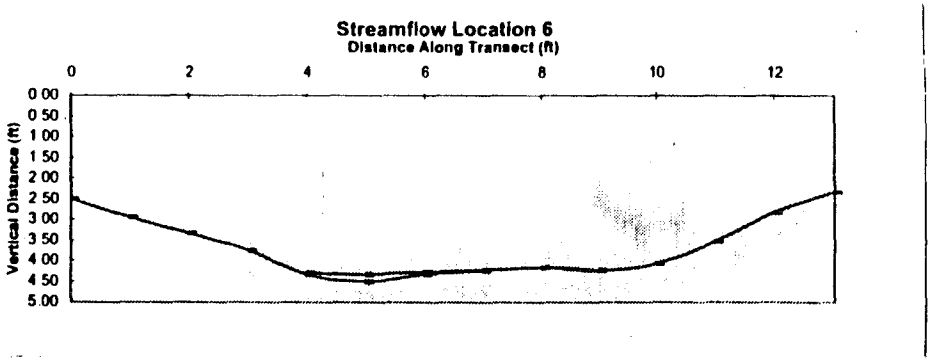
No float measurements (too little flow)

Distance=	N/A	feet
Measured travel time	N/A	seconds
Velocity based on estimated time:	N/A	feet/second
Correction factor for average water column velocity:	0.8	
Calculated average velocity:	N/A	feet/second
Calculated streamflow:	N/A	feet³/second
=	1 to 3	gallons/min

Flow is very minor at this location, too little to use a float. Flow estimated visually at 1 to 3 gallons per minute.
Materials consist of disturbed gravel and sand. No sheen is visable. Vegetation is sparse due to disturbed nature of soils (this is an artificial swale).
Staining is evident on northern embankment due to seepage. Vegetation up stream does not appear to be affected.

Streamflow calculations for Streamflow Location 6

Notes	Horizontal traverse distance from abitrary point at side of streambank (feet)	Vertical distance from ground or streambed to arbitrary vertical datum (feet)	Vertical distance from stream bottom to water surface (feet)	Vertical distance from arbirary datum to water surface (feet)	Cross-sectional area of increment (feet^2)
		B	A	B-A	
	0 00	2 50			
	1 00	2 96			
	2 00	3 33			
	3 00	3 75			
	4 00	4 33	0 04	4 29	0 04
	5 00	4 50	0 17	4 33	0 17
	6 00	4 33	0 06	4 27	0 06
	7.00	4 25	0 02	4 23	0 02
Edge of flow	8.00	4.17	0 00	4 17	0.00
	9.00	4.25	0.02	4 23	0 02
	10.00	4.08			
	11.00	3.54			
	12.00	2.83			
	13.00	2.33			
				Area of flow:	0.31 feet^2



No float measurements (too little flow)

Distance=	N/A	feet
Measured travel time	N/A	seconds
Velocity based on estimated time:	N/A	feet/second
Correction factor for average water column velocity:	0.8	
Calculated average velocity:	N/A	feet/second
Calculated streamflow:	N/A	feet^3/second
=	3 to 5	gallons/min

Total depth of channel crest to bottom is approximately 8 feet, however, this drainage was artificially created.
A sheen on the water is evident when the sediments are disturbed.
Flow was estimated visually at 3 to 5 gallons per minute (water is stagnant).

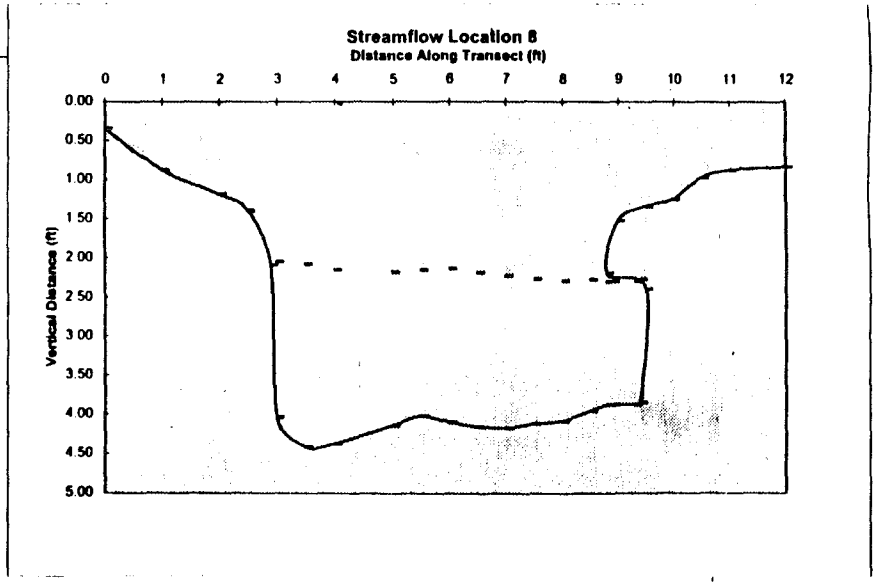
Streamflow observations at Streamflow Location 7

The drainage from pump island (Site 27) and Site 10 have coalesed into a series of 4 braided channels, each approximately 20 to 50 feet wide. The largest and deepest channel is the westernmost channel.
Flow cannot be measured directly here becuase of it's spread out and indistict nature.
All of the channels are choked with grass, and appear to have a maximum depth of 3 feet.
A sheen is observed on the westernmost channel when the sediments are disturbed.
Maximum topographic relief across the entire flood plain appears to be about 4 feet.
There is no apparent adverse effect of hydrocarbons on the healthy vegetation.
Drums are scattered about along with pieces of sheet metal (windblown)
This location is about 500 feet south of the last antennea pole from which streamflow measurement No. 3 was taken.

Streamflow calculations for Streamflow Location 8

Notes	Horizontal traverse distance from abitrary point at side of streambank (feet)	Vertical distance from ground or streambed to arbitrary vertical datum (feet)	Vertical distance from stream bottom to water surface (feet)	Vertical distance from arbirary datum to water surface feet)	Cross-sectional area of increment (feet^2)
		B	A	B-A	
	0.00	0.35			
	1.00	0.88			
	2.00	1.19			
	2.50	1.40			
Bank edge	2.90	2.10			
	3.00	4.04	1.99	2.05	0.60
	3.50	4.42	2.34	2.08	1.17
	4.00	4.38	2.22	2.16	1.67
	5.00	4.14	1.96	2.18	1.47
	5.50	4.02	1.86	2.16	0.93
	6.00	4.10	1.96	2.14	0.98
	6.50	4.16	1.97	2.19	0.99
	7.00	4.18	1.95	2.23	0.98
	7.50	4.12	1.85	2.27	0.93
	8.00	4.09	1.80	2.29	0.90
	8.50	3.96	1.68	2.28	0.67
Bank edge	8.80	3.88	1.58	2.30	0.40
	8.90	3.88	1.58	2.30	0.55
	9.30	3.88	1.58	2.30	0.87
	9.40	3.85	1.58	2.27	0.95
	9.50	2.40			
	8.80	2.20			
	9.00	1.53			
	9.50	1.34			
	10.00	1.25			
	10.50	0.98			
	11.00	0.88			
	12.00	0.84			

Area of flow: 14.0 feet^2



Float measurements:

(observed time in seconds):

38.15
34.49
27.01
39.57
36.71
28.07
27.81

Distance=	30	feet
Average of fastest 3 observations:	27.63	seconds
Velocity based on fastest 3 measurements:	1.09	feet/second
Correction factor for average water column velocity:	0.8	
Calculated average velocity:	0.87	feet/second
Calculated streamflow:	12.19	feet^3/second
=	5,471	gallons/min

The substrate at this location consists of medium to coarse sand and moss, with boulders 1 to 2.5 foot diameter. At this location, a sheen can be noted when the organic bank materials are disturbed, but the sheen is not evident when the sandy bottom is disturbed. Apparently the hydrocarbons are retained by the organic bank materials only.

APPENDIX F

Site Survey and Control Report

604	98226.398	96564.720	75.110	MW11-2
626	98042.278	96273.918	85.800	MW19-2
2001	103699.787	95286.504	24.348	98NEC2SS801
2002	103697.417	95296.267	20.220	98NEC2SS802
2003	99677.336	97394.408	36.329	98NECRCSW-SD802
2004	99632.906	97687.483	37.511	98NECRCSW-SD801
2005	98049.523	96900.294	77.916	98NEC10SS801
2006	98513.376	96632.514	60.940	98NECDBSS808
2007	98402.848	96560.794	63.335	98NECDBSS809
2010	98225.808	96239.340	71.686	98NEC13SS803
2013	98198.175	96082.224	73.148	98NEC13SS801
2014	98042.343	96274.096	85.742	98NEC626-MW19-2
2015	98226.153	96564.738	75.060	98NECMW11-2--
2016	98732.535	96208.811	58.333	98NECDBSS806-
2017	98708.212	96296.079	59.733	98NECDBSS807
2018	98585.759	96303.947	61.273	98NECDBSS805
2019	98617.039	96276.332	57.198	98NECDBSWSD803
2020	99192.818	96529.999	46.059	98NECDBSS804
2021	99251.020	96468.204	41.525	98NECDBSW-SD802
2022	99724.612	96627.343	38.216	98NECDBSW-SD801
2023	99670.069	96678.609	42.586	98NECDBSS803
2024	99799.071	96400.469	40.814	98NECDBSS802
2025	99888.823	96346.996	37.487	98NECDBSS801
2026	99930.240	96609.249	33.989	98NECRCSW-SD804
2027	99934.935	96665.028	33.968	98NECRCSW-SD803
2029	100035.965	95327.061	31.209	98NECRCSW-SD805
2030	100043.838	95051.654	30.399	98NECRCSW-SD806
2037	108040.051	89862.681	2.581	98NECBKSW-SD802
2038	106650.317	89911.631	2.865	98NECBKSWSD801
2039	107041.025	96870.740	-0.414	98nec tide line
2041	100419.806	98874.634	56.655	98NEC07SS802
2042	100533.627	99629.013	51.853	98NEC07SS801
2043	101411.473	99595.000	45.558	98NEC06SS801
2046	103946.860	101491.577	19.715	98NEC3-1WELLPT
2047	103961.249	101501.871	21.055	98NEC SW COR BLD
2048	103816.821	101252.723	22.273	98NEC4-1WELLPT
2049	103796.798	101258.195	21.298	98NEC EAST END TANK
2051	97626.264	95668.608	75.082	98NEC00SS801
2052	97634.607	95662.104	78.665	98NEC14-1WELLPT
2053	97720.925	95607.070	77.200	98NEC14SS802
2054	97734.799	95568.188	77.206	98NEC14SS801
2056	98129.888	97268.551	75.800	98NEC09SS802
2061	101220.074	99638.308	47.084	98NEC06SS802
2103	99677.336	97394.408	34.800	98NEC WATER BOTTOM
2104	99632.906	97687.483	35.000	98NEC WATER BOTTOM
2114	98042.343	96274.096	82.190	98NEC OG
2145	103916.724	101484.997	18.902	98NEC OG
2148	103816.821	101252.723	19.400	98NEC OG
2152	97634.607	95662.104	74.970	98NEC OG
2162	98258.167	96120.482	69.750	98NEC13SS802
2163	98213.932	96336.945	-99.000	98NEC NE COR GARAGE

	M	N	O	P	Q	R	S
1	101464.001						2044 - Fnd. USCGS B.C. in Boulder, 1968
2	100727.450						2050 -Fnd. USCGS B.C. in Boulder, 1968
3	99373.352						2060 =- Fnd. Al. cap on 5/8" rebar, 8535-LS, 1994, #9
4	100000.000						2035 - Fnd B.C. on 1" pipe
5	96723.975						2040 - Fnd. cap welded on rebar, no marks
6	95161.128						2000 - Set Al. cap on 5/8" rebar, 4469-S, 1998, GPS-2
7	97928.168						2033 - Fnd 1" pipe, no cap
8	96869.699						2057 - Fnd. Al. cap on 5/8" rebar, 8535-LS, 1994
9	93684.912						2058 - Set Al. cap on 5/8" rebar, 4469-S, 1998, GPS-1

	A	B	C	D	E	F	G	H	I	J	K	L
1	2044	NE Cape, St. Lawrence Is.	St. Lawrence Is.	USCGS	BM-5	1968	U.S. Ft.	1950 MSL	2.702			104279.594
2	2050	NE Cape, St. Lawrence Is.	St. Lawrence Is.	USCGS	BM-4	1968	U.S. Ft.	1950 MSL	6.065			104599.631
3	2060	NE Cape, St. Lawrence Is.	St. Lawrence Is.	Lounsbury	RB #9	1994	U.S. Ft.	1950 MSL	69.367			100691.649
4	2035	NE Cape, St. Lawrence Is.	St. Lawrence Is.	USCOE	BM-B	1951	U.S. Ft.	1950 MSL	75.828			100000.000
5	2040	NE Cape, St. Lawrence Is.	St. Lawrence Is.	unknown		unknown	U.S. Ft.	1950 MSL	21.069			103549.699
6	2000	NE Cape, St. Lawrence Is.	St. Lawrence Is.	Mullikin	GPS2	1998	U.S. Ft.	1950 MSL	26.262			103549.699
7	2033	NE Cape, St. Lawrence Is.	St. Lawrence Is.	USCOE	BM-H	1951	U.S. Ft.	1950 MSL	70.317			99063.443
8	2057	NE Cape, St. Lawrence Is.	St. Lawrence Is.	Lounsbury	RB #4	1994	U.S. Ft.	1950 MSL	73.05			98340.713
9	2058	NE Cape, St. Lawrence Is.	St. Lawrence Is.	Mullikin	GPS1	1998	U.S. Ft.	1950 MSL	25.645			101981.082

format, point #, y, x, z, descriptor, with commas as
delineaters.

NEC98CON.CR5 -- Survey control mons only, as in NECMONS.XLS, in
Tripod Data System
format.

NEC98MONS.PTS -- Survey control Mons only, as in NECMONS.XLS,
"pacsoft" format, Pt#,
y, x, z, descriptor.

NEC98MONS.FIN -- Survey control lmons onlyl, as in NECMONS.XLS,
pt#, x, y, z, descriptor,
tab delineated.

Readme file for Northeast Cape field survey, Mullikin Surveys. The GPS field work and calculations were done using Trimble 4000 SSI receivers, and Trimble Office software. The survey report describes basis of coordinates, bearing and elevation.
The AutoCad drawing was done in version 12c.3 for DOS, with Softdesk 7.2 cogo modules.
Most points are on four layers:

LAYER

PTSREC Precomputed points, should reflect prior reported values
PTSMEAS Adjusted measured values
PTSCOMP Computed values based on the measured points. i.e. the top of a monitor well might have been measured directly, and a distance to the ground recorded. A point with ground elevation was generated, and given a point number 100 higher. For example, monitor well top might be 2099, ground elevation computed as 2199.
PTS CONTROL Survey monuments --both measured (2000 range) and published (1-1000
range) values.

JUNK Various things such as redundant points, precomputed points not field tied.

ATTACHED FILES:

NECAPE.DWG -- autocad drawing containing points, created in AutoCad v12.c3 DOS.

NECREP.WPD -- Survey report generated in Wordperfect 6.1 for Windows.

NECMONS.XLS -- Excell format spread sheet of survey monuments as specified.
NEC98.FIN -- ascii file of points NOT including survey monuments, point #, X, Y, Z, Descriptor, format tab delineated

NEC98.CR5 -- same contents as nec98.fin, but in tripod data systems format, listed in numerical order, point number, y,x,z,descriptor

NEC98.PTS -- same contents as nec98.fin, but in "Pacsoft"

MULLIKIN SURVEYS
Donald E. Mullikin, P.L.S.
381 E. Bonanza Avenue
P.O. Box 790, Homer, AK 99603-0790
Ph. & Fax: (907) 235-8975
e-mail: mullikin@xyz.net

October 14, 1998

SURVEY REPORT FOR NORTHEAST CAPE, ST LAWRENCE ISLAND

Field work was conducted on September 14 and 15, 1998 at an abandoned military base on St. Lawrence Island. During the survey it was raining with winds estimated at 20 to 40 mph.

The purpose of the survey was to measure monitor wells, soil and water sample sites and photo ID points and report these locations on the same coordinate system as previous surveys.

Trimble 4000 SSI GPS survey units were used in Real Time Kinematic mode. Basis of coordinates was USArmy Corps Of Engineers BM B. Basis of bearing was from USACOE BMB TO BM H. Elevations were based on a 1994 aluminum cap marked #4, set by Lounsbury & Associates, and extended using the 1996 geoid undulation model. The elevation of #4 was checked with ties to Lounsbury aluminum cap #9, as well as to two previously tied monitor wells, (Mullikin Surveys 1998 points 2015 and 2014).

2145,103916.724,101484.997,18.902,98NEC OG
2047,103961.249,101501.871,21.055,98NEC SW COR BLD
2049,103796.798,101258.195,21.298,98NEC EAST END TANK
2148,103816.821,101252.723,19.400,98NEC OG
2048,103816.821,101252.723,22.273,98NEC4-1WELLPT
2046,103946.860,101491.577,19.715,98NEC3-1WELLPT
2043,101411.473,99595.000,45.558,98NEC06SS801
2061,101220.074,99638.308,47.084,98NEC06SS802
2041,100419.806,98874.634,56.655,98NEC07SS802
2042,100533.627,99629.013,51.853,98NEC07SS801
2039,107041.025,96870.740,-0.414,98nec tide line
2037,108040.051,89862.681,2.581,98NECBKSW-SD802
2038,106650.317,89911.631,2.865,98NECBKSWSD801
2002,103697.417,95296.267,20.220,98NEC2SS802
2001,103699.787,95286.504,24.348,98NEC2SS801
2003,99677.336,97394.408,36.329,98NECRCSW-SD802
2103,99677.336,97394.408,34.800,98NEC WATER BOTTOM
2004,99632.906,97687.483,37.511,98NECRCSW-SD801
2104,99632.906,97687.483,35.000,98NEC WATER BOTTOM
2005,98049.523,96900.294,77.916,98NEC10SS801
2056,98129.888,97268.551,75.800,98NEC09SS802
2016,98732.535,96208.811,58.333,98NECDBSS806-
2017,98708.212,96296.079,59.733,98NECDBSS807
2019,98617.039,96276.332,57.198,98NECDBSWSD803
2020,99192.818,96529.999,46.059,98NECDBSS804
2021,99251.020,96468.204,41.525,98NECDBSW-SD802
2023,99670.069,96678.609,42.586,98NECDBSS803
2024,99799.071,96400.469,40.814,98NECDBSS802
2025,99888.823,96346.996,37.487,98NECDBSS801
2026,99930.240,96609.249,33.989,98NECRCSW-SD804
2029,100035.965,95327.061,31.209,98NECRCSW-SD805
2030,100043.838,95051.654,30.399,98NECRCSW-SD806
604,98226.398,96564.720,75.110,MW11-2
626,98042.278,96273.918,85.800,MW19-2
2007,98402.848,96560.794,63.335,98NECDBSS809
2010,98225.808,96239.340,71.686,98NEC13SS803
2013,98198.175,96082.224,73.148,98NEC13SS801
2014,98042.343,96274.096,85.742,98NEC626-MW19-2
2015,98226.153,96564.738,75.060,98NECMW11-2--
2162,98258.167,96120.482,69.750,98NEC13SS802
2114,98042.343,96274.096,82.190,98NEC OG
2163,98213.932,96336.945,-99.000,98NEC NE COR GARAGE
2051,97626.264,95668.608,75.082,98NEC00SS801
2052,97634.607,95662.104,78.665,98NEC14-1WELLPT
2053,97720.925,95607.070,77.200,98NEC14SS802
2054,97734.799,95568.188,77.206,98NEC14SS801
2152,97634.607,95662.104,74.970,98NEC OG
2018,98585.759,96303.947,61.273,98NECDBSS805
2006,98513.376,96632.514,60.940,98NECDBSS808
2022,99724.612,96627.343,38.216,98NECDBSW-SD801
2027,99934.935,96665.028,33.968,98NECRCSW-SD803

2044,104279.594,101464.001,2.702,98NEC FND BM5 USCGS
2050,104599.631,100727.450,6.065,98NEC FND BM4 USCGS
1,100000.000,100000.000,76.000,BM-B
2035,100000.000,100000.000,75.828,98NEC BMB
9,100691.660,99373.313,69.240,AL
2060,100691.649,99373.352,69.367,98NEC FND RB#9 94
2000,103549.699,95161.128,26.262,98NEC SET AL CAP
2,99063.483,97928.256,71.647,BM-H
2033,99063.443,97928.168,70.317,98NEC FND BM 1"PIPE
4,98340.637,96869.886,73.050,AL
2057,98340.713,96869.699,73.050,98NEC FND RB
2058,101981.082,93684.912,25.645,98NEC SET RB/ALCAP
2040,106247.320,96723.975,21.069,98NEC FND RB WELDED

MULLIKIN SURVEYS
P.O. BOX 770
HOMER, ALASKA 99603

152

DURA Lite
WATERPROOF

TRANSIT

NOTEBOOK NO. 601

NOME
NE CAPE, ST. LAWRENCE

MULLIKIN SURVEYS
P.O. BOX 770
HOMER, ALASKA 99603

a product of
J. L. Darling Corporation
2212 Port of Tacoma Road
Tacoma, WA 98421 USA
(206) 383-1714

152 152 152

14

NE CAPE - ST LAWRENCE IS.

MONT GOMERY - WATSON
MULLIKIN SURVEYS

HIE 4.94

BASE (2000) 44 69 S
AC S/S RB (GPS 2 1998)
H

PT. #	DESCRIPTION
2001	98 NEC 0255 80
2002 = (202)	
2003	RC SW/SD 852' TOP H_2O 15' TO Bottom
2004	RC SW/SD 90' TOP H_2O BOTTOM 2.5'

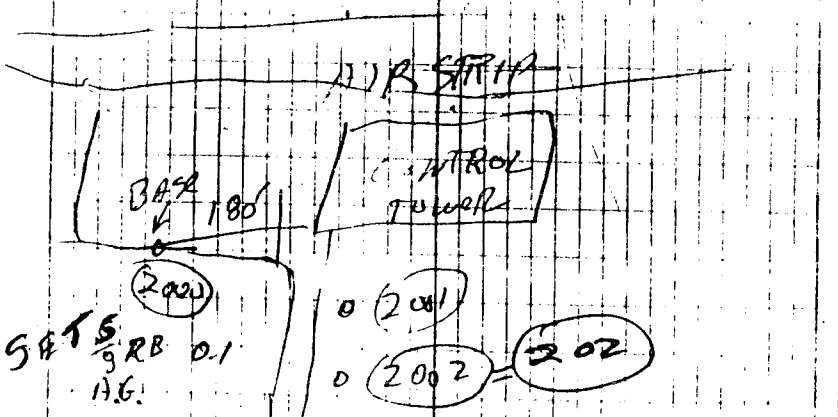
15

14 Sept 98

RAIN 20 TO 40 MPH WINDS

D.M. MULLIKIN
SHANE
I.K. NOK I. NOK

4



USED 2 4000 SSI GPS
RECEIVERS W. R.T.K. BASE AT 2000

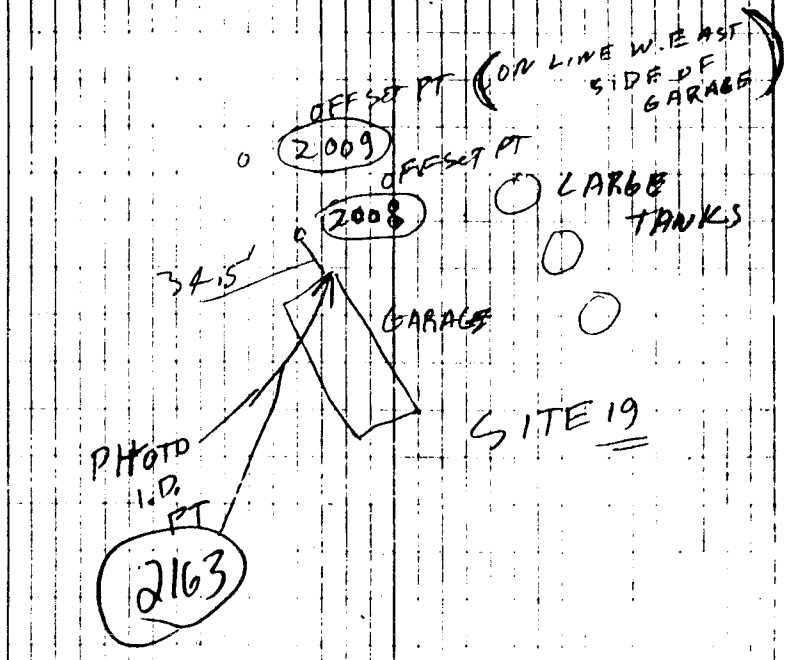
NE. CAPE

PT #	DESCRIPTION
2005	98 NEC 10SS 801 S. OF 3 BIG TANKS S. OF RD 10'
2006	98 NEC DBSS 808 NO #
2007	98 NEC DBSS 809
2008	OFF SET TO N GARAGE
2009	OFF SET TO GARAGE

14 SEPT 05

RAIN, WIND 30-40 MPH

DM
S.I



BLANK

N.E. CAPE

PT #	DESCRIPTION
2010	98 NEC SS 803
2011	OFFSET 13 SS 802
2012	" "

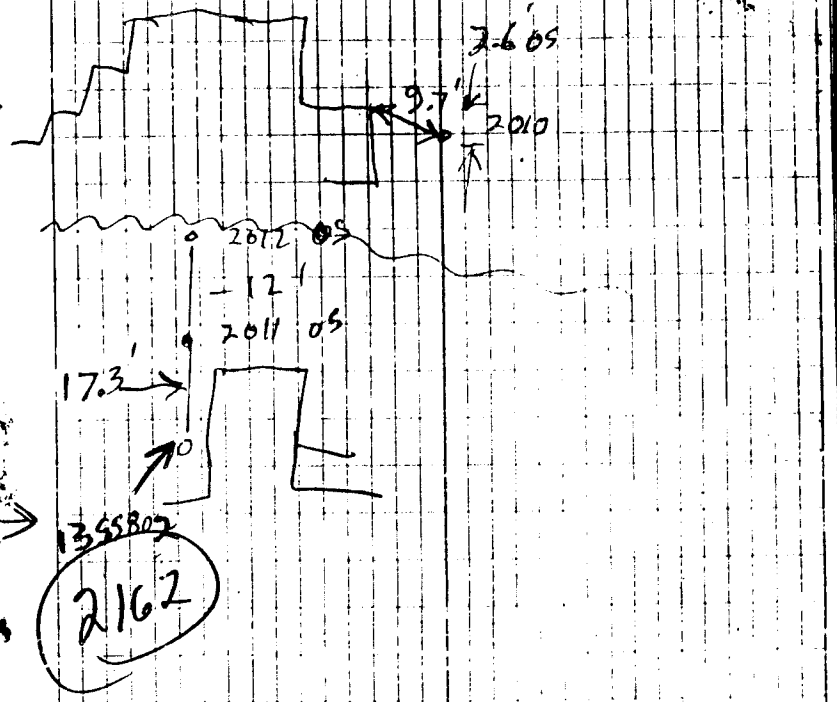
(2162) 13 SS 802 IS 1' LOWER THAN (2011)

2013 98NEC/3 SS 801 IS 2.5' W/Y OF DOOR

14 SEP 98

RAIN, 30-40 MPH WIND

DM SI



NE SIDE

PT #	DESCRIPTION
2014	±.2 H (WIND)
Well 19-2	TOP OF CAP
	HT = 355
= PT 626	RECORD
2015) MW 11-2) = 604	TOP OF CAP
2016	DBSS806
	W. OF CR & POND
2017	DBSS807
	10' E CREEK - POND

14 SEPT 98

D.M.

RAW, WIND 30-40 MPH SI

NE CAPE

PT #	DESCRIPTION
2018	DB SS 805
2019	DB SW/SD 803 TSP H_2O 2 Level
2020	DB SS 804
2021	DB SW/SD 802
2022	DB SW/SD 801 H_2O 2 Level
2023	DB SS 803 E. of CREEK
2024	DB SS 802
[illegible]	DB SS 801

14 SEP 99
RAIN, WIND 20-30 MPH

DM
S.I.

NB CAPE

14 SEP 94

RAIN, WIND 30-40 MPH

D.M.
S.I.

PT #	DESCRIPTION
2026	RC SW/SD 804 S OF CR AT H_2O Level
2027	RCSW/SD 803
2028	Init.
2029	RC SW/SD 805
2030	RC SW/SD 806

NE CAPE

PT #	DESCRIPTION
2037	0 0 NEC BK Sw/SD 802
	Edge H_2O
2038	BK Sw/SD 801
2039	APPROX TIDE LINE
2040	FOUND 5/8 REBAR W WELDED BRASS CAP 1" (NO I.D. ON IT)
2041	0 0 NEC 07 SS 802
	1ST PT N. OF BEACH RD
2042	0 0 NEC 07 SS 801 (PT S. OF RD) 80'

14 SEPT
25 SEPT
LT. RAIN
LT. WIND

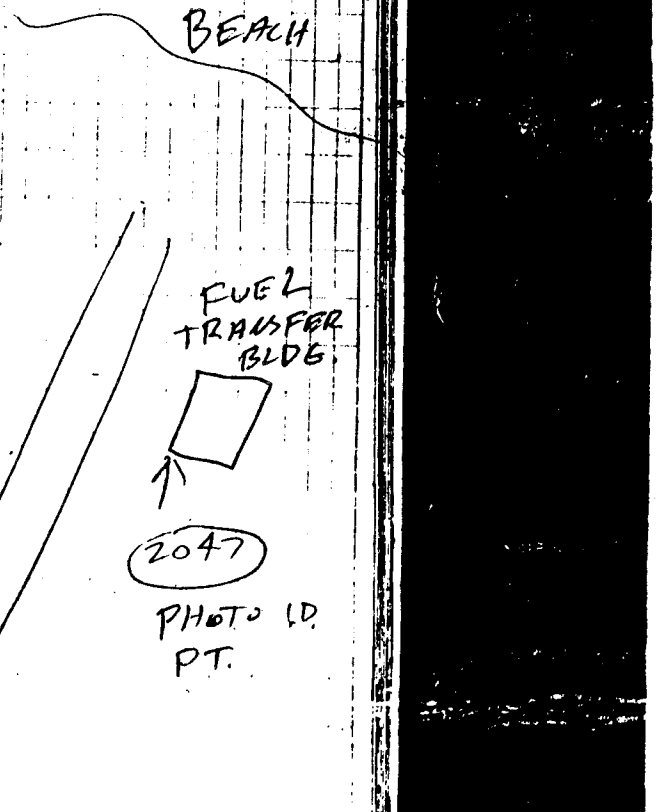
DON MULLIKIN
SHANE IKNOKINOK

NE CAPE

PT #	DESCRIPTION
2043	98 NEC 06 SS. 801 S. Rd
2044	BM 5 USC&GS 1962 B.C. IN BOULDER
2045 2046 ~~2045~~	OG By 3-1 Well PT. 1¼" PIPE
2046	3-1 Well PT 1¼" PIPE (2.6' TO OG.)
2047	SW. COR TRANSFER SITE S. of RD
2048	4-1 Well PT
2049	EAST END TANK By 4-1 (2.9' OG)
2050	BM N A USC&GS B.C. IN BOULDER

15 SEP 98

D.M.
S.I.

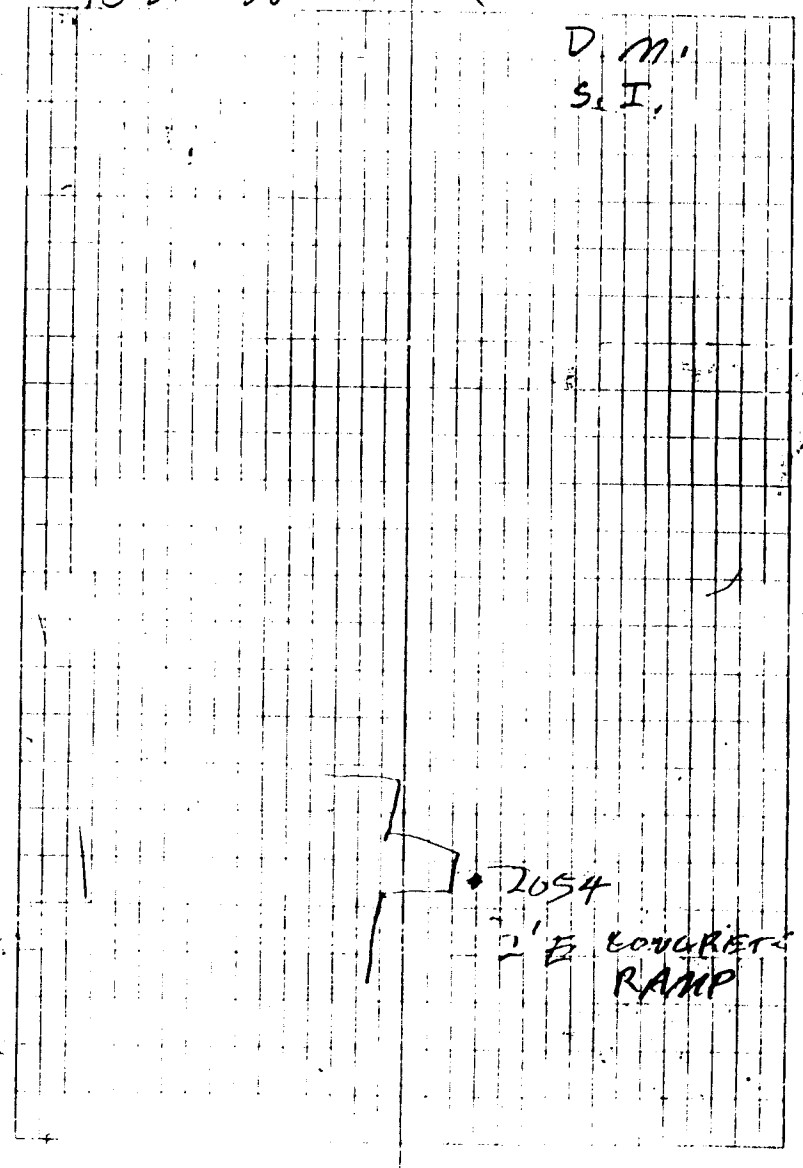


NE CAPE

PT #	DESCRIPTION
2051	98 NEC ~~00~~ SS 801
2052	14-1 WELL PT (3.7' 0.6)
2053	14 SS 802 SE END 30' TANK
2054	14 SS 801
2055	TOP BOLT OF FIRE Hyd. 50' E BLD. 98
2056	~~09~~ S 302

15 SEP 98

D. M.
S. I.

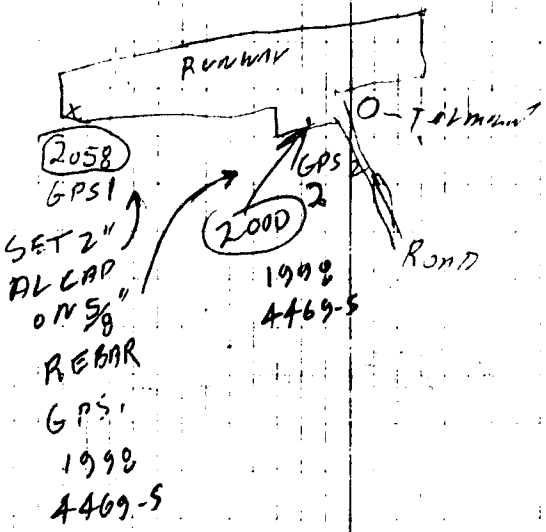


NE CAPE

PT #	DESCRIPTION
2057	FND 2" AL CAP Louisburg 1994 8535 LS = #4

15 SEP 98
SUNNY, LT WIND

DM
S.I.



APPENDIX G

Hazardous Waste Disposal Documentation

MONTGOMERY WATSON

October 28, 1998 1189098.050101

Alaska Department of Environmental Conservation
Attention: Hazardous Waste Manifest Coordinator
410 Willoughby Ave.
Juneau, Alaska 99801-1795

Subject: Hazardous Waste Manifest Copy for Files

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
Article No. Z 744 761 312

Dear Manifest Coordinator:

On behalf of the US Army Corps of Engineers (USACE), Montgomery Watson is transmitting this copy of the uniform hazardous waste manifest in accordance with the requirements of 18 AAC 62.230. The particulars of this manifest are:

Manifest number:	NEC01
Generator:	USACE Northeast Cape
Generator's EPA ID Number:	AK0000228395
Submittal:	Completed Manifest

If you should have any questions, please do not hesitate to contact the USACE [Dee Ginter, (907) 753-2805] or Montgomery Watson [Deborah Luper, (907) 266-1113].

Sincerely,

Deborah Luper

Deborah Luper
Principal

cc: Rick Jackson - USACE
Dee Ginter - USACE

4100 Spenard Road
Anchorage, Alaska
99517-2901

Tel: 907 248 8883
Fax: 907 248 8884

STATE OF ILLINOIS P.O. BOX 19276 SPRINGFIELD, ILLINOIS 62794-9276 (217) 782-6761

State Form LPC 62 8/91 IL532-0610 FOR SHIPMENT OF HAZARDOUS AND SPECIAL WASTE

PLEASE TYPE (Form designed for use on elite (12-pitch) typewriter.) EPA Form 8700-22 (Rev. 6-89) Form Approved. OMB No. 2050-0039

CCWM

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. Manifest Document No.: AK0000228395 NFC01

2. Page 1 of 4

Information in the shaded areas is not required by Federal law, but is required by Illinois law.

3. Generator's Name and Mailing Address / Location If Different
USACE-NORTHEAST CAPE
Kangukhsam Mtn. 52.25 miles
Savoonga AK 99789

4. 24 HOUR EMERGENCY AND SPILL ASSISTANCE NUMBERS: 800 535-5053

A. Illinois Manifest Document Number: IL-76[illegible]525 FEE PAID IF APPLICABLE

B. Illinois Generator's ID: 90201099990

5. Transporter 1 Company Name: Bering Air
6. US EPA ID Number: AK0000662189

C. Illinois Transporter's ID:

D. (907) 443-5466 Transporter's Phone

7. Transporter 2 Company Name: Northern Air Cargo
8. US EPA ID Number: AKD003845526

E. Illinois Transporter's ID:

F. (907) 243-3331 Transporter's Phone

9. Designated Facility Name and Site Address
CHEMICAL WASTE MANAGEMENT, INC.
#7 MOBILE AVE
SAUGET IL 62201

10. US EPA ID Number: ILD098642424

G. Illinois Facility's ID: 1630120089

H. Facility's Phone: 618 271-2804

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	Waste No.
a. WASTE CAUSTIC ALKALI, LIQUIDS, N.O.S., 8, UN1719, PGII (Diethylenetriamine, Sodium Hydroxide) Cargo Aircraft Only RQ	006	DM	1500	P	EPA HW Number: XXD000402 Authorization Number: 0901001
b.					EPA HW Number: XX Authorization Number:
c.					EPA HW Number: XX Authorization Number:
d.					EPA HW Number: XX Authorization Number:

13. Additional Descriptions for Materials Listed Above
WPS#SEE93-3 DECONTAMINATION AGENT DS2 ERG#154
24-Hour Emergency #: 800-535-5053
Certificate of Destruction required, mail to Rich Jackson as below

K. Handling Codes for Wastes Listed Above in Item 14:

15. Special Handling Instructions and Additional Information
Mail Original Manifest To: Rich Jackson, USACE, PO BOX 898, Anchorage, AK, 99506
Mail Copy To: Montgomery Watson, 4100 Spenard Rd, Anchorage, AK, 99516, Attn: 1189098,050101

Alternate TSDF: FOR TRANSHIPMENT Chemical Waste Management, Inc 9131 E 96th AVE HENDERSON, CO 80640 COD980591184 303/289-4827

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway /WATER/AIR according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Date (Month Day Year)
DEIRDRE M. GINTER	Deirdre M. Ginter on behalf of DOD	09 15 98

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
David W. Asson For Bering Air Inc		09 16 98

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
ARTHUR WILSON STERLING E. BUFFAS FOR N.A.C.		09 16 98 09 18 98

FACILITY

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Date (Month Day Year)
Kathy DeWitt	Kathy DeWitt	10 27 98

The Agency is authorized to require, pursuant to Illinois Revised Statute, 1989, Chapter 111 1/2, Section 1004 and 1021, that this information be submitted to the Agency. Failure to provide this information may result in a civil penalty against the owner or operator not to exceed $25,000 per day of violation. Falsification of this information may result in a fine up to $50,000 per day of violation and imprisonment up to 5 years. This form has been approved by the Forms Management Center.

COPY 1. TSD MAIL TO GENERATOR

13-3273

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. CWMI

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator's US EPA ID No. AK0000228395	Manifest Document No. NFC01	22. Page 2 of 4	Information in the shaded areas is not required by Federal law.

23. Generator's Name

UASCE - NORTHEAST CAPE
KANGUKHSAM MTN. 52.25 MILES
SAVOONGA AK 99786

24. Transporter 3 Company Name	25. US EPA ID Number
Carlile Enterprises	AKD122081234
26. Transporter 4 Company Name	27. US EPA ID Number
Totem Ocean Trailer	WAD070397959

I. State Manifest Document Number: 7610525
J. State Generator's ID: 9020109999
K. State Transporter's ID:
L. Transporter's Phone: 907-276-7797
M. State Transporter's ID:
N. Transporter's Phone: 907-276-5868

	28. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	29. Containers No.	Type	30. Total Quantity	31. Unit Wt/Vol	Waste No.
a.							
b.							
c.							
d.							
e.							
f.							
g.							
h.							
i.							

GENERATOR

32. Special Handling Instructions and Additional Information

TRANSPORTER

33. Transporter ____ Acknowledgement of Receipt of Materials		Date
Printed/Typed Name: Steve N Marks	Signature: Steve N Marks	Month 09 Day 24 Year 98
34. Transporter ____ Acknowledgement of Receipt of Materials		Date
Printed/Typed Name: MATT DEVEVERE	Signature: Matt Devevere	Month 09 Day 25 Year 98

35. Discrepancy Indication Space

FACILITY

Style CF 18 Labelmaster, An American Labelmark Co., Chicago, IL 60646 (800) 621-5808

EPA Form 8700-22A (Rev. 9-88) Previous editions are obsolete.

ORIGINAL-RETURN TO GENERATOR

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039. CWM1

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator's US EPA ID No.	Manifest Document No.	22. Page	Information in the shaded areas is not required by Federal law.
	AK0000228395	NFC01	3 of 4	

23. Generator's Name

URSCE - NORTHEAST CAPE
KANGUKHSAM MTN. 52.25 MILES
SAVOONGA AK 99786

State Manifest Document Number: 17610525

State Generator's ID: 9020109999

24. Transporter 5 Company Name: K&W Transportation | 25. US EPA ID Number: AK122081234 | U.S. Transporter's ID | Transporter's Phone | State Transporter's ID

26. Transporter 6 Company Name: Advanced Envi. Tech. Ser. (AETS) | 27. US EPA ID Number: NJD080631369 | State Transporter's ID | Transporter's Phone: 706 [illegible]

28. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	29. Containers No.	Type	30. Total Quantity	31. Unit Wt/Vol	State Waste No.
a.						
b.						
c.						
d.						
e.						
f.						
g.						
h.						
i.						

GENERATOR

j. Additional Descriptions for Materials Listed Above | k. Handling Codes for Wastes Listed Above

32. Special Handling Instructions and Additional Information

TRANSPO

33. Transporter 5 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
MEL INGRAM	Mel Ingram #1471	10 19 [illegible]

34. Transporter 6 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
DAVID C. WARRINGTON	[signature] FOR AETS	10 20 98

35. Discrepancy Indication Space

FACILITY

Style CF 18 Labelmaster, An American Labelmark Co., Chicago, IL 60646 (800) 621-5808

EPA Form 8700-22A (Rev. 9-88) Previous editions are obsolete

PRINTED ON RECYCLED PAPER

ORIGINAL-RETURN TO GENERATOR

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved. OMB No. 2050-0039 CWMI

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)

21. Generator's US EPA ID No. AK0000228395 | Manifest Document No. NEC01 | 22. Page 4 of 4 | Information in the shaded areas is not required by Federal law.

23. Generator's Name
UASCE - NORTHEAST CAPE
KANGUKHSAM MTN. 52.25 MILES
SAVOONGA AK 99786

L. State Manifest Document Number: IL7610525
M. State Generator's ID: 9020109999
N. State Transporter's ID:
O. Transporter's Phone: 800-736-8768
P. State Transporter's ID:
Q. Transporter's Phone: (317) 887-4927

24. Transporter 1 Company Name: Tri-State Motor Transit | 25. US EPA ID Number: MOD095038998
26. Transporter 2 Company Name: OIL + SOLVENT PROCESS CO. | 27. US EPA ID Number: COD980591184

	28. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	29. Containers No.	Type	30. Total Quantity	31. Unit Wt/Vol	Waste No.
a.							
b.							
c.							
d.							
e.							
f.							
g.							
h.							
i.							

GENERATOR

I3. Additional Descriptions for Materials Listed Above | J. Additional Codes for Wastes Listed Above

32. Special Handling Instructions and Additional Information

TRANSPORTER

33. Transporter 1 Acknowledgement of Receipt of Materials
Printed/Typed Name: ANTHONY KENCHAS | Signature | Date: Month 10 Day 23 Year 98

34. Transporter 2 Acknowledgement of Receipt of Materials
Printed/Typed Name: LON R. LINK | Signature: Lon R. Link | Date: Month 10 Day 26 Year 98

35. Discrepancy Indication Space

FACILITY

MONTGOMERY WATSON

October 20, 1998 1189098.050101

Alaska Department of Environmental Conservation
Attention: Hazardous Waste Manifest Coordinator
410 Willoughby Ave.
Juneau, Alaska 99801-1795

Subject: Hazardous Waste Manifest Copy for Files

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
Article No. Z 744 761 315

Dear Manifest Coordinator:

On behalf of the US Army Corps of Engineers (USACE), Montgomery Watson is transmitting this copy of the uniform hazardous waste manifest in accordance with the requirements of 18 AAC 62.230. The particulars of this manifest are:

Manifest number:	NEC02
Generator:	USACE Northeast Cape
Generator's EPA ID Number:	AK0000228395
Submittal:	Completed Manifest

If you should have any questions, please do not hesitate to contact the USACE [Dee Ginter, (907) 753-2805] or Montgomery Watson [Deborah Luper, (907) 266-1113].

Sincerely,

Deborah Luper

Deborah Luper
Principal

cc: Rick Jackson - USACE
Dee Ginter - USACE

4100 Spenard Road
Anchorage, Alaska
99517-2901

Tel: 907 248 8883
Fax: 907 248 8884

Serving the World's Environmental Needs

a. RQ = 10	c. RQ =	RESPONSE-CENTER (800) 424-8802, AND 911 EMERGENCY NUMBER OR LOCAL OPERATOR. EMERGENCY CONTACT:	YES	RESPONSE GUIDE NUMBER	140
b. RQ =	d. RQ =	CHEMTREC (800) 424-9300			c. d.

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) 339635 Form Approved. OMB No. 2050-0039. Expires 9-30-96

UNIFORM HAZARDOUS WASTE MANIFEST

1. Generator's US EPA ID No. A K 0 0 0 0 2 2 8 3 9 5 — Manifest Document No. NEC02 — 2. Page 1 of 4 — Information in the shaded areas is not required by Federal law.

3. Generator's Name and Mailing Address
USACE- NORTHEAST CAPE
Kangukhsam Mtn. 52.25 miles
Savoonga, AK 99789
4. Generator's Phone (907) 753-5606

A. State Manifest Document Number

B. State Generator's ID

5. Transporter 1 Company Name: Bering Air — 6. US EPA ID Number: A K 0 0 0 0 6 6 2 1 8 9 — C. State Transporter's ID — D. Transporter's Phone 907-443-5464

7. Transporter 2 Company Name: Northern Air Cargo — 8. US EPA ID Number: A K 0 0 0 3 8 4 5 5 2 6 — E. State Transporter's ID — F. Transporter's Phone 907-243-3331

9. Designated Facility Name and Site Address
Chemical Waste Management of the NW
17629 Cedar Springs Lane
Arlington, OR 97812-9709
10. US EPA ID Number: O R D 0 8 9 4 5 2 3 5 3 — G. State Facility's ID — H. Facility's Phone 541-454-2643

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	12. Containers No	Type	13. Total Quantity	14. Unit Wt/Vol	I. Waste No.
a. RQ, Waste Calcium Hypochlorite Mixtures, Dry, 5.1, UN2208, PGIII (Calcium hypochlorite) Cargo Aircraft Only	001	DF	1400	P	D001
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
WPS#422434/CK3460 (SUPER TROPICAL BLEACH, STB),
ERG#140, 24 Hour Emergency # 800/535-5053
Certificate of Destruction required, Mail to Rich Jackson as below

K. Handling Codes for Wastes Listed Above
540 P.
54

15. Special Handling Instructions and Additional Information
Mail Original Manifest to: Rich Jackson, USA
P.O. Box 898 Anchorage, AK 99506
Mail Copy; Montgomery Watson 4100 Spenard RD Anchorage AK 99517

AGENCY DISPLAY OF ESTIMATED BURDEN
"Public reporting burden for this collection of information is estimated to average: 37 minutes for generators, 15 minutes for transporters, and 10 minutes for treatment, storage and disposal facilities. This includes time for reviewing instructions, gathering data, and completing and reviewing the form. Send comments regarding the burden estimate, including suggestions for reducing this burden, to: Chief, Information Policy Branch, PM-223, U.S. Environmental Protection Agency, 401 M Street, SW, Washington, DC 20460; and to the Office of Information and Regulatory Affairs, Office of Management and Budget, Washington, DC 20503."

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway /air/water according to applicable international and national government regulations.

If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.

Printed/Typed Name	Signature	Month	Day	Year
DEIRDRE M. GINTER	Deirdre M. Ginter on behalf of DOD	09	14	98

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
DAVID W. OLSON For Bering Air		09	16	98

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month	Day	Year
STERLING E. BUFFAS FOR N.A.C.		09	16	98

19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month	Day	Year
Melissa Seward		10	08	98

EPA Form 8700-22 (Rev. 9-94) Previous editions are obsolete.

CM

002 CHEM-TRADE ARLINGTON, OR

KAUT 93089

Please print or type. (Form designed for use on elite (12-pitch) typewriter.) Form Approved, OMB No. 2050-0039, Expires 9-30-96

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator's US EPA ID No.	Manifest Document No.	22. Page	Information in the shaded areas is not required by Federal law.
	AK0000228395	NEC02	2 of 4	

23. Generator's Name
USACE- Northeast Cape
Kangukhsam Mtn. 52.25
Savoonga, AK 99786

24. Transporter 3 Company Name: Carlile Enterprises — 25. US EPA ID Number: AKD122081234

26. Transporter 4 Company Name: Totem Ocean Trailer — 27. US EPA ID Number: WAD070397959

	28. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	29. Containers No.	29. Containers Type	30. Total Quantity	31. Unit Wt/Vol	Waste No.
a.							
b.							
c.							
d.							
e.							
f.							
g.							
h.							
i.							

S. Additional Descriptions for Materials Listed Above

T. Handling Codes for Wastes Listed Above

32. Special Handling Instructions and Additional Information

TRANSPORTER

33. Transporter 3 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
Danny Dunton	Danny Dunton	9 25 98

34. Transporter 4 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
MATT DEVENERE		09 25 98

FACILITY

35. Discrepancy Indication Space

Style F16 REV-6 LABELMASTER, An AMERICAN LABELMARK CO., CHICAGO, IL 60646 800-621-5808

EPA Form 8700-22A (Rev. 9-88) Previous editions are obsolete.

003

KAWT 93089

Please print or type: (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-96

UNIFORM HAZARDOUS WASTE MANIFEST (Continuation Sheet)	21. Generator's US EPA ID No. AK0000228395	Manifest Document No. NEC02	22. Page 3 of 4	Information in the shaded areas is not required by Federal law.

23. Generator's Name
USACE - Northeast Cape
Kangukhsam Mtn. 52.25 Miles
Savoonga, AK 99786

24. Transporter 5 Company Name	25. US EPA ID Number
K&W Transportation	AK122081234
26. Transporter 6 Company Name	27. US EPA ID Number
Advanced Envi. Tech. Ser. (AETS)	NJD080631369

[redacted] Transporter's Phone 206-761-3900

28. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	29. Containers No.	Type	30. Total Quantity	31. Unit Wt/Vol	[redacted] Waste No.
a.						
b.						
c.						
d.						
e.						
f.						
g.						
h.						
i.						

S. Additional Descriptions for Materials Listed Above

T. Handling Codes for Wastes Listed Above

32. Special Handling Instructions and Additional Information

TRANSPORTER

33. Transporter 5 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
MEL INGRAM	Mel Ingram 1471	10 1 98

34. Transporter 6 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Date (Month Day Year)
DAVID C. WASHINGTON	FOR AETS	10 06 98

FACILITY

35. Discrepancy Indication Space

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039. Expires 9-30-96

UNIFORM HAZARDOUS WASTE MANIFEST *(Continuation Sheet)*

21. Generator's US EPA ID No.: AK0000228395

Manifest Document No.: NEC02

22. Page: 4 of 4

Information in the shaded areas is not required by Federal law:

23. Generator's Name
USACE - Northeast Cape
Kangukhsam Mtn. 52.25 Miles
Savoonga, AK 99786

24. Transporter 1 Company Name: DIABLO TRANSPORTATION ~~Tri-State Motor Transit~~

25. US EPA ID Number: CAD000367755 ~~MOD095038998~~

26. Transporter ___ Company Name

27. US EPA ID Number

N. State Transporter's ID

O. Transporter's Phone: 800 [illegible]

P. State Transporter's ID

Q. Transporter's Phone

28. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)	HM	29. Containers No.	29. Containers Type	30. Total Quantity	31. Unit Wt/Vol	Waste No.
a.						
b.						
c.						
d.						
e.						
f.						
g.						
h.						
i.						

S. Additional Descriptions for Materials Listed Above

T. Handling Codes for Wastes Listed Above

32. Special Handling Instructions and Additional Information

GENERATOR

TRANSPORTER

33. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name: C J BLUNDELL

Signature: C J Blundell

Date: Month 10 Day 08 Year 98

34. Transporter ___ Acknowledgement of Receipt of Materials

Printed/Typed Name

Signature

Date: Month Day Year

FACILITY

35. Discrepancy Indication Space

Style F16 REV-6 LABELMASTER, An AMERICAN LABELMARK CO., CHICAGO, IL 60646 800-621-5808

EPA Form 8700-22A (Rev. 9-88) Previous editions are obsolete.

Certificates of Disposal/Destruction not available at this time.

They will be provided in the final document.

TRADE WASTE INCINERATION
A DIVISION OF CHEMICAL WASTE MANAGEMENT
Federal EPA ID: ILD098642424
State EPA ID: 1631218009
7 MOBILE AVENUE
SAUGET, IL 62201-1069
(618) 271-2804

US ARMY CORP OF ENGINEERS
ATTN: MANIFEST SECTION
AR0000228395
KANGUKSAM MT 52.25 MI ESE
SAVOONGA AK 99769

CERTIFICATE OF DESTRUCTION

Chemical Waste Management, Inc. has received waste material from US ARMY CORP OF ENGINEERS on 10/27/98 as described on [State Manifest or Uniform] Hazardous Waste Manifest number(s) IL07610525.

Profile Number: 433817
CWM Tracking ID: 13-3272
Treatment Date: 12/16/98
CWM Unit #: 1-0 thru 6-0

I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the date listed above.

Gary F. Burke

GARY F. BURKE

Certificate # 68114
01/28/99

CWM OF THE NORTHWEST
Federal EPA ID: ORD089452353
17629 CEDAR SPRINGS LANE
ARLINGTON, OR 97812

US ARMY CORP OF ENGINEERS
ATTN: MANIFEST SECTION
AK0000228395
KANGUKHSAM MT 52.25 MI ESE
SAVOONGA AK 99769

CERTIFICATE OF DISPOSAL

Chemical Waste Management, Inc. has received waste material from US ARMY CORP OF ENGINEERS on 10/08/98 as described on [State Manifest or Uniform] Hazardous Waste Manifest number NECO2.

Profile Number: CK3460
CWM Tracking ID: 33963501
Treatment Date: 04/29/99
CWM Unit #: 1*0

I certify, on behalf of the above listed treatment facility, that to the best of my knowledge, the above-described waste was managed in compliance with all applicable laws, regulations, permits and licenses on the date listed above.

LYNN MURRILL
RECORDS SUPERVISOR
Certificate # 62721
07/21/99

APPENDIX H

Field Forms

Army Corps of Engineers

Northeast Cape, Alaska

Sample Plan Checklist

MONTGOMERY WATSON

NORTHEAST CAPE SAMPLE PLAN CHECKLIST

				WATER								SOIL			SLUDGE			GRAB			
Sample Number	Location	Date	Time	BETX (SW 8020A) 3-40 ml vials with HCl	DRO (SW 8100 Mod) 2-1 L amber with HCl	TRPH (EPA 418.1) 2-1 L amber with H2SO4	PCB (SW 8080A) 2-1 L amber	TCLP - Metals (1311-6010/7000) 1-1 L plastic	Fuel Identification (8015M) 2-1 L amber	Glycol (8015M) 2-1 L amber	DRO (SW 8100 Mod) 1-4 oz. jar	TRPH (EPA 418.1) 1-4 oz. jar	PCB (SW 8080A) 1-4 oz. jar	TCLP - Metals (1311-6010/7000) 1-8 oz. jar	Fuel Identification (8015M) 1-8 oz. jar	Glycol (8015M) 1-4 oz. jar	PCB - Wipe	TRPH	PCB	BTEX
Pre-Phase II																					
96 NEC 001 SW		27-Jun	10:00															X	X	X	
96 NEC 002 SW		27-Jun	10:30															X	X	X	
96 NEC 011 SW		27-Jun	10:00															X	X	X	
96 NEC 021 SW		27-Jun	10:15															X	X	X	
96 NEC 900 SW		27-Jun	10:40																	X	
96 NEC 901 SW		27-Jun	10:40																	X	
Phase II																					
96 NE 04 TK 101		4-Aug	12:00	X		X															
96 NE 13 TK 101		4-Aug	16:30	X		X															
96 NE 14 TK 101		4-Aug	13:00	X		X	X														
96 NE 14 TK 102		4-Aug	14:00											X	X	X					
96 NE 16 TK 101		4-Aug	16:00	X		X	X														
96 NE 16 TK 201		4-Aug	16:05	X		X	X														
96 NE 16 TK 301		4-Aug	16:10	X		X	X														
96 NE 16 TK 102		4-Aug	16:20	Floating Product																	
96 NE 16 TK 102		6-Aug	12:00											X	X	X					
96 NE 16 TK 202		6-Aug	12:05											X	X	X					
96 NE 16 TK 302		6-Aug	12:10											X	X	X					

NORTHEAST CAPE SAmPLE PLAN CHECKLIST

				WATER								SOIL			SLUDGE			GRAB			
Sample Number	Location	Date	Time	BETX (SW 8020A) 3-40 ml vials with HCl	DRO (SW 8100 Mod) 2-1 L amber with HCl	TRPH (EPA 418.1) 2-1 L amber with H2SO4	PCB (SW 8080A) 2-1 L amber	TCLP - Metals (1311-6010/7000) 1-1 L plastic	Fuel Identification (8015M) 2-1 L amber	Glycol (8015M) 2-1 L amber		DRO (SW 8100 Mod) 1-4 oz. jar	TRPH (EPA 418.1) 1-4 oz. jar	PCB (SW 8080A) 1-4 oz. jar	TCLP - Metals (1311-6010/7000) 1-8 oz. jar	Fuel Identification (8015M) 1-8 oz. jar	Glycol (8015M) 1-4 oz. jar	PCB - Wipe	TRPH	PCB	BTEX
96 NE 19 TK 101		6-Aug	11:00	X		X	X														
96 NE 19 TK 102		6-Aug	11:15												X	X	X				
96 NE 10 SS 101		5-Aug	16:15									X	X								
96 NE 10 SS 201		5-Aug	16:20									X	X								
96 NE 10 SS 301		5-Aug	16:25									X	X								
96 NE 10 SS 102		5-Aug	16:30									X	X								
96 NE 10 SS 103		5-Aug	16:40									X	X								
96 NE 10 SS 104		5-Aug	16:45									X	X								
96 NE 10 SS 105		5-Aug	16:50									X	X								
96 NE 10 SS 106		5-Aug	16:55									X	X								
96 NE 10 SS 107		5-Aug	16:45									X	X								
96 NE 10 SS 107		6-Aug	13:15											X							
96 NE 10 SS 108		5-Aug	17:00									X	X								
96 NE 27 SS 101		6-Aug	13:00									X									
96 NE 27 SS 201		6-Aug	13:05									X									
96 NE 27 SS 301		6-Aug	13:10									X									
96 NE 27 SS 102		6-Aug	13:15									X									
96 NE 27 SS 103		6-Aug	13:20									X									
96 NE 27 SS 104		6-Aug	13:25									X									

NORTHEAST CAPE SAmPLE PLAN CHECKLIST

				WATER								SOIL			SLUDGE			GRAB			
Sample Number	Location	Date	Time	BETX (SW 8020A) 3-40 ml vials with HCl	DRO (SW 8100 Mod) 2-1 L amber with HCl	TRPH (EPA 418.1) 2-1 L amber with H2SO4	PCB (SW 8080A) 2-1 L amber	TCLP - Metals (1311-6010/7000) 1-1 L plastic	Fuel Identification (8015M) 2-1 L amber	Glycol (8015M) 2-1 L amber		DRO (SW 8100 Mod) 1-4 oz. jar	TRPH (EPA 418.1) 1-4 oz. jar	PCB (SW 8080A) 1-4 oz. jar	TCLP - Metals (1311-6010/7000) 1-8 oz. jar	Fuel Identification (8015M) 1-8 oz. jar	Glycol (8015M) 1-4 oz. jar		PCB - Wipe	TRPH	PCB	BTEX
96 NE 27 SS 105		6-Aug	13:30									X									
96 NE 27 SS 106		6-Aug	13:00										X	X							
96 NE 27 SS 107		6-Aug	12:55										X	X							
96 NE 27 SS 108		6-Aug	12:45										X	X							
96 NE 27 SS 109		6-Aug	13:10											X							
96 NE NA SW 101		4-Aug	12:00		X		X														
96 NE NA SD 101		4-Aug	12:00									X		X							
96 NE NA SW 201		4-Aug	12:00		X		X														
96 NE NA SD 201		4-Aug	12:00									X		X							
96 NE NA SW 301		4-Aug	12:00		X		X														
96 NE NA SD 301		4-Aug	12:00									X		X							
96 NE NA SW 102		4-Aug	12:30		X		X														
96 NE NA SD 102		4-Aug	12:30									X		X							
96 NE NA SW 103		4-Aug	13:10		X		X														
96 NE NA SD 103		4-Aug	13:10									X		X							
96 NE NA SW 104		4-Aug	13:20		X		X														
96 NE NA SD 104		4-Aug	13:20									X		X							
96 NE NA SW 105		4-Aug	13:40		X		X														
96 NE NA SD 105		4-Aug	13:40									X		X							

NORTHEAST CAPE SAMPLE PLAN CHECKLIST

				WATER								SOIL			SLUDGE			GRAB			
Sample Number	Location	Date	Time	BETX (SW 8020A) 3-40 ml vials with HCl	DRO (SW 8100 Mod) 2-1 L amber with HCl	TRPH (EPA 418.1) 2-1 L amber with H2SO4	PCB (SW 8080A) 2-1 L amber	TCLP - Metals (1311-6010/7000) 1-1 L plastic	Fuel Identification (8015M) 2-1 L amber	Glycol (8015M) 2-1 L amber	DRO (SW 8100 Mod) 1-4 oz. jar	TRPH (EPA 418.1) 1-4 oz. jar	PCB (SW 8080A) 1-4 oz. jar	TCLP - Metals (1311-6010/7000) 1-8 oz. jar	Fuel Identification (8015M) 1-8 oz. jar	Glycol (8015M) 1-4 oz. jar	PCB - Wipe	TRPH	PCB	BTEX
96 NE NA SW 106		4-Aug	14:05		X		X													
96 NE NA SD 106		4-Aug	14:05								X		X							
96 NE NA SW 107		4-Aug	14:20		X		X													
96 NE NA SD 107		4-Aug	14:20								X		X							
96 NE NA SW 108		4-Aug	14:30		X		X													
96 NE NA SD 108		4-Aug	14:30								X		X							
96 NE DB SD 109		4-Aug	15:05										X							
96 NE DB SD 110		4-Aug	15:10										X							
96 NE DB SD 111		6-Aug	15:15								X		X							
96 NE DB SD 112		6-Aug	16:30								X		X							
96 NE DB 113 SD		7-Aug	17:00								X		X							
96 NE DB SS 101		4-Aug	14:40										X							
96 NE DB SS 102		4-Aug	14:45										X							
96 NE DB SS 103		4-Aug	14:50										X							
96 NE DB SS 203		4-Aug	14:55										X							
96 NE DB SS 303		4-Aug	15:00										X							
96 NE 16 TB 101		4-Aug	21:00	X																

NORTHEAST CAPE SAMPLE PLAN CHECKLIST

				WATER								SOIL			SLUDGE			GRAB			
Sample Number	Location	Date	Time	BETX (SW 8020A) 3-40 ml vials with HCl	DRO (SW 8100 Mod) 2-1 L amber with HCl	TRPH (EPA 418.1) 2-1 L amber with H2SO4	PCB (SW 8080A) 2-1 L amber	TCLP - Metals (1311-6010/7000) 1-1 L plastic	Fuel Identification (8015M) 2-1 L amber	Glycol (8015M) 2-1 L amber	DRO (SW 8100 Mod) 1-4 oz. jar	TRPH (EPA 418.1) 1-4 oz. jar	PCB (SW 8080A) 1-4 oz. jar	TCLP - Metals (1311-6010/7000) 1-8 oz. jar	Fuel Identification (8015M) 1-8 oz. jar	Glycol (8015M) 1-4 oz. jar	PCB - Wipe	TRPH	PCB	BTEX
96 NE 16 TB 301		4-Aug	21:00	X																
96 NE 19 TB 101		6-Aug	21:00	X																
96 NE 19 TB 201		6-Aug	21:15	X																
Benthic Biosurvey, Zoo-plancton, Phyto Samples																				
96 NE DB 101 PL		5-Aug	13:30																	
96 NE DB 101 BN		5-Aug	13:30																	
96 NE DB 101 ZO		5-Aug	13:30																	
96 NE DB 102 PL		5-Aug	12:00																	
96 NE DB 102 BN		5-Aug	12:00																	
96 NE DB 102 ZO		5-Aug	12:00																	
96 NE DB 103 PL		5-Aug	10:30																	
96 NE DB 103 BN		5-Aug	10:30																	
96 NE DB 103 ZO		5-Aug	10:30																	
96 NE DB 104 PL		5-Aug	13:00																	
96 NE DB 104 BN		5-Aug	13:00																	
96 NE DB 104 ZO		5-Aug	13:00																	

Army Corps of Engineers

Northeast Cape, Alaska

Tailgate Safety Meeting

MONTGOMERY WATSON

Appendix B Tailgate Safety Meeting Form

Date: Aug 2 1996 Time: 10:00 Job Number: 2198.0420

Client: **USACE, Alaska** Site Location: **NE Cape, St. Lawrence Island**

Scope of Work: surface soil sampling, surface water sampling, cutting cable, site reconnaissance, radiological monitoring, bio sampling

Safety Topics Presented

Protective Clothing/Equipment: steel toed boots, hard hat, gloves, ear and eye protection, tyvek, mosquito netting and spray

Chemical Hazards: Hexane, BETX, gasoline

Roads hazardous — reduce speed

Physical Hazards: spilling, falling, heat stress, hypothermia, noise, ATV travel, rabid fox, polar bears

Nails, boards, Aggressive foxes

Special Equipment: Microtip 3000, dosimeter, satellite phone, CB, marine band radio, ELT, emergency supplies, LOCATED AT AIR PORT BLDG

Other: Expanded first aid kit, bear spray,

Emergency Procedures: give emergency assistance, if needed, transport to clinic, call for MediVac SEE Phone NUMBERS POSTED ON wall by SATELITE Phone

MediVac Phone: 800-478-5433 Clinic Phone: 907-985-5011 (or 5012, 5013)

Hospital Address and ~~Route~~ 29:
Use CB channel ~~19~~ 6 to contact Savoonga, Marine Band for Coast Guard, **ELT for life threatening event**

ATTENDEES

TAILGATE SAFETY MEETING

NAME PRINTED	SIGNATURE
Victor Harris	
Douglas Quist	
Elise Tuzman	Elise Tuzman

Meeting Conducted By: Bonnie McLean _____
Name Printed Signature

Projected Safety Officer: _____ Project Manager: _____

Appendix B Tailgate Safety Meeting Form

Date: 3-Aug-96 Time: 2:30 Job Number: 2198.0420

Client: **USACE, Alaska** Site Location: **NE Cape, St. Lawrence Island**

Scope of Work: surface soil sampling, surface water sampling, cutting cable, site reconnaissance, radiological monitoring, bio sampling Bio samples, basement pumping, cable cutting SITE RECON.

Safety Topics Presented in bldgs

Protective Clothing/Equipment: steel toed boots, hard hat, gloves, ear and eye protection, tyvek, mosquito netting and spray

Chemical Hazards: Hexane, BETX, gasoline

Eugene

Physical Hazards: spilling, falling, heat stress, hypothermia, noise, ATV travel, rabid fox, polar bears

↳ no EO near office

Special Equipment: Microtip 3000, dosimeter, satellite phone, CB, marine band radio, ELT, emergency supplies,

Other: Expanded first aid kit, bear spray, LOCATED IN office H&S box

Emergency Procedures: give emergency assistance, if needed, transport to clinic, call for MediVac phone, CB-Savoonga (chal) phone

MediVac Phone: 800-478-5433 Clinic Phone: 907-985-5011 (or 5012, 5013)

Hospital Address and Route:
Use CB channel 19 to contact Savoonga, Marine Band for Coast Guard, **ELT for life threatening event** new owned satellet phone system

ATV's - slow

1234 STO
- HANDSET UNLOCK

ATTENDEES

TAILGATE SAFETY MEETING

NAME PRINTED	SIGNATURE
Elise Tuzman	Elise Tuzman
Douglas S. Ault	
Victor Harris	

Meeting Conducted By: BMcLean
Name Printed

Signature

Projected Safety Officer: _____ Project Manager: _____

Appendix B Tailgate Safety Meeting Form

Date: 4 Aug 96 Time: _____ Job Number: 2198.0420

Client: **USACE, Alaska** Site Location: **NE Cape, St. Lawrence Island**

Scope of Work: surface soil sampling, surface water sampling, cutting cable, site reconnaissance, radiological monitoring, bio sampling tank sampling

Safety Topics Presented

Protective Clothing/Equipment: steel toed boots, hard hat, gloves, ear and eye protection, tyvek, mosquito netting and spray

Chemical Hazards: ~~Hexane~~, ~~BETX~~, gasoline Hcl, H, JO4

Physical Hazards: spilling, falling, heat stress, hypothermia, noise, ATV travel, rabid fox, polar bears rabbit wood.

Special Equipment: Microtip 3000, dosimeter, satellite phone, CB, marine band radio, ELT, emergency supplies,

Other: Expanded first aid kit, bear spray,

Emergency Procedures: give emergency assistance, if needed, transport to clinic, call for MediVac

MediVac Phone: 800-478-5433 Clinic Phone: 907-985-5011 (or 5012, 5013)

Hospital Address and Route:
Use CB channel 19 to contact Savoonga, Marine Band for Coast Guard, **ELT for life threatening event**

ATTENDEES

TAILGATE SAFETY MEETING

NAME PRINTED	SIGNATURE
Elise Tuzman	Elise Tuzman
Douglas S. Pfaff	Douglas S. Pfaff
Vilton Harris	Vilton Harris

Meeting Conducted By: _____ _____
Name Printed Signature

Projected Safety Officer: _____ Project Manager:_____

Army Corps of Engineers

Northeast Cape, Alaska

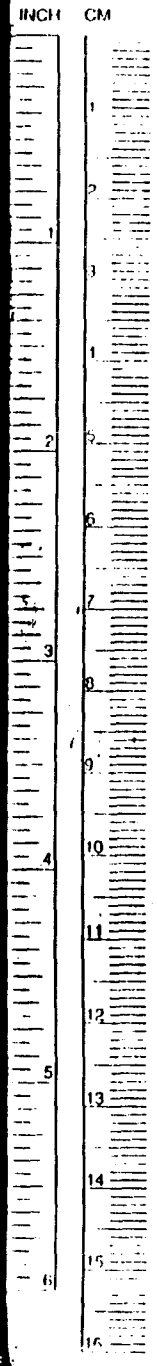
Field Note Books

MONTGOMERY WATSON

FIELD NOTEBOOK
ST. LAWRENCE ISLAND
AUGUST, 1996
VEH

"Rite in the Rain"®
ALL-WEATHER
Horizontal Line
No. 390 NF

PROJ 2198.0460
(NEC)
2198.0450
(GAM)



MEASUREMENT CONVERSIONS

IF YOU KNOW	MULTIPLY BY	TO FIND
LENGTH		
inches	2.540	centimeters
feet	30.480	centimeters
yards	0.914	meters
miles	1.609	kilometers
millimeters	0.039	inches
centimeters	0.393	inches
meters	3.280	feet
meters	1.093	yards
kilometers	0.621	miles
WEIGHT		
ounces	28.350	grams
pounds	0.453	kilograms
grams	0.035	ounces
kilograms	2.204	pounds
VOLUME		
fluid ounces	29.573	milliliters
pints	0.473	liters
quarts	0.946	liters
gallons (U.S.)	3.786	liters*
milliliters	0.033	fluid ounces
liters	1.056	quarts
liters	0.264	gallons

TEMPERATURE

°C = (°F - 32) x 5/9
°F = (°C x 1.8) + 32

Inches	Decimals of Foot	Millimeters
1/16	0052	1.5875
1/8	0104	3.1750
3/16	0156	4.7625
1/4	0208	6.3500
5/16	0260	7.9350
3/8	0313	9.5250
1/2	0417	12.700
5/8	0521	15.875
3/4	0625	19.050
7/8	0729	22.225
1"	0833	25.400
2"	1667	50.800
3"	2500	76.200
4"	3333	101.60
5"	4167	127.00
6"	5000	152.40
7"	5833	177.80
8"	6667	203.20
9"	7500	228.60
10"	8333	254.00
11"	9167	279.40
1 foot	1.0000	304.80

96 NEL (SITE) SS

"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

Name Victor Harris
Montgomery Watson
Address 4100 Spenard Road
Anchorage, Alaska 99517
Phone (907) 248-8883

Project St. Lawrence Island Phase II RI's
GAMBELL 2198.0450
NEL 2198.0460

"Rite In the Rain" - a unique all-weather writing surface created to shed water and to enhance the written image. Makes it possible to write sharp, legible field data in any kind of weather.

a product of

J. L. DARLING CORPORATION
TACOMA, WA 98421-3696 USA

CONTENTS

PAGE	REFERENCE	DATE
1	NAMES, TELEPHONE NOS	
2	EXPENSES	
152	VEG/SURVEY/RECON/RA ISSUES	
148	PHOTO LOGS	
3	7-31-96 NEC	
4	1-AUG-96	
11	2-AUG-96	
33	3-AUG-96	
45	4-AUG-96	
54	5-AUG-96 NEC	
66	6-AUG-96	
74	7-AUG-96	
79	8-AUG-96	
82	9-AUG-96 GAM	

FAX - Sitnusaq

Sitnusaq (BONANZA, NANAUQ) 443-5296

Doug, ELISE (#8) 443-2945

Vic, BONNIE (#12) 443-2998

Cape Smythe 443-2414

KENNY BURNETT

Wayne Meyer - CHIEF PILOT

Ben - WAREHOUSE

Bob Sanders 753-5617

CB channel - Savoonga = Ch 29

Wayne Meyer (Home) 443-5884

Home 345-0203

310 699 1256

NAC 4437215

Gimbel ~~985-5015~~ 5335 Kitchen

985

Boeing 5646

Cape Smythe 5836

Baker 5612

Olson 5214

869 143 1319 55

PILOT, MAP lights, sonic nose

MER CRP EXPENSES

$100 BAGGAGE
$100 Savoonga Rm
$120 Gambell Rm
$36 CAB (3 x $12)
Dinner - Pizza Joint
$30 Gambell Store

7-31 $45 Overbize 7.89 - GASOLINE
39.32 Nashs Fuel $160.39 At Store

7-31-96 Victor 11

CHRONOLOGICAL NOTES - NEC

WEDS 7-31-96
LV ANC 9:15 AM w/ McLean, Fuzmack, QUIST
ARR Nome 12:15
13:00 Pick up van
13:15 Visit w/ Wayne MEYER (Chief Pilot - Cape Smythe) NEED fire bottle for DC-3. ENROUTE from LOWER 48. EARLIEST to fly 18:00 1-AUG (THUR)
Pax charter 1,900 lbs VFR
2,400 lbs. IFR
13:45 LUNCH
14:00 Go to BANK, SORT GEAR
TAKE SEATS FROM VAN
CHECK IN NANAQ
18:00 - 19:00 BUY GROCERIES
19:00 - 22:00 STOW GEAR, EAT

NOT USED

1-A -96 (THURSDAY) NEC

HARRIS, TUZIMAN, McLEOD, QUIST
ARR Cape Smythe 8:00
-check ATV's FUEL
9:20A: Depart for NEC
IN Piper Cheyenne N218CS
pilot co by LARRY. ARR NEC
10:10. UNLOAD, stow gear,
build SHELTER. 13:30 TEST
phone

13:50 Phone checks out OK
* Cut 3-½" guy WIRES
to tele pole in front of
AIRport BLDG

19:15 Complete stream flow
measurement AND SIGN POSTING
Photos DQ1 → DQ22 taken
on 1-Aug during SF measurement
SF'd 1 (near culvert)
2 (midway stream)
3 (profile near entrance
4 (downSTREAM of all)
5,6 immed down slope of
site 27

IX

1-AUG-96 NEC

21:00 DISCUSSION W/ Eugene.
EUGENE WORKED AT NEC
64-69 AF
69-75: WHITE ALICE

3 SPILLS KNOWN

'68 1). BIG TANK 180,000 gal '68
NOT Cleaned up
1970 2) 800 gal NEAR JUNCTION
Well cleaned UP - MOSTLY
PAD - BURNED NEAR PAINT LOCKER
'73 3) 40,000 gal at EXPANSION
JOINT NEAR POWER HOUSE

AE left Sept '69
Eugene worked at white Alice

Stream used to have
Dolly Varden / steel head

Staff Sargent Vaith
punched tanks (TANK #2 HOOK CAPACITY)

NOT USED

H

1-AUG-96 NEL Disc w/Toolie

90 wt BARRELS where buried near tanks

Snow gone MID June → first mid Oct

1,000 Raindeer on ISLAND
White Alice towers were taken AWAY 1993-ddy

No spills IN VICINITY of hunt & fish CAMPS
No beaver
no MUSKRAT

- Polar Bear
- FOX
- Raindeer
- LOONS
- v. few ptarmigan
- Lemmings
- Cranes

Saw eagles once only (3 of them)

lots of ground squirrel

Wildlife in area

Only game animal is Raindeer, except:

- Eggs EATS ducks
- Arctic tern
- Emperor geese
- Snow geese
- ducks

See gull list VERY

1-Aug-96 NEL Toolie 4

eat Eggs (geese, duck)
No. MUIR Eggs
SPOTED SEAL ON COAST

180,000 gal tank SPILL - went under ROAD 2" thick - all the way out to sea dammed by ice

MK was here in 1950-53
drums left on beach
Eugene figures burned 6-700 gal fuel/day. Barge came 1 time/year + trucks

All gravel came from borrow pit, Rock crushed 2 - sizes 1) ROAD 2) AIRSTRIP

tanks at Hunting camp
water
2 - tanks near bg 3 (HOOK)
were gasoline

NEC 1-Aug-96 Con't (Discussion w/Toodie)

Underg VST's are

1) well
2) Power house (20,000)
3) ~~Treatment plant~~ fire house (gasoline) near big furnace

Typical summer 20-30 people may visit NEC come through. Mostly persons by

Dust blows from pad AND ROADS in summertime

-AF used to oil ROADS
used DRAIN oil

-dump drain oil in dump

-300 men at peak

Basement at ops bldg is just corridor between buildings,

NEC 1-Aug 96 Discussion w/ Toodie CON'T

Reindeer get caught in small low wire because they have their head down

TRAIN - stopped in '69

Antennae were top secret!

Phone was run to creek so, in emergency could get when men fishing

Bld 103 was secret ops building Bdg 98

Body was found when Eugene was at white elks food, etc found - white man

-drug OD, AF

2 - men died cleaning DC tank in 66 - civilians

Eugene's wife name Monica Marie

Michael - son

daughter Marian

C - 1-AUG-96 Discussion w/Toolie Cow!

Eugene checked the POC line every ½ hr during fueling. Fuel was metered.

East Salmon herd
black crow herds

Reindeer was tested by PRL - early 1990's
Reindeer was sent to KNIC. Herman Toolie knows (chief herder)

Eugene gets water from EAST side

PRL got water from Bridge

Only 3 USABLE BUOYS @ Native Village
2 by ROAD
1 behind ours (white)

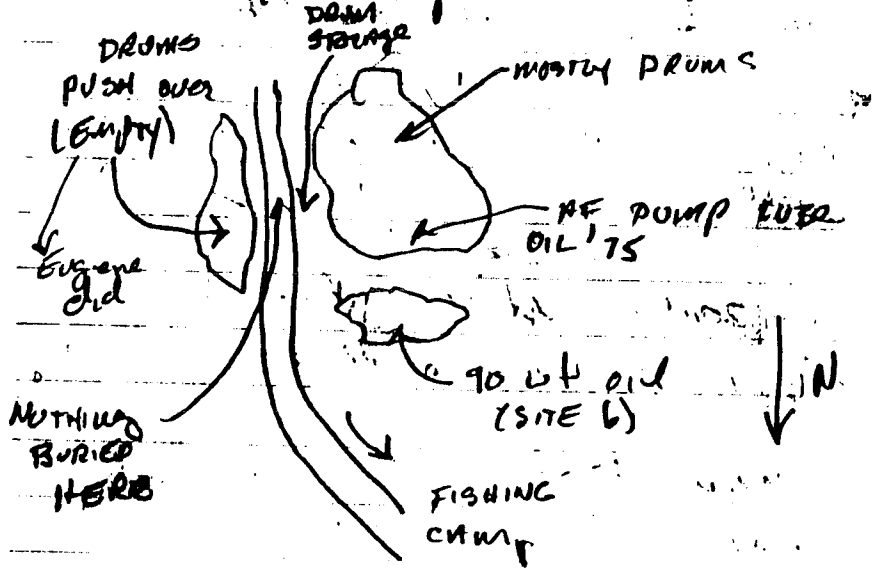
Water well # 1 is 62' deep. Other well is MK construction well

NGC 1, 2-Aug-96

Summer: WIND from S-SW
Winter WIND from NO. although can be variable
— END discussion w/Toolie

Aug 2 - 1996

Visit w/ Eugene Toolie (took)



DRAIN OIL DUMPED ON ROAD to Airport But now deflated 1-2' now

not used

12

TOUR W/ TOOLIE CON'T NEC

Aug 2-96

6" EXPANSION JO. WELDED BY EUGENE LOST BOO (EST) CLOSE UP GOOD (BURNED)

AIRPORT

AT PAINT/DOPE

CARGO BOARDW

SOME SHEAR CLIFF APPARENT. EUGENE NOTES DID NOT GET TO POINT TO SOUTH. PRETTY MUCH CLEARED UP W/ 5,000 GAL PUMP TRUCK

SE (4th)

MK had construction ROAD 150 - 200' left (SO?) of CARGO BEACH ROAD (UNUSUAL TOPOGRAPHY)

- MOUND of DIRT E.O MAIN ROAD

WHITE PLAINS

500'

MOUND

COMPLEX

LIFT EJSONS - WATER SUPPLY

N

ONE ROAD

CARGO

MOUND JUST DIRT! (NOTHING BURIED)

AIRPORT

2-AUG-96 / 165 lbs 5-6"

NEC

SEND Eugene Hodgkinson

TOUR W/ TOOLIE CON'T

11

LOCATION OF BURIED DRUMS? (90 wt + drain oil)

NOTE: THIS IS AREA where geophysics PERFORMED IN '94

AF

5 gal 90 wt BURIED + TAR

POL TANKS

NOTE UNUSUAL hill topography

DIESEL DRUM STORAGE (sold to NATIVES)

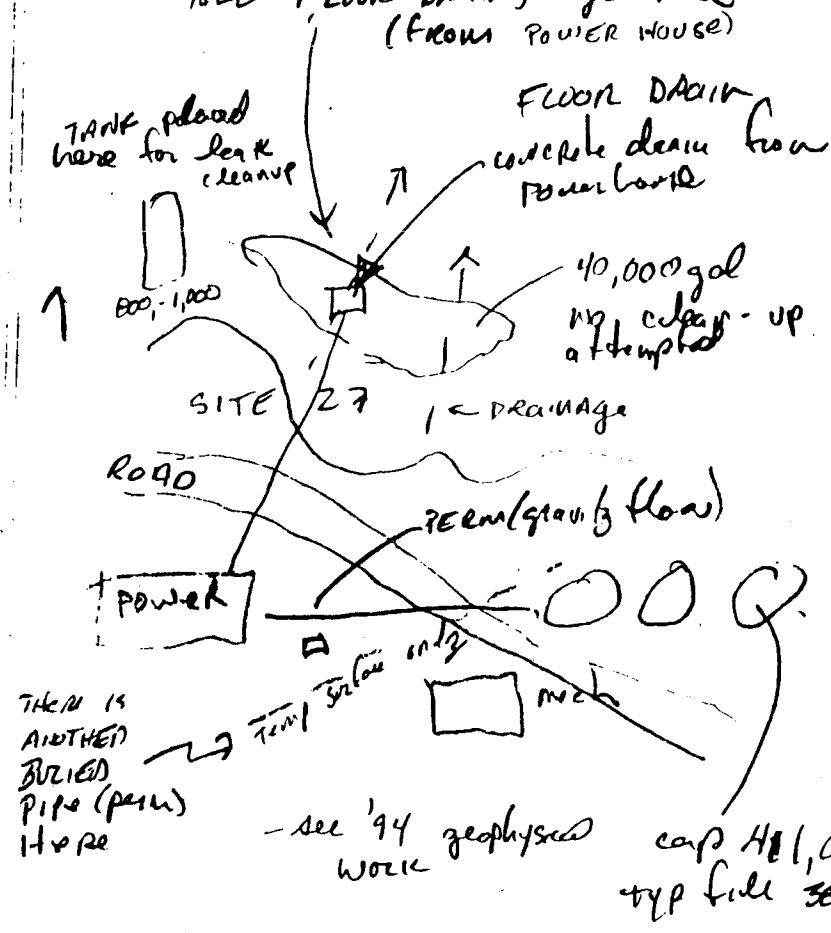
gasoline (only gasoline tanks)

NOT USED

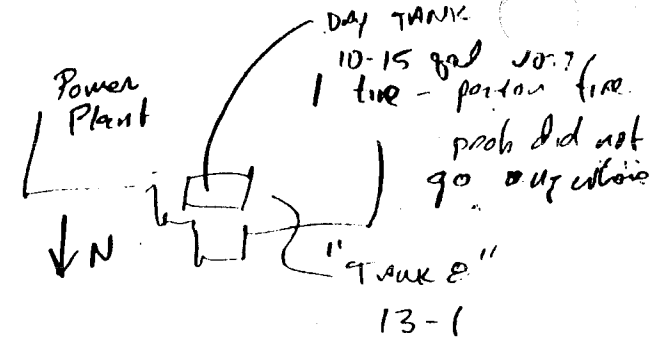
TOUR w/ Eugene con't

From under tanked ~40,000 gal diesel fuel. Winter - piled snow to dam it up. 2' down snow was soaked. If ARIC Services came from Calif. area said Eugene did pretty good job

ALL FLOOR DRAINS go here (from POWER HOUSE)



2-Aug-96 NEC TOUR w/ Lonnie con't

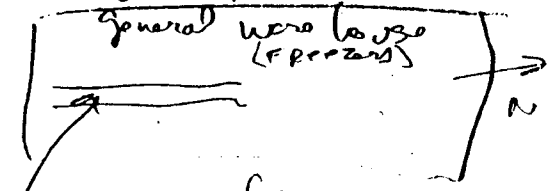


W. END OF BLDG

13-3 - 600 gal gasoline
Emergency pumping only

Pump inside room 13 1 used for fire fighting emergencies

Bldg 107



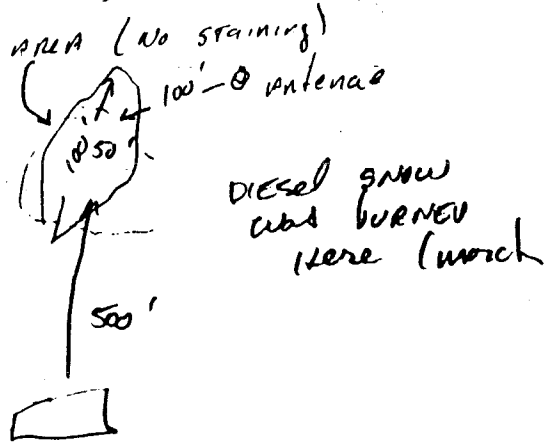
Electrical fluid storage
< gal cans

NEC 2-Aug-96 Disscussion w/ Toolie cont

Near paint & dope

TANK 16-1 was used for ROAD spreading (Chamoil) (N.D.) Paint & dope

BARE AREA (No staining)



Reindeer get caught in 1/4" 9oz WIRE near antennae

Dry year! little snow

white man found ops building - Door (bld 98)

Cabin N.O. antenna built in 1917 by Engineers Dept (Lummold)

NEC 2-Aug-96 Patty Mac

Ops building build 1959 moved because men were kept - dead man found in attic.

Culverts near paint could be used by Savoonga

3 gal cans of paint & dope

Mitch & Dean
5 barrels were not picked
3 - 5gal up by NES
2 - 10 gal
bld 101

Cellar - not very big
Plumbing supplies (bld 101)

Native school in bld 111

Tank S.O Bld 98
was diesel for power
Engines were in bldg BC05
(DIESEL)

2-AUG-96 NEL TOUR w/ Tour
CONT

Water well -
UST Tank 22-1 held gasoline
for emergency engine. Power
usually Electrical. This was the
main AF water supply

69-75 - EASTERNMOST BLDGS
keep Worm. 12 men

MK had own Sewer
in construction issues

Bld 103 - Medic

BLD 109 - fire chief/engine
Northern most BAY was mech
pit.

Heavy Equip Bld (lower slope)
(3 tanks) Had battery ROOM.
Yellow 600 (+/-) tank was
for RUNWAY dope (powdered)

NEL 2-Aug-96

ROOM ON WEST - Battery
ROOM ON North - fire

torches were for RUNWAY / diesel

Herman Joolie chief herder
- Bleed did raindeer sampling

Steel head salmon used to Red

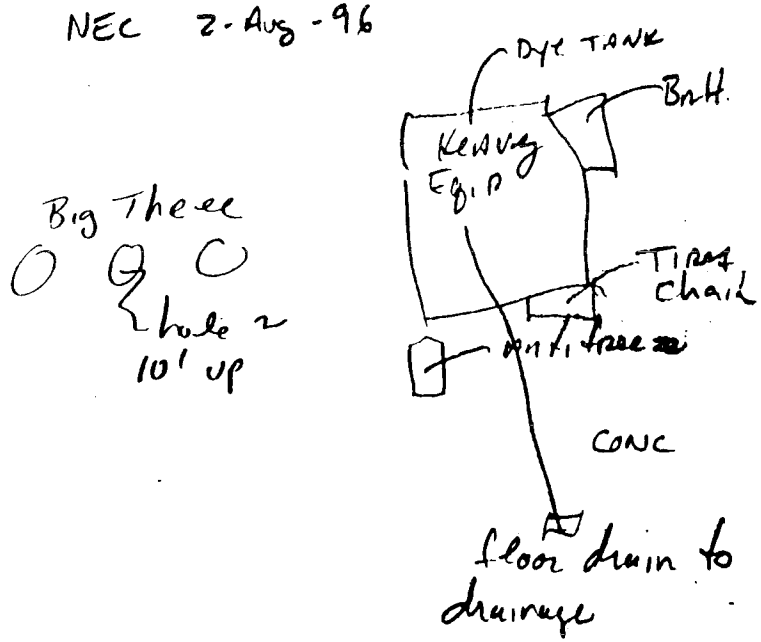
Leak in POL (TANKS → Power)
discovered IN 1973. Prob. FROST
heave.

Tanks had winkler to prevent
draining. Hole in tank 2
is 10' up. Major Jones
(Top Guy) discovered it.

Tanks SE of big 3
were gasoline - fueling vehicles

NOT USED

NEC 2-Aug-96



Big Three

hole 2
10' up

Eugene notes that they used drain oil on ROADS (primarily AIRPORT ROAD). He notes they did not use Electrical fluid on ROADS

13:15 - Recon of gravel pit

9 panoramic photos taken FROM KNOLL by power (OPS → WHITE REACE) start NO. END SE.

Note LOADING RAMP - Eugene notes that this WAS BUILT

NEC 2-Aug-96

when the LOADER BROKE.

ENTIRE hillside SHOWN IN photo APPEARS to be colluvium. Thickness difficult to Estimate, but probably 50' minimum. Knob (ridge) I am on APPEARS to be native older colluvium OR POTENTIAL KAME. Gravel and boulders (monzonitic?) are sub angular to sub rounded 1" → 3' ϕ. Typical 4" ϕ. Moss, grass, soil in interstices. Appears undisturbed

Photo # 10 - Spring noted AT BASE of colluvial slope +/- 150' SE of LOADING RAMP. Scale SHOWN IS 2' (TAPE). Spring APPEARS UNUSUAL because colluvium IS so permeable. Does this mean bedrock is shallow, which perches water? SPRING IS on ROAD from loading DOCK leading SE to loading AREA along base of hill Flow Est @ 15-20 gpm

GW is obviously shallow. And this in a "dry" year (reported by Eugene

Photo 11 N.W. from base of slope toward LOADING Ramp.

Photo 12 - Close up. Tape is 2' long. Slope consists of angular to sub angular granitic rock. Average size seems to be 3". However, boulders to 1'→3' are common (sub Rounded).

Climb up hillslope (colluvium) + 300' elevation (from LOADING DOCK) AND 500' at crow flies Rock up here is slightly coarser 6" one. Dominantly monzonitic, but has pockets of Fe-Mg rich (gabbro?) which weathers easily (relatively)

In photo 1 of 11-shot panorama,

(taken to SSW) note color change from Fe-Mg rich rock and Qtz-rich (+Kspar). Indicate plutonic contact? Entire colluvial slope is mostly the lighter Qtz-Kspar rich monzonite. Appears to be evidence of dozer work at least up to my location, and perhaps 100' above, as Eugene notes, they did not blast here, but simply loaded colluvium in trucks and crushed as necessary.

Several springs (at least 4) are noted at base of colluvial slope, and ponds at g.l. between ops Area and LOADING DOCK. GW IN NO case probably deeper than 20'. This slope IS a huge volume of fill material. See sketch overleaf.

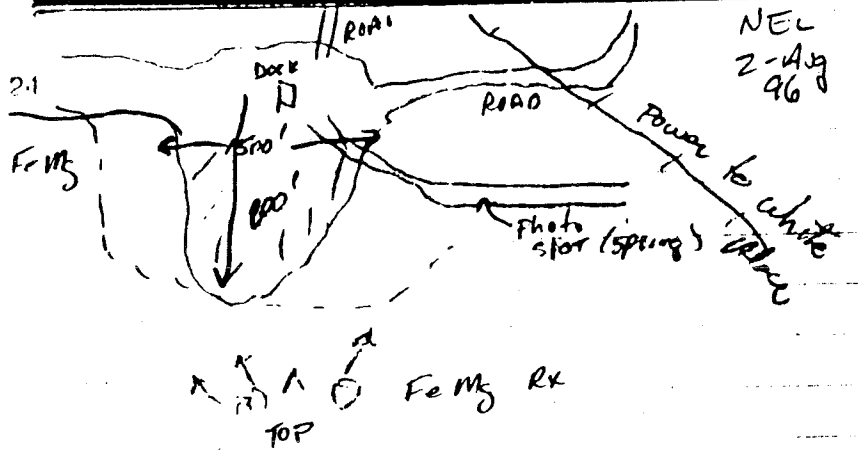
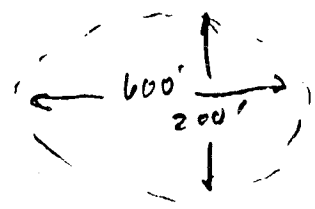


Photo 24 shows grain size at this loc. Note spring in background

Photo 25 Taken from top of loading dock south.



Minimum volume estimated at 600 x 200 x 10' deep. AND probably much more. This is obviously a good fill source, and there is no reason to search

2-Aug-96 NEC

elsewhere. Road to site is good, no ecological damage, close to site.

Downside is that fill would be permeable, on an estimated 10-20% by volume is greater than 6".

Based on my recon of ENTIRE area, a viable low K source of fill would be difficult to find. Lowland areas are organic silts and muds (saturated). Ecological damage probable. If low K is required for fill, my guess is that linear (tectonic) is best option.

Rx Samples

NEC-1 Monzonite - most common in main pit area

NEC-2 Gabbro - common at high elevation and boundary of pit

NEC-3 Aplite (Rare)

NEC-4 pseudo anorthosite (Rare)

2-Aug-96 NEC

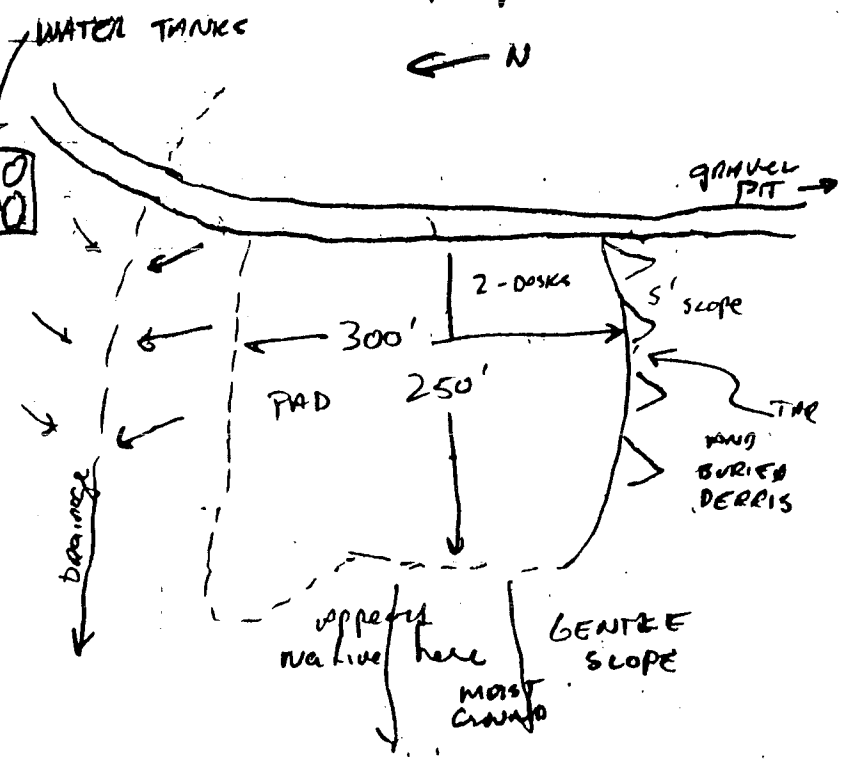
Photo 27 (Roll 1) taken at burning dock. 75' south is 50' x 70' area of uniform (relatively 3/4-1" gravel). Crusher probably was located here. This could be used for top fill.

Roll 2 - Photo 1 View of gravel pit area from '94 camp pad. Note road to main complex area is good, and volume of fill large. Ideal! No blasting needed. Just Dozer and front end loader. Don't see why crusher would be needed for NON-STRUCTURAL fill.

Roll 2 F2 - So bank of '94 camp site pad. Asphalt oozed out of bank. Partially buried wire spools, metalic debris also present. Tar is solidified. Scale in photo is 2'.

2-Aug-96 NEC

SKETCH of '94 camp pad:



Caution may be warranted on this entire pad because south side suggests buried debris under pad.

Pad consists of 1/4 → 1" gravel - well sorted.

NEC

16:00 2-Aug-96

Visit pumphouse @ SITE 22
10 x 15' shingle bldg w/ UST at SO side. UST (600 gal — gasoline per Toolie) was for emergency operation of turbine pump (Fairbanks Morse). Generally, electric motor drove pump.
2" discharge leaded north in underground ~~bldg~~ to corridor 3' x 2' to bld w/ water tanks (probably "ells" to tanks)
55 g drum of shaft oil located on NW side of bld (inside) - elevated. Casing not accessible. Contains AIR line. Reported by Toolie to be 62' deep
Top of bld. has 3' x 3' access to pull pump, but would need pump rig
Photos (2)

→ BOB 113

Visit water tank bldg. Paint cans (approx 50) are greyish black material. - weathered. ⊃
HB

2-Aug-96 NEC

pipe joint compound. All contents of 50 (+/-) cans appear same.
Inlet (from well?) is on No side of BLDG (now 70% dislodged)

Note abandoned well casing ~ 40' NE of N. centerline (door) of water storage bldg. Casing is 8' of 3/8" wall steel. Stickup 22". Has old pump column and pump shaft remaining (Photo 5). Electrical pole shown on map is 20' SE Pump house is shown on map, but does not remain (not here) Photo 5 (scale is 1 foot.) "Rock dark" indicates water between column and casing.

Structure (cellar cover) N.o pumphouse (30') is piping access. has "Ell" to tanks, valves. Pressure tank, and dist line to water tanks
HB

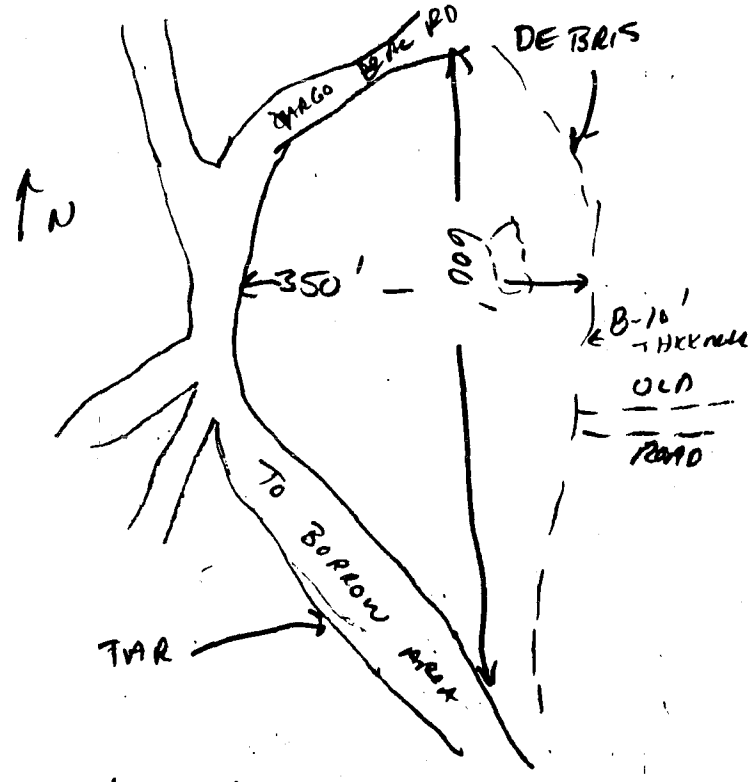
2-Aug-96 NEE

16:45 Visit construction pumphouse (MK) at construction area pad. Bldg is 10'x15', 90% intact. Contains well casing w/ 3" discharge (casing inaccessible) w/ rusted parking Turbine pump housing, but NO motor. Contains locked sink and refrigerated water fountain. WL meast not possible. Has 3'x3' access in roof to pull pump. Need pump Rig. Photo 7; Roll 2

Survey pad in which construction well is located. Estimate 8' average depth of fill. Fill consists of gravel (prob from borrow area) which does not appear crushed. Poorly sorted w/ boulders to 1' ϕ. Road running through this area has crushed rock - no greater than 3". Tar on SW fill slope. Debris at NW edge hints that this pad may have

2-AUG-96 NEE

debris or buried for Area and depth is substantial however (see map)



100' x 100' area near conc foundation has mafic rounded rks to 3" diameter. These probably came from beach

2-Aug-96 - NEC

15:45
Visit well S.O. water tanks
6" ϕ steel w/ 20" stickup
pump shaft spill in
Covered by debris (collapsed pump house)
Photo & 5' S.O. mark location

16:00 - 18:00 Recon PAR
AREA.

18:45 Piper Chegene
N1105K PAR for P/U
Pilot: Kurt

19:05 Take off (Quist, Tuzman, McLean, Harris) for OME

P.S. - at 18:30 inspected
CREEK AT ROAD CROSSING
NEAR AIRPORT. No fish observed.
Per Eugene Toalie, no
fish in creek (since spill)
except in ocean embayment.
Used to net steelhead and
DV at BRIDGE.

19:40 ARR OME - Cape Smythe

NEC 2-Aug
19:45 - Discussion w/ Wayne Mayer

8:00 DC-3 w/ 2 cargo loaders
11:00 DC-3 w/ 2 cargo loaders
Maternal 4-wheeler
fuel
Korean - down counter

3-AUG-96 NEC SATURDAY

8:15 Discussion w/ Pat at
counter at Cape Smythe
2 PAR on first DC-3
Harris, McLean
(scheduled for 8:00, but obviously
running late)

At 11:00 - 2nd load w/
"cargo handler" Tuzman,
Quist

Victor arrange charter
from NEC to OME
on Sunday 4-Aug 16:00

9:07 - load DC-3
N 19454
Pilot Jason Wells
Co Pilot Amy

NEC - 3-Aug-96

9:12 WARM UP (RUN-up)
9:19 - ROTATE
10:18 - PASS OVER NEC
10:22 TOWER DOWN
10:58 - DC-3 LV NEC

13:00 → 19:00 Bonnie, Vic mob Equip to Bldg 98
SET TRASH PUMP ON STAIR WELL. Water clear - odorless. Start pump @ 14:01 - prevent EROSION - discharge to lower pad

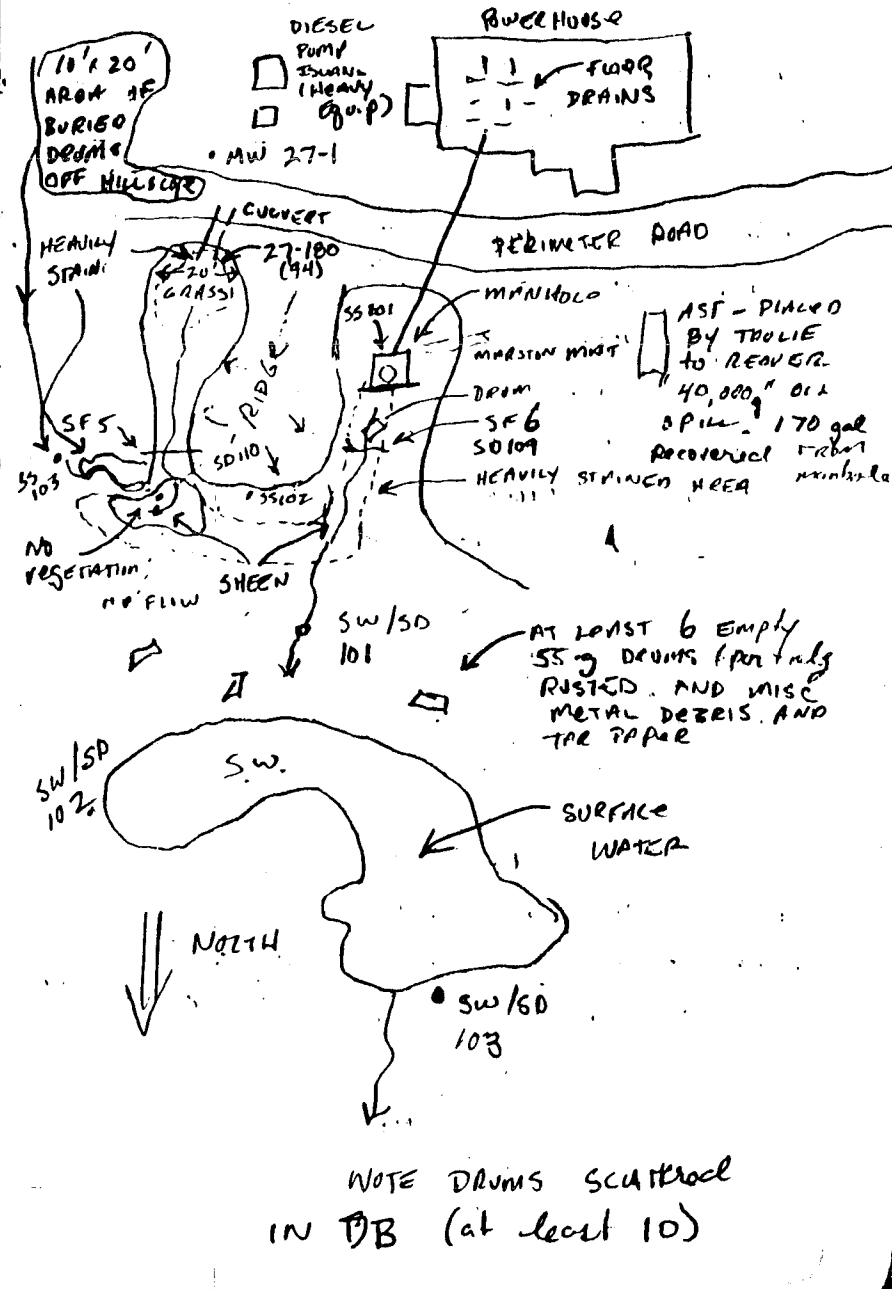
15:30 Doug & Elise WRK ~ 14:15 work on generator, phone stow gear

16:15 check trash pump @ bldg 98 Dropped 21" and out of gas. 1 tank = ~1.5 HRS. Check at 5:30

NOT USED

NEC 3-AUG 96

16:30
Elise & Vic stake locs for SW/SD IN DRAINAGE BASIN



NEC 3-AUG-96 (SATURDAY)

GENERAL OBSERVATIONS OF AREA N.O. PUMP STATION AND POWERHOUSE:

There are two (2) artificially created (at least partially) drainages N.O the perimiter road. The easternmost comes from a culvert from pump station. (Toolie notes that this was diesel station for heavy equip only - no mogas). The western most has a manhole entered in about 3'x 3' concrete slab. (Toolie reports that this was floor ~~drain~~ VA drain from powerhouse, and that after "40K" spill, the manhole was full of diesel, could be from spills in bldg).

WEST DRAINAGE: 10' wide by 40' long surface water down from MH has no sheen, but seds N.O. drum are stained brn/black and have heavy sheen, especially when disturbed. Terminus of drainage at end of ridge is heavily stained Ridge is stained black about 2' up bank - probably from ICP dam during spill as reported

NEC 3-AUG-96

by Toolie. Vegetation consisting of seasonal grass grows freely in drainage and does not seem to be affected by H.C.

EAST DRAINAGE:

40'x 20' rectangular pond at area immediately N.O. culvert under road is choked w/grass which is apparently unaffected by diesel. However staining (black) is very apparent around culvert and on rocks in pond. Water drains to smaller drainage formed in cat trail which curves to east slightly. ~~Flat~~ This area has 2-3' gravel where water flows which is heavily Fe ox stained Terminus of this drainage at end of ridge (lower elevation) goes to 30'x 20' area where the soils are stained black and no veg. grows. On embankment 40' east of terminus is stained black soil 2-5'

EMBANKMENT AND AN 10' x 20' AREA of BURIED DRUMS

In general, this area is heavily vegitated with the exception of END of EAST drainage AND BOOSE of CAT TRAIL AREA (disturbed)

Veg. does not grow in the 1 very stained area E.O. RIDGE and because H.C. is so concentrated (like tar). The lower elevations are 100% vegitated (Except where SW is). Estimate area of distressed veg to be 40 x 20'.

18:50

OBSERVATIONS AT 400K TANKS.

MARKINGS ON TANK, No 2

NOMINAL DIAMETER: 50'

NOMINAL CAPACITY: ~~9790~~ 9790 BBLS (42g)

MANUFACTURER "CHICAGO BRIDGE & TANK CO"

NOMINAL ht; 28'

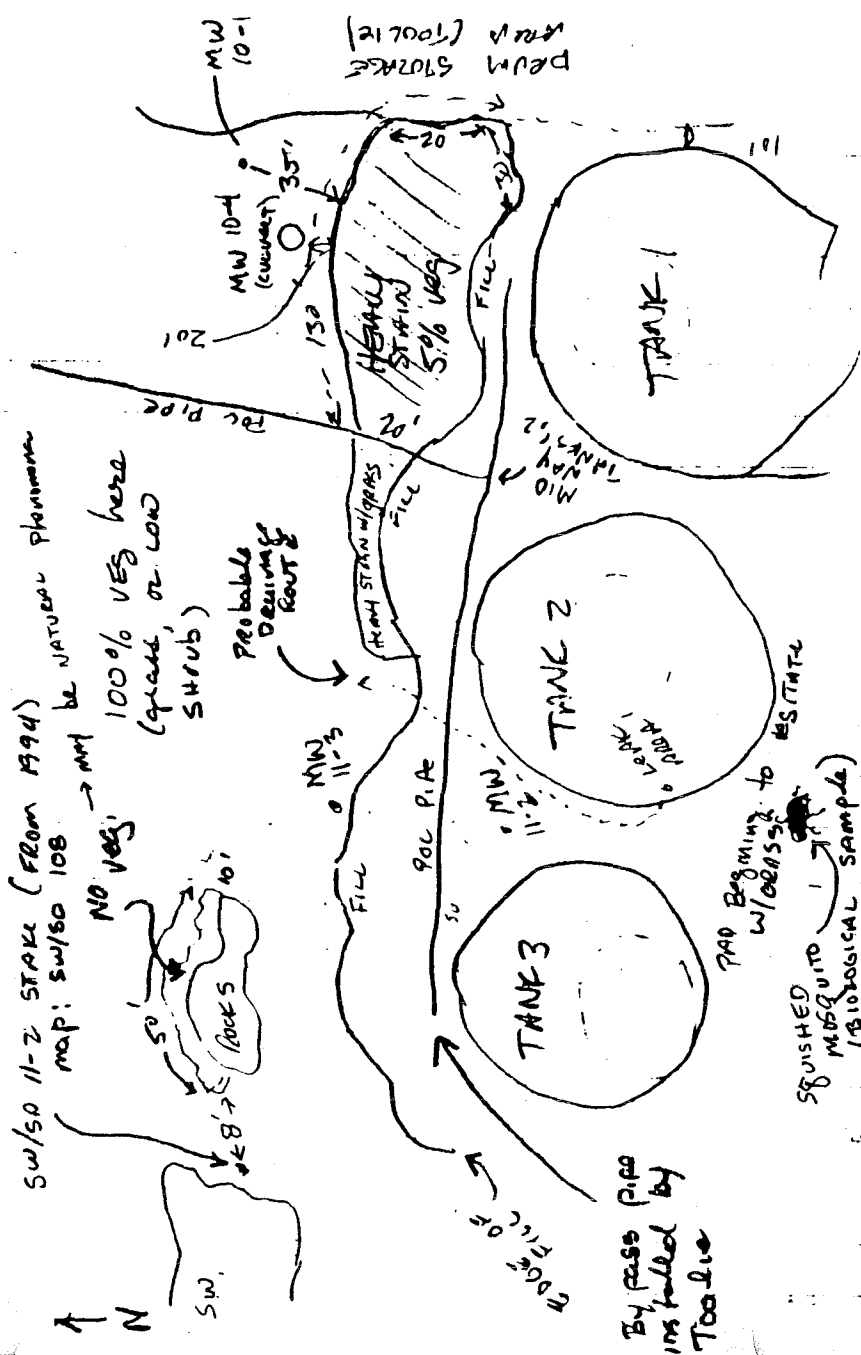
YEAR 1951

1/ "CLEANED June 1971" - yellow paint by Toolie

STAINING IS GENERALLY not apparent on ELEVATED pad in which TANKS SIT (possibly weathered away). PAD CONSITS of ANGULAR 1"-3" gravel.

No STAINING observed (H.C. STAINING) EVEN IN LOCATION OF PUNCTURE ON SW side of TANK 2 (~10') UP. DRAIN points ON NE side of all 3 tanks had Fe Ox STAINING draining NO., but SPECULATE that this is FROM cleaning out (RUST ETC. Pad pipe from cargo beach (RUNS N.O. TANKS) NO observed to have evidence of LEAK. At TANK 3, 2 (3") INCL gal pipe compression ~~coupl~~ fitting where Eugene noted fixing "temporary" pipe to powerhouse AFTER discovery of the "40K" underground pipeline leak. Pad slopes down 30-50' N.O. TANKS TO TUNDRA and WETLANDS.

NEC 3-AUG-96



NEC-3-AUG-96

Observations of BASIN NO TANKS:

LOW TUNDRA AREA (WETLANDS) N.O. TANKS IS 100% VEGETATED, WITH THE EXCEPTION OF AREA N.O. TANK 1 AND AREA N.O. ROCK FIELD (THIS may be natural phenomena). Interesting observation is that the EASTERN EDGE OF THE 5% veg (DISSTRESSED) is APPROX 3' higher elevation then the probable drainage ROUTE of the TANK 2 LEAK. Two possibilities come to mind:

1) SNOW AND ICE ALTERED DRAINAGE ROUTE OF THE TANK 2 spill

2) Source is NOT TANK 2 spill
   - DRUM storage AREA? or leakage from buried DRUMS?

No.

21:00 8-wheel ATV IN Site 2 terminal bld.
- plastic (fiberglass) boats
10' x 4'
ENGINE VIN SAYS
KOREA? KOHMER OF CANADA
SERIAL 732701243
MODEL ~~K399ZST~~ ? K399ZST
398 cc
BREC BNDC No. 109002

NEC 3-AUG-96

21:15 - Examine tractor at SO. corner of TARMAC (wide area) SE of Terminal Bldg about 500'

"OLIVER" manufacture
(says on water temp. gauge)
Engine VIN PLATE:
"The Oliver Corp
Cleveland Ohio"
Engine No. 3750222
Model 60-130
Size 3-1/2 x 4 1/2
Photos RZ F 20-23
Photos RZ 24 → 26 - 8 wheeler
21:45 - Mob to fish camp

22:30 FURTHER DISCUSSION W/ Eugene

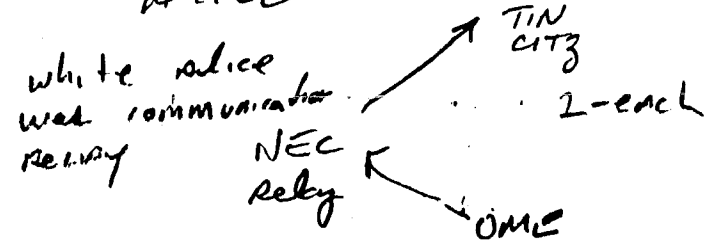
1977 - 2 yrs after shutdown White Alice, 50 GI's from Elmendorf = job was to clean up drums. They were the ones who buried the drums and 90 wt.

July 69 - Eugene buried beer, tables, etc - No chemicals in drum.
480 cases beer.

NEC 3-AUG-96

Shultz, Hand, Blue Ribbon

IT SERVICES Run White Alice



Eugene notes that 50 G.I's had many Rifles and shotguns They shot up everything (anything that moved) and also things inside bld and POL pipeline.

Regarding Tractor near Site 2: Brought in by Gem construction in 1966. It was left on runway and caused snow drifts, so Eugene pushed it off the side.

3-AUG-96 NEC

GENERAL OBSERVATIONS made today:

- MW's from '94 all in good shape, except locks corroded, AND surface conc is cracked (WETLANDS AREAS have jacked)
- SUPERSACKS are well marked AND in good shape. Estimate they will last 3-5 yrs before they weather apart.

- If PCBs present in drainage basin as suggested by '94 sampling, - they came from Powerhouse floor drain/manhole discharge, or S.k 10

- ADDITIONAL SAMPLING WARRANTED:
  - ✓ - PCBs AT FLOOR drain discharge
  - PCBs AT WW discharge
  - DRO @ POL 800-gal leak

✓. Need samples of vegetation

✓. Need good VIDEO of Drainage basin

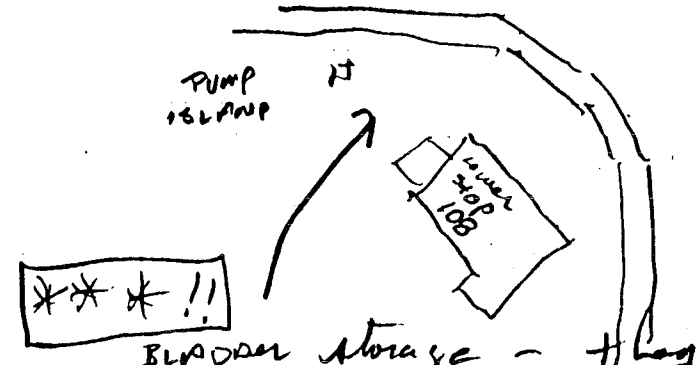
4-AUG-96 NEC

9:00 Discussion w/ Eugene

When 50 GI's came they were to be here for a week, but when found Dead mail.

Had 2 fuel bladders ~~from~~ stored (at least 5,900 gallons. 1 gasoline, 1 diesel?

Jeeps border cat



BLADDER storage - +Leaf probably drained in place

Mostly mat on airlinestrip from C-130 that CRASHED off RUNWAY

4-AUG NEC

10:15 Mob to Site from camp

Eugene told me that B-wheel at Site 2 belonged to Sawoniga man and was parked in Garage in 1979

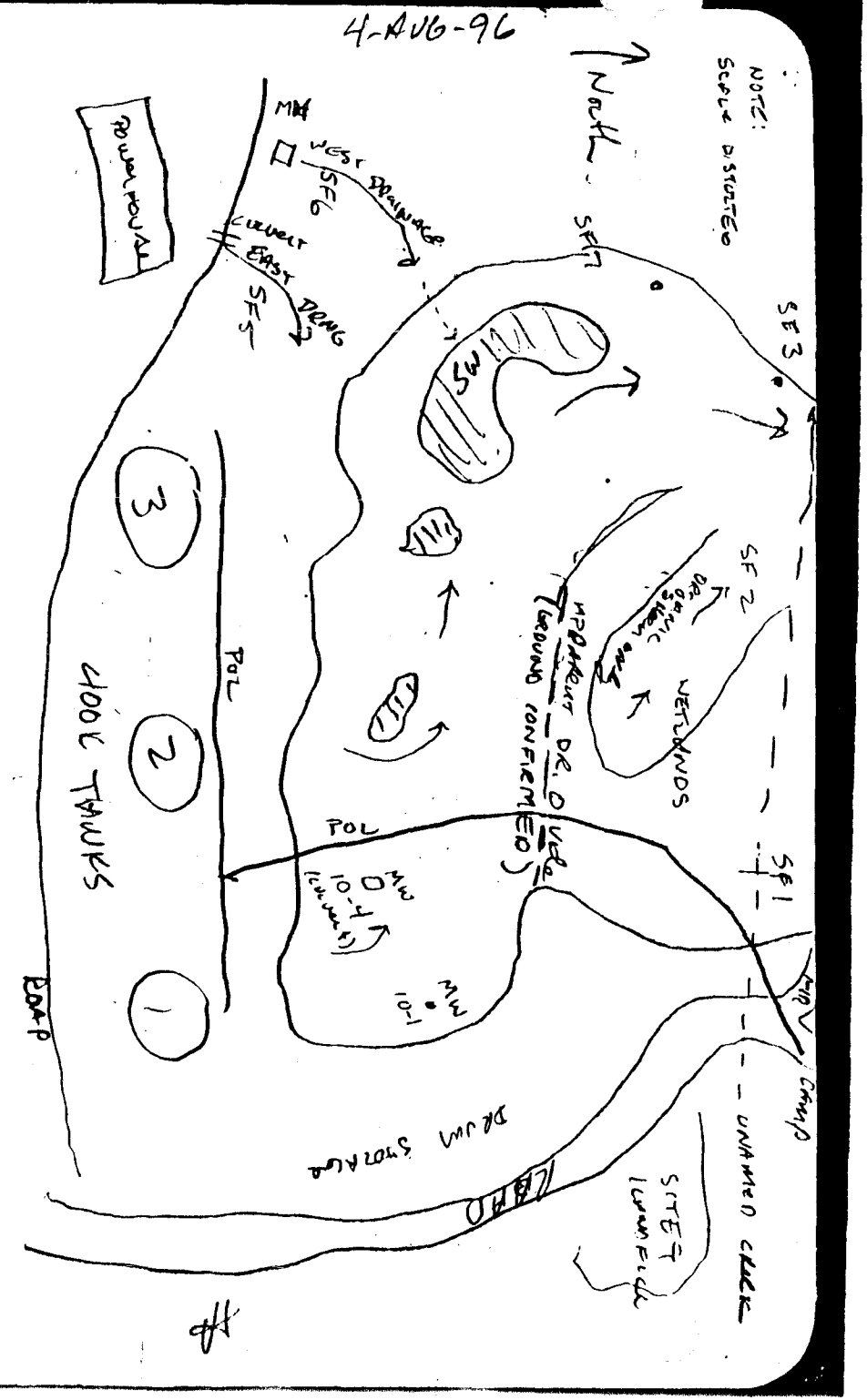
12:00 SITE SD DB109 (WEST DRAINAGE)
SD DB 110 (EAST DRAINAGE)
SS 101 DB (S.O. manhole)
SS 102 DB (END of RIDGE)
SS 103 V. DRK STAINED AREA on BANK ~40' E.O TERMINUS EAST DRAINAGE (APPROX 1.5 up BANK)

13:15 Observations FROM TOP of TANK No 2:

SEE SKETCH OVERLEAF.

THE DRAINAGE FROM THE TANKS appears to go EAST, adn and the POL line goes over a divide. YET, there is a wetlands N.O. the divide which has H.C. in the seds. FROM POL line? or tank?

4-AUG-96



4-AUG-NEC

SWING TIES:

SD toward TANK @ Powerhouse
MANHOLE ~~NO~~ to SS SD 101 = 4' (South)
MANHOLE → SF 6, ~~SW~~ SD 109 DB = 43' NO
(down drainage)
MH → DBSS 102 98' ACROSS RIDGE
MH → SF 5 79' ACCROSS RIDGE
MH → SD 110 (DB) 94' ACCROSS RIDGE
MH → SS 103 (DB) 134' " "
MH → SW/SD 101 (DB) = 142'
27-1 → SF 5 = 131'
27-1 → SD 110 = 132.5'
27-1 → SS 103 = 131'
27-1 → SW/SD 101 = 202.5

NOTE: SS 103 IS IN-LINE between MW-27-1 AND SW/SD 101 (DB)

14:15 Eugene stops by. He forgot to tell me that AF had 1 or two locations where they stored live AMMO in "caves". Gravel pit? MK well? The AMMO is still there - DIAMOND shaped

4-Aug-NEC

Note: the 5 PCB samples (2 SEDS, 3 SS) are for the purpose of finding potential source of PCBs. DRO not taken, because there is no doubt that they will come up very high. Hig. contamination is obvious based on visual/sheen/odor

SWING TIES CON'T

DB SW/SD 1 → 2 = 133'

GROUND TRUTH AREA N.O. Birds N.O TANK DRAINAGE noted EARLIER during 1-AUG SF w/ DUST. This appears to be organic sheen, NOT HC - NO ODOR - Resolves question of how they got there (p 46)

14:45 Eugene could not find loc of buried ammo (he never saw it personally during AF occupation, it was reported to him by "KIDS". He did find lots of 12-gauge SG shells near MK well - probably skeet shoot area

4-AUG-96 NEC

SWING TIES CONT' (DB).
SW/SD 101 → 103 = 221'
AT THIS LOC SW ENDS AND
~~EOT~~ channel CONSTRICTS & about
30' of grass w/ SHALLOW SW

BEGIN TRAVERSE down DB
LOCATION OF SF7 observation
IS SW/SD 103 + 130' at this loc
3 drums and ~~steel~~ metal (aluminum)
NOTED

SW/SD
DB/103 + 200' = 20' NARROW GRASSY
channel w/ ~2' STREAM bed flow
(Surface > 10 gpm?)

SW/SD 104 IS 200' + 44' from
SW/SD 103 channel (2-3')
WINDS THROUGH LOW grassy
AREA - NO ~~stall~~ VEG ~~effect~~

200' from SW/SD 104 - BROAD
GRASSY channel ~50' wide

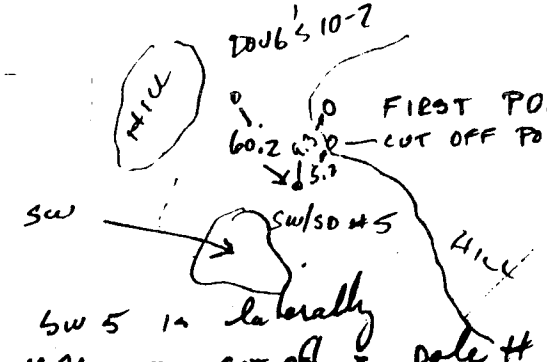
DOUG'S SW/SD 10-2 '94 stake
IS 80' FURTHER

4-AUG-96 NEC

START AT SW/SD 103 (221' from 101)
SF 7 = SW 103 + 130
(200 SPOT)
SW 104 = SW 103 + 244
(200 SPOT)
Doug's 10-2 = SW 104 + 200 + 80

FIRST POLE IS SW 104 + 200 + 80 + 38

SW 5 IS SW 104 + 200 + 80 + 47



SW 5 is laterally
ADJ TO CUT off & pole #1

MARK SD 5 + 200. Marsh (Vega?)
Noted
MARK ANOTHER 200
SD 6 IS SD 5 + 200 + 200 + 74
SECOND pole IS SD 5 + 200 + 200 + 79
Note this is loc of SF3

81 96

4-Aug-96 NEC

Mock location ~~SF~~ SD 5+600

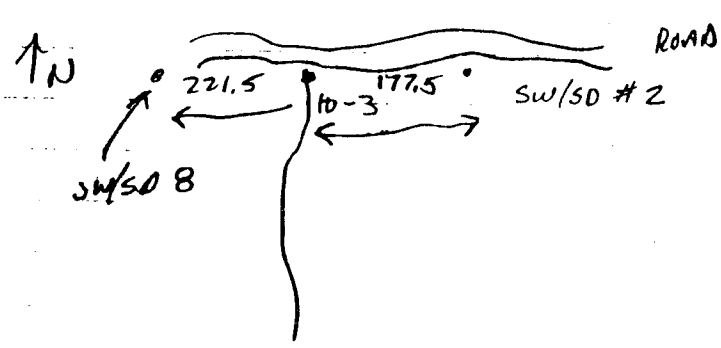
PHOTO

DOUG's SW/SD 10-3 (94) IS

DB SD 5 + 600 + 81

℄ Main creek IS SD5+600+96

Photo



16:15 MOTS TO AIRPORT

NOTE that SD 8 mag

be resampled (did not get H.C)

MOTS' GEAR FOR PARTIAL DEMOB

4 PAX + 1300 lbs GEAR

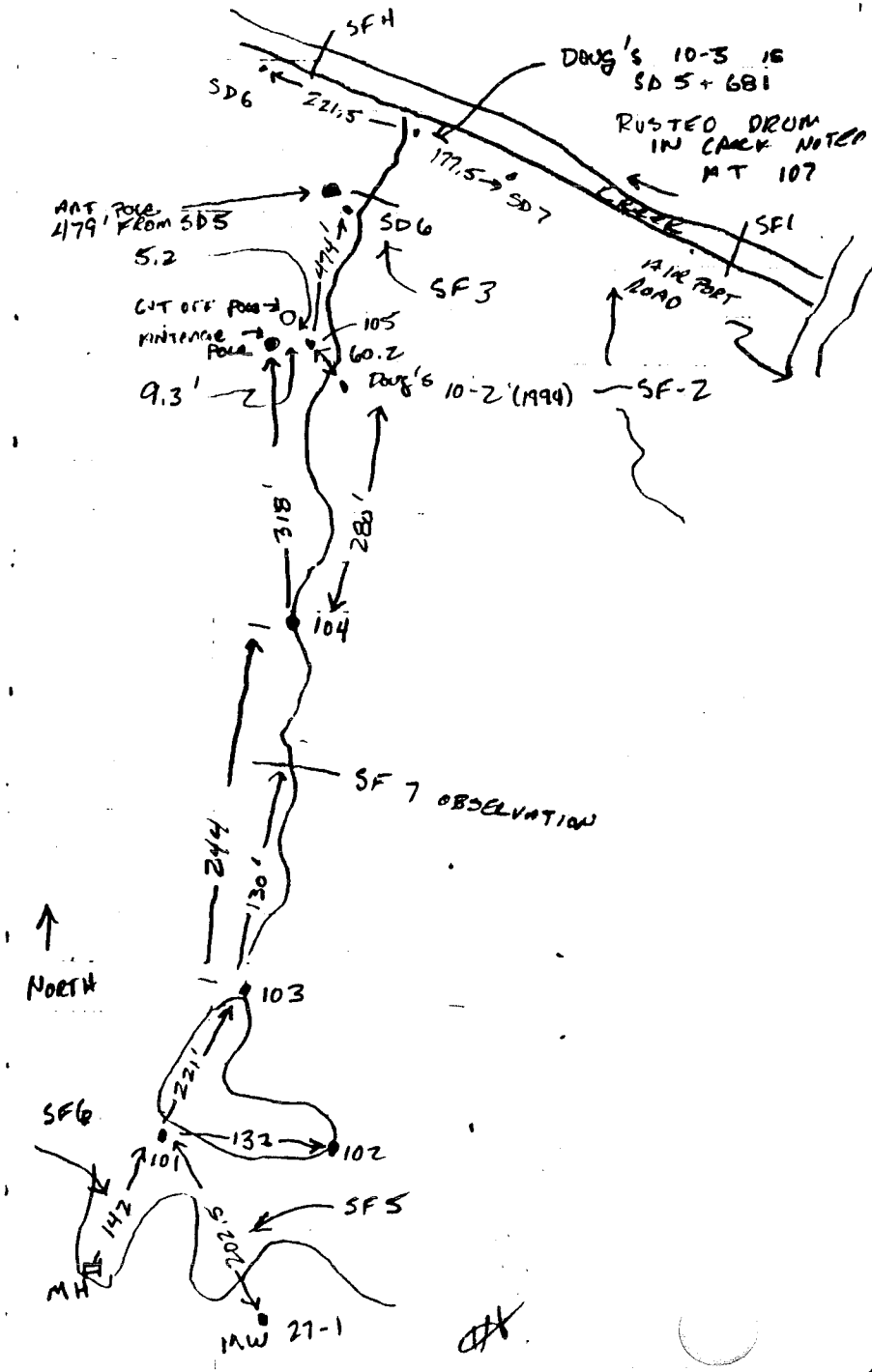
piper chegeru N218CS

pilot: Kevin

ROTATE 17:18

LAND OME 17:59.

4-AUG-96 NEC



5-AUG-96

Summary of Water Quality

	ph	EC		T	DO/angle
1	6.29	75		10	11
2	6.66	90		8	9.8
3	7.13	100		9.8	7.9
4	7.15	190	Repeat 110 Tuzman S-AM6	4	5.7
5	6.98	75		10	8.1
6	7.03	DIDN'T WORK	80	9	8.0
7	7.29	50	Tuzman S-AM6	9	7.9
8	7.17	50		9	7.3

(From Elsel's Notes)

8:30 (5-AUG) ARR Cape Smythe

Rotate 9:02

PILOT KEVIN Piper N2176S

THINGS TO DO:

- ✓ WW TREATMENT RECON
- ✓ Rainder photo (sample PCB's
- ✓ DOCUMENTATION OF TOL 800 ASBESTOS check

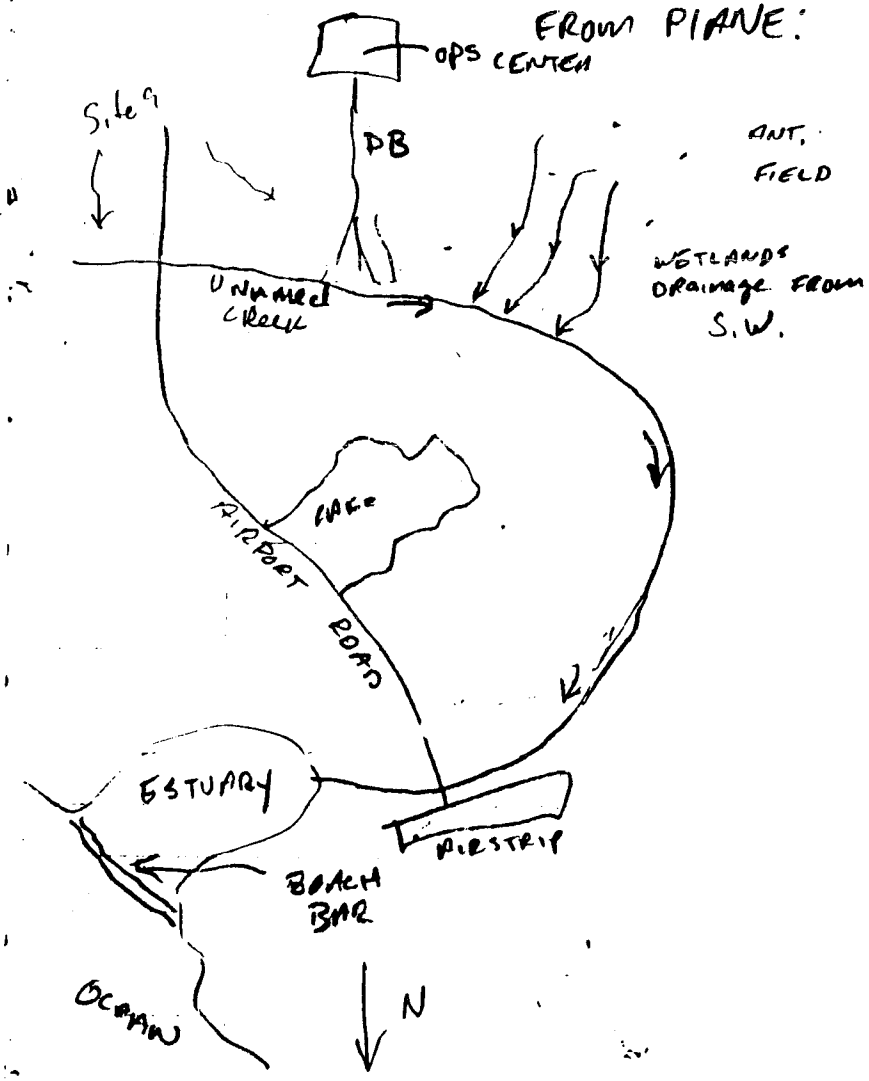
TOUCH down NEC 9:42

Tuzman, McLean, Hankers

(Quist packing)

5-AUG-96 NEC

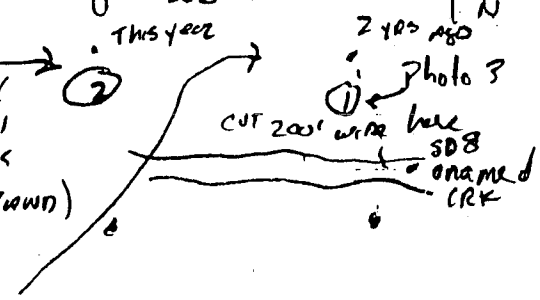
VIEW OF DRAINAGE FROM PLANE:



5-AUG-96 NEC

11:00 - Inspect 2 Raindeer sites in Antennae field w/ Eugene BOTH are HORRibly tangled

Photos 1 & 2 of LOC 2



roughly 100' of wire cut, collected at this location. (3-stranded) solid copper.

3 drums noted (blown)

SF 3

12:15 Call Bob - Discuss progress

16 MIN 47 SEC

DISCUSS: TANKS / Vessel sampling
WINDS
PCBs

5-AUG-96 NEC

Doug - 12:20
IAN supposed Thursday
Are WED None THURSDAY
FRIDAY WORK - WORK

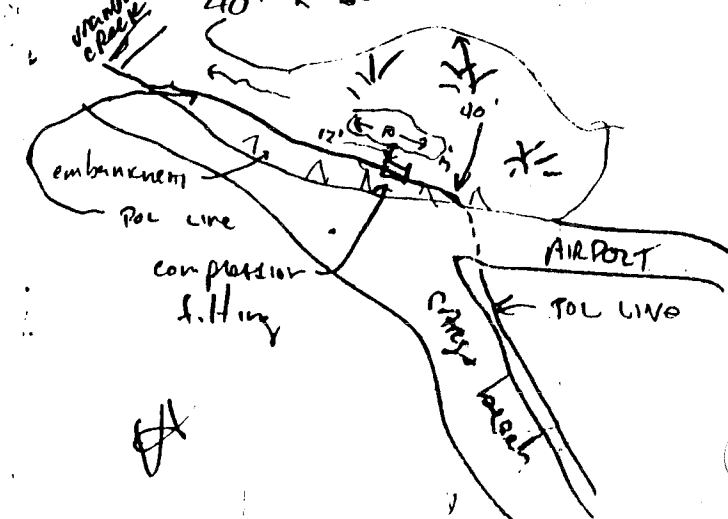
Jim Riss - Elise backup money

Work Plan - Vessels
14 - PCBs

Carine to call In S.to
PCB's VESSEL

Doug 5 min 46 sec

13:00 Visit location of 800 spill noted by Eugene



NEC 5-AUG-96

At road juncture location wetlands area about 40' wide (drains to creek) is noted w/ healthy cotton weed growth. A 10' x 3' area // to the embankment is noted where sheen and diesel odor is apparent. In SW, Eugene reports that this spill was cleaned up "pretty good" - before it reached the unnamed creek. This is substantiated by field observation today. Diesel area appears to be restricted (localized) to the 10 x 3' area on the wetland, and probably (though not observed) the 12' distance from POL → wetlands down the embankment. No reason to sample here - POL obvious. TCE's not present in fuel, and area appears localized.

13:10 - Eugene stopped by. He noted 4 more dead reindeer near mile 611 SW end of antenna field. He would be willing

NEC 5-AUG-96

to cut the wire

↳ Dissussion w/ Eugene

13:40 Start (video) SF2
NOTE that this is ≈150' S.O. unamed creek.

15:20 HEART LIVER sent to UNIV FAIRBANKS (Eugene talked to Herman Toolie) killed alone while Alice 3-4 years. Check out AK6 Debris at NK pad are remnants of barracks, offices etc. They stayed till '65-66. Then they were burned and dozed over

Drum Storage - AV GAS, Diesel, (emergency) and 90wt, TAR

Patty Mac used when operation about '58. Eugene worked '57 for Patty Mac

Blue tank at camp near big water tank at village was used to haul water to top of tram

5-Aug-96 NEL

600 gal water tank on trailer (clean tanks (400K) every 2-3 years because of RUST. Water flush-out drain hole NE side.

Tank 2 vinyl pipe broken 700 gallons never used 7' was not used & was fixed.

Wind blew small tank (gasoline)

- ALL REINDEER travel into wind
- so do POLAR BEAR
- POLAR BEAR ONLY TURN AND LOOK IN 1 direction)

NOT USED

5-AUG-96 NEL

SWING TIES AT SITE 10

LOCATION	10-1 DIST (feet)	T-1 DISTANCE (FEET)	
10 55 107	36.2	143.3	PCB (6-Aug, DNO, TRIP
108	34.3	127	DNO, TRIP
102	67.7	159.8	
103	80	181	
104	98.2	203.6	
101	79'	142	

BARREL reference → T-1 137.8
T-1 → GRID REF 1 133'

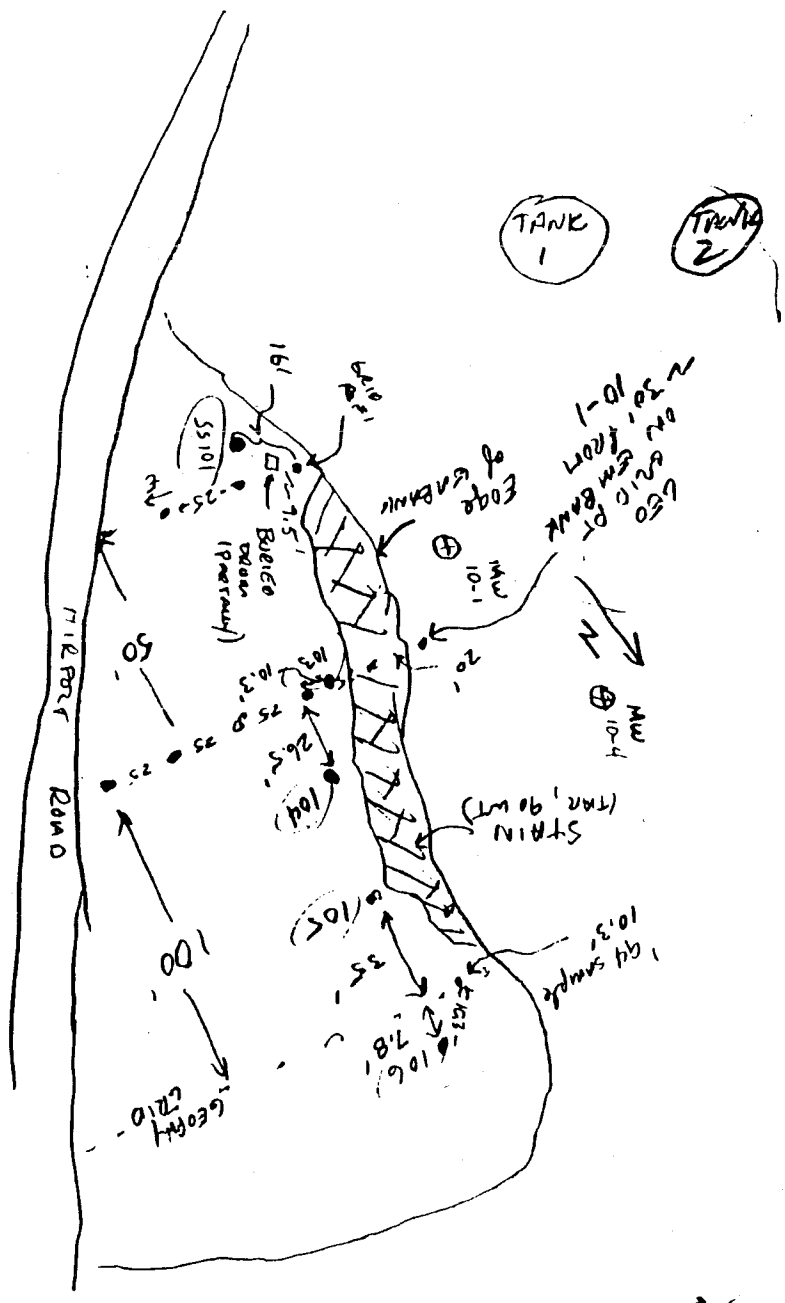
LOCATION	10-1 DIST (ft)	10-4 DIST (ft)
104	98.2	124.7
105	118'	131.3
106	148'	144.8

depth to water 10-1
54 1/8" BTOC PVC PVC STICK UP 1.8'
PAD BROKEN 10-3
DTW 3.85 BTOC PVC PVC STICKUP 2.3'

NOT USED

5-AUG-96 NEC

SKETCH OF SAMPLING - Site 10

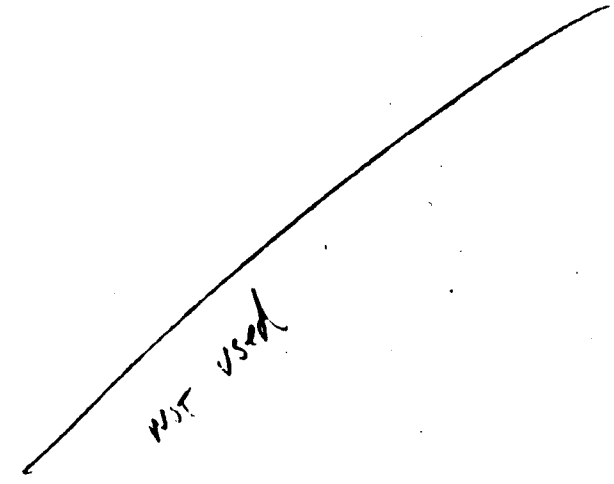


Further swing ties Site 10 5-AUG-96 NEC

101 → BANK	39.3	
101 → 102	42.6	
101 → 103	68.5	"BANK" = area where relatively flat pad slopes down to D.B.
101 → 104	99'	
101 → 105	132.5	
101 → 106	178.5	
102 → BANK	17.8	
103 → BANK	34.7	
104 → BANK	42.5	
105 → BANK	34.5	
106 → BANK	18.6	

DIRECTION OF PIT

LS-8535 1994 Louisbury → 106 35.7'



NOT USED

5-AUG-96 NEC

18:30 TAKE OFF FROM NEC for OME
Piper N110JK w/ pilot Nait
and 3 SOBs (Harris, McLean, Tuzman)
Touch down 19:11

✓ Met to
✓ - STREAM FLOW:
✓ - RADiological survey
6-AUG ✓ - Sampling at Site 27 - PCB's
- complete BORROW/fill pad
6-AUG ✓ - Samples downstream
in CREEK
6-AUG ✓ - ASK Eugene about trailers
- fill out Site forms
6-AUG ✓ - PIT SAMPLING
6-AUG ✓ - VOLUME of BASEMENTS

6-AUG-96 NEC

7:30 - PACK TB IN COOLERS
for shipment Ship yesterday's
samples, COC's.
8:00 - 9:00 ARRANGE FOR sample
SHIPMENT & coolers

9:21 Rotate Piper Cheyenne
N217CS Pilot: Lowry + 4
OME → NEC
HARRIS, TUZMAN, McLean
Touch down NEC 10:58

6-AUG-96 NEC

Discussion w/ Eugene
Two vechicles
1- Electrical truck
2- old pickup
Owned by Contractor "Pa"
Patty Mac > sold to native
1959 - sitting there since then

Cats used to be ?
used for anchor for barge
for awhile. left 1962
Both D-8 cats

Backhoe on runway - Gen
Co. - TAN tanks

AF left wreckage way off
NW of runway

Marston mat - put there
by AF to repair C-130
that ran off. Throws of
the rose over in dump
near POL tanks
Radios in airport bld
used to contact aircraft

6-AUG-96 NEC

15 mi only Eugene used
to let helium ballons
go Entire area in front
of garage used to be flat
- now deflated

5 Runners seen yesterday
3-4 doe / fawn

10:45 - Elise, Doug mob to Garage
to sample pit

12:30 Have staked samples at
site 27
Walk over to see 16-1 sludge
sampling (photo)

- INSPECT BURN area noted by
Toolie ~ 325' N.O. TANK 16-1
Area here is disturbed
by dozer work. Marstons mat
Electrical junction box, POLES (wood)
and metalic debris. Vegetation
is "typical" disturbed fill - pad
type. 20-50% regrowth with
grass. Soils do not smell.

6-Aug-96 NEC

although some dieback/defoliation is noted (natural phenomena?) Large (1" ϕ) insulated (5 strands) running through an area flooded here

SWING TIES - SITE 27

MW 27-1 to:

LOC	FT
105	61' (across road)
104	64.5
102	88.0
101	81.6
103	47.5
109	74.8
106	42.8
107	77.6
108	103.9

MW 13-1 to

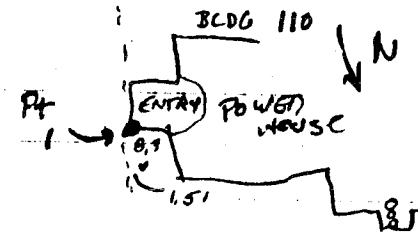
108	29.5
107	46.3
106	77.5
109	66.4
101	133.1

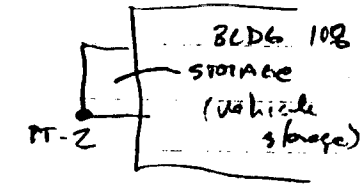
6-AUG- NEC

103	131.1
104	160.3
102	167.5
105	177.3

Pt 1 to:

109	8.3'
106	61.4'
107	64.2'
108	77.8'





Pt 2 to:

101	12'
103	45'
105	100.1'
104	52.9
102	33.1

NOTE ROAD (current) IS 65' to 85' ALONG THIS TRAVERSE

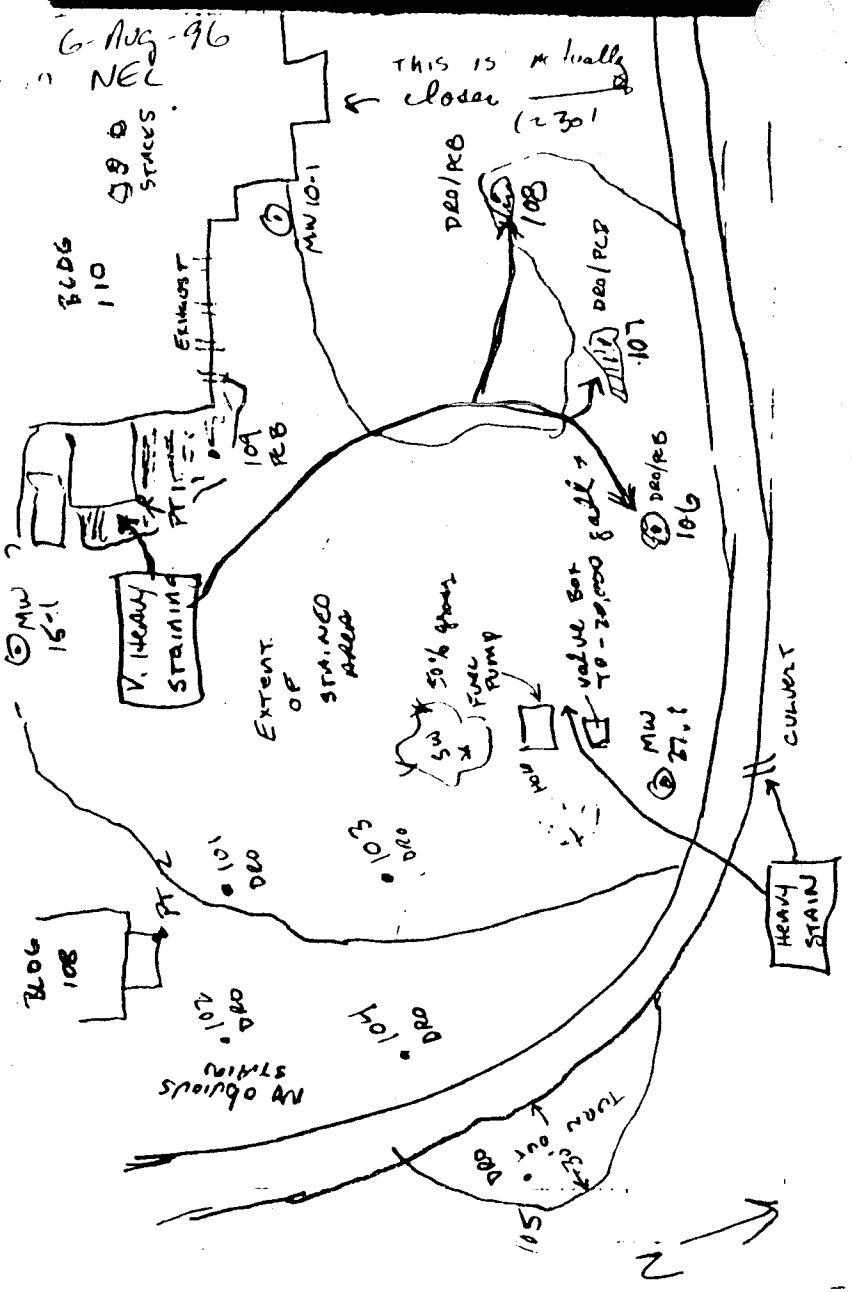
NOTE 102 IS IN LINE w/face of GARAGE BAY 19-1 THAT 19.7 feet OFF 115' from

51lb can of grease noted at 20,000 gallon UST

Rationale for sampling
- entire area noted on p 70
p 70 is STAINED to some degree
- obviously contaminated

(cont p 71)

6-AUG-96
NEL



6-AUG-96
NEL

71

SAMPLES 101 → 105 placed to find the EASTERN EXTENT of IT. Rationale for PCB's is to confirm absence or presence of PCB's from power house as source for DB (106 → 109). I used THE Remaining DRO (only took 8) PWN replaced it w/ PCB Analysis. DRO contamination is well documented by '94 work, and visual observation of staining. PCBs are larger issue.

MW 15-1 measured @ 11.7 BTOC (TOC) STICKUP 3.2 (steel) PVC 3.0'
NO product noted, but obvious odor in water. No sheening apparent

Gravel pad in this vicinity (Site 10, 27) is M-C sand, gravel to 6" boulders to 1' diameter. Revegetation Super sacks present and in good order @ 13-3, 15-1 and 27-1

NEC 6-Aug-96

27-1 DTW Meas

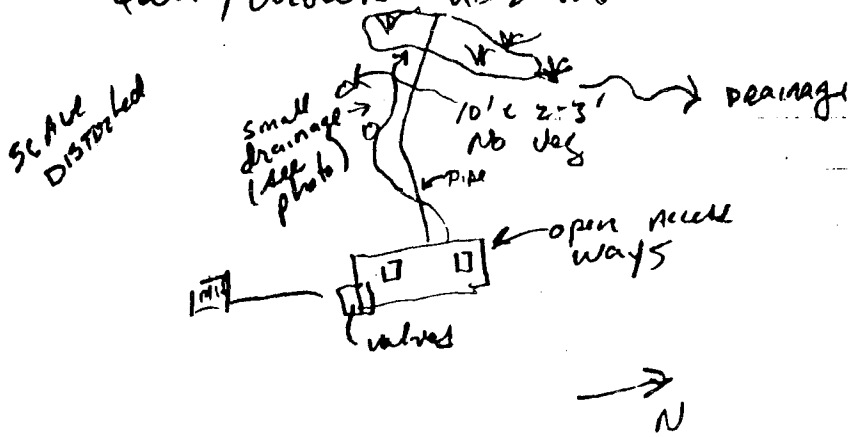
11:10 -

5.15 PVC 5.3 steel

NO ODOR OR PRODUCT
NO SHEEN APPARENT

16:45 Finish recon of plumbing cellar AT BLD 101. (Bonnie has notes)

17:00 Recon WW treatment area (Site 21). Septic tank and AOS manhole present. obvious HAZARDS. 2 open holes in TANK (cover) about 3 x 3.5 one open tank has water ~4' from top. Serious fall/drown hazard



6-AUG-96 NEC

IN general drainage to west to the terminus of the pipe, then appears to TURN north

Unclear on EVENTUAL discharge area, but based on aerial view (p55) THIS AREA drains to the unnamed creek to the north. Low wet lands area here healthy-appearing grass. slightly higher micro topography has RocKS covered w/ crowberry and low shrubs

17:30 VIC AND BONNIE cut WIRE at ops AREA near with TANKS → white Alice. Collect wire on AIRPORT ROAD

Rotate NEC 19:21 KEVIN
- SIGHT SEE. N217CS
- take VIDEO

TOUCH down ONE 20:03
4 SOB's - HARRIS, TUZMAN, QUIST McLEAN.

Shop for Eugene

NOT used

7 Aug-96 NEL

TAKE OFF OME - GAM
Pilot: Note Piper N2186S
SOB's: Tuzman, Harris, McLean
ROTATE: 8:57

Touch down GAM 10 02 - off load
Eliso, cargo

Rotate GAM 10:15

To DO today
✓. FINISH pad recon
~~• stream flow at airport~~
~~• Finish Borrow recon (video)~~
✓. Risk field form completion
✓. photo of antenna
✓. Bonnie to inspect ALM
~~• map stains @ Site 10~~

ARR NEL 10:48
Weather bad 30-40 mph
wind and Rain

7-Aug-96 NEL

Phone discussion w/ Doug

1 JAR w/ H_2SO_4
TNK 4-2
pit 19
TNK 101-1 DUP, Sl. L
16-1
13-2 NOT PRESERVED

Phone discussion w/ Bob Sanders
1965 9 families village
40-60 persons

1968 Local Village
Cafe' - by beach Power gone now (bkg)

1965 Rec camp. Bunk
boat / vehicle
military buried

Ask Eugene?
N.E. about 10' miles
built a building
gave them to Guy
Soroonga 14, 20'
that when - gasoline
Weasel was lost

Eugene Toolie's ancestors

7-AUG-96 NEC

13:N VEH & Bonnie MOB to SF STATION 8 near airport at end of APRON ~800' 500'? w.o bridge. Measurements.

START N. SIDE – bank undercut .6'

Station (FT)	GROUND (FT)	Water (FT)
0	0.35'	0
1	.88	0
2	1.19	0
2.5	1.40	0
2.9	2.10	BANK EDGE
3.0	4.04	BY MG 1.99
3.5	4.42	2.34
4.0	4.38	2.22
5.0	4.14	1.96
5.5	4.02	1.86
6.0	4.10	1.96
6.5	4.16	1.97
7.0	4.18	1.95
7.5	4.12	1.85
8.0	4.09	1.80
8.5	3.96	1.68
8.8	3.88	Bank edge 1.58
	undercut .5'	0
9.0	1.53	0
9.5	1.34	0
10.0	1.25	0

BC BY

7-AUG-96 NEC

17

8-7 NEC Stream Flow #8

Bottom material

Sand Moss 1-2.5' Boulders

Note: At this loc., sheen noted when organic bank is disturbed, but not sandy bottom

10.5	0.98	↑
11.0	0.88	↑
12.0	0.84	↑

Orange & bottle used as floats

Run	Flow over 30' (sec)	
#1.	38.15	O
2.	34.19	O
3	27.01	B
4	39.57	D
5	36.21	B
6.	28.97	O
7.	27.81	B

14:00 → 17:30 Vic and Bonnie recon antennae area / Reindeer and lower DB. Sample at loc SF 8 for DRO/PRB (96 NEC DB SD 113), (17:00)

7-Aug-96 NEC

17:30 → 19:00 Pack gear, dismantle telephone, stow gear for DC-3 flight in morning.

19:15 Rotate for ONE.
Pilot: Kevin Piper N2176S
+ 2 SOBs (Harris, McLean)
ARR ONE 19:50

NOTE: On 7-Aug Bonnie spoke with Eugene when she debriefed equipment at Eugene's house. She asked "if there was limited money for cleanup - what would you spend it on?
Eugene replied:
1) DRUMS (STREWN ABOUT)
2) Wires

- Bldg are lesser priority

20:30 - Dinner

8-Aug-96 (Thursday)

8:00 Rec Cape Shuttle to CARGO HANDLE final DC-3 cleanup from NEC (McLean, Harris) - Quist took 7:30 flt TO Cairns 7-Aug. Informed could not fly on DC-3. Left instructions (Jason, Mary)

8:30 Mob to NAC to pack gear for demob. Fill Rental van w/ mocks. Stop for food for Gumball

10:00 Rel to apt.

10:30 Go to Sitnysag office to pick up car and INSPECT VAN DAMAGE
Julie - review damage
Julie took 2 polaroids
VERY takes 3 (1) addition to those taken by pole
2" dent below rear RIGHT window 1/4 x 1" paint scrape
1/8" dent (slight bend) in roof rear gutter

8-AUG-96
NEC/GAM

11:30 - Discussion w/ Bob Sandel
Bill Sherrow - special asst
to Don Young - letter about
NEC.
- discrepancy noticed
- wireless (MW hire?)

Ninja Turtle -
Plastic toy
Flat Face - Drawer slide
Snake skins
for other

12:00 Mob to Cape Smythe to
pick up DC-3 load. Move to
NAL Meet Ivan.
3:30 - Informed Gambell flt
Held per weather. Demob
Cape Smythe for dinner

15:30 Standby for GAM (Harris, Bishop)
weather

18:25 Takeoff one for
Gambell. Stop in SAV

8-AUG-96 GAM

first due to weather
Piper N 11 ODIC
Pilot Nate w/ 4 SOB's
- Bishop, Honeis, Ivan, Girl
Mississippi

Takeoff SVA 7:40
LAND Gambell 8:05

Not used

CAM 9-Aug-96

9-Aug-96

8:45 Mob to Site 5 for geophysical work w/ Ian

9:45 meet Winnie at Site

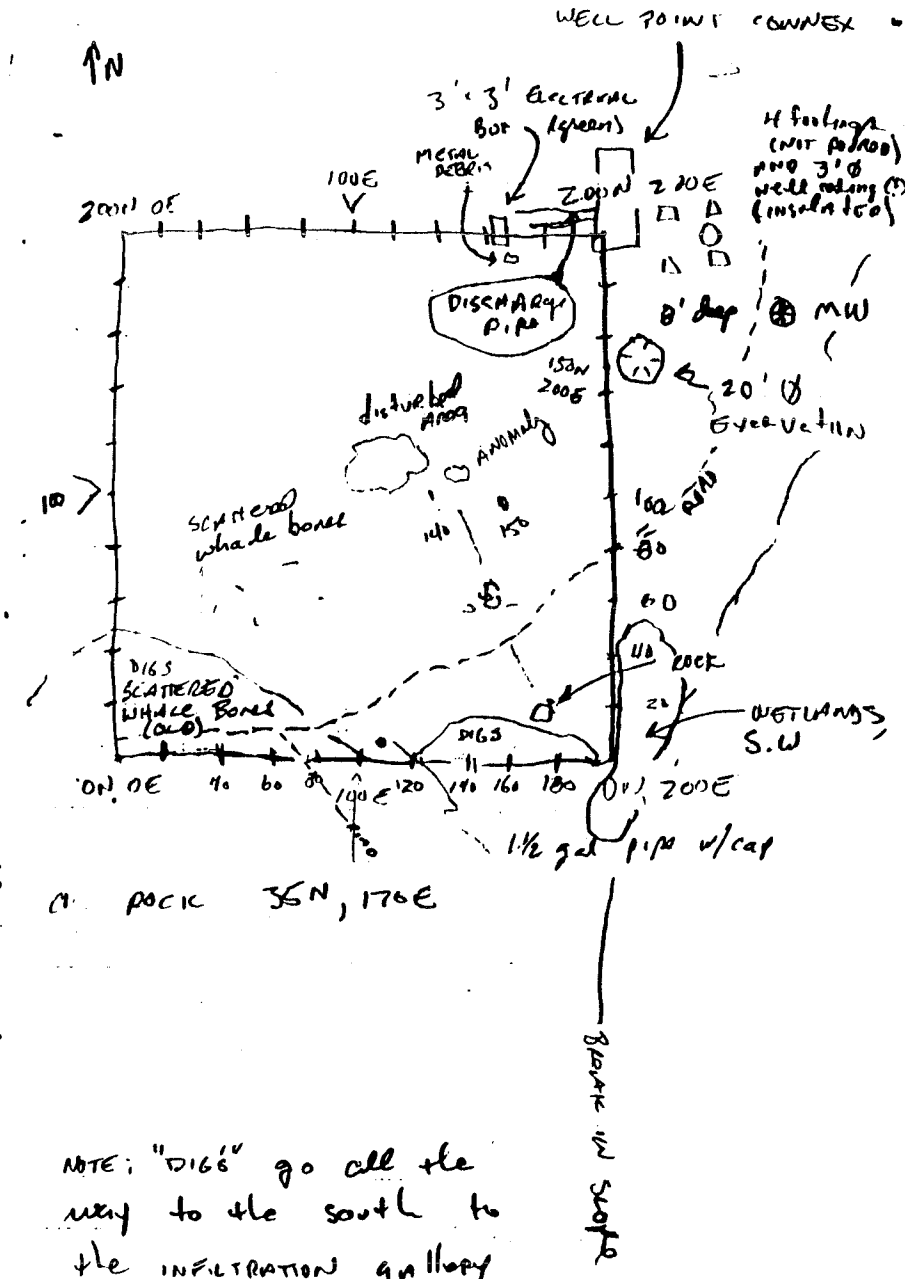
VSW on SITE NOW at FAA Housing

TRANSformers were found in to "RIGHT" OF DOCK if facing mountain. Road was done when transformers buried, they buried off the ramp. Winnie says our grid encompasses the transformer area

10:30 Winnie points out area to Elise where live ANFO bores were buried, IAN does REIN SCAN w/ EM 31 and finds only MINOR ANOMOLIES, Generally smooth area south of Site 2 1994 grid (INFORMAL survey)

Winnie reports that 2 – 2 1/2 copper cable ran from ROCK to power house. Ian thinks he got them ft

CAM 9-AUG-96 SKETCH OF GEOPHYSICAL GRID



@ ROCK 35N, 170E

9-AUG-96 GAM

Soils in the vicinity of Site 5 consist of rounded to subrounded gravels 1/8-1" ϕ. Typical grain size 1/4' oblate spheroid, V. little fines. Obviously very permeable

14:40 Take sample of white powder ~ 80' E, 0 culvert at lake, ~~NE~~ ~20' from shore. Powder is eroding from lake berm too be located by lg black cable, copper cable, ~~directly~~ 5.0 gpm water tank area 3' x 1' (Elise photos)

Leave 8' x 12' 1/4" steel plate marked "LARGE ANAMOLY 9-AUG-96"

EM-61 - Time domain. Can estimate depth of single target, depth less than loop (1m)
- SHORT BURSTS - shut off

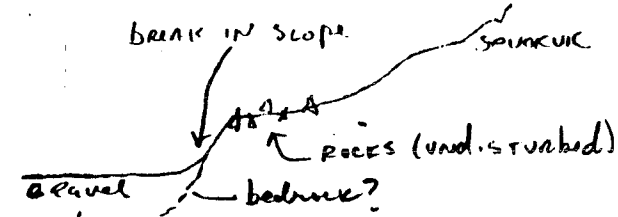
EM-31 Frequency domain - continuous

Radio ~~Tx~~ Signal

9-AUG-96 GAM

Paced due EAST from grid to break in slope

0N	15'
25N	30'
50N	32'
75N	38'
100N	60'
125N	85' .. RAW progression
150W (hole)	
200N	160' (ROAD ~ 25' from slope



PER Jenna -

VSW - Hobie Shield
985-5121 -
working on landing AND water for NEW House

18:25 LV GAMBELL
Piper Cheyenne N218CS
Pilot: Nate + 4 SOBs
DOG, KID, Native guy, 2 school teachers
PRIVATE 18:25

18:32 Stopover in Savoonga
3 PAX (native ethyl)

9-AUG - BAM

19:29 touch down at Cape Smythe - "Mike" faxed baggage to AK AIR CARGO

20:25 LV OME AK AIR FLT 153 for ANC

END FIELD NOTES

20:30 9-AUG-96

Victor E K

not used

H

DURA-Rite
WATERPROOF

HORIZONTAL LINE

NOTEBOOK NO. 691

NEC Phase II
Aug 1996

Bonnie McLean

a product of
J. L. Darling Corporation
2212 Port of Tacoma Road
Tacoma, WA 98421 USA
(206) 383-1714

Sawgrass
CB 29

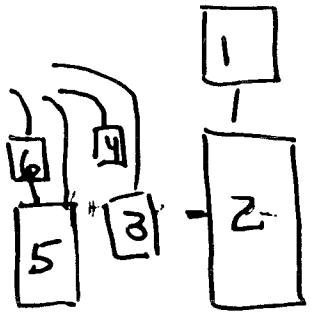
Carpa Smythe
443
2414

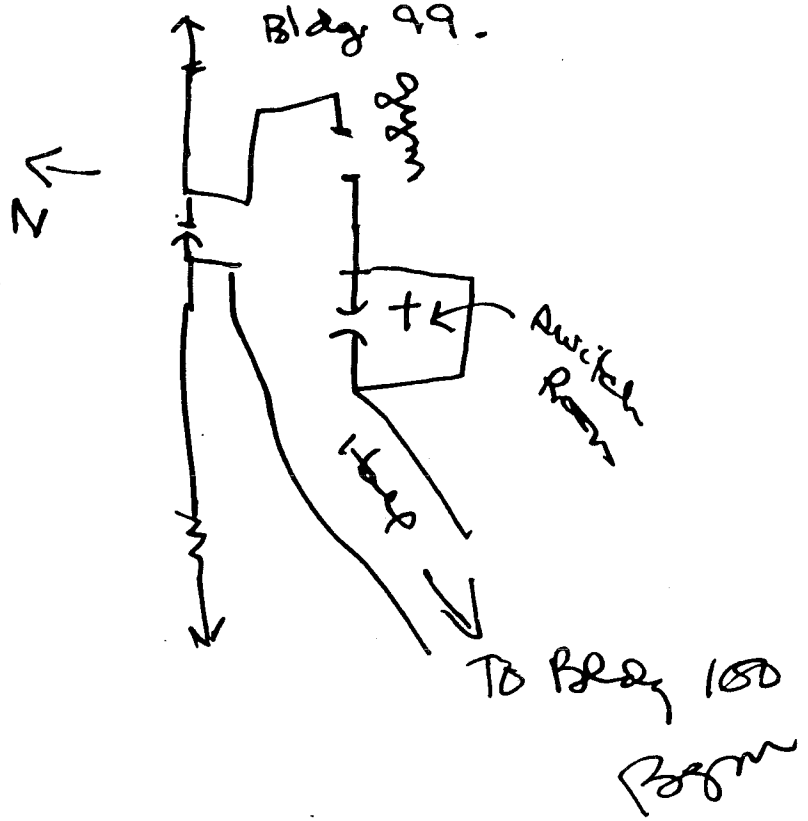
DAC
443-
2215

46-47 Photo Log BMP 1
48 Eugene's Cost

8-1-96 NEC (Thurs)

In Bldg. 99 viewed assorted wall mounted boxes. mentL





8-1-96 NEC - Phase II

In Bldg. 99, a small rm W of gym "Rec. Bldg"

Entered ~~South~~ NORTH side - 15' to the South in a "breaker Rm" found the following. (see pg. 4)

#1. 3 - fuse Box
Square D Safety Switch
Single Throw, fusible
D322N
60 Amp 240 V A C
Square D. Co.
Lexington KY

#2. Westinghouse Panel Box
Automatic Trigged
15 switchs (breakers)
+ main

#3. double fuse box -
screw in fuses

#4. fire pull, fire alarm
#5. protector wire, Beaver electrical

8-1-96 NEC Phase II
*5. fire alarm box
*6. Single - fuse, disconnect
- electric switch
in line w/ fire protection
box* -
Box 2 -
all contents in stack and
fuses (3) still in
box 1
N[illegible] these should go ...
... environmental ... make ...
concern.

Bgm

8-1-96 / NEC Phase II
"Danger" signs Posted
Bldg 105 * N.E Dock door

While posting "Danger" Sign
in Bldg 112 - veiwed 5 drums.
- Located in Storage Bldg. Shelves
in Overpack steel open-top
drums recently drummed!
3 - 5 gal -
2 - 10 gal.
Unknown contains - liquid.
NO Markings on drum sides.

In General warehouse, Bldg.
111 - found on shelves
20 - 25 ft tubs Labels state
" Dish washing Compound
Containing stain removing
Chlorine - releasing Type II"

Washington Chem - sales
Fed spec P-D-435b

on shelves mid-center
to the east.

Bgm

8-1-96 NEC Phase II

1950
Completed posting "Danger Sign"
Weather: Overcast -will stay
Packed up stuff for night.

Went to Eugenes house — we arranged previously to rent for backup
$10 @ $50/d. while on site.
ATV $100/d
Polarbear watch $100/d

2100 Eugene & Vic go over site history.

Bgm

8-2-96 NEC (FRI)

Packed Equipment & gear
Moved from Eugene Eng. shelter to Mob area (Terminal Bldg).
Collected needed gear
To Main site.
Mounted "Danger" Signs

1. Corridor Bldg 104 & 110 W side D
2. Bldg. 104 W. door
3. Bldg. 103 N door
4. Bldg 102 S door
5. Bldg 119 N door.

NE of Bldg 119
8" x 6' ASM concrete pipe

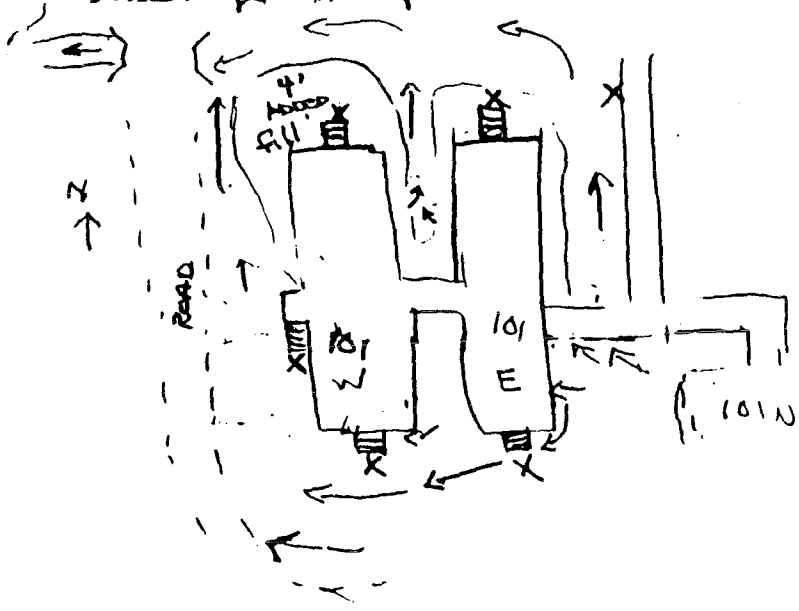
8-2-96 NEC (Fri)

Wire removal From ⇒ To

1. W. side B. 99 ⇒ B99 W. entrance
2. W. B102 ⇒ B102 W. entrance
3. S. of Pumphouse ⇒ B.98

Site 18 NEC. 8-2-96 (Fri)

Drainage — Bldg. 101 E & W

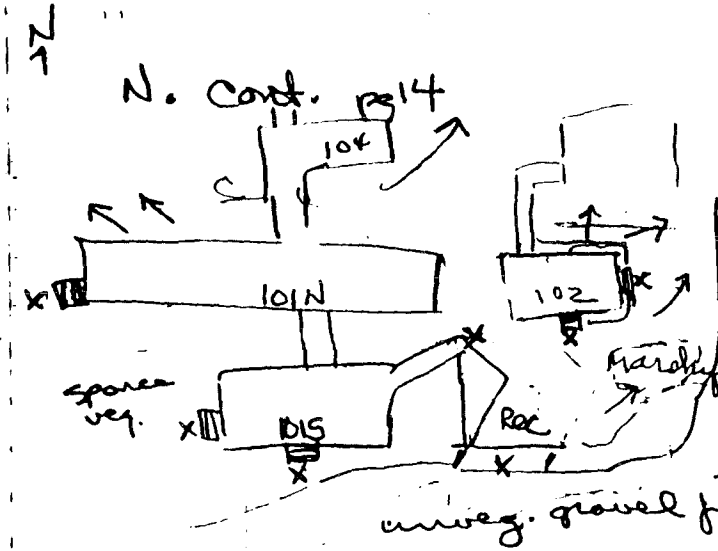


X "Danger" signs posted this date

No entry

8-2-96 NEC Phase II

Site 18 Drainage & Veg



X Danger Signs Posted

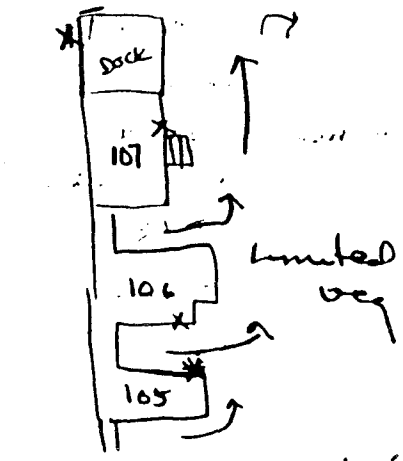
→ Flow, surface water

114

Bldg 102 - Tall grasses surrounding sits on 2-3' higher fill

Collapsed Utilidor outside S. side B. 102

8-2-96 NEC Phase II (FRi)
Site 18 - Housing



no visual staining

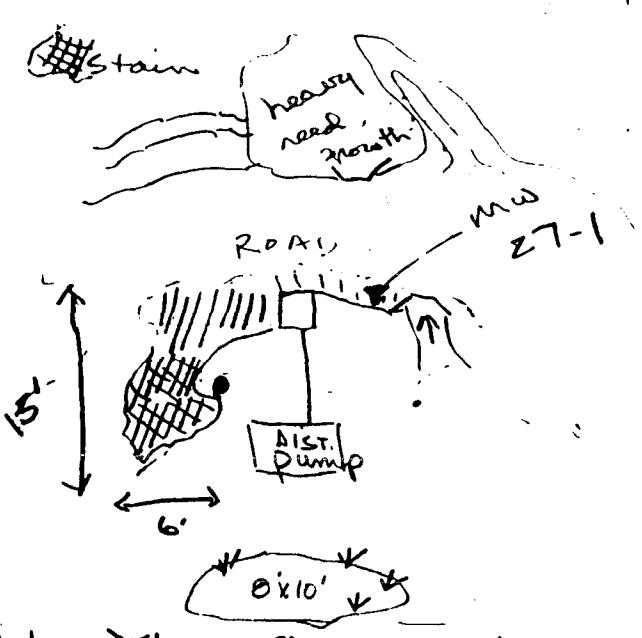
X Danger Signs Posted

Bgn

NEC Phase II 8-2-96 (FRi)
Site 27 - Pump Island
(NE corner of site)

pumping does not spill — Concrete pump housing has approx. 1' standing water w/ light petro sheen. Base gone & rock fill surrounds area. A small puddle is clear.

☐ 3'x3' concrete - pump housing
• light stained



Depth >5', Shallow standing water, some veg. clear, No sheen

8-2-96 NEC Phase II (FRI)
Site 27
on fill pad —
culvert underrd. to
the N. clogged — water
still keeps downgradient
Site remains as noted in
1994 notes.
2 MW locked.
Bgm

Wet, WINDY, Cold
NW windy 25 knots
Bgm

no entry

8-2-96 NEC Phase II (FRI)
Site 19
Bldg. 109 E — instrument.
Built on gravel pad.
Poll of concern: present in garage
Acm, smoke pots (military)
20 mostly empty
2 - 1 gal cans — paint
1 — pint cans, unk. contents
1 — generator on skid, diesel

Floor drains — drain to?
drains are filled w/ water — no sheen
250 gal. oblong — NE corner outside
— small tank on skid — some liq
in 1994 — tested (field) glycol.
is now on side & contain less liq.
No visual staining seen
ground is very sparsely pop.
with veg growth on E side (door)
There's about a 6' relief from
the E Bldg pad to the W Bldg pad
Drainage is N along road.
No staining seen
MW - locked.
Bgm

8-2-96 NEC (FRI)

Site 19 — 109 W. Maint.
by office on SSIDS, viewed & photos
POC - ACM, diesel, tube
oils, gas.
Wet, windy

1815 —
Back to terminal.
Pack up for flight to
Nome
1845 Left NEC.
1940 Arrive Nome
off-load equipment
started recharge
— of camera, radio, Loran
discs —
2100 Enel

(Brochan)

8-3-95 NEC (SAT)

0800 at dinport
verified loading DC-3 #1
0920 Take off to NEC with Victor
1010 — arrive NEC
off load equipment
Eugene arrives to help
1100 DC 3 off to Nome
will return w/ remaining
gear, Doug, & Elise.

Set up gear, gasoline pickup
1230 — take pumps to
Bldg 98 & 101 ea to dewater
basements.

Eugene says to only
concentrate Basement Bldgs.
Set-up 2" trash pump
in B. 98 — start 1450 pump
DC-3 #2 1410.
1430 To Terminal
Prepare for WP parameter
work (Elise & Vic)
and TANK recon (me & Doug)
Calibrate ptt Beckman w/ STD.
4 & 7, go over all

(Sgm)

8-3-96 NEC (SAT)

Equipment w/ Elroe & Vic
1. pH, EC, Temp, DO
2. Visc, Nat... Bom. thermistor
3. Sampler procedure
4. Forms
5. Bottles

Cold wet, windy day.
Unable to locate turkey.
Butts, scoop thead, & flagging material.

Spot Cross Fox w/ 3 kids
They seem to live in culvert by road to...
terminal Bldg - Warned about personal

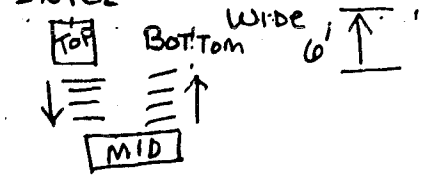
Tail gate meeting completed
1000 at B 98 - Pump Stopped
Restarted after refueling - Water Dropped 21"
Doug & I started tank measm.
Site 14 - B98 S. side 14-1
& 14-2 (anti freeze drum)
Doug to keep all notes.
I completed Photos & measurements

8-3-96 NEC (SAT)

1730 Pump stopped - Refueling
1802 Refueled Pump B. 98
Continued Tank measm.
1830 at Well house
confirmed cans stored there are AEM point, over 150 1-gal cans on N. wall
All Inland
1845 B 98 Pumping mean Completion -
Doug to Terminal for trailer.
moved intake line further into corridor - seems like utility corridor goes to the W & walkway to the E (toward B 101 W)

The area B 101 W. is very dry.
Can't get the about 6" from W end (B 98)

B 98



8-3-96 NEC (SAT)
B 101 W mid dock entrance
1st corridor on RH. 1st RM - RT.
Steel contains STP & DS2 - Repeated
b&E found in 1994 - this mixture
is a fire & environmental
hazard. Took photo. Did not
move anything.

Marked all tanks w same
ID as '9.4 ~~added~~ this date
ie 14-1 (first tank/drum
of site 14), added the
current (96) liquid level
and photos was taken.
Measurements (OD) completed
1900
Pull Pump & Hose from B78.
Drained fuel. Prepared for
air shipping.
Changed out batteries on
radios & Vedio's.
2200 To base camp.
Cold & wet, windy 25 Knots

Bgm

8-4-96 NEC (SUN)
0930 late start -
Headed off to Terminal
Prepared bottles - The lab
mixed bottles in same box
sorted out for to deep
samples.
1135 off to Site 4
Doug collected samples

NUS Computer - Radiological
survey & course log
Ludlum Technical Assoc
Model PUG 1
Ug probe P-6A/8
mR/Hr
BKg. reading .30-50 mR
Walked area starting
at Eugene's house for 9 hours
the board walkway N. to E
to the beach the beach S
to the road, then the debris
piles around Reyard's house
the site 4 area and site 3
pump house. No reading above
BKg noted.

Bgm

8-4-96 NEC

Site 14 (sample) S. Uedis

Doug to sample TK 1

I sampled SD in basement B.98, ID. # 14 SD 101 @ 1400

Shot Uedis of Site 14, and southern end of site, all 4 pumps, the 3 well houses (3), generator in well house B.114, Acm paint in tank house B.98, B.101, B.100, & Rec. S. sides. Tried to show basements B98 B101 W, wastetreatment (zoom) and drainages on S side. All batches consumed.

Great Weather - partly cldy. NO wind

Danger Signs Posted

(1) Gen. Warehouse N dock, W. side

(2) B110 W - Transformer shed door to outside enclosure

(3) B110 W - Door to generator room

Bag

8-4-96 NEC Site 13

1430 at TANK 13-2. UST with a concrete slab surrounding man cover (associated pipes) latch open - filled with water, slight (thin) sheen on top, NO layer sheen, NO sludge felt or seen with sludge sampler, bottom has mats & stones. Collected sample top 3' with disposable bailers Bot x & TR FIL

96 DEC 13 TK 13 @ 1500.

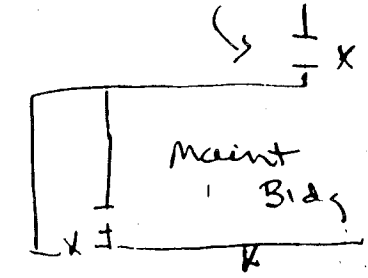
Reviewed WP Text.

1530 at TANK 16-1

Helped Doug collect sample from TK 16 (QA/QC/MS/MSD)

1615 To Terminal

(4) BACK door (W. side) B119 W



8-4-96 NEC (Sun)

Prepared equipmt for flight to Nome

1615 plane on ground, on load

1715 Take off to Nome

Cp. Smythe/Kevin, w/ est #1000 gear

1800 arrived Nome

To A.C. for 161 lbs of food

1915 AT Apt

1930 PACK samples in Blue Ice

2015 Complete — Eat

Bagn

8-5-96 NEC (Mon)

0800 To Cp. Smythe

0830 off-load eq. w/ pilot

0845 Take off, Vic Elise & me

Dorg to stay back and pack

8-4 samples for shipment

0915 Arrive NEC

Prepare equipmt

Elise & I to complete

20 PL, BT samples

Vic to cut wire (reindeer dead)

Flow loc, stake out surface sed sampling loc.

AT Drainage to the west of flow

1100 arrive loc SW/SD7 (See pg 30)

Samples # 20/PL/BT 103

Completed ① Plankton — w/ Wisc. net + 60 l. water

② 20 — 1 l. pot

Collected thru Wisc net

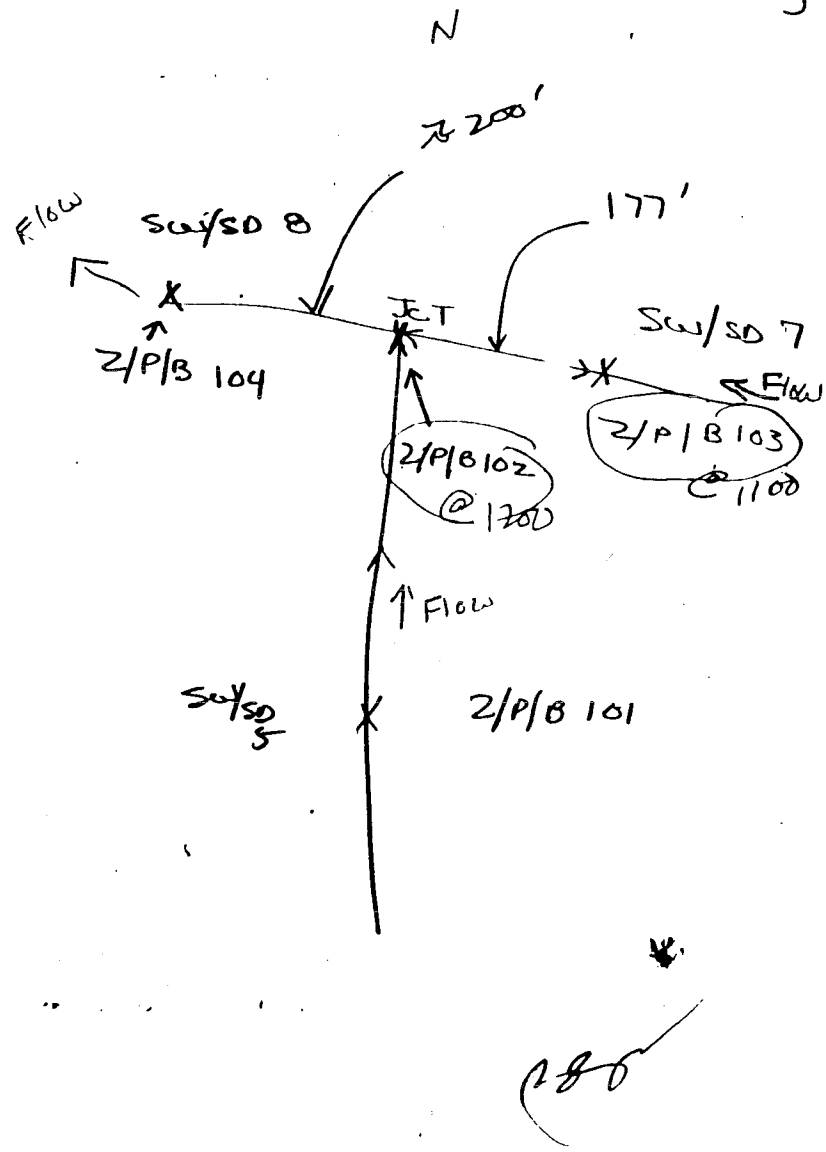
③ Benitos - in triplicate collected w/ Wildco dredge (6"x6"x2")

103 A, B, & C, strain in net until all soils removed

Mostly organic material

Bagn

8-5-96 NEC (Mon)



8-5-96 NEC — Mon

2/P/B 104

1145 at 2PB 102 station
This is at Junction of streams
Collected Plankton, Zoo, Benthos
1200, small drainage
.177' west of 2PB 103
only a few inches deep to .5'
brown silt organic material
grass on edges.
petrosh seen when bottom broken

1240 at 2PB 104 —
Most downgradient
NO sheen on water, when you break up bottom material
sheen appears — unable to collect
3 BN samples NO sediment on bottom
— silty/gravelly bottom —
Sometimes 1300 P.B. 2 complete
only PLA & B.

1320 at 2PB 101 —
MOST Southerly - same area
as 96 SW/SD 5 and 94 SW/SD 6-2
very little flow, braided creek
standing water on the W side
smelling of petro odor when bottom
Bsw

8-5-96 NEC (NUM)

Material released - skeein and black stuff released.
Organic

1430 AT Terminal - prepared Formalin - 10% Fixed BN & PL samples collected earlier today. Packed in vermiculite for shipping

AT site 10 - for surface soils to delineate heavy oil spill Tried to locate '94 geophysical grid to reference locations.

Laid out 11-55 line to delineate the stained area on the S. 101—106 (Flags collected)

Loc 107 @ 1645 on boundary (NW) are highly stained area

1700 to 108 in the wetland - also stained

petro. odor from #107 & #108 noted.

VIC completed tie ins.

Vedin completed site 10.

Bgm

8-5-96 NEC (Nan.)

1800 at Terminal, pack equipment

1815 Ghana arrives

1830 off to none, VIC takes aerials off site

1930 at none,

Confirm TB not in samples packed by Doug will add in AM

Bgm

Notes:

Equipmt. to NAC shipment

Gambel needs radio's bottles & radioactive.

Bgm

8-6-96 / NEC (Tues)
0730 at ~~AK.AL.~~ to add TB's and samples from 8-5-96.
2- NPDL sent FedX, 8-NAS sent Gold.
0900 Take off to NEC
~~0930~~ arrived NEC
Prepare Equipment - Tailgate safety meeting completed
Doug & Steve to sample RPT 101
Vic to set-up SS sample points Site 27
I will complete radiac survey - using Victoreen model 490 1100. Survey meter from HAZCO Co.
maps will be marked w/ yellow grease pencil when complete
Any area exceeding background will be spray painted orange & photographed
1115 at Barrow site for background readings were from .00 to .10 mR/hr
Establish BKg at .07
*2 = .14 to be report limit

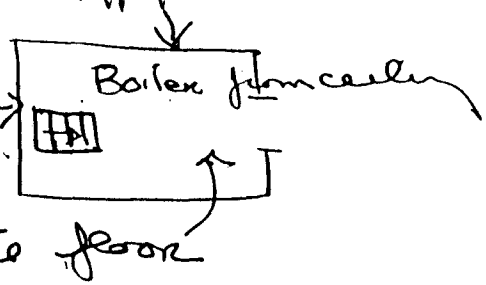
8-6-96 Radiac Survey NEC

Areas Completed	Report Reading
1. Site 5 - Beach	BKg
2. Site 4 - Field Camp, Tanks, vechicles,	BKg.
3. Site 3. Fuel Pump House	BKg.
4. Quonset Beach Drum field	BKg.
5. Site 6 "	
6. Site 7 "	
7. Site 10 Drum Storage - .14 WEST END of filled area, w of exposed drum	BKG.
8. Site 27 Dist. Pump Old diesel fuel pump housing -	.14
9. Site 19 - B.109, B.168	BKg
10. Site 20 - B.103, Ops.	BKG
11. Site 18 B.104	BKG
12 Site 18 B.102, B.101	BKG
13 Site 19 B.98	

1310 at Site 27/15, radiac completed
1400 at Terminal, Called Chris of 8 coolers sent NAS
1500 at Site 18 Bldg 101 W. Enter the plumbing storage by Victor - [illegible]

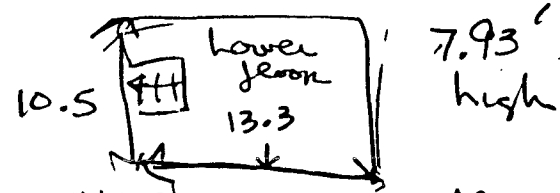
8-6-96 NEC

Bldg. 101W - Midway, N. side



Entrance to plumbing Basement = 3.5' X 3.5' w/ 12 steps, wooden

moist floor - no standing water thinsdale Ch 8-1 valved 2' (est.) standing water



No sludge, NO sheen, NO oder Pipes leading from Boiler (PACM) wooden storage sh. above - 1 ft 3 Assort. supplies, pipe (gal. & Copper), Tank 2'X1.5', empty, clean BGM

8-6-96 NEC (Thurs)

distance Bet Bldg 98 & 101W 86' long X 6'X10' concrete corridor, debris laden Previous sample collected - of water solvent material

Ran radiac meter thru Bldg 101 W. - to include a microwave component, labeled "CO60" and had "Δ" radiation symbol ⇒ no reading above BKG.

Liquid ad. Box glass sliga box, BOX empty

Bldg 98 = BKG throughout Exterior & Interior. Completed B.98 radiation survey no reading > .04. Then at Terminal Bldg. > .03.

Put equipment away - Prepare cut sow fuel/oil mix at sets S of water tanks were heavy (3) cables cross the road (on road) Cut here and a few to the SE along pole line. Vic Collected samples. BGM

8-696 EC

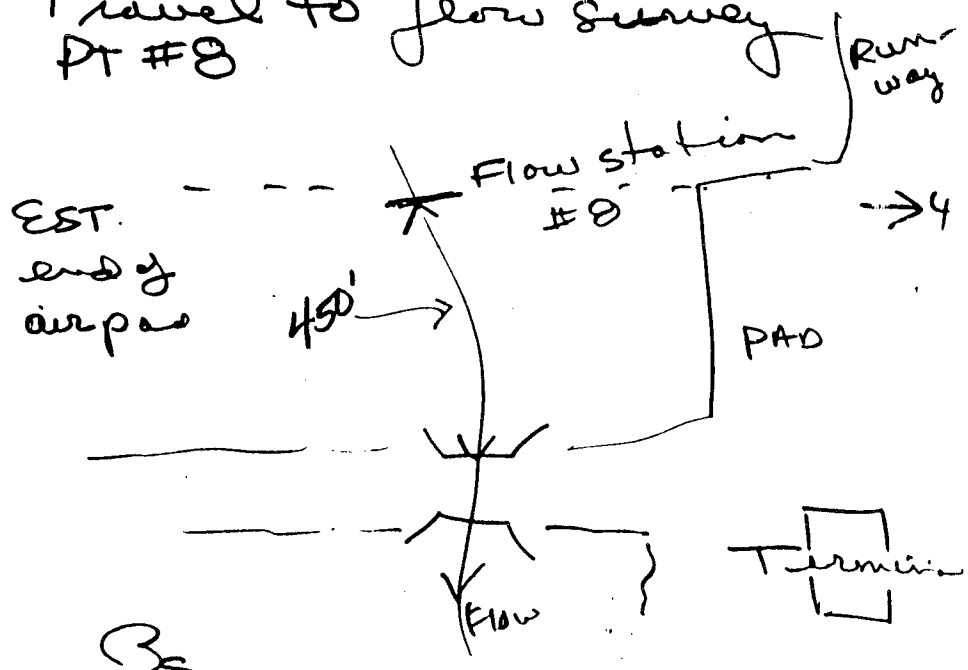
Back at Terminal.
Prepare to go to home.

1910 plane arrives.
2015 in home

96 NEC

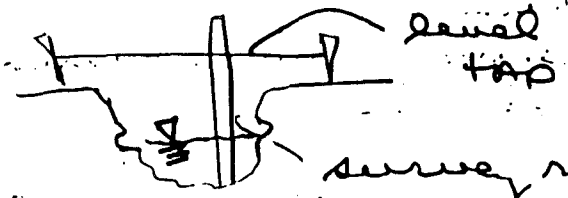
0730 at terminal with
ride (Vic & I) to gambell and then
NEC (a direct charter not available)
Elect to gambell, Doug stays in
home to prepare bottles.
930 Land Gambell
1015 land NEC.
Hvy rain & wind. 25 mph SW
Prepare equipment.
Flow meter inoperative.
Eugene arrives to transfer
fuel to his drums.

Travel to flow survey
Pt #8



8-7-96 NEC Wed.

1200 Set up & completed profile (see Vic's notes)



Pt. 1 start NSide w/ 0, Recording S. recorded Dist. Bot ground & Dist to water from bottom

Then. 7 flow times were taken from 30' to the West. (See Vics. notes for results)

A stop watch was used to record the time it took an orange or a bottle to reach the 30' mark. in a stream bed which was fairly uniform in width and depth.

Returned to Terminal. Vic went to complete gravel pool survey.

Bgm

8-7-96 NEC

1345 I started packing equip

1500 Cut wires around terminal

Winds SW 40 mph - Raining.

1700 Collect samples at Flow station #8 (see pg 39) TKO/PCB 96 NE DB SS 113

1130 Recon - raindeer killed by wires - 2 in antenna to the NW, Eugene found 3 more NW the mt. in 94 we found 1 - at the landfill & another N of the WhiteAlice site in the area of wires entangled - Winds growing

1800 at Terminal complete Packing - I traveled to Josh Camp - Plu Stuff & pay Eugene -

Bgm

8-7-96 NEC (Wed)

I spoke w/ Eugene about priorities if $ was limited. He said drum removal, wire clean-up, clean steam water, and then buildings. I thanked he and his family for all they had done. Returned to Terminal. Unsure if plane can land w/ fierce cross winds.

1910 Plane at Terminal. To the A/P -

2005 at Nome, o/l load equipment.

Bag

8-8-96 NEC

0800 at Cape Smythe, can't go w/ DC-3 per Wayne FAA called late last night about "passengers". We looked into following w/ charter - no budget - freight crew will load equipment. I gave them a map of work & what equipment leaves and what stays for Eugene.

915 at NAC, palletize Equipment

1020 VC shows Van (Doug's accident) to Sitnasuak. We take Photo's of pole wire & van.

MAS Airbill - Gold streaks
8/6 4369 8126 8coobes

NPDL - Fedex
0366972535

BGM2 Photo Log

1. LOAD DC-3
unable to locate 8/3
DQ 4
B/P/2 103, sampling, 8/5
102
104
101

Site 10, SS sampling, stained area looking NE, 10 SS 101
10-SS-103 → 106
10 SS 107
10 SS 108

Photolog

BQM 1 - NEC 8-96

site 18 8-2-96-8

1. Looking N. toward site 18, Bldgs. 101 — 100
2. looking NE — toward site 18, Bldgs 101 + Rec. to the east
3. S. toward, N. End Bldg. 101
4, 5. MW 21-1
6. Lookin S. at W end 101 N (concrete foundation)
7. Looking NW toward SE corner site 18, Bldg. 99
8. Looking N. Toward site 18, Bldg.
9. Looking SW Toward B 106
10. Looking SW Toward B 105
11. Looking N. Toward drainage from B 105 & 106
12. Looking NW Toward B 107
13. Looking S. Toward site 27 from CL
14. Looking N. Toward downgradient from CL road (road)
15/16 Bldg 109 - smoke pots
17, 18 Site 19 - Looking W. B109 E
20 Site 19 - Looking W. B109 W
21/22 Foam Cont B109 W
23 Lube Pit, B109 W

BQM

Photo Log NEC 8-96

Roll BQM1 - 8-2-96

24. Bird's eye view in Wind by Antenna

Eugene Tooley

	8/1	8/2	8/3	8/4	8/5	8/6	8/7
AIV	100	100	N/A	N/A	N/A	N/A	
Horse	50	—	50	—	—	—	
Shade	100	100	100	100	100		
(with) Total	250	200	150	100	100		
Extent Total		450	600	700	800		
Idiot	ϕ	322 (Vic)	36 (Elise)	ϕ	77 (Don)		
Total Count	28	128	242	342	364	464	564

Budget

85/d
50/d
100/d

278 442
36 78
242 364

Sun
List what's at NEC

Mon dinner.

161 out ✓
Tums ✓
P. Towel ✓

Cape Smythe (10)

AIR NOME

	8/1	8/2	8/3	8/4	8/5	8/6	8/7
	OUT(1)	IN(2)	↓ DC-3 DC3	IN(3)	OUT(4) IN(2)	OUT(6) IN(7)	out(8)
# gear	1800#			1300	650	600	

PASSANGER WT. VH 230 + Bgm 200 + DQ 165 + EJ 130 = 725#

"Rite in the Rain®"

ALL-WEATHER

LINE RULE

Notebook No. 391

Northern Cape 1996 2198.04160

Doug Quist

"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

Name Douglas Quist

Address

Phone

Project Northeast Cape. 1996

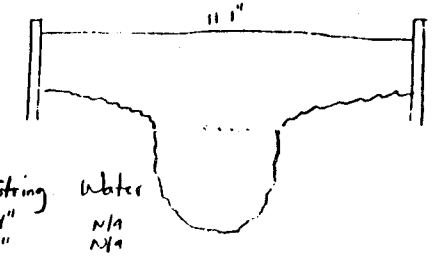
July 31, 1996 — Northeast Cape Phase II

0815 - Arrive Airport for transportation to Nome.
0915 - Arrive Nome.
- Arrange Flight Schedule, Storage, and Lodging
Sort Cargo for Northeast Cape and Gambell
Shipments by day and priority.
Start Blue to supply in Eugene @ Cape Smyth.

August 1, 1996 — Northeast Cape Phase II

0700 - Dep. 1 for Northeast Cape via Cape Smyth Air
0900 Arrive @ Northeast Cape - Eugene @ terminal to greet
Begin Staging of Equipment, Elliot to get ATV from
Eugene @ Fuel Camp.
1200 Set-up Satellite Telephone and make initial
phone call - Spoke with Janet and relayed phone
number info and then spoke to Deb and relayed
request for EE/CA table referencing all UST's and AST's
on site, Phone Call lasted 12 minutes and 07 Seconds.
1330 Bonnie and Elliot to post signs on Buildings
Doug and Victor to do Stream Flow Measurements.

Stream Flow and Cross Section are located @
Culvert intersection - Flow is generally Westerly Direction
Bottom Material - Sand/gravel 50/50



(bank, No erosion, No Shear)
Measurement taken @ approximately 50' each with No Flows ± 100' West of Culvert.

FT	String	Water
0	34"	N/A
1	35"	N/A
2	38.5"	N/A
3	42.25"	N/A
4	43.5"	N/A
5	75.0"	31.5"
6	76.0"	32.0"
7	76.0"	32.25"
7.5	76.0	32.0"
8	72.0"	28.00
8.5	40.75"	N/A
9	41.75"	N/A

Edge of Bank @ 4.3

Edge of Bank @

	S	W
3.5'	43.5"	N/A
4.5'	72.0"	29.5
5.5'	76.0	30 1/8
7.9	72.0	28.75

8/1/96

August 1, 1996 — Northeast Cape Phase II

Stream flow location #1

Time for floating object to travel 50'

42, 46, 46, 38, 39, 37, 37

Stream flow location #2

	S	W
0	12.25	0.1
1	11.02	
2	12.50	
3	13.00	
4	14.25	
5	14.25	
6	15.50	
6.5	17.25	
6.8	20.00	edge
7.0	20.0	1.75"
7.2	20	1.75
7.4	20.75	2.18
7.6	20.75	2 3/4
7.8	21.00	2 3/4
8.0	23.5	2 1/4
8.1	21	0 grass
8.2	20.5	1/8
8.3	21.1/4	1/2
8.5	19.75	Mud ground
8.8	16.5	
10.5	15.5	Mossy Bank
11.0	13.5	
11.5	13.0	Hummock Moss
12.0	11.5	
13.0	11.5	
14.0	10.75	
15.0	11.5	
15.8	11.0	end

Stream bisects Main Channel

Stream - (picture at point out and then reemerges. Stream)

Bottom Silty organics with occasional rocks

Lake Drainage travels the North

The stream connects with the larger channel Stream which passes through the culvert (i.e. Stream location #1)

10', 9.5, 9.5, 10, 9.5, 9 Seconds to travel 10'

Douglas Clark 5/1/96

Northeast Cape Phase II

August 1, 1996

Stream flow location #3

Drainage basin 10' across

105' 35"

100' 48"

95' 67"

90' 72"

85' 76"

80' 75.5"

75' 78.5"

70' 82.0" Water @ Surface

65' 61.0"

60' 57.0" Mud

55' 50.5"

50' 73.0"

45' 77.0"

40' 78 1/4"

35' 86 1/4" → 7 1/8" Water

30' 84" → 5 1/4" Water

25' 81" → 2 1/2" Water

20' 81.5" → 1 1/2" Water

15' 82" → 0" Water

10 67 1/2"

5

0 82"

Bankbarrow Channel

Marshy grass from 0' to 30' (water @ surface) on Embankment to Channel. Detailed description of Plant and Vegetation

37 feet to north

Eastern Cap Point of Spit with No land vegetation

Douglas Clark 5/1/96

August 1, 1996 — Northeast Capitol Phase II

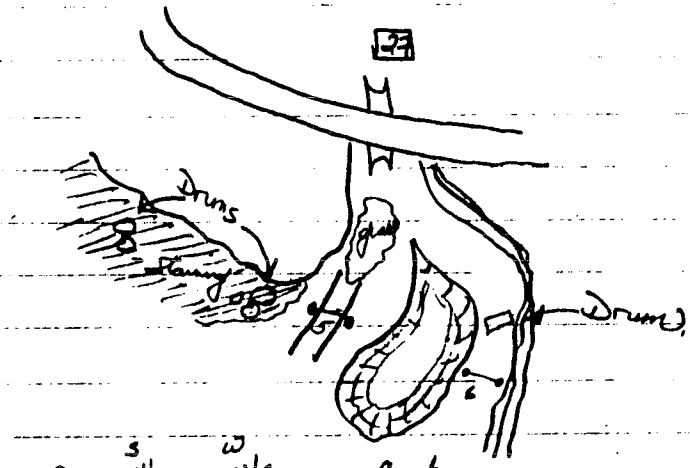
Stream Flow #4 — Located 117' west of Confluence

	S	W	
1'	.5'	N/a	organic matl & sand
2'	6 5/8"	N/a	small sand
3'	6 3/4"	N/a	Silts and occasional Rocks and pebbles 1/2" → 3"
4'	10 1/2"	N/a	Med Coarse Sand.
5'	11 7/8"	N/a	– Bank Slough.
6'	27 1/4"	N/a	
7'	25 1/4"	N/a	after Disturbing Sediments
7.6'	30 3/4"	N/a	Sheen apparent and odors very apparent
7.8'		edge	
8.0'	38"	45"	
8.5'	55"	21"	
9.0'	57"	23 1/4"	Stream Flow for std
10.0'	59 1/4"	25 5/8"	46, (53 Hang) 46, 46, 46, 46, 46
11.0	58"	24 1/4"	
12.0	59 1/2"	26 3/8"	
13.0	60"	26 7/8"	Bottom Consists of
14.0	57"	26"	(Sand gravel) 50% (Organic Matl
14.5	42 1/4"	9 1/4"	Mass) 50%, of Std portion
15.0	37 1/2"	4 1/2"	≥ 30% surface area is gravel
15.5	34 3/4"	0 – edge of Stream	Poorly Sorted fine to Coarse Sands.
16.0	21 1/2"	N/a	
17.0	17 1/2"	N/a	1/4" → 3" gravel (subrounded)
18.0	13"	N/a	3/4" typical
19.0	12"	N/a	
20.0	4"	N/a	
21.0	0"	N/a	Top of Bank

Dwight Lyle 8/1/96

August 1, 1996 — Northeast Capitol Phase II

Stream Flow #5 Located North of culvert @ Sit 27



	S	W	
0	11"	N/a	Bank
1	14 1/2"	N/a	
2	19 1/2"	N/a	
3	24"	N/a	8.5 - Edge
4	26"	3/8"	Center of Channel
5	25 3/4"	N/a	– Edge
6	19 1/2"	N/a	
7	13"		

Flow estimated @ 1-3 gallons per minute

Material consist of disturbed gravel and sand no sheen. Vegetation sparse due to disturbed nature of soils staining on exposed Northern Embankment due to seepage. Vegetation up stream does not appear to be effected.

Dwight Lyle 8/1/96

August , 1996 — Northeast Cape Phase II

Stream flow #6 Located Downstream of Site 27 Culvert

	S	W	
13'	28"		
12'	34"		
11'	42.5"		
10'	49"		Soils Moist
9'	51"		½" Stagnant Water
8'	50"		Moist / No Water
7'	51"		¼" Stagnant Water
6'	52"		¾"
6.2'			
5.0	54"		2"
4.0	52"		½" Stagnant Water
3.0	46"		N/a dry
2.0	40"		N/a
1.0	35.5"		
0	30.0"		

4.6

- Total depth of Channel from Crest to Bottom Approximately 8' - But artificially created, Subsurface Contamination Shown Present (when) Sediments Disturbed.
- Flow visually estimated @ 3 to 5 gallons per Minute.

Daniel [illegible] 8/1/96

August 1, 1996 — Northeast Cape Phase II

300 → 400' Downstream of 5 and 6

Drainage from pump island and #1 have coalesced into a series of 4 braided streams each approx 20-30' wide. Largest and deepest being the West. All are choked with grass maximum depth 3 feet. No flow. Flow is observed on the Westernmost Channel when the sediments are disturbed maximum relief is 2 feet. No apparent effect on Vegetation. Drums Scattered about, as well as Corrugated Metal. Area of observation is approximately 500' south of East antenna Pad from which Cross section of Stream flow # 2 was taken. Photo from site has Clint @ far end and Roger @ West end.

Interview with Eugene Tickie - Victor and Bernice thoroughly documented.

Prepare for Overnight Stay @ Fish Camp.

Visit made with Eugene, his wife Mary, and son Michael

Daniel [illegible] 8/1/96

No Caps Phase II

August 9, 1996 Circles Represent Completed Sites

Began Site Recon @ Sites 4, 10, 11, 13, 14, 16, 18, 19, 21, 27 and Drainage Basin, POL pipelines, and Stream near Runway

Site 16 - Paint Dope Storage Building

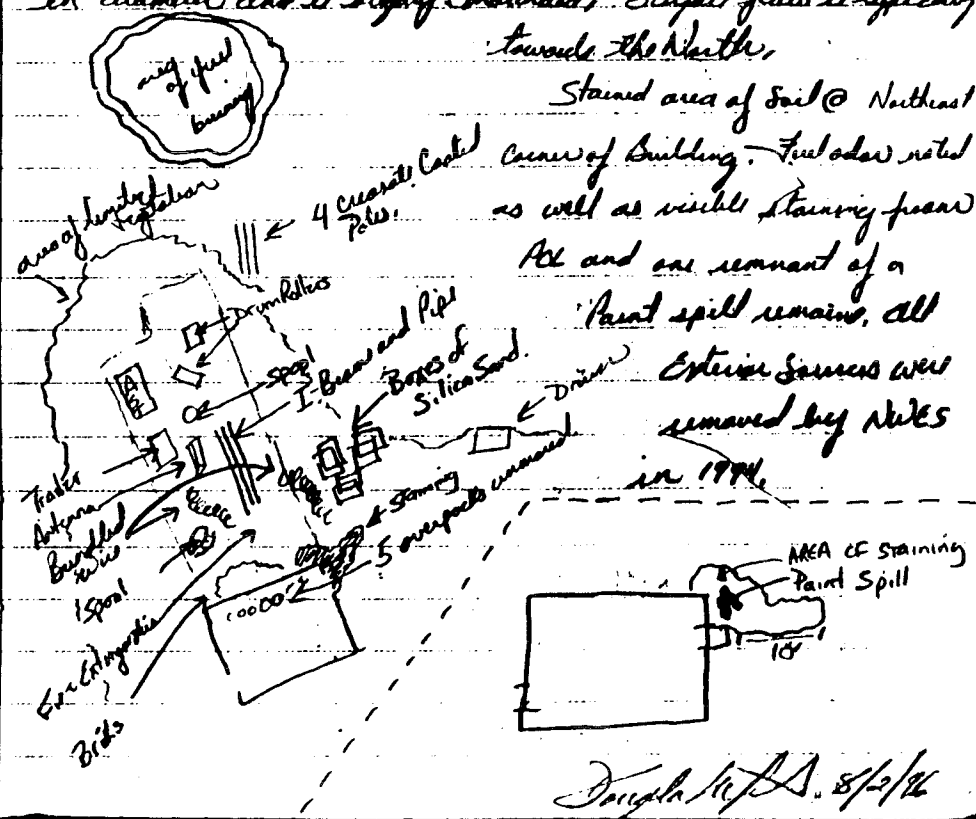
5 (five) Drums noted within the Building, 3 (three) are ≈ 25 gallons, the other two are 5 gallons. No markings present and any of the drums. Most likely left during 1994 HTRW removal by Burlington (CAA - NWES). Area has sparse vegetation where gravel has been physically disturbed, otherwise vegetation appears normal and healthy. Debris at the site includes Masonry bricks (≈ 200), Corrugated Copper Steel half rounds (≈ 150 pieces), Two drum Rollers, One (1) AST, Oval, Previously marked by MW on 7/15/94 as 16-1. This AST Contains waste oil used to cover the roads for dust control (Eugene Tooke). The Container is approximately 1/3 > 1/2 full, total volume is roughly 500 - 750 gallons. Dimensions in CE/CA). Mooten Matting (8' x 2' x (8' x 1.5'). Miscellaneous structural beams. Two spools of cable (Twin galvanized 3/4", 20 wire & Conduit (1.5") Bundled wire (Combination of Both 7 and 20). 6 Boxes of silica sand. (3' x 3' x 2'). 3 (three) sections of 4" pipe (1 x 10', 2 x 10') 1 (One) Trailer. 1 (One) Section of antenna (triangular) 12 (twelve) feet long. One fire Extinguisher

Douglas M. 8/2/96

Northeast Caps Phase II August 9, 1996.

Site 16 - Paint Dope Storage Building (Continued)

The area directly behind (to the North of the structure) is where all of the aforementioned debris was buried. Further North the land has been physically overlaid by heavy equipment. Eugene Tooke told us that this area is where the majority of the recovered fuel from the 40,000 gallon spill was stockpiled and burned. The area in question has very little vegetation. Mainly because of earth moving rather than fuel distress. This area is approximately 100' in diameter and is slightly mounded. Surface flow is typically towards the North.

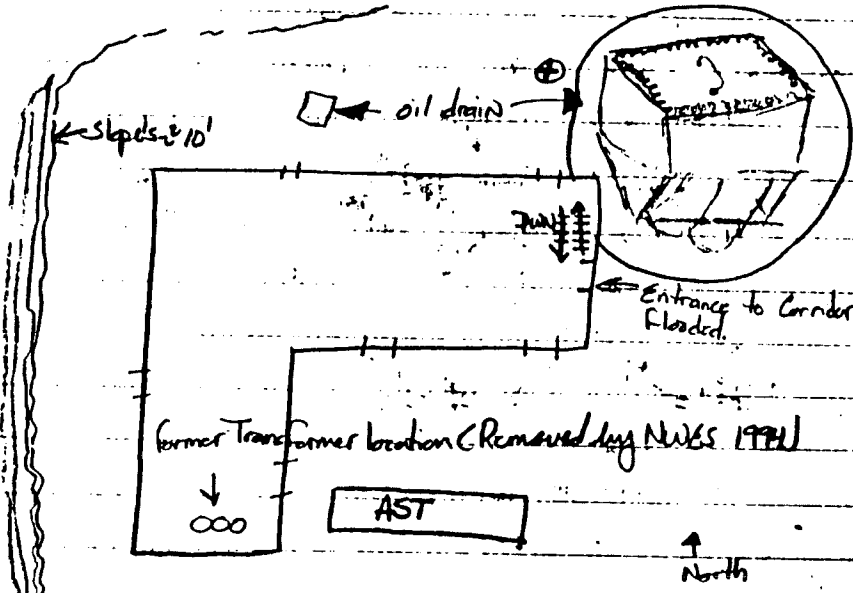


Stained area of Soil @ Northeast Corner of Building. Fuel odor noted as well as visible staining from AST and one remnant of a Paint spill remains. All Exterior Sources were removed by NWES in 1994.

Douglas M. 8/2/96

August 2, 1996. Northeast Cape Phase II

Site 14. Emergency Heat and Electric Bldg # 98



extent of gravel fill

55 gallon drum full of Antifreeze.
No apparent Staining or Evidence of Release

Surface water flow is away from fill Pad and then in a Northwesterly Direction towards the outfall @ site 21 / Creek bed.

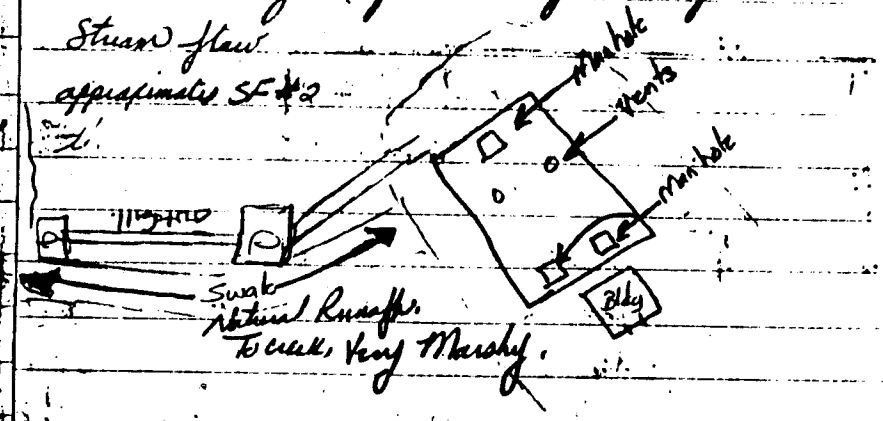
Daug[illegible] 8/2/96

August 2, 1996 Northeast Cape Phase II

Site 21 - Wastewater treatment facility

No apparent Contamination in main area. Area near terminus of outfall very marshy and water is very stagnant. Rusty looking Stream flow

approximate SF # 2



Daug[illegible] 8/2/96

August 2, 1993 — Northeast Cape Phase II

Item previously referenced as oil drum on page 12 was found upon near Northwest Corner of main Camp Pad. It appears to be a freestanding transformer and has the following face plate

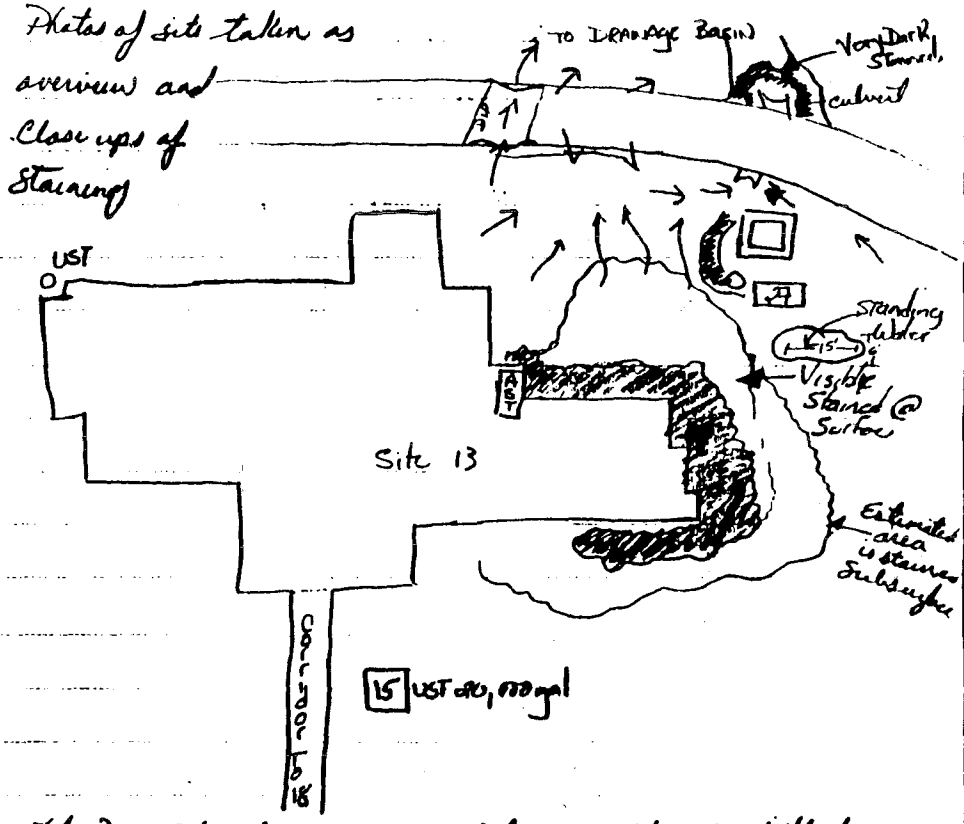
G&W ELECTRIC SPECIALTY CO.
3500 W 127TH STREET
BLUE ISLAND, ILL. U.S.A.
TYPE: AL VOLTS: 15 KV AMP. 250
CAT. NO. AL3372M SER. NO. C8097-63

The photos taken, appears to be half full with rain water, No sheen, No Signs of distressed Vegetation Area Surrounding Completely Vegetated.

Dwight A. [illegible] 8/2/96

Northeast Cape Phase II — August 2, 1996

Site 13 Heat and Electric Building
Area of Historic 40,000 gallon diesel fuel Spill
Encompasses Site 13, 15, and 27.
Photos of site taken as overviews and Close ups of Staining

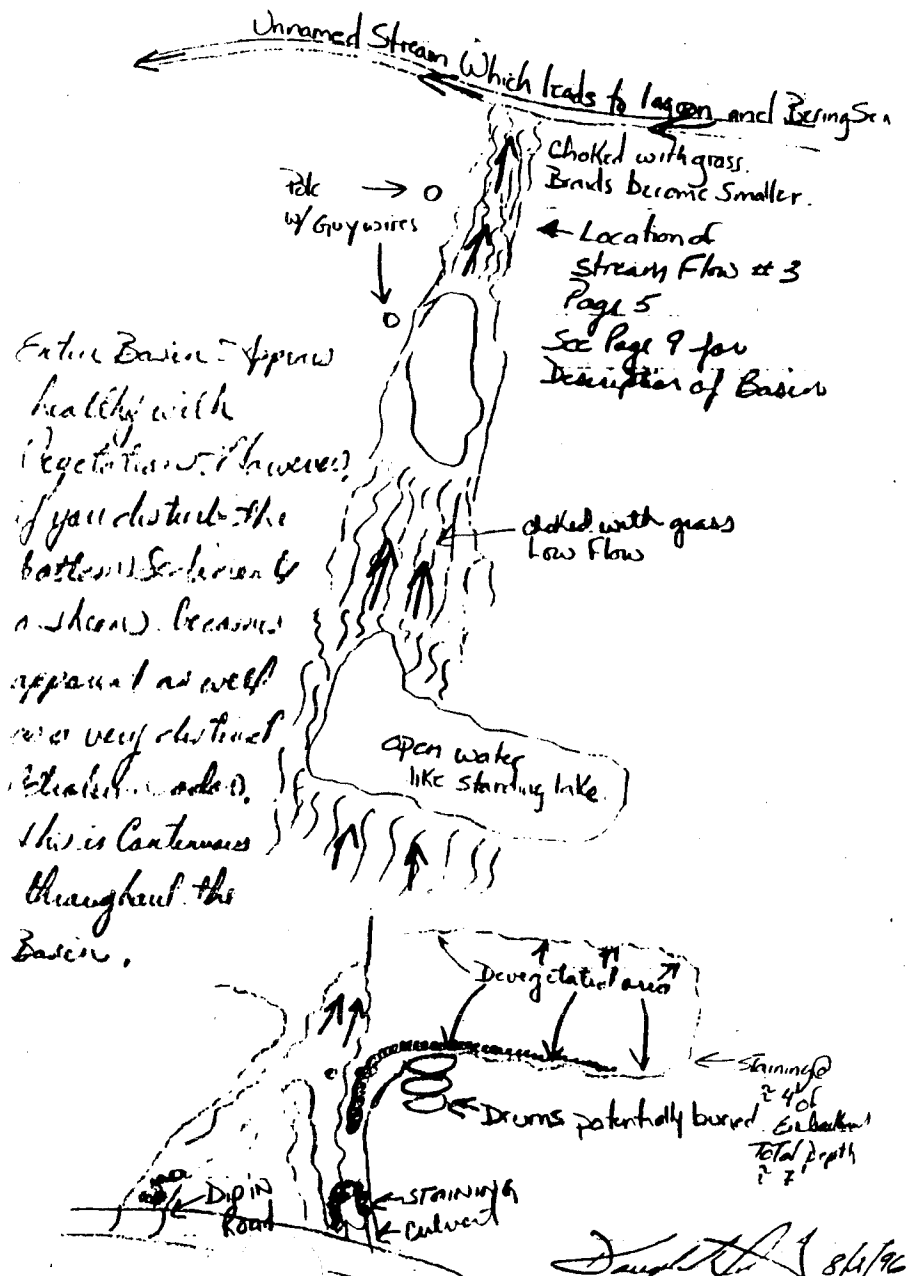


The Dark Stained area is represented above. There is little to no vegetation about the site, due in part by both the presence of fill, but also the spilled fuel. For logistical purposes Sites 13, 15, and 27 should be addressed together with respect to remedial options (soil) as the primary and overwhelming contaminant source is continuous throughout these sites. The Drainage Basin is addressed in the ensuing pages.

Dwight A. [illegible] 8/2/96.

August 2, 1996 — Northeast Cape Phase II

Drainage Basin Area



8/1/96

August 2, 1996 — Phase II Northeast Cape

Begin to cut wire with flash. Cut all wire associated with Antenna Array North of this facility. All wires (on ground or near ground) were cut into approximately 4-5' pieces.

Mob back to site for 1900 Departure, Venice Nano @ 1940.

8/

August 7, 1991 — Northeast Cape Phase II

0730 – Take Bonnie and Victor to Cape Smythe for A.M. Departure to Northeast Cape.

0800 – Return to Nanuq Manor to retrieve Elsie.

0830 – Go to Hardware Store and Grocery Store for Supplies.

0945 – Go to Alaska Airlines Goldstreak to check for shipments. None received.

1000 – Elsie to Call Jenna Apatiki in Gambell to Coordinate Shipment of materials

1015 – Drop off Freezer, tents (2), Hexane (in 5 gallon bucket), Red Cooler with Battery charger, and Box with 2 Batteries (ATV). all at Northline for Cargo for later Shipment home.

1100 – Crew Cape Smythe Air for flight to Northeast Cape. Bonnie and Victor already there.

1140 – Plane Delayed, Depart for Northeast Cape on DC-3 with Elsie.

Crew Northeast Cape, unload and organize Materials.

1400 Go over use of Phase (Settable) with Bonnie, Victor, and Elsie. – To release Jack, Press 1234 STO. – Find Settable. When Power on is displayed, dial number with 1+ area code. Our Number is 1-800-332-0974

Dan Clark 8/3/91

August 3, 1996 — Phase II Northeast Cape

1530 Bonnie and Dan to Catalog Vessels, Victor and Elsie to do Biathic, Micro and Phytoplankton Samplings.

Site 2-

One 1,000-gallon steel and Sanitary Sewer, Empty. Labeled 2-1 empty 7/15/94. Tank is still Empty.

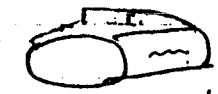
Site 14 – Tank (AST) 72" x 24', Tank is approximately 1/3 full. 1 phase/Domestic

AST 14-1. Photo taken. Vessel has no sludge.

Drum – 55 gallon – full of Antifreeze, Photo taken 14-2.

Site 18 – DS-2 and STB Noted as in 1994.

Site 16 — Oblong 4'x6'x7.5'



16-1 (AST) approximately ½ full. 2 phase Wastewater Water

16-2 overpack Drum 8'3" x 15" Contents Unknown for 16-2 thru 6

16-3 overpack Drum 8'3" x 15' assumed left by NMES in

16-4 Overpack Drum 8'5" x 15" 1991

16-5 Overpack Drum 16'5" x 15"

16-6 Overpack Drum 16'½" x 15"

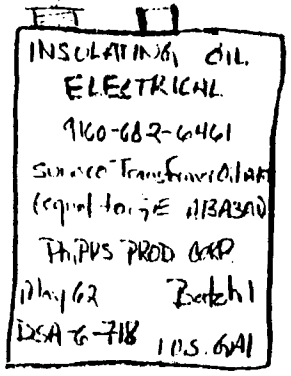
The AST Waste rated by Eugene Tanks to have been used for sibing of the roads.

Dan Clark 8/3/96

August 3, 1996

Sched

Empty 1 gallon Cans of Seventy-seven labled (29) all are empty. No signs of contents. Assume that that this is what is on the overpacks. However, no conclusions. Will have to contact NUES upon return to Anchorage to ascertain Chemalogy.



Sch 13

AST 13-1 4'x8' Labeled "Empty" Diesel fuel OS.

UST 13-2 Calculated 20,000 gallons fuel (Engineer Tools) Full

UST 13-3 Located on Northwest Corner. Labeled "Empty" by NMD in 94

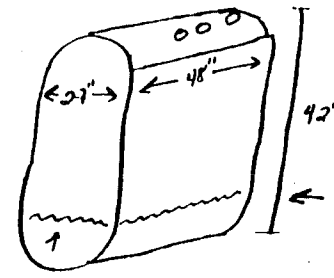
UST 13-2 is completely full of water. The water has a slight sheen and faint fuel odor. It is one of the two tanks 10' in depth with a manway in the center and Bottom. No Sludge.

Dwgs 7 8/5/96

August 3/96 Northeast Cape Phase II

Sch 19-

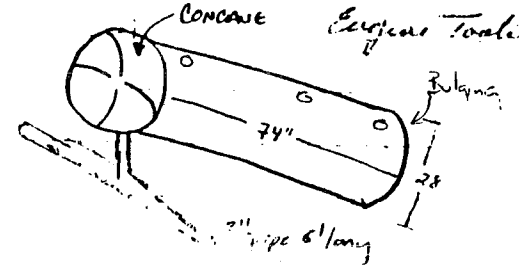
19-1 - AST 42" Tall, 32" across, 48" long



← approximate location of data from Engineer Tools background Atlas and an old antifreeze tank @ 1715

19-2 - AST Empty

74" long, 28" diameter, (Used fuel Diesel) Engineer Tools -



Return to Sch 19 to Check and Re-gauge Fuel Tanks and Condor. Pump empty, Refuel and Restart. Approximately 13 volume left. 1630. 1635 End. Returned to Vessel maintenance

Sch 13-

AST 13-4 Located on North Edge of Runway #1 - This tank is 5' in diameter and 10' long. The Tanks sitting on two 4"x6" Cradles. According to Engineer Tools - Is placed there after the 1950's gal diesel fuel is to be filled and returned some of this fuel Hydra [illegible] was also removed

Doug

August 3, 1996 Northeast Cape Phase II

1800 - Return to site 14 to check on Dewatering Everything Still Running, approximately 2 feet of water left. Estimate finish @ 19→2000. So far no signs of entrapment noticed.

Site 22 - Water Wells and Water Supply Building - Approximately 150 1 gallon Cans of Asbestos Retort Cement.

Columbia Asbestos Co.
Fosters Original
Retort Cement
Asbestos Surface and Asbestos Cement
Made of Asbestos and Non-Shrinking
Fire-Proof Materials
Portland, Or.

Dwight Hall 8/3/96

August 3, 1996 Northeast Cape Phase II

1830 - Return to Site 2 to retrieve Eugene trailer to transport pumps back to terminal.

1915 - Shut off Pump @ site 14. As Eugene Sea Lion told us, the area was a utility/Man Corridor between building — at site 18 and building 98 @ site 14. The Hallway is approximately 6' wide 12' tall and — feet long. There remains less than one foot of water in the corridor. No cultural items of concern were found after dewatering. Four photos taken of Corridor 3 from site 14, and 1 from site 18.

1930 - Began to break down pumps for transport back to terminal.

1945 - Bonnie and Doug to return to site 2.
Victor and Chris to follow shortly.

Purpose for Vessel Sampling to commence in a.m. Vessels 16-1, 13-2, 14-1, 19-1, and 4- to be sampled. Only 16-1 has more than one layer.

All water pumped from corridor was colorless and void of odor from start to finish.

8/3/96 Dwight Hall

August 4, 1996 — NGC Plant

0930
Inspect Site 4 tanks
Tank 9-7 is empty
Tank 4-2 has approximately ½ full of water
water appears to be clear and there is some
sludge on the bottom. However the sludge
appears to be only scale flaking off of the
tank. Engine Tester told me that both
tanks were used for water additions to
the water hauling and fueling Cargo

Purpose for Vessel Sampling
Site 4, Tank AST 4-2, Water / Sludge TRPH/BTEX
Site 13, Tank AST 13-3, Water / No Sludge TRPH/BTEX
Site 16, Tank AST 16-1, Oil / Water / TRPH/BTEX/PCB's sludge if present TCLP all metals
Site 14, Tank AST 14-1, Water / No Sludge TRPH/BTEX/PCB's
Site 19, Tank AST 19-1, Antifreeze / No Sludge / Sampled Privately
Site 19, Pit TRPH/BTEX/RCRA's Sludge if present TCLP Metals fuel ID and ignitability
S.S 14/16 Consider if Sludge TCLP, Fuel ID and ignitability

Doug Mitchell 8/4/96

August 4, 1996 — Northwest Cap[illegible] II

Inventory Bottles @ [redacted]

Amber No Pres	H_2SO_4	HCL	VOA w/ HCL
12	12	12	54
12	12	12	
12	12	4	
12	10		
12	12		
11			

Sed Jars
4 x 8 oz 4 x 4 oz 3 x 2 & 4 oz

Packaging 4 x 4 x 4 Foam

9 x 8 oz 2 x Trip Blanks 7 x Temp Blank
3 x 4 oz 2 x Vaas 5 x 40 ml
1 x 1L TCLP RCRA Nalgene 2 x 8 oz

Doug Mitchell 8/4/96

August 4, 1996 — Northeast Cape

[illegible] 4.

[illegible]

There was sand sludge present on tank 4-2. There was a very thin layer of rust on the inside of the tank. No sludge. Sample was collected from tank 4-2. Tank 4-2 is 42" diameter, by 66" long. Tank 4-1 is 10' diameter, by 25' long and bilges a little over the tank is empty (by sounding) and all lines point to the actual air inlet point. The samples collected from tank 4-2 [illegible] remarked, photographed and [illegible].

1800 Left to Site 14 to collect Vault Sample (from) tank 14-2 collect 3 1L amber glass [illegible] and 3 40ml vials for BTEX.

[illegible] to Site [illegible] to collect Sample [illegible] Cap.

1930 Arrive to Site 4 and

1930 Begin Sampling of Tank 16-1

Dwight [illegible] 8/4/96

August 4, 1996 — Northeast Cape Part II

Conducts Sampling of Site 16 Tank 16-1

a total of 15 1L amber jars and 18 VOAs were collected

Samples were as follows.

96NETK16101 Primary with MS/MSD

96NETK16201 QC

96NETK16301 QA

1500 - Leave Northeast Cape for Nome

Dwight [illegible] 8/4/96

August 5, 1996

August 5, 1996 -

Gumball Pellet Contents

2 x 4 oz, 12 x [redacted], 11 x HCl 12 ounces

4 [redacted], 10 4oz, 2 HCl 16

August 6, 1996 Northeast Cape Phase II

0730 - go to [illegible] to complete [illegible] packaging for [illegible] shipment.
Includes MAS Anchorage, Chelsea to NPIC, TTHS Seal Tabulation, NPIC send Fedex
all [illegible] by the the afternoon) from
Northeast Cape.
0915 - Depart for Northeast Cape
1000 - Arrive Northeast Cape
1130 - Drug and Elise to Site 19 to Sample
Drainage 21.
1100 - Collect Water Samples from port for
TRH, PCB, [illegible], 3L1 glass Amber and 3, 40ml VOA's
Collect Sediment Samples for Polycyclic, [illegible]
and
The Pit itself is
and Contains mainly debris. The "Sediments"
Consisted mainly of insulation and paint chips.

Dwight A. 8/6/96

August 6, 1996 Northeast Cape Phase II

1200 - Collect Sludge Samples from tank 16-1.
Collect QA/QC on NCII.
Sludge is very dense black and greasy to touch.
Sludge is very gelatinous and appears to be
similar to Northeast Cape exploration. All
Sampling [illegible] Teflon Dipper
were left in [illegible] greasily contaminated. Tank [illegible]
Lid which was cleaned and stored with wipes
by the field team after completion of
sampling [illegible].

1300 - Begin [illegible] for [illegible] Site 19
for [illegible] 101, 104, 105,
104, 105 [illegible] 107, 108,
and 109 during the [illegible]. Samples #3,55101 had a
QA/QC taken. Samples taken are as follows.

[illegible]	101	1300	[illegible]	[illegible]	104	1300	XRO/PCB's
[illegible]	101	1305			104	1455	
[illegible]	101	1310			105	1245	
[illegible]	103	1315			109	1310	
[illegible]	103	1320					
[illegible]	104	1325					
[illegible]	105	1330					

All Sample Site Locations are in VEH's notebook.

Dwight A. 8/6/96

SKIPPED
Dwight 8/7/96

August 7, 1996 — Northeast Expo Phase II

0730 - Meet Chet, Victor, and Bonnie to Expo Smyrna for a.m. flight to Gambell (Chet) and Northeast Cape (Bonnie, Victor).

0810 - Contact Alaska airlines and change reservations for Harris, Tugman, and Quist to flight 152 Departing Nome @ 1245 and arriving Anchorage @ 2015.

0915 - Fax COC's to NAK and Nome Commercial. NPAK confirmed MAS phone number not responding. Will call to check number and re-fax the a.m.

1045 - Get ready for shipment of cargo to MAS and NPAK. Also shop for Eugene and Mike (Gambell)

1430 - Depart for Terminal for flight to Gambell. Gambell flight delayed. Arrive Gambell @ 1830.

See Gambell Phase II Notebook

Dwight 8/7/96

Recyclable

"Rite in the Rain" - A unique All-Weather Writing paper created to shed water and enhance the written image. It is widely used throughout the world for recording critical field data in all kinds of weather.

Available in a variety of standard and custom printed case-bound field books, loose leaf, spiral and stapled notebooks, multi-copy sets and computer papers.

"Rite in the Rain" All-Weather Writing Papers are also available in a wide selection of rolls and sheets for printing and photocopying.

a product of

J. L. DARLING CORPORATION
TACOMA, WA 98421-3696 USA

Elise Tuzman

"Rite in the Rain"®

ALL-WEATHER

LINE RULE

Notebook No. 391

Phase II COE
Aug 1 - Aug 8
1996
Elise Tuzman, Victor Harris
Doug Quist, Bonnie Nelson
Northeast Cape

"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

Name Elise Tuzman
Montgomery Watson

Address

Phone

Project St Lawrence Island
Phase II RI/FS

INCHES

s

1-5 NEC - Aug. 1 (windy, rainy)
6-8 NEC - Aug. 2 (windy, overcast)
7-16 NEC - Aug. 3 (wind, rainy)
17-22 NEC - Aug. 4 (dry, windy, sunny)
23-30 NEC - Aug. 5 (dry, windy, sunny)
31- NEC - Aug. 6 (dry, slightly overcast)

45 Photo log (ET1 + ET2) 8/1/96
48 Phone #'s 8/1/96

Thursday, Aug 1

Arrive @ NEC ~ 10:00 A.M
Clean Airport Bldg for Mobilization Area
Arrange loading + ATV rental w/ Eugene Tabucci
Cape Smythe will pick us up Friday @ 7 P.M

1[45] cut 3 cables in front of airport bldg. drug under shelter

2[00]: Bonnie + Elise began installing "Asbestos Warning" signs on the buildings

2° field office @ Pump House Bldg

* Photo of Rec Bldg Switches (Roll ET1/#26)
* close up of switches 1+2 (photo 25, 24) (#s in Bonnie's field book)
* photo #23 - switch 5 (fire protection alarm)

Very windy + rainy today

8/1/96

Bldg 108 switches [Westinghouse Electric Corp
Cat No: B 7350 70 or C
Style or type: AB11-9AB125
Assembled in: SEA
Stock order: SEYA-S-2214
Amps: I25
Volts: L20/208
(Roll ET1/#20)

"Danger Asbestos" Signs

Bldg 114	North door
113	North door
99	Southwall
99	North door
100 (lg)	SE door
105	S door
102	BOQ east door
103	ACW West door

Corridor b/w ACW + Squad Bldgs North side
Squad Bldgs ... east door
109 - Auto Maintenance east door
109 - Garage door
corridor 109 → 108 South side
110

"Danger Signs" Posted 8-1-96

Bldg 105 SE dock
Bldg 106 NE dock
Bldg 107 E dock
Bldg 112 E side
Bldg 112 W side
Bldg 107 NW Dock Edge
Bldg 111 NE Dock door
Bldg 111 S door
Bldg 101 E N door
Bldg 101 W N door
Bldg 98 NE (1001
Bldg 98 NW door
Bldg 100 E S door
Bldg 100 S W door
Bldg 100 N W Landing
intersect corridor
to 101 & 111 — S door
Bldg 101 E S door
101 W S door
101 W W door
98 inside E door
inside NE door
98 inside S middle door (photo)
98 SW door, inside
98 W door (outside)

Site 21 Well House (1 E door)
Corridor W 111 + 101 Midwest door
Southwest door

~~Bldg 110~~

Bldg. 110 north east + north door
Bldg. 110 South facing garage door

Airport terminal (6 signs)
NW garage doors
N mid door
E door
S mid-door
S garage door
door to office area from garage

Friday, Aug. 2 - Overcast, windy

10:00 Bonnie + Elise begin quantifying fill & cutting wires, documenting stained well & posting additional Asbestos signs

1:45 Gather wires SW of Bldg 98 begin attaching to ATV w/ rope to store in buildings

Cut wires crossing road east of Water tank bldg + placed in Rec Bldg.

Explored power lines going from south of water tank bldg toward White Alice - gathered wires + cord along route - attached to ATV
- stuff wire in which rodder could not become entangled - wire left in place

EMT 8/2/96

Gathered wires around power lines north of White Alice Site (line leading from site to sea due east)
- brought wires to ~~Ops bldg~~ area Pump House.

Snipped wires surrounding Ops Bldg + road from Ops to Pump House (photo)

Gathered wires around ~~General~~ Mess Hall Warehouse (107) + put on building platform 4' off the ground (photo)

Snipped wires around ~ 20 antenna poles + in between. Snipped ~ every 4' on wires (South of Heat + Electric Bldg)

Drug large wires surrounding Bldg 112 into Power. Dope Bldg (112)

EMT 8/2/96

Completed were getting for the day at 6[00]

Traveled back to Airport Terminal to wait for Capt Smythe pickup.

Arrived in Nome 7[40] P.M.

Photo log on page 45

Elmer Tuzroa
8/2/96

Saturday, August 3

Took 2nd DC3 to NEC
Arrived @ 1[30] P.M.

Prepare for Benthic, Phyto + Zoo-plankton Sampling

Wilcox dredge 6" x 6" x 6"

4[00] check on basement pump refill w/ gas

Approach drainage basin to stake sw/sed locs + benthic locs.

Take water quality tests for DO, pH, Temp + EC

Locations of SW/SD, Streamflow + Benthic

Streamflow #6

138' NW of MW 27-1 to the thalweg of the drainage where streamflow 6 was taken

Streamflow #5

128.5' North Northeast of MW 27-1

5[10]

SW/sed #1

203' North of MW 27-1

pH = 6.29

Conductivity = 75 umhos

Temp = 10°C

DO = 11

pH - Beckman

EC + temp - YSI

DO - HACH Pocket Colorimeter

5[25] P.M.

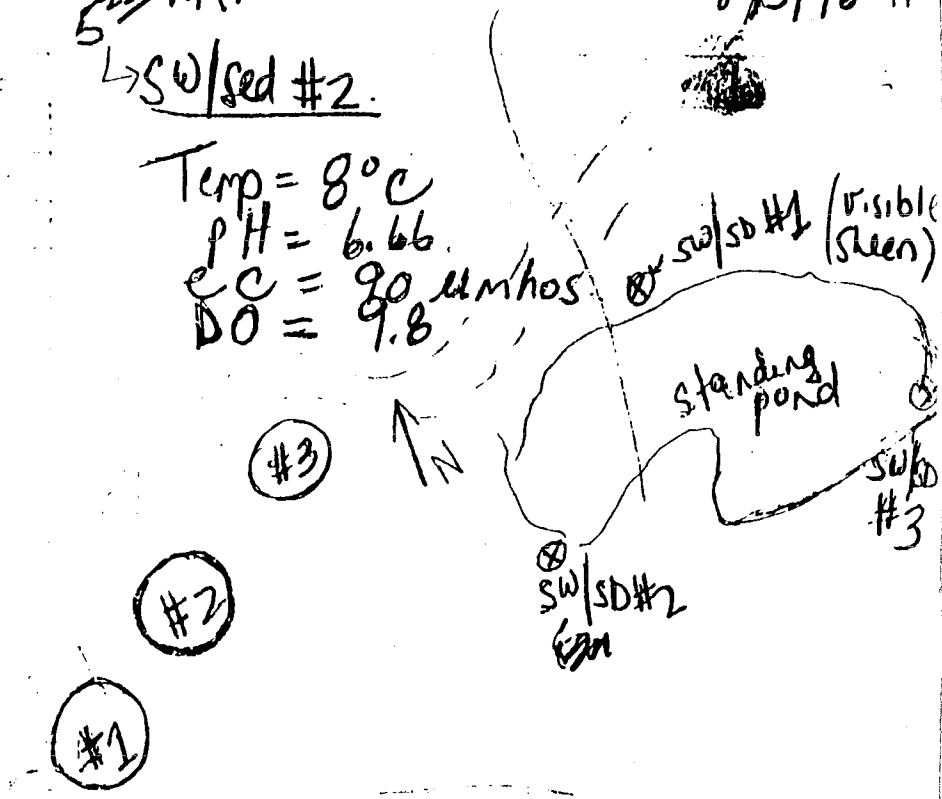
↳ SW/sed #2

Temp = 8°C

pH = 6.66

EC = 90 umhos

DO = 9.8



SW/SD #3

5[35] P.M.

pH = 7.13

Temp = 9.8°C

EC = 100 umhos

DO = 11

Appears to be no distressed vegetation. visible sheen in pockets

Redid DO for 8/14:

DO = 7.9

12

SW/SD #4.

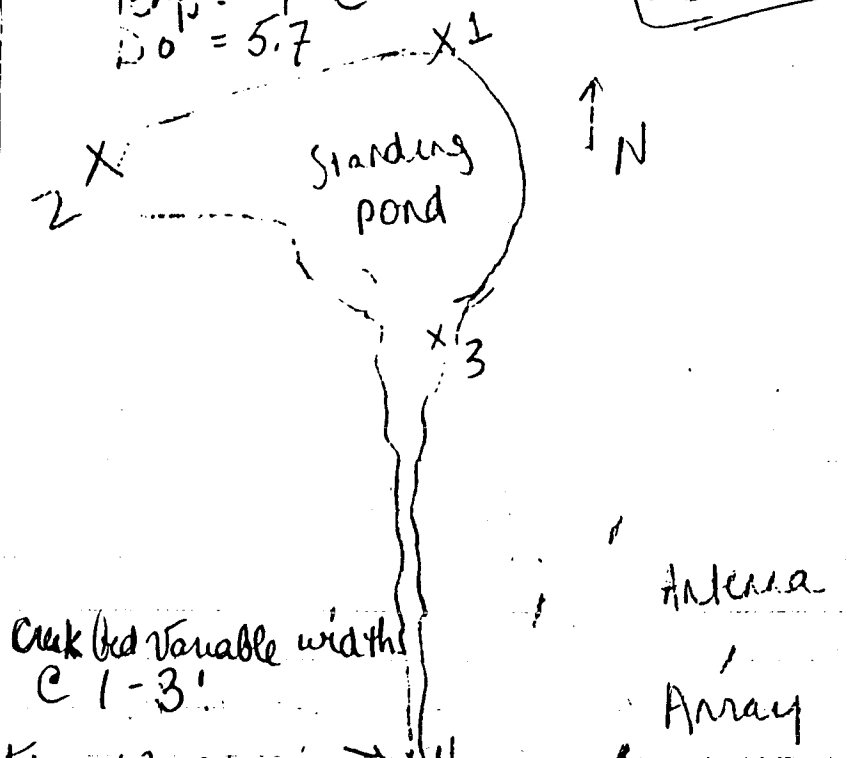
Time - 6[10] (running water)

pH - 7.15

EC - 190 ← redid on 8/5 → EC = 110

Temp = 4°C

DO = 5.7



Creek bed Variable widths ~1-3'

Flow ~ 20-30 gpm

Visible Sheen in banks

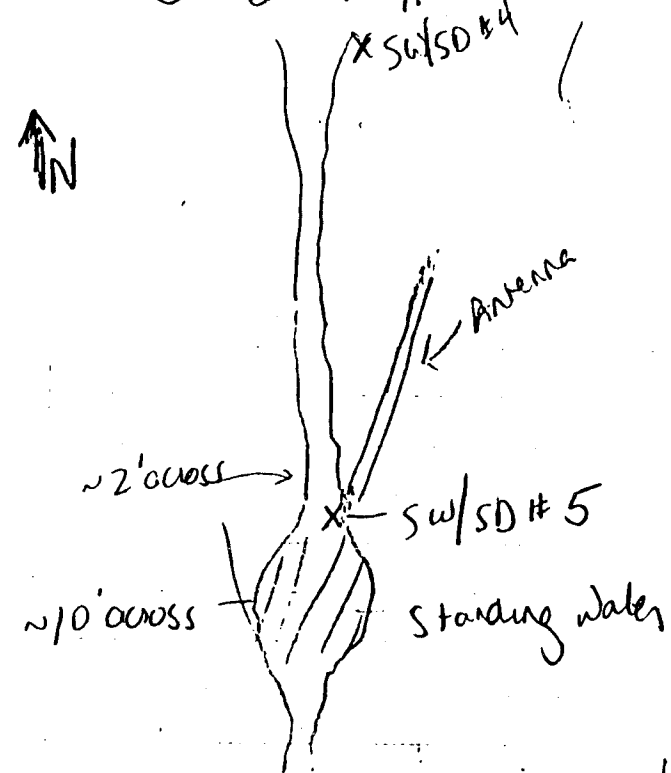
Appears to be no distressed vegetation.

Grasses + clays present.

13

SW/SD #5

Time = 6[40] P.M.



grasses present; appears to be no distressed vegetation.

Sheen in pockets along bank.

Flow ~ 5-10 gpm.

pH = 6.98

Temp = 10°C

EC = 75 umhos

DO = (Fast Flow) 11 ← Redid on

14

SW/SD #6 — 8/3/96

Time 1109 P.M

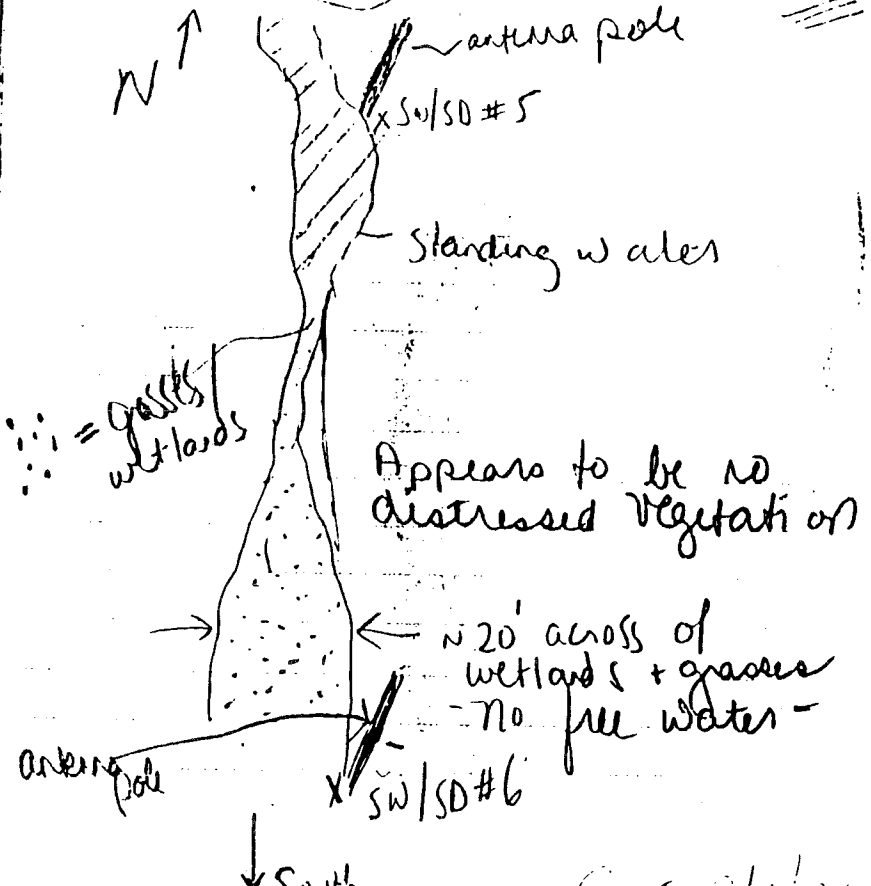
pH = 7.03

Temp = 9°C

Conductivity > meter limits (?) ← read 8/5 EC = 80

(will retry)

DO (Hanna) ← wrong ← read 8/4/96 DO = 8.0



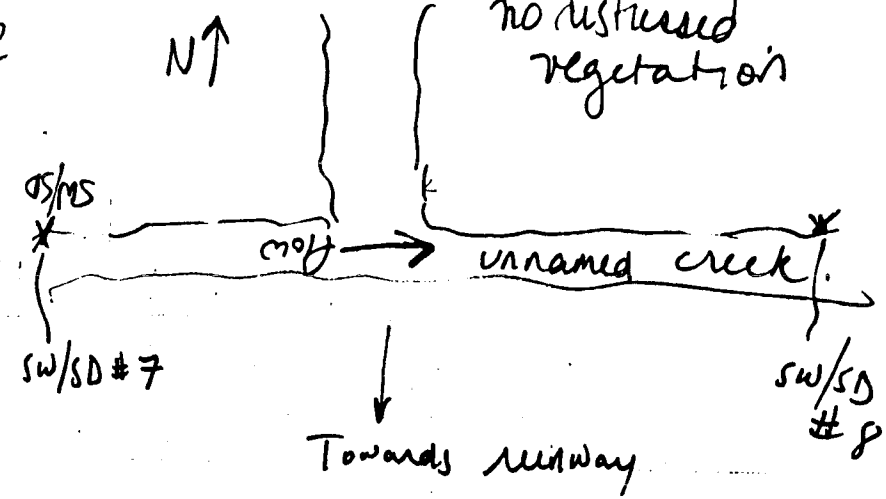
SW/SD #7 — 8/3/96

Time 715 P.M

Flow ~ 10-20 GPM

width of creek: 3-5' (variable).

appears clear - no sheen. no distressed vegetation



Temp = 9°C

EC = 50

pH = 7.29

DO = ← (completed on 8/4/96 (DO = 7.9))

Clear water

8/3/96

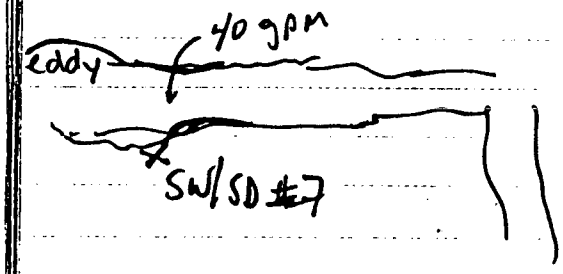
SW/SD #8

(Loc on pg 15)

Time: 7³⁰ P.M.

West of junction S/W drainage + unnamed creek, along creek.

Creek flow ~40 gpm.



Temp: 9°C
EC = 50 µmhos
pH = 7.17

Duplicate DO on 8/4 ⇒ DO = 7.3

Creek width ~8' at sample location

Variable width along creek at ~2-8'

Clear water, no distressed vegetation, No visible sheen

GMT 8/3/96

8/4/96

12:00 Begin SW/SD Sampling [DRO + PCB]

SW/SD #1

Time 12:00

96 NEC DBSD 101
SD 201 - QC
SD 301 - QA

96 NEC DB SW 101
201 - QC
301 QA

Redo DO & same #; 11 (?) as 8/3

SW/SD #2

Time 12³⁰

96 NEC DB SD 102
SW 102

SW/SD #3

Time 13:10

DO = 7.9

96 NEC DB SD 103
SW 103

GMT 8/4/96

8/4/96

SW/SD #4 DRO, PCB
Time 1320
DB
96 NEC SD 104
96 NEC DB SW 104

~~SW/SD #5~~
Time 1340
96 NEC DB SD 105
96 NEC DB SD 105

Read DO from 8/3:
DO = 8.1

SW/SD #6
Time = 1405
96 NEC DB SW/SD 106

DO = 8
↳ Read from 8/3

EMT 8/4/96

8/4/96

SW/SD #7 [DRO, PCB]
Time 1420
96 NEC DB SD/SW 107
@ unnamed creek
Read DO from 8/3/96
DO = 7.9

SW/SD #8 (DRO, PCB)
Time = 1430
96 NEC DB SD/SW 108
West of Junction b/w
Drainage Basin (DB) +
Unnamed Creek

DO = 7.3

MT
8/4/96

8/4/96

Collected surface soil - sediment samples for PCB only at:

96NECDBSS101	1440
96NECDBSS102	1445
96NECDBSS103	1450
96NECDBSS203 - QC	1455
96NECDBSS303 - QA	1500
96NECDBSD109	1505
96NECDBSD110	1510

All located in drainage basin area in order to pinpoint source of PCB contamination.

1515 Victor + Elise swingtie the SW/SD locations in the drainage basin

96NECDB SW/SD 101 → 108

Elise

8/4/96

Swingtying SW/SD #8 → see a sheen on creek's surface when bringing up contaminated sediment

SW/SD#8 (sediment) 96NECDBSD108 was taken on side of creek bed. Will take a sample from creek bottom tomorrow.

1700 Cape Smythe brings us back to Nome with our samples.

Checking Gambell stuff @ Cape Smythe:

Gambell stuff
- 3 bailers
- 10 stakes
- PID meter
- DI water in bucket
- bubble wrap

Not preserved: 12+1 = 13

HCL = 11 +1 = 12

4/oz = 24 +10 = 34

VOAs = 45 = 45

Trip Blanks- 4 = 4

2 coolers.

1 long box ?

Need tedlar bags,
Calibration gas

ET 8/4/96

8/5/96

~~-9~~ 9:30

Arrived @ NEC w/ Capt Smythe.

Prepare for Benthic, Phyto + Zooplankton sampling.

Benthic samples will be taken in triplicate

Begin @ SW/SB #7 / Benthic Sample 103

96 NEC DB ZO 103
96 NEC DB PL 103
96 NEC DB BT 103

Physical Characterization

1) predom. land use → natural
2) Watershed erosion → none
3) Stream width - Variable 2-4 ft @ Sample location
4) stream depth = 1"-27" run
5) local watershed pollution None @ Sample location
6) High water mark ~~27~~ 27"
7) Velocity - ~20 gpm
8) Dam present → NO
9) Channelized → yes
10) Canopy Cover - Open

8/5/96

1) Sediment odor → normal
2) Sediment color → absent
3) Sediment deposits
4) Inorganic Substrate Components → Silt

5) Substrate type 100% silt

11) Organic Substrate Component ⇒ MUCK-Mud

Water quality
Temp = 9°C
DO = 7.9
pH = 7.29
EC = 50 µMhos

Cold water
No odor
NO water surface oils
Clear turbidity
Sunny, slightly windy day

Photo ET 2 / # 1

Benthic Sample mostly organics, no visible bugs

8/5/96

1700 Benthic Phyto + Zooplankton at junction b/w drainage system + unnamed creek

96 NECDBZO 102
PL 102
BT 102

Physical Characters

1) Native use
2) No erosion
3) obvious source of pollution
4) Stream width
5) Stream depth → riffle
6) high water mark
7) v. clear ~10 gpm
8) no dam present
9) not channelized
10) no canopy cover
11) petroleum sediment odor
12) sheen present
13) sediment deposits - sludge
14) Organic Silt
15) Substrate type

Muck-Mud

8/5/96

Water quality

Temp = 9°C

~~DO~~

pH = 7.04

EC = 100 µmhos

Cold water drainage basin

Petroleum like odor

Sheen

Benthic sample Mostly organics, ET2/#2 no visible bugs.

12:20

Calibrated ~~E~~ YSI

Calibrated Beckman

12:45

Benthic Location #4 (SWISD #8) 104

96NECDB ZO 104

PL 104

BT 104

Water Quality

Temp: 9°C

DO = 7.3

EC = 50 µmhos

8/5/96

Physical Characterization

1) Native vsl
2) No erosion
3) obvious source of pollution
4) Stream width = 3.5'
5) Stream depth - Run ~3'
6) high water mark
7) Velocity (20-30 gpm)
8) No dam present
9) Channelized
10) No canopy cover
11) No petroleum odor
12) Sediment oils present
13) sediment deposits ?
14) silty/sandy bottom
15) Muck Mud organic bottom

Cold water creek

No water odors

Sheen when sediments are disturbed

Clear turbidity

~~Photo: ET-2/#3~~ EM1

Sample Sandy, little organics,

8/5/96

1320 Redid EC for SW/SD #6
(originally result was out of limits of YSI)
EC = 80 umhos

1330 Benthic sample 101
(SW/SD #5)
96 NEC DB 20 101, PI, LM, ET: 01
Mostly wetland + ponds, NO (low) flowing water

1) Native use
2) No erosion

* Photo ET2/#3 of Benthic loc 101

3) Obvious source of pollution
4) Drainage width ~ 20-30'
5) Drainage depth - variable 6" - 1'

Low velocity ~5 gpm
No dam (s) Channel
No canopy cover

CMT

8/5/96

Smell of creosote from antenna pole
No sheen present
Silty bottom, petroleum smell

Muck Mud organic bottom
clear turbidity
Cold water
Sample mostly organic mat'l, petroleum odor
pH = 6.98
Temp = 10°C
EC = 75 umhos
DO = 8.1

* Photo ET2/#4
Bonnie collecting phyto + zooplankton samples w/ Wisconsin net @ location 101 (SW/SD #5)

1355 Redid EC for SW/SD #4 (PI ET2/#5)
EC = 110

8/5/96

1400 Bring samples back to terminal
dilute, cover w/ formaldehyde solution

1600 collect surface soil samples @ Site 10 [DRO, TRPH]

96 NEC 10 SS 101
SS 201 QC
SS 301 QA

10 SS 102 1630
10 SS 103 1640
10 SS 104 1645
10 SS 105 1650
10 SS 106 1655

Do surveys for locations

1830 Fly to Nome.

10 SS 107 1645
10 SS 108 1700

8/5/96

8/6/96

0900 Called Jenna at [illegible] confirmed lodging + ATV rental, arranged equipment to be stored at the Gambell Lodge.

Booked Elice to leave for Gambell Wed morning, 8/7/96, and Doug to arrive Wed evening TAN BISHOP Victor will arrive in Gambell on Thursday afternoon, 8/8

1000 Arrived at NEC.

Prepare for pit, sludge + surface soil samples with Doug.

1055 Samples on @ Site 9 (Nto upper bldg) Water in
Photo ET2/# 6-9/10
BB, IP11, BTEX collected
Sample time 1100

Cont

8/6/96

96NEC19 ~~ET~~TK102 - Sludge in pit
96NEC19 TK101 - Water in pit

1130 Leave IO sample sludge at Site 16, Tank 16-1

96NE16TK102
Sample time 12ay
Sampled for: glycol, fuel ID, TCLP-metals

QC 96NE16TK202
QA 96NE16TK302

* Photo ET2/#11-15

1245 Soil Sampling at Site 27 (North of Bldg 110)

96NEC27SS108 1245,
KRO + PCB
96NEC27SS107 1255
96NEC27SS106 1300

96NEC27SS109 1310
ACES ONLY

8/6/96

* Photos taken: ET2/ #16+17

1315 Add PCB sample to Site 10 sample from 8/5/96
96NEC10SS107 1315

1340 Began traveling along unnamed creek westward from SW/SD# 8 to determine extent of petroleum contamination (cutting hazardous weeds along the way) Photo ET2/#18

1345 2 small fish (6") found in unnamed creek ~~west~~east of function b/w drainage basin + unnamed creek

Photo ET2/#19
- other fish found - ~~almost~~ nearby
200' W of SW/SD#8 - sheen observed upon sediment disruption, pe[illegible]dor

CNT

3-1

8/6/96

400' W of SW/SD#8 - Sheen observed upon sediment disruption Petroleum odor

600' W of SW/SD#8 - Sheen from sediments Petro odor - Sample collected.

96NECDBSD111

for DRO + PCB Time 1515

Depth of water -> 1.4 ft.

Velocity 2-5 gpm

photo: ET2/#20, 21

800' W of SW/SD#8
Sheen + odor [ET#2/#22]

1000' W of SW/SD#8
Sheen observed
No discernible odor

8/6/96

880' west of SW/SD#8

1530

wires observed - Small straw telephone type wires + 1 7 gauge wire cable extending from antenna 100' South across the creek toward the airport (NW antenna of this array)

Photo ET2/#23, #24 (close-up)

Unable to cut

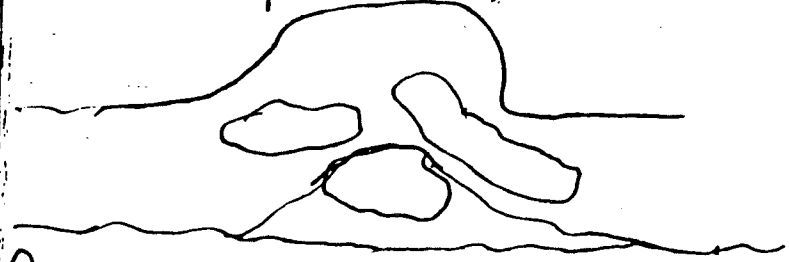
1200' W of SW/SD#8
Sheen observed, mostly from disruption along edges
odor observed. (Sheen harder to find)

1400' W of SW/SD#8

No sheen observed b/c of gravelly bottom
However, @ 1450' W, sandy bottom showed sheen. (harder to

8/6/96

Between 1400 + 1600'
Stream meanders



@ 1600' - Sheen found mostly along banks w/ stagnant water, ~~discern~~ odor

1700' creek turns north toward runway

@ 1900' (200' Northward)

~~observed~~
bottom surface covered w/ black moss.

Sheen seen along banks (contamination harder to find) petroleum odor.

EMT

8/6/96

@ 2100' (400' Northward)

Bottom covered w/ black moss
no sheen observed

@ 2300' (600' Northward)

from 2000' onward - the bottom becomes more cobbly + progressively less sheen is observed.

Sheen observed @ 2300' in sandy pockets along bank
Very little sheen observed
No discernible odor

@ 2450

AST seen on east side of creek.
Photo ET2 / #25
500 gallon AST; empty
labeled: Elmendorf

8/6/96

@2500' along unnamed creek.
Sample collected for DRO
96 NEC DB SD 112
for DRO + PCB
Photo ET#2/#26 TIME: 1630
(last picture in roll ET2)
very gravelly bottom.

@2700'
More, significantly more algae growing on cobbles on creek bottom
No sheen observed.

@2750' ~~on unnamed~~ ~~tributary~~ ~~- sheen observed~~
fish seen in creek.
6" sculpin (?)

@2800' - empty drum on east side of creek.

8/6/96

1745 DOUG seals shut the lid on tank 14-1 w/ wire
1750 Lid sealed shut on Tank 16-
1755 Lid sealed on Tank 13-2

1800 Meet up @ Sch 19 Auto Maintenance Bldg
28" wide x 24' long x 5' deep

1900 Plane picks us up for NOME.

Prepare samples for Shipment

Plans to depart for GAMBell at 8 A.M

EMT

12 L Ambers w/ HCL ✓
18 VOAs T15 ✓
10 Ambers - no preservatives
27 4/oz bottles
12 Trip Blanks

Photolog:

ET2/#22 800' W of SW/SD#8 Sheen observed

#23, #24 - were found 880' W of SW/SD#8 along unnamed creek.

#25 - AST found 2,450 west from SW/SD along unnamed creek on east side of creek.

#26 - Doug collecting sediment sample 2500 from SW/SD#8 along unnamed creek - where no Sheen was observed.

Photo Log

Roll ET 1

#27 Rec Bldg ACM Sign (South Wall)
#26 Rec Bldg Switches
#25 close up of Switch box
#24 " " " 2nd box
#23 close up of switch 5 (fire protection alarm
#22 Bldg 105 Rec Bldg South Side ACM sign
#21 ACW Bldg - sign
#20 Switches on Bldg 108
#19 Bldg 110 North door
#18 Paint + Dope Bldg 55 gallon drums
#17 General warehouse 20-25# Tabs - drawings
#16 Bldg 98 NE corner Power / Generator Bldg
#15 Bldg 101 W - W door
#14 Bldg 98 S middle door
13 ~~#13~~ Bldg 99 in Alley
13 Bldg 401 N mid-door
11 wires traced into Bldg 99
10 wires collected around 4 poles SW of Bldg 99

#9 – Wire collected north of whole NAVY site
#8 – Snipped wires surrounding OPS Bldg (98) – north side.
#7 gathered wires on Messhall Warehouse platform (107)
#6 ~~Antenna poles~~ Ent. power lines where hazardous wires were clipped north of Heat + Electric Bldg.

ET2
#1 Benthic, Phyto + Zooplankton Sampling @ LOC 03 (SW/SD #1)
#2 Benthic Sampling @ LOC 02 Junction b/w DB + unnamed creek
#3 Benthic Sample 101 (SW/SD Location #5)
#4 Bonne collected Phyto, Zooplankton samples at Location 101 (SW/SD, #5)
#5 SW/SD #4 Drainage

#6 pict @ Site 19 pit
#7 pict @ Site 19 pit
#8 BTEX sampling @ Site 19 pit
#9 TRPH, PCB sampling @ Site 19
#10 PCB Sampling @ Site 19
#11 Tank Sludge Sampling @ 16-
#12 " " " "
#13 " " " "
#14 " " " "
#15 " " " "
#16 Surface Soil Samples 96NEC27SS106 – 108 (106 in foreground)
#17 Surface Soil Samples 96NEC27SS109 (PCB only)
#18 wire cutting north of facility along road to runway
#19 Small fish seen in Unnamed creek. Mouth of junction b/w drainage basin + creek.
#20 Sediment sample 6' of SWSD
#21 " " " "

Phone #s

Cape Smythe 907-443-2414
800-478-5433

Nunaq Apts 443-3063 fax

a product of
J. L. Darling Corporation
2212 Port of Tacoma Road
Tacoma, WA 98421 USA
(206) 383-1714

DURA-Rite
WATERPROOF

HORIZONTAL LINE

NOTEBOOK NO. 691

CRPP 2198.0440
St. Lawrence Meetings
March 24 - 27, 1996

Elsie Tugman / Harris
Basement Samples

Tue Tay. March 25

1[20] Lv for Savoonga

10[00] Arrive in Savoonga

Lodging at Nelson Alookas

Call George Noongwook -
Jerry Bagitthin to find
Item of mtg

2[00] visited by Carl Pelowook
worked in boiler room at UEC
considers himself high risk
wanted to know if he had
work that would
HAZMAT trained

4[00] Mtg @ city bldg - see trip notes

9[00] Eskimo dancing

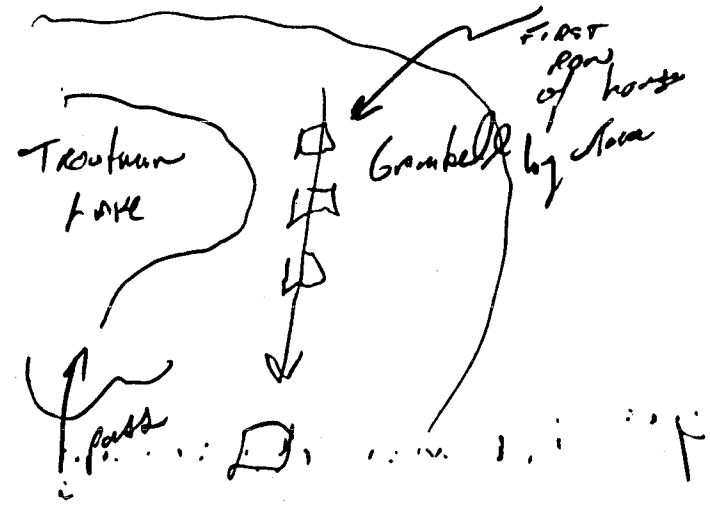
WED 6-26-96

12:30 pm Wipe samples of TRANSFORMERS on top of Sevuokuk Mt. Tuzman, Hoberg, Rowe

12:35 FINISH sample

TRAN 1 - primary, QC, QA
2 - primary
3 - primary
+ blank

wiped inside of transformers
12" ø x 2.5' long, RUSTED
marked with yellow pen



12:4. inspection of Electrolysis Gallery. Gallery consists of 2 6'x 6' SHED. Numerous pipes - (6" PVC) in area - design unknown. 6' ϕ VEETAL culvert about 50' away. Bored 210' - appear to be a well.
Pipe (6" HDPE link from gallery to town)

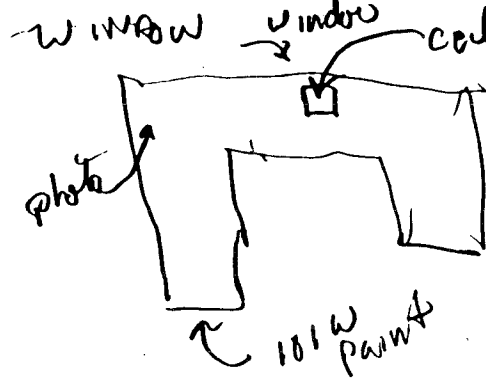
Wipe samples 6/26/96
Transformer #1
96GAM001WI 1230
96GAM011WI QC 1235
96GAM021WI QA → NPDL 1240
Transf #2
96GAM002WI 1245
Transf #3
96GAM003WI 1250
BLANK
96GAM100WI 1255

4:00 Prepared for community Mtg at the Q-Bldg
* Set trip notes

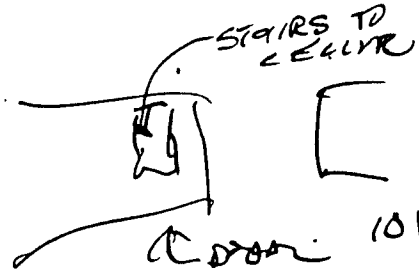
Thursday, June 27

Charter from Being leaving Gambell at 8 A.M. for Northeast Cape.
DEPART GAM 8:15 A

1st Basement Water Sample
Building water sample
4'x4' crawl space w/ WOOD STAIRS
Water at depth of 12' from ground
Water 4' deep in cellar
No sheen - water appears clean
additional 3' to WINDOW



pk Bldg 98



TAKE off 11:30 FROM NEC

BACK OME 12:30
JOHN SWOINSKI

Sample #'s

Bldg 100 DORM. + MS/MSD
Basement sampling
96 NEC 001 SW 1000
96 NEC 011 SW 1005 10 QC
DP DL → 96 NEC 021 SW 1015 QA
96 NEC 900 SW → Trip Blanks 1040

Operations Bldg.
96 NEC 002 SW 1030

Army Corps of Engineers

Northeast Cape, Alaska

Equipment Calibration Records

MONTGOMERY WATSON

EQUIPMENT CALIBRATION STANDARD FORM

Pg 1 of 1

Project: USACOE - NEC — Project Number: 298 04460
Personnel: B McLean D Quist — Date: 8-2-96
Weather: Clear Cldy Rain ✓ Snow ____ Temperature 40°F Humidity ____

INSTRUMENTATION: MicroTip
pH ____ PID 3000 IS EC ____ Explosimeter ____ OTHER ____

CALIBRATION:

Date	Time	Calibration Standard	Calibration Standard Concentration (ppm) ~~(umvem)~~	Meter Reading @25°C	Comments
8/3	1045	103		103	Isobutylene & Zero

CALIBRATION CHECK: N/A

Date	Time	Calibration Standard	Calibration Standard Concentration (ppm)	Meter Reading	Comments

MAINTENANCE AND/OR REPAIR: None noted — Report all problems to FOX BOSS

Date	Problem	Return to Mfg. for Repair	In-House Repair	Type of * Maintenance or Repair	Effective	Comments

* *Does not include charging batteries.*

Use one form for EACH piece of equipment

Comments should include whether or not it was a warranty repair, date equipment was repaired or was received from the manufacturer, and any other information you feel would be useful.

JMM James M. Montgomery

Note: If you run out of space in the maintenance and repair section please write on the back.

PROJECT NO. 18111

EQUIPMENT CALIBRATION STANDARD FORM

Pg 1 of 1

Project: LG Plume IEC — Project Number: 7198-026-C

Personnel: Susan Turman V Harris — Date: 8-3-96

Weather: Clear ____ Rain ✓ Snow ____ Temperature ____ Humidity ____

INSTRUMENTATION:

pH Beckman — PID Microtip 3000 IS — EC YSI 3000 — Explosimeter ____ — OTHER DO Hach

CALIBRATION:

Date	Time	Calibration Standard	Calibration Standard Concentration (ppm) (um/cm)	Meter Reading @ 25 C	Comments
8/3	1130	AIR	103 ppm	103	Isobutylene
		0		0	Zero
8/3	1040	pH STD	pH 4.57	7.54	Self-calibrate
8/3	1100	SC	1413 um/cm	1407	
8/3	1110	DO	100% @ 0 ppm		self-calibrating

CALIBRATION CHECK: N/A

Date	Time	Calibration Standard	Calibration Standard Concentration (ppm)	Meter Reading	Comments

MAINTENANCE AND/OR REPAIR:

Report all problems to FOX BOSS

Date	Problem	Return to Mfg. for Repair	In-House Repair	Type of * Maintenance or Repair	Effective	Comments
	None noted					

* *Does not include charging batteries.*

Use one form for EACH piece of equipment

Comments should include whether or not it was a warranty repair, date equipment was repaired or was received from the manufacturer, and any other information you feel would be useful.

JMM James M. Montgomery

Note: If you run out of space in the maintenance and repair section please write on the back.

PROJECT NO. 18111

EQUIPMENT CALIBRATION STANDARD FORM

Pg 1 of 1

Project: USACOE DEC — Project Number: 2198 0460
Personnel: BMcLean DQuist — Date: 8-4-96
Weather: Clear ✓ Rain ____ Snow ____ Temperature ____ Humidity ____

INSTRUMENTATION:
pH ____ PID ____ EC ____ Explosimeter ____ OTHER Radiological PUR1

CALIBRATION:

Date	Time	Calibration Standard	Calibration Standard Concentration (ppm) (um/cm)	Meter Reading @ 25 C	Comments
8/4					calibrated in location
					person work present

CALIBRATION CHECK:

Date	Time	Calibration Standard	Calibration Standard Concentration (ppm)	Meter Reading	Comments

MAINTENANCE AND/OR REPAIR: Report all problems to FOX BOSS

Date	Problem	Return to Mfg. for Repair	In-House Repair	Type of * Maintenance or Repair	Effective	Comments

* *Does not include charging batteries.*
Use one form for EACH piece of equipment
Comments should include whether or not it was a warranty repair, date equipment was repaired or was received from the manufacturer, and any other information you feel would be useful.

JMM James M. Montgomery

Note: If you run out of space in the maintenance and repair section please write on the back.

PROJECT No. 18111

EQUIPMENT CALIBRATION STANDARD FORM

Project: USACOE - NEC Project Number: _____

Personnel: _____ Date: 8-5-96

Weather: Clear _____ Rain _____ Snow _____ Temperature _____ Humidity _____

INSTRUMENTATION:

pH Beckman PID _____ EC YSI 3000 Explosimeter _____ OTHER _____

CALIBRATION:

Date	Time	Calibration Standard	Calibration Standard Concentration (ppm) (um/cm)	Meter Reading @ 25 C	Comments
8/5	1040	pH STD	4 & 7	4.0 & 7.0	Lab calibration
8/5	1045	1413	um/cm	1415	
8/5	1450	Instrument blank	103	103	2nd/2nds = 0

CALIBRATION CHECK: N/A

Date	Time	Calibration Standard	Calibration Standard Concentration (ppm)	Meter Reading	Comments

MAINTENANCE AND/OR REPAIR: None to date Type of * Report all problems to FOX BOSS

Date	Problem	Return to Mfg. for Repair	In-House Repair	Maintenance or Repair	Effective	Comments

* *Does not include charging batteries.*

Use one form for EACH piece of equipment

Comments should include whether or not it was a warranty repair, date equipment was repaired or was received from the manufacturer, and any other information you feel would be useful.

JMM James M. Montgomery

Note: If you run out of space in the maintenance and repair section please write on the back.

PROJECT NO. 18111

EQUIPMENT CALIBRATION STANDARD FORM

Pg 1 of 1

Project: USACE - DEC — Project Number: 2158.0260
Personnel: Bmadsen — Date: 8-6-96
Weather: Clear ✓ Rain _____ Snow _____ Temperature _____ Humidity _____

INSTRUMENTATION:
pH _____ PID _____ EC _____ Explosimeter _____ OTHER Radiologic EMF Victoreen #453

CALIBRATION:

Date	Time	Calibration Standard	Calibration Standard Concentration (ppm) (um/cm)	Meter Reading @ 25 C	Comments
					Began work on site
					Calibrated in factory

CALIBRATION CHECK:

Date	Time	Calibration Standard	Calibration Standard Concentration (ppm)	Meter Reading	Comments

MAINTENANCE AND/OR REPAIR:

Report all problems to FOX BOSS

Date	Problem	Return to Mfg. for Repair	In-House Repair	Type of * Maintenance or Repair	Effective	Comments

* *Does not include charging batteries.*

Use one form for EACH piece of equipment

Comments should include whether or not it was a warranty repair, date equipment was repaired or was received from the manufacturer, and any other information you feel would be useful.

JMM James M. Montgomery

Note: If you run out of space in the maintenance and repair section please write on the back.

PROJECT NO. 18111

HAZCO s/N 3028
E/C: V450

Victoreen, Inc.

VICTOREEN

Survey Meter Calibration Report / Certificate of Calibration

Customer HAZCO SERVICES INC.

Cust PO # 101556 Victoreen # 41546

Model 450
Serial # 1554

CALIBRATION NOTES

Radiation levels are based on standards whose calibrations are traceable to the N.I.S.T..

The suggested re-calibration date is only a suggestion. The actual frequency of re-calibration may vary depending on Federal, state or local requirements.

During calibration the survey meter was positioned with the detector perpendicular to the beam axis.

The source used for calibration was Cs-137 .

All readings were corrected for Air Density. To determine the Air Density Correction Factor use the formula:

$$((273.2 + T) / 295.2) X (760 / P)$$

Where T = temperature in degrees Celsius
and P = barometric pressure in mm/Hg.

All readings below 10 mR/h were corrected for Background Radiation.

The formula for % Error is:

$$((Reading - Rate) / Rate) X 100$$

IMPORTANT

Any correction to the instrument readings (e.g. Air Density or Energy Dependence) are up to the user to apply. Care must be used in applying those factors.

The test response data is on page two (2) of this report.

6000 Cochran Road
Cleveland, Ohio 44139-3395
(216) 248-9300
FAX (216) 248-9301
TWX 810-421-8287

Victoreen, Inc.

VICTOREEN

Model 450 Serial #1554

CALIBRATION DATA

RATE

	Range (mR/h)	Rate (mR/h)	Reading (mR/h)	% Error	Comments
Background	0 - 5	N/A	0.021	N/A	
	0 - 5	3.68	3.61	-1.90	Cal Point
	0 - 5	1.16	1.13	-2.59	
	0 - 50	41.0	40.1	-2.20	Cal Point
	0 - 50	11.7	11.9	1.71	
	0 - 500	408	404	-0.98	Cal Point
	0 - 500	147	142	-3.40	
	(R/h)	(R/h)	(R/h)		
	0 - 5	4.03	3.97	-1.49	Cal Point
	0 - 50	40.7	40.2	-1.23	Cal Point

INTEGRATE

Range (mR)	Exposure (mR)	Reading (mR)		
0 - 50	13.6 mR	13.6	0.00	Cal Point

Calibrated by Robert J. Williams 24-Jun-96

Operational checkout by [signature] 20-Jun-96

Suggested re-cal date 24-Jun-97

Traceable to the N.I.S.T.
Test No DG9852/95
Dated Jan. 25, 1995
PTW Chamber Model N23331
Serial No. 174

Temperature 22.5 °C

Humidity 50 %

6000 Cochran Road
Cleveland. Ohio 44139-3395
(216) 248-9300
FAX (216) 248-9301
TWX 810-421-8287

Army Corps of Engineers

Northeast Cape, Alaska

Field Forms

MONTGOMERY WATSON

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Site ID

Northeast Cape, St. Lawrence Island

Sample ID 96NEC10SS101 → 106 **Date** 8 / 5 / 96 (month / day / year) **Time** 1615 → 1655

Sample Type

- **Surface Soil** [X] — Depth (ft): 6" – 1 foot
- **Sediment** [ ]
- **Surface Water** [ ] — Temperature (°C)_____ Conductivity (umhos/cm)_____ pH _____ TDS (mg/l)_____ BOD (mg/l)_____
- **Wipe** [ ]
- **Lead Paint Chip** [ ]
- **TCLP Core Samples** [ ]
- **Asbestos** [ ]

Field Information

Field Team Case Bonnie Victor Doug

Sampler Elise Tuzman

PID (ppm)

ELISA

	DRO	GRO	PCB
screening	100 1000	50 200	5 50
<less than			
>greater than			
spectrophotometer	____	____	____

Weather

Snow Rain Sleet Hail (Clear)

Foggy Overcast Partly Cloudy

Ambient Temperature (°C) 5 °C

Photo Yes No

Roll # Frame #

Shipping Information

Chain of Custody Number

Shipped Via Goldstreak UPS FedEx DHL

Date Shipped

Airbill Number

Swing Tie Data

Victor =)

North

Comments

Sampled for DRO, TRPH

Revision Date 4/29/96

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Site 10 ***Northeast Cape, St. Lawrence Island***

Sample ID 96 NE [illegible] 1017 **Date** 8 / 5 / 96 (month / day / year) **Time** 1645

Sample Type

- **Surface Soil** [X]
  - Depth (ft): 6" - 1 foot
- **Sediment** [ ]
- **Surface Water** [ ]
  - Temperature (°C)_____
  - Conductivity (umhos/cm)_____
  - pH _____
  - TDS (mg/l)_____
  - BOD (mg/l)_____
- **Wipe** [ ]
- **Lead Paint Chip** [ ]
- **TCLP Core Samples** [ ]
- **Asbestos** [ ]

Field Information

- **Field Team** Elise Bonnie Vicki
- **Sampler** Elise Turner
- **PID (ppm)**
- **ELISA**

	DRO		GRO		PCB	
screening	100	1000	50	200	5	50
<less than						
>greater than						
spectrophotometer	____		____		____	

Weather

Snow Rain Sleet Hail **Clear**

Foggy Overcast Partly Cloudy

Ambient Temperature (°C) 5°C

Photo Yes No

Roll # Frame #

Shipping Information

- **Chain of Custody Number**
- **Shipped Via** Goldstreak UPS FedEx DHL
- **Date Shipped**
- **Airbill Number**

Swing Tie Data

[illegible]

North

Comments Sampled for DRO, TPH

1/29/96

Revisi

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Site 10 ***Northeast Cape, St. Lawrence Island***

Sample ID 96 NE 10 SS 107 **Date** 8 / 6 / 96 (month / day / year) **Time** 1315

Sample Type

- **Surface Soil** [X] — Depth (ft): 6" – 1 foot
- **Sediment** [ ]
- **Surface Water** [ ] — Temperature (°C)_____ Conductivity (umhos/cm)_____ pH _____ TDS (mg/l)_____ BOD (mg/l)_____
- **Wipe** [ ]
- **Lead Paint Chip** [ ]
- **TCLP Core Samples** [ ]
- **Asbestos** [ ]

Field Information

Field Team Elisa, Bonnie, Victor, Dan

Sampler Elisa Trapnell

PID (ppm)

ELISA

	DRO		GRO		PCB	
	100	1000	50	200	5	50
screening						
<less than						
>greater than						
spectrophotometer	____		____		____	

Weather

Snow Rain Sleet Hail (Clear)

Foggy Overcast Partly Cloudy

Ambient Temperature (°C) 8°C

Photo Yes No

Roll # Frame #

Shipping Information

Chain of Custody Number

Shipped Via Goldstreak UPS FedEx DHL

Date Shipped

Airbill Number

Swing Tie Data

North

Comments Sample for PCL

Revision Date 4/29/96

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID 96 NE 10 SS 108 | **Date** 7 / 5 / 96 (month / day / year) | **Time** 1700

Sample Type

- **Surface Soil** [X] — Depth (ft): 6" - 1 foot
- **Sediment** [ ]
- **Surface Water** [ ] — Temperature (°C)_____ Conductivity (umhos/cm)_____ pH _____ TDS (mg/l)_____ BOD (mg/l)_____
- **Wipe** [ ]
- **Lead Paint Chip** [ ]
- **TCLP Core Samples** [ ]
- **Asbestos** [ ]

Field Information

- **Field Team**: Elise Bowie Victor
- **Sampler**: Elise Thomas
- **PID (ppm)**:
- **ELISA**

	DRO		GRO		PCB	
	100	1000	50	200	5	50
screening						
<less than						
>greater than						
spectrophotometer						

- **Weather**: Snow Rain Sleet Hail **Clear** Foggy Overcast Partly Cloudy
- **Ambient Temperature (°C)**: 5°C
- **Photo**: Yes No — Roll # Frame #

Shipping Information

- **Chain of Custody Number**
- **Shipped Via**: Goldstreak UPS FedEx DHL
- **Date Shipped**
- **Airbill Number**

Swing Tie Data

North

Comments

Sampled for ECO TKT

5-Aug-96 NEL

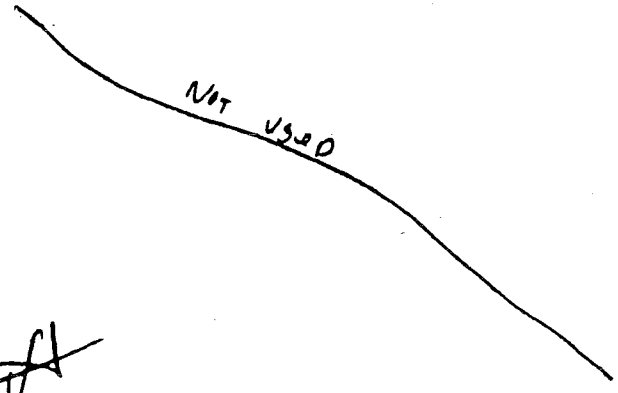
600 gal water tank on trees

Clean tanks (400K) every 2-3 years because of RUST. Water flush-out drain hole NE side.

Tank 2 wind pipe broken 700 gallons never used 7' was not used Expand fixed.

Wind blew small tank (gasoline)

- ALL RAINDEER travel into wind
- so do POLAR BEAR
- POLAR BEAR ONLY TURN AND LOOK IN 1 DIRECTION)



5-AUG-96 NEL

SWING TIES AT SITE 10

LOCATION	10-1 DIST (feet)	T-1 DISTANCE (FEET)	
10 SS 107	36.2	143.3	PCB (6-Aug, DRO, TRIP
108	30.3	127	DRO, TRIP
102	67.7	159.8	
103	80	181	
104	98.2	203.6	
101	79'	142	

BARREL reference → T-1 137.8

T-1 → GRID REF 1 133'

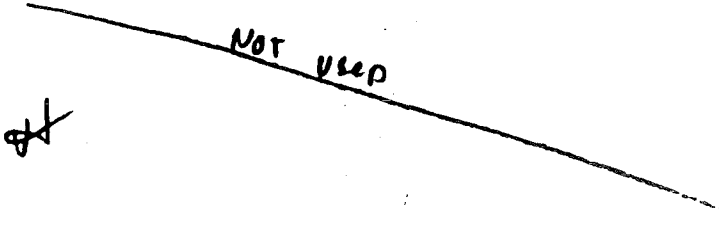
LOCATION	10-1 DIST (ft)	10-4 DIST (ft)
104	98.2	124.7
105	118'	131.3
106	148'	144.8

depth to water 10-1

54 1/8" BTOC PVC PVC STICK UP 1.8'

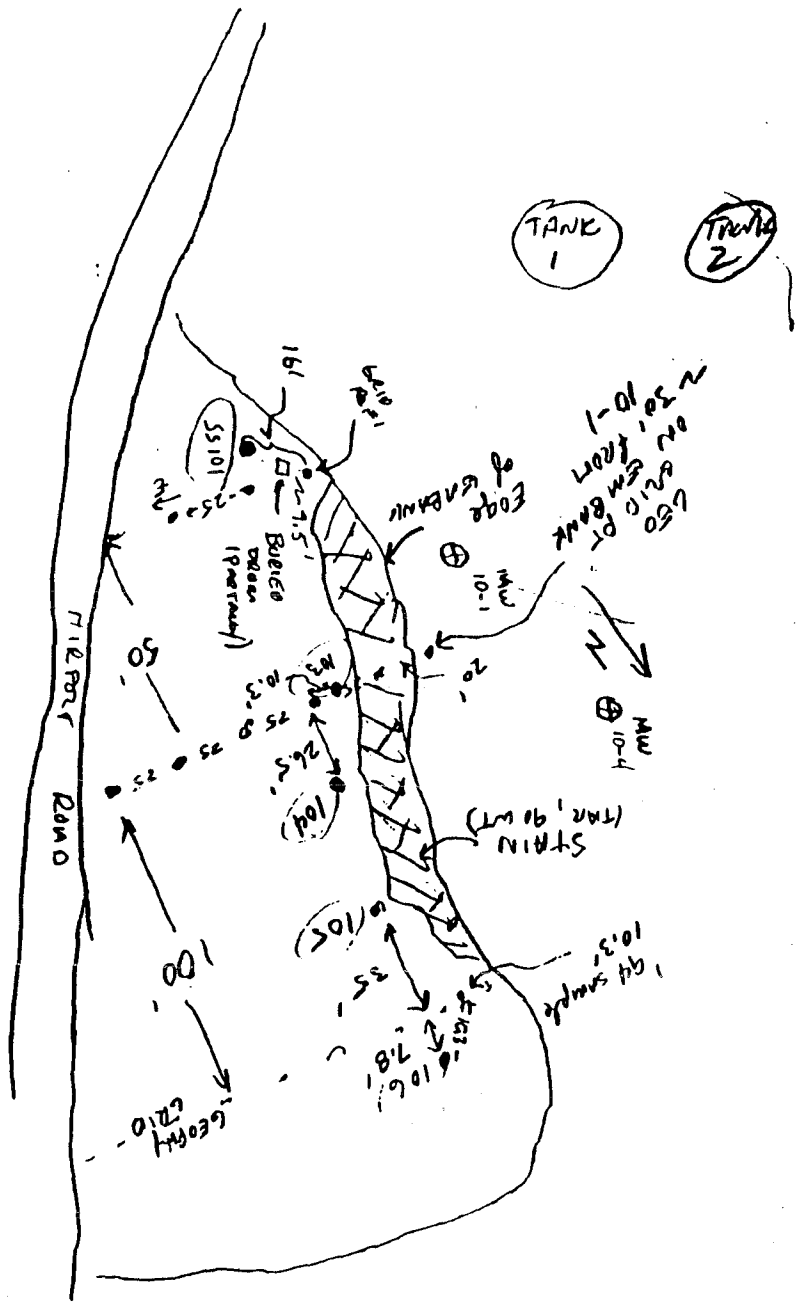
PAD BROKEN 10-3 2

DTW 3.85 BTOC PVC PVC STICKUP 2.3'



5-AUG-96 NEC

SKETCH OF SAMPLING - Site 10



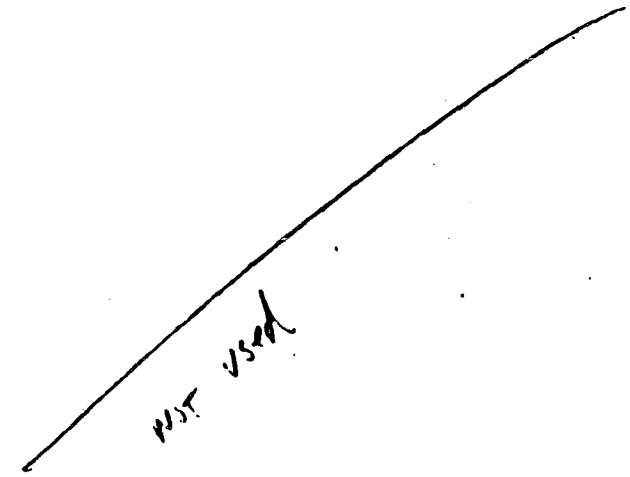
Future Swing ties 5-Aug-96 NEC

Site 10

101 → BANK	39.3	
101 → 102	42.6	
101 → 103	68.5	"BANK" = area where relatively flat pad slopes down to D.B.
101 → 104	99'	
101 → 105	132.5	
101 → 106	178.5	
102 → BANK	17.8	
103 → BANK	34.7	
104 → BANK	42.5	
105 → BANK	34.5	
106 → BANK	18.6	

D20, Tar Pit

LS-8535 1994 Lounsbury → 106 35.7'



MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID 96 NE 27 SS 101 - 105 | **Date** 8 / 6 / 96 (month / day / year) | **Time** 1300 – 1330

Sample Type

- **Surface Soil** [X]
  - Depth (ft): 6" - 1 foot
- **Sediment** [ ]
- **Surface Water** [ ]
  - Temperature (°C) _____
  - Conductivity (umhos/cm) _____
  - pH _____
  - TDS (mg/l) _____
  - BOD (mg/l) _____
- **Wipe** [ ]
- **Lead Paint Chip** [ ]
- **TCLP Core Samples** [ ]
- **Asbestos** [ ]

Field Information

- **Field Team** Elsa, Bonnie, Doug, Victor
- **Sampler** Doug Quist
- **PID (ppm)** 0
- **ELISA**

	DRO		GRO		PCB	
	100	1000	50	200	5	50
screening						
<less than						
>greater than						
spectrophotometer	___		___		___	

- **Weather**: Snow Rain Sleet Hail **(Clear)** Foggy Overcast Partly Cloudy
- **Ambient Temperature (°C)** 8°C
- **Photo** Yes No — Roll # Frame #

Shipping Information

- **Chain of Custody Number**
- **Shipped Via** Goldstreak UPS FedEx DHL
- **Date Shipped**
- **Airbill Number**

Swing Tie Data

Victor ⇒

North

Comments Samples for DLC

QA/QC taken at 101

Revision Date 4/29/96

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID 96 NEC 27SS106 - 108 | **Date** 8 / 6 / 96 (month / day / year) | **Time** 1300, 1255, 1245

Sample Type

- **Surface Soil** [X]
  - Depth (ft) 6" - 1'
- **Sediment** [ ]
- **Surface Water** [ ]
  - Temperature (°C) _____
  - Conductivity (umhos/cm) _____
  - pH _____
  - TDS (mg/l) _____
  - BOD (mg/l) _____
- **Wipe** [ ]
- **Lead Paint Chip** [ ]
- **TCLP Core Samples** [ ]
- **Asbestos** [ ]

Field Information

- **Field Team** Chris Bonar, Doug, Victor
- **Sampler** Fred Tugman
- **PID (ppm)**
- **ELISA**

	DRO		GRO		PCB	
	100	1000	50	200	5	50
screening						
<less than						
>greater than						
spectrophotometer	____		____		____	

- **Weather**: Snow Rain Sleet Hail (Clear) Foggy Overcast Partly Cloudy
- **Ambient Temperature (°C)** 8 °C
- **Photo** (Yes) No (to N foreground) Roll # ET2 Frame # 16

Shipping Information

- **Chain of Custody Number**
- **Shipped Via** Goldstreak UPS FedEx DHL
- **Date Shipped**
- **Airbill Number**

Swing Tie Data

Victor ⇒

North

Comments

Sample for DRO, PCBs at Site 27, North of Heat. Electric Bldg (Bldg 110)

4/29/96

Re

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID 96NEC27SS109 | **Date** 8 / 6 / 96 (month / day / year) | **Time** 1310

Sample Type

- **Surface Soil** [X] — Depth (ft) 6" - 1'
- **Sediment** [ ]
- **Surface Water** [ ] — Temperature (°C)_____ Conductivity (umhos/cm)_____ pH _____ TDS (mg/l)_____ BOD (mg/l)_____
- **Wipe** [ ]
- **Lead Paint Chip** [ ]
- **TCLP Core Samples** [ ]
- **Asbestos** [ ]

Field Information

Field Team Elvie, Bonnie, Dave, Victor.

Sampler DAVE QUIST ~~Elvie Tutson~~

PID (ppm) 0

ELISA

	DRO	GRO	PCB
screening	100 1000	50 200	5 50
<less than			
>greater than			
spectrophotometer	____	____	____

Weather

Snow Rain Sleet Hail (Clear)

Foggy Overcast Partly Cloudy

Ambient Temperature (°C) 8°C

Photo (Yes) No

Roll # ET2 Frame # 17

Shipping Information

Chain of Custody Number

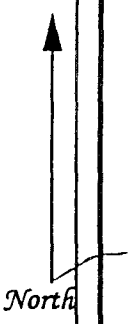
Shipped Via Goldstreak UPS FedEx DHL

Date Shipped

Airbill Number

Swing Tie Data

Victor ⇒



Comments

Sampled for PCBs

North of entrance to Heat + Electric Bldg (Bldg 110)

Soil has Petroleum look + odor

Revision Date 4/29/96

6-Aug-96 NEC

although some dead vegetation is noted (natural phenomena?) Large (1" ø) insulated (5 strands) running through entrance field here

SWING TIES - SITE 27

MW 27-1 to:

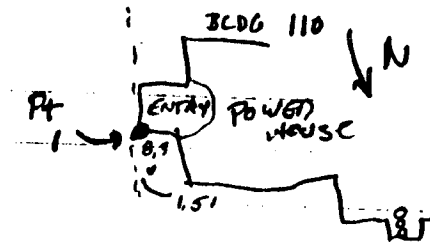
LOC	FT
105	61' (across ROAD)
104	64.5
102	88.0
101	81.6
103	47.5
109	74.8
106	42.8
107	77.6
108	103.9

MW 13-1 to

108	29.5
107	46.3
106	77.5
109	66.4
101	133.1

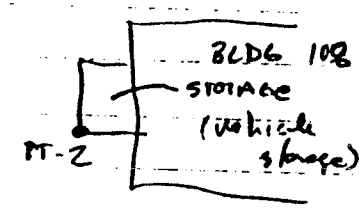
6-AUG-NEC

103	131.1'
104	160.3'
102	167.5'
105	177.3'



Pt 1 to:

109	8.3'
106	61.4'
107	64.2'
108	77.8'



Pt 2 to:

101	121'
103	45'
105	100.1'
104	52.9
102	33.1

NOTE ROAD (CORNER) IS 65' to 85' TRAVERSE ALONG THIS

NOTE 102 IS IN LINE W/face of GARAGE BAY 19.7 trim trim 19-1 THAT 115' OFF

1 5lb can of grease noted at 20,000 gallon UST

Rationale for sampling
- entire area noted on p 70
p 70 is STAINED to some degree
- obviously contaminated
(cont p 71)

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID 96NECD655101→103 | **Date** 8 / 4 / 96 (month / day / year) | **Time** 1440 - 1500

Sample Type

- Surface Soil [X] — Depth (ft): 6" - 1 foot
- Sediment [ ]
- Surface Water [ ] — Temperature (°C)_____ Conductivity (umhos/cm)_____ pH _____ TDS (mg/l)_____ BOD (mg/l)_____
- Wipe [ ]
- Lead Paint Chip [ ]
- TCLP Core Samples [ ]
- Asbestos [ ]

Field Information

Field Team: Elise Bonn, Doug, Victor

Sampler: Elise Tuzmen

PID (ppm):

ELISA

	DRO	GRO	PCB
	100 1000	50 200	5 50
screening			
<less than	|	|	|
>greater than			
spectrophotometer	____	____	____

Weather: Snow Rain Sleet Hail (Clear) Foggy Overcast Partly Cloudy

Ambient Temperature (°C): -5 °C

Photo: Yes No — Roll # — Frame #

Shipping Information

- Chain of Custody Number
- Shipped Via: Goldstreak UPS FedEx DHL
- Date Shipped
- Airbill Number

Swing Tie Data

Victor ⇒

North ↑

Comments: Sampled for PCBs to delineate PCB source in (floor drain) drainage basin

Revision Date 4/29/96

4-AUG-NEC

Swing ties:

SD toward tank @ Powerhouse

MANHOLE ~~NO~~ to SS SD 101 = 4' (South)

MANHOLE → SF 6, ~~SW~~ SD 109 DB = 43' NO (down drainage)

MH → DB SS 102 98' ACROSS RIDGE

MH → SF 5 79' ACCROSS RIDGE

MH → SD 110 (DB) 94' ACCROSS RIDGE

MH → SS 103 (DB) 134' " "

MH → SW/SD 101 (DB) = 142'

27-1 → SF 5 = 131'

27-1 → SD 110 = 132.5'

27-1 → SS 103 = 131'

27-1 → SW/SD 101 = 202.5

NOTE: SS 103 IS IN-LINE between MW-27-1 AND SW/SD 101 (DB)

14:15 Eugene stops by. He forgot to tell me that AF had 1 or two locations where they stored live AMMO in "caves". Gravel pit? MK well - The AMMO is still there - DIAMOND shaped

4-Aug-NEC

Note: the 5 PCB samples (2 SEDS, 3 SS) are for the purpose of finding potential source of PCBs. DRO not taken, because there is no doubt that they will come up very high. FIG. contamination is obvious based on visual/sheen/odor

SWING TIES CONT

DB SW/SD 1 → 2 = 133'

GROUND TRUTH AREA N.O. INSIDE N.O TANK DRAINAGE noted EARLIER during 1-AUG SF w/ DUST. This appears to be organic sheen, NOT HC - NO ODOR - Resolves question of how they got there (p 46)

14:45 Eugene could not find 1a of buried ammo (he never saw it personally during AF occupation, it was reported to him by "KIDS". He did find lots of 12-gauge SG shells near MK well - probably skeet shoot area

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID 96NECSW/SD101,201,301 **Date** 8 / 4 / 96 (month / day / year) **Time** 1200

Sample Type

- **Surface Soil** ☐ — Depth (ft)
- **Sediment/Sludge** ☒ — Clay, silt, organics
- **Surface Water** ☒
  - Temperature (°C) 10 °C
  - Conductivity (umhos/cm) 75
  - pH 6.29
  - DO ~~TDS (mg/l)~~ 11
  - BOD (mg/l) ____
- **Wipe** ☐
- **Lead Paint Chip** ☐
- **TCLP Core Samples** ☐
- **Asbestos** ☐

Field Information

- **Field Team** Elise, Bonnie, Doug, Victor
- **Sampler** Elise Tuzman
- **PID (ppm)**
- **ELISA**

	DRO	GRO	PCB
screening	100 1000	50 200	5 50
<less than			
>greater than			
spectrophotometer	____	____	____

- **Weather**: Snow Rain Sleet Hail (Clear) Foggy Overcast Partly Cloudy
- **Ambient Temperature (°C)** ~5 °C
- **Photo** Yes No — Roll # Frame #

Shipping Information

- **Chain of Custody Number**
- **Shipped Via** Goldstreak UPS FedEx DHL
- **Date Shipped**
- **Airbill Number**

Swing Tie Data

Victor ⇒

North

Comments

QA/QC taken here for SW + SD
Samples collected for DRO + PCB

Revision Date 4/29/96

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID	96NECDBSD/SW102	Date (month/day/year)	8 / 4 / 96	Time	1230

Sample Type

- Surface Soil ☐ — Depth (ft)
- Sediment ☒ — sheen, silt + organics.
- Surface Water ☒
  - Temperature (°C) 8
  - Conductivity (umhos/cm) 90
  - pH 6.66
  - DO ~~TDS~~ (mg/l) 9.8
  - ~~BOD~~ (mg/l) ____
- Wipe ☐
- Lead Paint Chip ☐
- TCLP Core Samples ☐
- Asbestos ☐

Field Information

- Field Team: Rick Bonnie, Doug, Victor
- Sampler: Elise Tugmon
- PID (ppm):
- ELISA

	DRO		GRO		PCB	
	100	1000	50	200	5	50
screening						
<less than						
>greater than						
spectrophotometer	___		___		___	

- Weather: Snow / Rain / Sleet / Hail / (Clear) / Foggy / Overcast / Partly Cloudy
- Ambient Temperature (°C) ~5°C
- Photo: Yes / No — Roll # / Frame #

Shipping Information

- Chain of Custody Number
- Shipped Via: Goldstreak / UPS / FedEx / DHL
- Date Shipped
- Airbill Number

Swing Tie Data

Victor →

North ↑

Comments

Samples collected for DRO + PCB

Sheen seen on surface water

Rev: 4/29/96

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID 96NECDBSW/SD103 **Date** 8 (month) / 4 (day) / 96 (year) **Time** 1310

Sample Type

- **Surface Soil** ☐ — Depth (ft)
- **Sediment** ☒ — Sheen, Silt, organics
- **Surface Water** ☒
  - Temperature (°C) 9.8
  - Conductivity (umhos/cm) 100
  - pH 7.13
  - DO ~~TDS~~ (mg/l) 7.9
  - BOD (mg/l)
- **Wipe** ☐
- **Lead Paint Chip** ☐
- **TCLP Core Samples** ☐
- **Asbestos** ☐

Field Information

Field Team Elise Bonnie Doug Victor

Sampler Elise Tuzman

PID (ppm)

ELISA

	DRO	GRO	PCB
screening	100 1000	50 200	5 50
<less than			
>greater than			
spectrophotometer	____	____	____

Weather

Snow Rain Sleet Hail (Clear)

Foggy Overcast Partly Cloudy

Ambient Temperature (°C) ~5°C

Photo Yes No

Roll # Frame #

Shipping Information

Chain of Custody Number

Shipped Via Goldstreak UPS FedEx DHL

Date Shipped

Airbill Number

Swing Tie Data

Victor ⇒

North

Comments

Visible sheen in pockets

Date 4/29/96

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID 96NECDBSW/SD104 **Date** 8 / 4 / 96 (month / day / year) **Time** 1320

Sample Type

- **Surface Soil** ☐ — Depth (ft)
- **Sediment** ☑ — silts, clays, green, sludge, deposits, organics
- **Surface Water** ☒
  - Temperature (°C) 4
  - Conductivity (umhos/cm) 110
  - pH 7.15
  - DO ~~TDS~~ (mg/l) 5.7
  - ~~BOD~~ (mg/l)
- **Wipe** ☐
- **Lead Paint Chip** ☐
- **TCLP Core Samples** ☐
- **Asbestos** ☐

Field Information

- **Field Team** Alex Bonner, Doug, Victor
- **Sampler** Fred Turgeon
- **PID (ppm)** 0
- **ELISA**

	DRO		GRO		PCB
screening	100	1000	50	200	5 50
<less than					
>greater than					
spectrophotometer					

- **Weather**: Snow Rain Sleet Hail (Clear) Foggy Overcast Partly Cloudy
- **Ambient Temperature (°C)** ~5 °C
- **Photo** Yes No — Roll # Frame #

Shipping Information

- **Chain of Custody Number**
- **Shipped Via** Goldstreak UPS FedEx DHL
- **Date Shipped**
- **Airbill Number**

Swing Tie Data

Victor →

North

Comments

Visible sheen in banks

DRO + PCB sampled

4/29/96

ev

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID 96NECDBSWSD105 **Date** 8 / 4 / 96 (month / day / year) **Time** 1340

Sample Type

- **Surface Soil** ☒ — Depth (ft)
- **Sediment** ☒ — sheen, silt, organics
- **Surface Water** ☒
  - Temperature (°C) 10°C
  - Conductivity (umhos/cm) 75
  - pH 6.98
  - DO ~~TDS~~ (mg/l) 8.1
  - ~~BOD (mg/l)~~
- **Wipe** ☐
- **Lead Paint Chip** ☐
- **TCLP Core Samples** ☐
- **Asbestos** ☐

Field Information

Field Team Elise, Bonnie, Doug, Victor

Sampler Elise Tuzman

PID (ppm)

ELISA

	DRO		GRO		PCB	
	100	1000	50	200	5	50
screening						
<less than						
>greater than						
spectrophotometer	____		____		____	

Weather

Snow Rain Sleet Hail (Clear)

Foggy Overcast Partly Cloudy

Ambient Temperature (°C) ~5°C

Photo Yes No

Roll # Frame #

Shipping Information

Chain of Custody Number

Shipped Via Goldstreak UPS FedEx DHL

Date Shipped

Airbill Number

Swing Tie Data

Victor ⇒

North

Comments

sheen in pockets + along banks

DRO + PCB Sampled

Revision Date 4/29/96

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID 96NECDBSWSD106 **Date** 8 / 4 / 96 (month / day / year) **Time** 1405

Sample Type

- Surface Soil ☐ — Depth (ft)
- Sediment ☒ — silt organics
- Surface Water ☒ — Temperature (°C) 9 °C; Conductivity (umhos/cm) 80; pH 7.03; DO ~~TDS~~ (mg/l) 8.0; BOD (mg/l) ____
- Wipe ☐
- Lead Paint Chip ☐
- TCLP Core Samples ☐
- Asbestos ☐

Field Information

- Field Team: Tim Byrne, Doug Victor
- Sampler: Lisa Tugman
- PID (ppm): 0
- ELISA (screening, <less than, >greater than, spectrophotometer)

	DRO		GRO		PCB	
	100	1000	50	200	5	50
	____		____		____	

Weather: Snow Rain Sleet Hail Clear; Foggy Overcast Partly Cloudy

Ambient Temperature (°C)

Photo Yes No — Roll # Frame #

Shipping Information

- Chain of Custody Number
- Shipped Via: Goldstreak UPS FedEx DHL
- Date Shipped
- Airbill Number

Swing Tie Data

Victor ⇒

North

Comments DRO + PCB Sampled wetlands + grasses

4/29/96

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID 96NECDBSW/SD107 **Date** 8 / 4 / 96 (month / day / year) **Time** 1420

Sample Type

- **Surface Soil** ☐ — Depth (ft)
- **Sediment** ☒ — silt, organic
- **Surface Water** ☒
  - Temperature (°C) 9°C
  - Conductivity (umhos/cm) 50
  - pH 7.29
  - DO ~~TDS~~ (mg/l) 7.9
  - ~~BOD~~ (mg/l) ____
- **Wipe** ☐
- **Lead Paint Chip** ☐
- **TCLP Core Samples** ☐
- **Asbestos** ☐

Field Information

- **Field Team** Elise Boivin, Doug Victor
- **Sampler** Elise Tugman
- **PID (ppm)**
- **ELISA**

	DRO		GRO		PCB	
	100	1000	50	200	5	50
screening						
<less than						
>greater than						
spectrophotometer	____		____		____	

Weather

Snow Rain Sleet Hail (Clear)

Foggy Overcast Partly Cloudy

Ambient Temperature (°C) ~5°C

Photo Yes No

Roll # Frame #

Shipping Information

- **Chain of Custody Number**
- **Shipped Via** Goldstreak UPS FedEx DHL
- **Date Shipped**
- **Airbill Number**

Swing Tie Data

Victor ⇉

North

Comments

Along unnamed creek east of junction b/w drainage basin + creek

DRO + PCB Sampled

No sheen observed.

Revision Date 4/29/96

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID	96NECDBSW|SD108	Date (month/day/year)	8/4/96	Time	1430

Sample Type

- Surface Soil [ ] — Depth (ft)
- Sediment [X] — Sand, little organics
- Surface Water [X]
  - Temperature (°C) 9°C
  - Conductivity (umhos/cm) 50
  - pH 7.17
  - DO ~~TDS~~ (mg/l) 7.3
  - BOD (mg/l)
- Wipe [ ]
- Lead Paint Chip [ ]
- TCLP Core Samples [ ]
- Asbestos [ ]

Field Information

- Field Team: Tina Bonner, Doug, Victor
- Sampler: Chris Tillman
- PID (ppm): 0
- ELISA (screening / <less than / >greater than / spectrophotometer)

	DRO		GRO		PCB	
	100	1000	50	200	5	50

- Weather: Snow, Rain, Sleet, Hail, (Clear), Foggy, Overcast, Partly Cloudy
- Ambient Temperature (°C) ~5°C
- Photo: Yes / No — Roll # — Frame #

Shipping Information

- Chain of Custody Number
- Shipped Via: Goldstreak, UPS, FedEx, DHL
- Date Shipped
- Airbill Number

Swing Tie Data

Victor ⇒

North

Comments

Sheen observed upon sediment disruption

DRO + PCB sampled @ unnamed creek - west of drainage between creek junction

Revised 1/29/96

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID 96NECDBSD169, 110 **Date** 8 / 4 / 96 (month / day / year) **Time** 1505; 1510

Sample Type

- **Surface Soil** ☐ — Depth (ft)
- **Sediment** ☒
- **Surface Water** ☐ — Temperature (°C)_____ Conductivity (umhos/cm)_____ pH _____ TDS (mg/l)_____ BOD (mg/l)_____
- **Wipe** ☐
- **Lead Paint Chip** ☐
- **TCLP Core Samples** ☐
- **Asbestos** ☐

Field Information

Field Team Elise Bonne, Doug Victor

Sampler Elise Tuzman

PID (ppm)

ELISA

	DRO		GRO		PCB	
screening	100	1000	50	200	5	50
<less than						
>greater than						
spectrophotometer	___		___		___	

Weather

Snow Rain Sleet Hail (Clear)

Foggy Overcast Partly Cloudy

Ambient Temperature (°C) 5°C

Photo Yes No

Roll # Frame #

Shipping Information

Chain of Custody Number

Shipped Via Goldstreak UPS FedEx DHL

Date Shipped

Airbill Number

Swing Tie Data

Victor)

North

Comments

Sampled for PCBs for source determination at drainage basin.

Revision Date 4/29/96

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID	96NECDBSD111	Date (month/day/year)	8/6/96	Time	1515

Sample Type

- Surface Soil ☐ — Depth (ft)
- Sediment ☒ — 600' west of SW SD #8 along unnamed creek
- Surface Water ☐ — Temperature (°C)_____ Conductivity (umhos/cm)_____ pH _____ TDS (mg/l)_____ BOD (mg/l)_____
- Wipe ☐
- Lead Paint Chip ☐
- TCLP Core Samples ☐
- Asbestos ☐

Field Information

Field Team: Elise Bonnie Doug. Victor

Sampler: Tina Turner

PID (ppm): 0

ELISA

	DRO		GRO		PCB	
screening	100	1000	50	200	5	50
<less than						
>greater than						
spectrophotometer	____		____		____	

Weather: Snow Rain Sleet Hail (Clear) Foggy Overcast Partly Cloudy

Ambient Temperature (°C): 8°C

Photo: (Yes) No — Roll # ET2 Frame # 20, 21

Shipping Information

Chain of Custody Number:

Shipped Via: Goldstreak UPS FedEx DHL

Date Shipped:

Airbill Number:

Swing Tie Data

North

Comments:

Sampled for DRO + PCB.
Sheen observed upon sediment disturbance

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID 96NECDBSD112 | **Date** 8 / 6 / 96 (month / day / year) | **Time** 1630

Sample Type

- **Surface Soil** ☐ — Depth (ft)
- **Sediment** ☒ — 2500' west of SW SD #8 along unnamed creek
- **Surface Water** ☐ — Temperature (°C)____ Conductivity (umhos/cm)____ pH____ TDS (mg/l)____ BOD (mg/l)____
- **Wipe** ☐
- **Lead Paint Chip** ☐
- **TCLP Core Samples** ☐
- **Asbestos** ☐

Field Information

Field Team Elise Bennie, Doug Vickers

Sampler ~~Elise~~ DOUG QUIST

PID (ppm)

ELISA

	DRO	GRO	PCB
	100 1000	50 200	5 50
screening			
<less than			
>greater than			
spectrophotometer	____	____	____

Weather

Snow Rain Sleet Hail (Clear)

Foggy Overcast Partly Cloudy

Ambient Temperature (°C) 8°C

Photo (Yes) No

Roll # ET2 Frame # 26

Shipping Information

Chain of Custody Number

Shipped Via Goldstreak UPS FedEx DHL

Date Shipped

Airbill Number

Swing Tie Data

North

Comments

Sampled for DRO + PCB

No sheen observed

Revision Date 4/29/96

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID 96 NEL SL 113 **Date** 8 / 7 / 96 (month / day / year) **Time** 1700

Sample Type

Surface Soil ☐
Depth (ft)

Sediment ☒

Surface Water ☐
Temperature (°C)_____
Conductivity (umhos/cm)_____
pH _____
TDS (mg/l)_____
BOD (mg/l)_____

Wipe ☐

Lead Paint Chip ☐

TCLP Core Samples ☐

Asbestos ☐

Field Information

Field Team Elise, Bonnie, Doug, Victor

Sampler Bonnie McLean

PID (ppm)

ELISA

	DRO		GRO		PCB	
screening	100	1000	50	200	5	50
<less than						
>greater than						
spectrophotometer	___		___		___	

Weather
Snow (Rain) (Sleet) Hail Clear
Foggy Overcast Partly Cloudy

Ambient Temperature (°C) 40s

Photo Yes No
Roll # Frame #

Shipping Information

Chain of Custody Number

Shipped Via Goldstreak UPS FedEx DHL

Date Shipped

Airbill Number

Swing Tie Data

North

Comments Sampled for LKC PCB

29/96

Revisi

NEC - 3-Aug-96

9:12 WARM UP (RUN-up)
9:19 - ROTATE
10:18 - PASS OVER NEC
10:22 TOUCH DOWN
10:58 - DC-3 LV NEC

13:00 → 14:00 Bonnie, Vic mob Equip to Bldg 98
SET TRASH PUMP ON SUMP WELL. Water clear - odorless. Start pump @ 14:01 - prevent erosion - discharge to lower pad

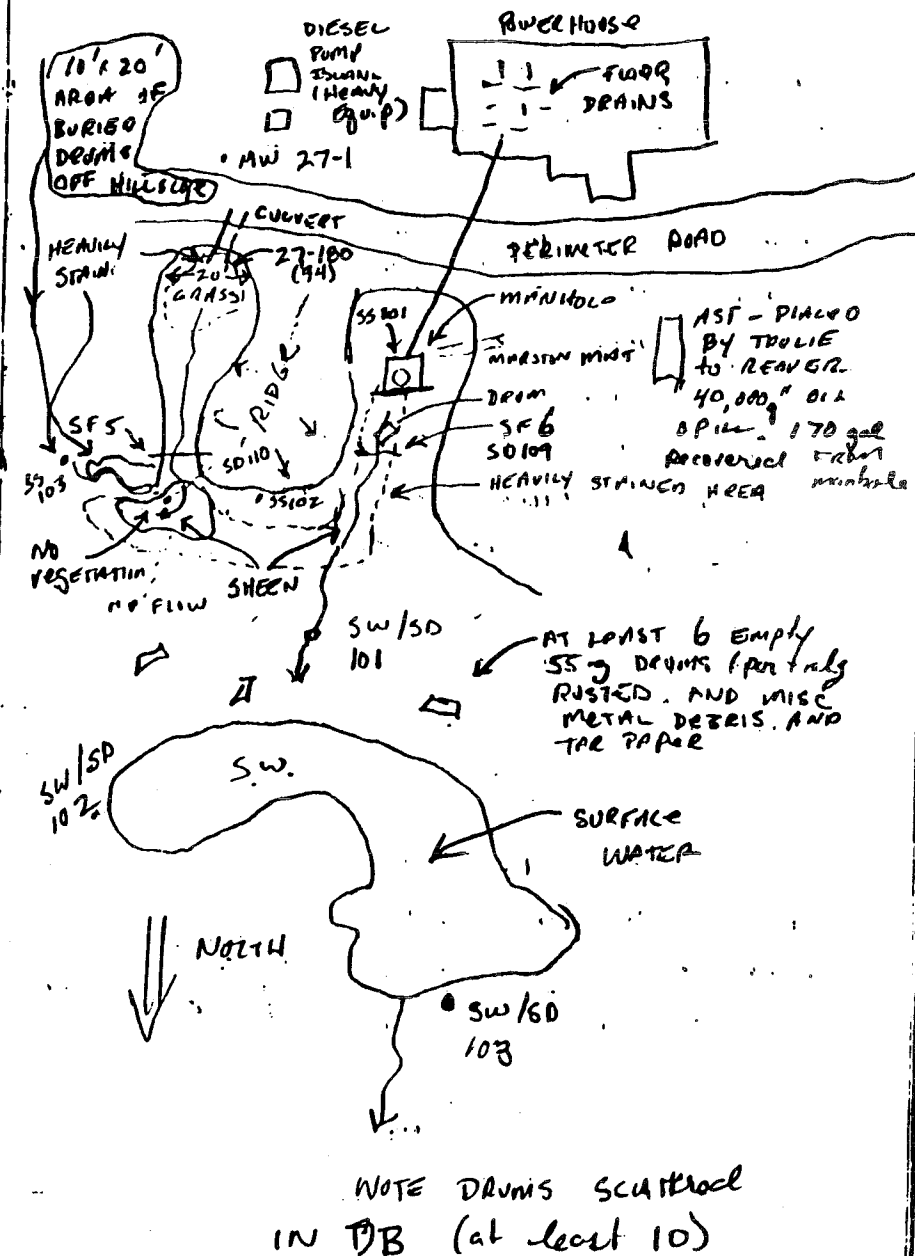
15:30 Doug & Elise VAN ~ 14:15 work on generator, phone stow gear

16:15 check trash pump @ bldg 98. Dropped 2" and out of gas. 1 tank = ~1.5 Hrs. Check at 5:30

NOT USED

NEC 3-AUG 96

16:30
Elise & Vic stake locs for SW/SD IN DRAINAGE BASIN



4-AUG-NEC

13

SWING TIES cont'd

SD toward TANK @ Power house

MANHOLE ~~NO~~ to SS SD 101 = 4' (South)

MANHOLE → SF 6, ~~SW~~ SD 109 DB = 43' NO (down drainage)

MH → DB SS 102 98' ACROSS RIDGE

MH → SF 5 79' ACCROSS RIDGE

MH → SD 110 (DB) 94' ACCROSS RIDGE

MH → SS 103 (DB) 134' " "

MH → SW/SD 101 (DB) = 142'

27-1 → SF 5 = 131'

27-1 → SD 110 = 132.5'

27-1 → SS 103 = 131'

27-1 → SW/SD 101 = 202.5

NOTE.: SS 103 IS IN-LINE between MW-27-1 AND SW/SD 101 (DB)

14:15 Eugene stops by. He forgot to tell me that AF had 1 or two locations where they stored live AMMO in "caves". ground pit? MK well? The AMMO is still there - DIAMOND shaped

4-Aug-NEC

Note: the 5 PCB samples (2 SDs, 3 SS) are for the purpose of finding potential source of PCBs. DRO not taken, because there is no doubt that they will come up very high. HC contamination is obvious based on visual/sheen/odor

SWING TIES cont'd

DB SW/SD 1 → 2 = 133'

GROUND TRUTH from N.O. inside N.O TANK DRAINAGE noted EARLIER during 1-AUG SF w/ DUST. This appears to be organic sheen, NOT HC - NO ODOR - Resolves question of how they got there (p 16)

14:45 Eugene could not find loc of buried ammo (he never saw it personally during AF occupation, it was reported to him by "KIDS". He did find lots of 12-gauge SG shells near MK well - probably skeet shoot area

4-AUG-96 NEC

SWING TIES CONT' (DB).
SW/SD 101 → 103 = 221'
AT THIS LOC SW ENDS AND
~~cut~~ channel constricts to about
30' of grass w/ SHALLOW SW

BEGIN TRAVERSE down DB
LOCATION OF SF7 observation
IS SW/SD 103 + 130' at this loc
3 drums and sheet metal (aluminum)
NOTED

SW/SD
DB/103 + 200' = 20' NARROW GRASSY
channel w/ ~2' STREAM bed flow
(surface > 10% pm!)

SW/SD 104 IS 200'+44' from
SW/SD 103 channel (2-3')
WINDS THROUGH LOW grassy
AREA - NO ~~slant~~ veg offset

200' from SW/SD 104 - BROAD
GRASSY channel ~50' wide

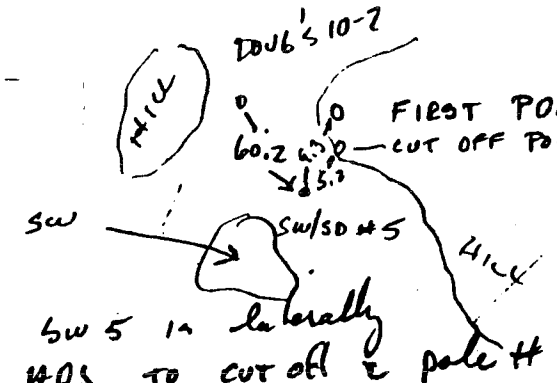
DOUG'S SW/SD 10-2 '94 stake
IS 80' FURTHER

4-AUG-96 NEC

START AT SW/SD 103 (221' from 101)
SF 7 = SW 103 + 130
(200 SPOT)
SW 104 = SW 103 + 244
(200 SPOT)
Doug's 10-2 = SW 104 + 200 + 80

FIRST POLE IS SW 104 + 200 + 80 + 38

SW 5 IS SW 104 + 200 + 80 + 47



SW 5 is laterally
AOS to cut off 2 pole #1

MARK SD 5 + 200. Noise (vege?) Noted
MARK ANOTHER 200
SD 6 is SD 5 + 200 + 200 + 74
second pole is SD 5 + 200 + 200 + 79
Note this is loc of SF3

81 9C

4-AUG-96 NEC

MAGIC location IN ~~SF~~ SD 5+600

PHOTO

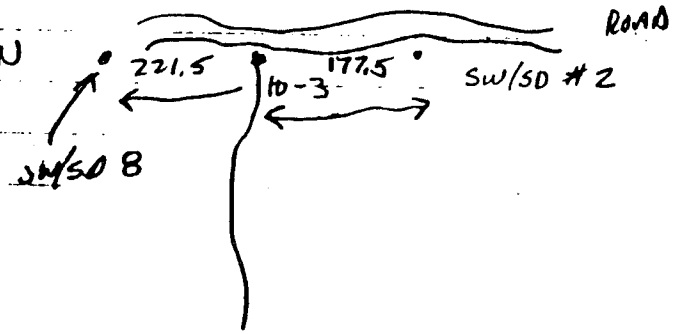
DOUG's SW/SD 10-3 (94) IS

DB SD 5 + 600 + 81

℄ Main CREEK IS SD5+600+96

Photo

LOC OF SF 4 250' EAST



16:15 MOTS TO AIRPORT

NOTE that SD 8 may be resampled (did not get H.C)

MOTS GEAR FOR PARTIAL DEMOB

4 PAX + 1300 lbs GEAR

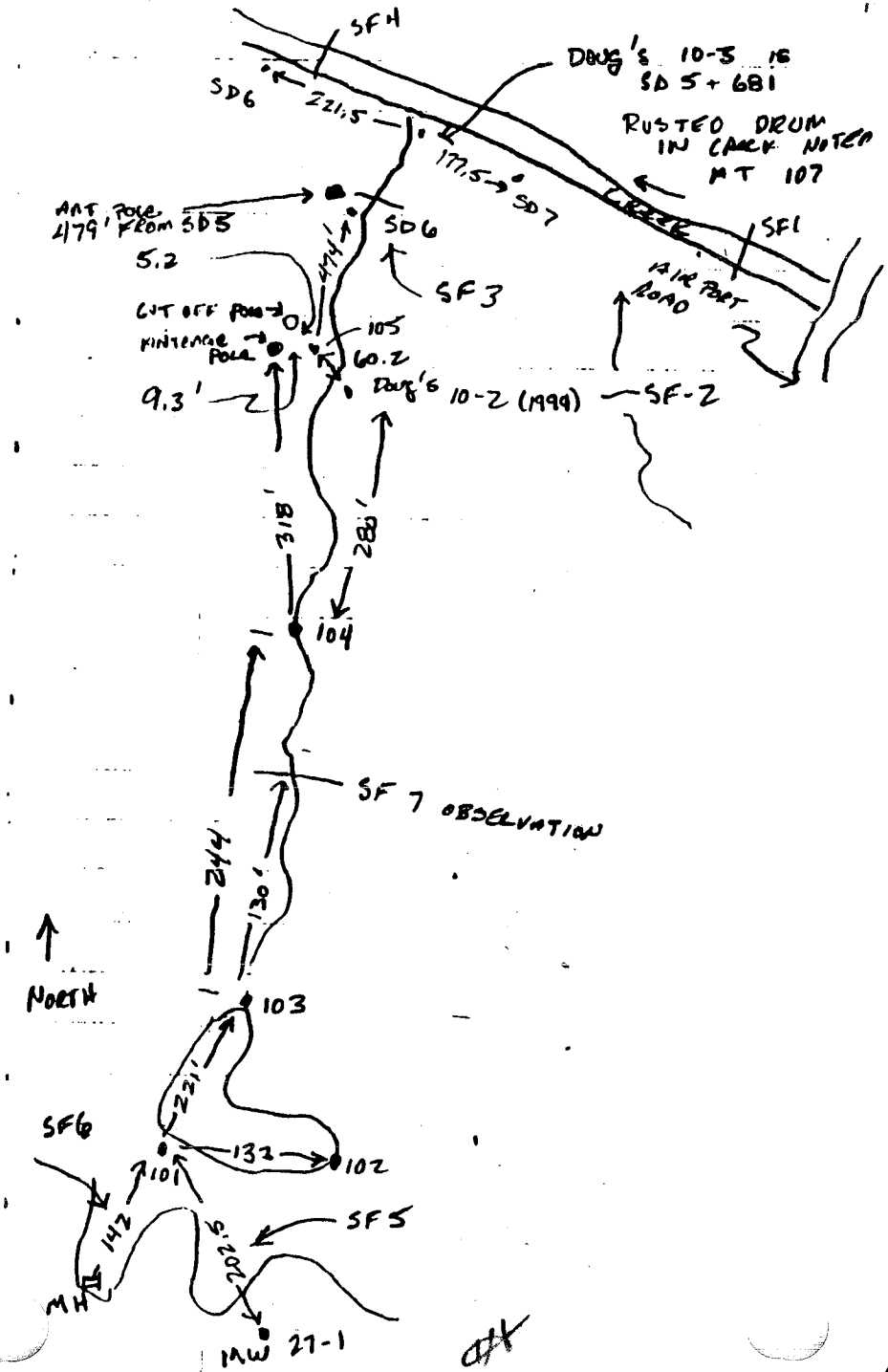
piper chayenne N218CS

pilot: Kevin

ROTATE 17:18

LAND OME 17:59.

4-AUG-96 NEC



Drum/Tank Survey

Project [illegible] Date 8/3/96
Site [illegible] Drum/Tank # 2-1
Location [illegible] Sample # NONE
Time 1530

Size: (gals) 1,000
Dimensions: (ft) ____
Openings: # ____
Size ____
Piping: Size ____
____
Type: metal ✓
plastic ____
other ____

	Prim.	Sec.
Color:		
Size		
Top		
Markings:		
Keyword		
Color		

Conditions: [illegible]
____

Content: State [illegible] Phase [illegible]
Amount ____ Sheen ✓
Color ____
Odor ____
PID Reading ✓ Extox Reading ____

SCREENING DATA:

	YES	NO	
Radioactive	____	✓	≥ 1mR over background
Acidic	____	____	pH ≤ 3
Caustic	____	____	pH ≥ 12
Air Reactive	____	____	Reaction of ≥ 10·F temp. change
Water Reactive	____	____	Reaction of ≥ 10·F temp. change
Water Soluble	____	____	Dissolves in water
Water Bath OVA	____	____	Reading= ≥ 10 ppm = Yes
Combustible	____	____	Catches fire when torched in water bath
Halide	____	____	Green flame when heated w/copper
Inorganic	____	____	Water Bath OVA and Combustible = No
Organic	____	____	Inorganic = No
Alcohol/Aldehyde	____	____	Water Bath OVA, Water Soluble and Combustible = Yes
Cyanide	____	____	Draeger tube over water bath ≥ 2 ppm
Flammable	____	____	Combustible = Yes and SETA flashpoint ≤140·F
Oxidizer	____	____	Starch iodine paper shows positive reaction
Inert or Other	____	✓	Everything "No" except Inorganic or Organic

SCREENING RESULTS (AREA):

0 Unknown ✓
1 radioactive
2 acid/oxidizer
3 caustic/reducer/cyanide
4 flammable organic
5 nonflammable organic
6 peroxide
7 air or water reactive
8 inert

CHEMICAL ANALYSIS:

NONE

TANK [illegible]

MONTGOMERY WATSON

Drum/Tank Survey

Project Naval Air Sta Fac 3 — Date 8/3/96
Site 4 — Drum/Tank # 4-1
Location [illegible] — Sample # None
Time

Size: (gals) 10,000
Dimensions: (ft) 10' D x 25'
Openings: # Size
Piping: Size
Type: metal ✓ plastic other

	Prim.	Sec.
Color:	Rust	
Size		
Top		
Markings:	1	
Keyword	0	
Color		

Conditions: AST Integrity Good

Content: State 1 — Phase 0
Amount 1 — Sheen ✓
Color
Odor
PID Reading ✓ — Extox Reading

SCREENING DATA:

	YES	NO	
Radioactive		0	≥ 1mR over background
Acidic			pH ≤ 3
Caustic			pH ≥ 12
Air Reactive			Reaction of ≥ 10-F temp. change
Water Reactive			Reaction of ≥ 10-F temp. change
Water Soluble			Dissolves in water
Water Bath OVA			Reading= ≥ 10 ppm = Yes
Combustible			Catches fire when torched in water bath
Halide			Green flame when heated w/copper
Inorganic			Water Bath OVA and Combustible = No
Organic			Inorganic = No
Alcohol/Aldehyde			Water Bath OVA, Water Soluble and Combustible = Yes
Cyanide			Draeger tube over water bath ≥ 2 ppm
Flammable			Combustible = Yes and SETA flashpoint ≤140-F
Oxidizer			Starch iodine paper shows positive reaction
Inert or Other		✓	Everything "No" except Inorganic or Organic

SCREENING RESULTS (AREA):

0 Unknown	
1 radioactive	
2 acid/oxidizer	
3 caustic/reducer/cyanide	
4 flammable organic	
5 nonflammable organic	
6 peroxide	
7 air or water reactive	
8 inert	✓

CHEMICAL ANALYSIS:

Empty

MONTGOMERY WATSON

Drum/Tank Survey

Project Northeast Cap - Phase I
Site 4
Location In West Side of Paved Parking Area

Date 8/3/96
Drum/Tank # 4-2
Sample # 96NE04TK101
Time 1320 3/4" Bung Installed

Size: (gals) 250
Dimensions: (ft) 42" Y 66
Openings: # 1 No lid
Size 18"
Piping: Size
Type: metal ✓
plastic
other

	Prim.	Sec.
Color:	Blue	Silver
Size		
Top		
Markings:	ϕ	ϕ
Keyword	ϕ	ϕ
Color		

Conditions: ASTI INDEX Y 6020

Content: State Liquid
Amount Empty
Color Gray
Odor None
PID Reading 0
Phase ϕ
Sheen ↓
Extox Reading

SCREENING DATA:

	YES	NO	
Radioactive		✓	≥ 1mR over background
Acidic		✓	pH ≤ 3
Caustic		✓	pH ≥ 12
Air Reactive		✓	Reaction of ≥ 10-F temp. change
Water Reactive		✓	Reaction of ≥ 10-F temp. change
Water Soluble	✓		Dissolves in water
Water Bath OVA		✓	Reading= ≥ 10 ppm = Yes
Combustible		✓	Catches fire when torched in water bath
Halide		✓	Green flame when heated w/copper
Inorganic	✓		Water Bath OVA and Combustible = No
Organic		✓	Inorganic = No
Alcohol/Aldehyde		✓	Water Bath OVA, Water Soluble and Combustible = Yes
Cyanide		✓	Draeger tube over water bath ≥ 2 ppm
Flammable		✓	Combustible = Yes and SETA flashpoint ≤140-F
Oxidizer		✓	Starch iodine paper shows positive reaction
Inert or Other	✓		Everything "No" except Inorganic or Organic

SCREENING RESULTS (AREA):

0 Unknown	
1 radioactive	
2 acid/oxidizer	
3 caustic/reducer/cyanide	
4 flammable organic	
5 nonflammable organic	
6 peroxide	
7 air or water reactive	
8 inert	8

CHEMICAL ANALYSIS:

BETX, TRPH

MONTGOMERY WATSON

Drum/Tank Survey

Project [illegible]
Site 13
Location [illegible]

Date 8/3/96
Drum/Tank # 13-1
Sample # NONE
Time

Size: (gals) 500
Dimensions: (ft) 4'x8'
Openings: # None
Size
Piping: Size 4"
Type: metal ✓
plastic
other

	Prim.	Sec.
Color:	rust	
Size		
Top		
Markings:		
Keyword		
Color		

Conditions: intact

Content: State Empty Ø
Amount
Color
Odor
PID Reading V
Phase Ø
Sheen
Extox Reading

SCREENING DATA:

	YES	NO	
Radioactive		Ø	≥ 1mR over background
Acidic			pH ≤ 3
Caustic			pH ≥ 12
Air Reactive			Reaction of ≥ 10·F temp. change
Water Reactive			Reaction of ≥ 10·F temp. change
Water Soluble			Dissolves in water
Water Bath OVA			Reading= ≥ 10 ppm = Yes
Combustible			Catches fire when torched in water bath
Halide			Green flame when heated w/copper
Inorganic			Water Bath OVA and Combustible = No
Organic			Inorganic = No
Alcohol/Aldehyde			Water Bath OVA, Water Soluble and Combustible = Yes
Cyanide			Draeger tube over water bath ≥ 2 ppm
Flammable			Combustible = Yes and SETA flashpoint ≤140·F
Oxidizer			Starch iodine paper shows positive reaction
Inert or Other		V	Everything "No" except Inorganic or Organic

SCREENING RESULTS (AREA):

0 Unknown	Ø
1 radioactive	
2 acid/oxidizer	
3 caustic/reducer/cyanide	
4 flammable organic	
5 nonflammable organic	
6 peroxide	
7 air or water reactive	
8 inert	V

CHEMICAL ANALYSIS:

Soil

MONTGOMERY WATSON

Drum/Tank Survey

Project Northeast Gas Shares — Date 8/3/96
Site 13 — Drum/Tank # 13-2 UST
Location [illegible] — Sample # 96NE13T2
Time 1630 8/4/96 Sampled

Size: (gals) 20,000 (Engineering Tools)
Dimensions: (ft) [illegible]
Openings: # 1
Size 24"
Piping: Size 4"
Type: metal ✓
plastic
other

	Prim.	Sec.
Color:	Rust	
Size		
Top		
Markings:		
Keyword		
Color		

Conditions: Tank bottom is assumed open from entire Summer 6'

Content: State ∅ — Phase ∅
Amount 20,000 gallons — Sheen ∅
Color Clear
Odor ∅
PID Reading 2 — Extox Reading ∅

SCREENING DATA:

	YES	NO	
Radioactive		✓	≥ 1mR over background
Acidic		✓	pH ≤ 3
Caustic		✓	pH ≥ 12
Air Reactive		✓	Reaction of ≥ 10-F temp. change
Water Reactive		✓	Reaction of ≥ 10-F temp. change
Water Soluble		✓	Dissolves in water
Water Bath OVA		✓	Reading= ≥ 10 ppm = Yes
Combustible		✓	Catches fire when torched in water bath
Halide		✓	Green flame when heated w/copper
Inorganic	✓		Water Bath OVA and Combustible = No
Organic		✓	Inorganic = No
Alcohol/Aldehyde		✓	Water Bath OVA, Water Soluble and Combustible = Yes
Cyanide		✓	Draeger tube over water bath ≥ 2 ppm
Flammable		✓	Combustible = Yes and SETA flashpoint ≤140-F
Oxidizer		✓	Starch iodine paper shows positive reaction
Inert or Other		✓	Everything "No" except Inorganic or Organic

SCREENING RESULTS (AREA):

0 Unknown	
1 radioactive	
2 acid/oxidizer	
3 caustic/reducer/cyanide	
4 flammable organic	
5 nonflammable organic	
6 peroxide	
7 air or water reactive	
8 inert	8

CHEMICAL ANALYSIS:

[illegible]

MONTGOMERY WATSON

Drum/Tank Survey

Project [illegible]
Site 13
Location Northwest [illegible]

Date 8/3/96
Drum/Tank # 13-3 UST
Sample # NONE
Time

Size: (gals) 500 gal
Dimensions: (ft) unknown
Openings: # 2 Fill and Vent Pipes
Size 2"
Piping: Size
Type: metal ✓
plastic
other

	Prim.	Sec.
Color:	Ø	
Size		
Top		
Markings:		
Keyword		
Color	↓	

Conditions: Integrity is assumed good based on location

Content: State Empty
Amount
Color
Odor
PID Reading ↓

Phase Ø
Sheen ↓

Extox Reading

SCREENING DATA:

	YES	NO	
Radioactive		Ø	≥ 1mR over background
Acidic			pH ≤ 3
Caustic			pH ≥ 12
Air Reactive			Reaction of ≥ 10·F temp. change
Water Reactive			Reaction of ≥ 10·F temp. change
Water Soluble			Dissolves in water
Water Bath OVA			Reading= ≥ 10 ppm = Yes
Combustible			Catches fire when torched in water bath
Halide			Green flame when heated w/copper
Inorganic			Water Bath OVA and Combustible = No
Organic			Inorganic = No
Alcohol/Aldehyde			Water Bath OVA, Water Soluble and Combustible = Yes
Cyanide			Draeger tube over water bath ≥ 2 ppm
Flammable			Combustible = Yes and SETA flashpoint ≤140·F
Oxidizer			Starch iodine paper shows positive reaction
Inert or Other		✓	Everything "No" except Inorganic or Organic

SCREENING RESULTS (AREA):

0 Unknown	Ø
1 radioactive	
2 acid/oxidizer	
3 caustic/reducer/cyanide	
4 flammable organic	
5 nonflammable organic	
6 peroxide	
7 air or water reactive	
8 inert	↓

CHEMICAL ANALYSIS:

Empty

MONTGOMERY WATSON

Drum/Tank Survey

Project: Northeast Cape Area I
Site: 13
Location: North of the Hummocky Area

Date: 8/3/96
Drum/Tank #: 13-4
Sample #: None
Time:

Size: (gals) 55
Dimensions: (ft) 5' X 10'
Openings: #
Size
Piping: Size
Type: metal ✓
plastic
other

Conditions: Intact

	Prim.	Sec.
Color:	Rust	
Size		
Top		
Markings:	Ø	
Keyword	Ø	
Color	Ø	

Content: State Ø Empty
Amount
Color
Odor
PID Reading ↓

Phase Ø
Sheen ↓

Extox Reading

SCREENING DATA:

	YES	NO	
Radioactive		Ø	≥ 1mR over background
Acidic			pH ≤ 3
Caustic			pH ≥ 12
Air Reactive			Reaction of ≥ 10·F temp. change
Water Reactive			Reaction of ≥ 10·F temp. change
Water Soluble			Dissolves in water
Water Bath OVA			Reading= ≥ 10 ppm = Yes
Combustible			Catches fire when torched in water bath
Halide			Green flame when heated w/copper
Inorganic			Water Bath OVA and Combustible = No
Organic			Inorganic = No
Alcohol/Aldehyde			Water Bath OVA, Water Soluble and Combustible = Yes
Cyanide			Draeger tube over water bath ≥ 2 ppm
Flammable			Combustible = Yes and SETA flashpoint ≤140·F
Oxidizer			Starch iodine paper shows positive reaction
Inert or Other		↓	Everything "No" except Inorganic or Organic

SCREENING RESULTS (AREA):

0 Unknown Ø
1 radioactive
2 acid/oxidizer
3 caustic/reducer/cyanide
4 flammable organic
5 nonflammable organic
6 peroxide
7 air or water reactive
8 inert ↓

CHEMICAL ANALYSIS:

Soil

MONTGOMERY WATSON

Drum/Tank Survey

Project: Northeast Cap Phase II
Site: 14
Location: South Side of Pembroke

Date: 8/3/96
Drum/Tank #: 14-1
Sample #: 96NE14TK101 MS = TK102
Time: 1500 1450

Size: (gals) 15,000
Dimensions: (ft) 20" x 24'
Openings: # 1 fill
Size 24
Piping: Size 4" Vent Fill
2
Type: metal ✓
plastic
other

	Prim.	Sec.
Color:	Wht	
Size		
Top	/	
Markings:	0	
Keyword	3	
Color		

Conditions: TOP OPEN - TANK IN [illegible] road

Content: State Liquid
Amount [illegible]
Color [illegible]
Odor
PID Reading
Phase /
Sheen No
Extox Reading N/A

SCREENING DATA:

	YES	NO	
Radioactive		✓	≥ 1mR over background
Acidic		✓	pH ≤ 3
Caustic		✓	pH ≥ 12
Air Reactive		✓	Reaction of ≥ 10·F temp. change
Water Reactive		✓	Reaction of ≥ 10·F temp. change
Water Soluble		✓	Dissolves in water
Water Bath OVA		✓	Reading= ≥ 10 ppm = Yes
Combustible		✓	Catches fire when torched in water bath
Halide		✓	Green flame when heated w/copper
Inorganic	✓		Water Bath OVA and Combustible = No
Organic		✓	Inorganic = No
Alcohol/Aldehyde		✓	Water Bath OVA, Water Soluble and Combustible = Yes
Cyanide		✓	Draeger tube over water bath ≥ 2 ppm
Flammable		✓	Combustible = Yes and SETA flashpoint ≤140·F
Oxidizer		✓	Starch iodine paper shows positive reaction
Inert or Other	✓		Everything "No" except Inorganic or Organic

SCREENING RESULTS (AREA):

0 Unknown	
1 radioactive	
2 acid/oxidizer	
3 caustic/reducer/cyanide	
4 flammable organic	
5 nonflammable organic	
6 peroxide	
7 air or water reactive	
8 inert	X

CHEMICAL ANALYSIS:

[illegible]

[illegible]

MONTGOMERY WATSON

Drum/Tank Survey

Project Northern Sector Phase I — Date 8/3/96
Site 16 — Drum/Tank # 16-1 AST
Location Northern Edge of Site 16 — Sample # [illegible]
Time 8/4/96

Size: (gals) ~ 500
Dimensions: (ft) 4'x6'x8.5'
Openings: # 1
Size 24"
Piping: Size 3" Comm. - Hot Sec.
Type: metal ✓
plastic
other

	Prim.	Sec.
Color:	Rust	
Size		
Top		
Markings:	O	
Keyword		
Color		

Conditions: INTACT-

Content: State [illegible] — Phase [illegible]
Amount [illegible] — Sheen [illegible]
Color [illegible]
Odor [illegible]
PID Reading 2 — Extox Reading

SCREENING DATA:

	YES	NO	
Radioactive		✓	≥ 1mR over background
Acidic		✓	pH ≤ 3
Caustic		✓	pH ≥ 12
Air Reactive		✓	Reaction of ≥ 10·F temp. change
Water Reactive		✓	Reaction of ≥ 10·F temp. change
Water Soluble		✓	Dissolves in water
Water Bath OVA		✓	Reading= ≥ 10 ppm = Yes
Combustible		✓	Catches fire when torched in water bath
Halide		✓	Green flame when heated w/copper
Inorganic		✓	Water Bath OVA and Combustible = No
Organic	✓		Inorganic = No
Alcohol/Aldehyde		✓	Water Bath OVA, Water Soluble and Combustible = Yes
Cyanide		✓	Draeger tube over water bath ≥ 2 ppm
Flammable		✓	Combustible = Yes and SETA flashpoint ≤140·F
Oxidizer		✓	Starch iodine paper shows positive reaction
Inert or Other		✓	Everything "No" except Inorganic or Organic

SCREENING RESULTS (AREA):

0 Unknown	
1 radioactive	
2 acid/oxidizer	
3 caustic/reducer/cyanide	
4 flammable organic	
5 nonflammable organic	
6 peroxide	
7 air or water reactive	
8 inert	8

CHEMICAL ANALYSIS:

[illegible]

MONTGOMERY WATSON

Drum/Tank Survey

Project Northeast Park Phase II
Site 16
Location INSIDE JOINT ING [illegible]

Date 8/3/96
Drum/Tank # 16-2 DRUM [illegible]
Sample # NONE
Time

Size: (gals) 5
Dimensions: (ft) [illegible]
Openings: # 1 DRUM [illegible]
Size 15"
Piping: Size ∅
Type: metal ✓
plastic
other

	Prim.	Sec.
Color:	[illegible]	[illegible]
Size		
Top		
Markings:	∅	
Keyword	∅	
Color		

Conditions: [illegible]

Content: State UNKNOWN
Amount
Color
Odor
PID Reading ↓

Phase UNKNOWN
Sheen ↓

Extox Reading

SCREENING DATA:

	YES	NO	
Radioactive		N/a	≥ 1mR over background
Acidic			pH ≤ 3
Caustic			pH ≥ 12
Air Reactive			Reaction of ≥ 10·F temp. change
Water Reactive			Reaction of ≥ 10·F temp. change
Water Soluble			Dissolves in water
Water Bath OVA			Reading= ≥ 10 ppm = Yes
Combustible			Catches fire when torched in water bath
Halide			Green flame when heated w/copper
Inorganic			Water Bath OVA and Combustible = No
Organic			Inorganic = No
Alcohol/Aldehyde			Water Bath OVA, Water Soluble and Combustible = Yes
Cyanide			Draeger tube over water bath ≥ 2 ppm
Flammable			Combustible = Yes and SETA flashpoint ≤140·F
Oxidizer			Starch iodine paper shows positive reaction
Inert or Other		✓	Everything "No" except Inorganic or Organic

SCREENING RESULTS (AREA):

0 Unknown	0
1 radioactive	
2 acid/oxidizer	
3 caustic/reducer/cyanide	
4 flammable organic	
5 nonflammable organic	
6 peroxide	
7 air or water reactive	
8 inert	

CHEMICAL ANALYSIS:

MONTGOMERY WATSON

Drum/Tank Survey

Project Northrop Corp Hawthorne
Site 16
Location INSIDE PAINT SHOP BUILDING

Date 5/31/95
Drum/Tank # 16-3 DRUM OUTSIDE
Sample # NONE
Time

Size: (gals) 55
Dimensions: (ft) 3'6" x 2'
Openings: # 1 small
Size
Piping: Size 1"

Type: metal ✓
plastic
other

	Prim.	Sec.
Color:	Black/Brown	Unlabeled
Size		
Top		
Markings:		
Keyword		
Color		

Conditions: Sound

Content: State UNKNOWN Phase UNKNOWN
Amount
Color
Odor
PID Reading ✓ Extox Reading
Sheen ✓

SCREENING DATA:

	YES	NO	
Radioactive		N/A	≥ 1mR over background
Acidic			pH ≤ 3
Caustic			pH ≥ 12
Air Reactive			Reaction of ≥ 10°F temp. change
Water Reactive			Reaction of ≥ 10°F temp. change
Water Soluble			Dissolves in water
Water Bath OVA			Reading= ≥ 10 ppm = Yes
Combustible			Catches fire when torched in water bath
Halide			Green flame when heated w/copper
Inorganic			Water Bath OVA and Combustible = No
Organic			Inorganic = No
Alcohol/Aldehyde			Water Bath OVA, Water Soluble and Combustible = Yes
Cyanide			Draeger tube over water bath ≥ 2 ppm
Flammable			Combustible = Yes and SETA flashpoint ≤140°F
Oxidizer			Starch iodine paper shows positive reaction
Inert or Other		✓	Everything "No" except Inorganic or Organic

SCREENING RESULTS (AREA):

0 Unknown	0
1 radioactive	
2 acid/oxidizer	
3 caustic/reducer/cyanide	
4 flammable organic	
5 nonflammable organic	
6 peroxide	
7 air or water reactive	
8 inert	

CHEMICAL ANALYSIS:

MONTGOMERY WATSON

Drum/Tank Survey

Project: Northeast Cogen Project
Site: 16
Location: Inside Paint Locker Entrance

Date: 8/3/96
Drum/Tank #: 16-4 Drum / Equipment
Sample #: NONE
Time:

Size: (gals) 5
Dimensions: (ft) 8.5" x 15"
Openings: # 1 lid
Size 5"
Piping: Size ϕ
Type: metal ✓
plastic
other

	Prim.	Sec.
Color:	Black (Drum)	White/Grid
Size		
Top		
Markings:	NONE	
Keyword	NONE	
Color		

Conditions: Sealed.

Content: State Unknown Phase Unknown
Amount
Color
Odor
PID Reading ↓ Extox Reading

SCREENING DATA:

	YES	NO	
Radioactive		N/A	≥ 1mR over background
Acidic			pH ≤ 3
Caustic			pH ≥ 12
Air Reactive			Reaction of ≥ 10·F temp. change
Water Reactive			Reaction of ≥ 10·F temp. change
Water Soluble			Dissolves in water
Water Bath OVA			Reading= ≥ 10 ppm = Yes
Combustible			Catches fire when torched in water bath
Halide			Green flame when heated w/copper
Inorganic			Water Bath OVA and Combustible = No
Organic			Inorganic = No
Alcohol/Aldehyde			Water Bath OVA, Water Soluble and Combustible = Yes
Cyanide			Draeger tube over water bath ≥ 2 ppm
Flammable			Combustible = Yes and SETA flashpoint ≤140·F
Oxidizer			Starch iodine paper shows positive reaction
Inert or Other		✓	Everything "No" except Inorganic or Organic

SCREENING RESULTS (AREA):

0 Unknown	0
1 radioactive	
2 acid/oxidizer	
3 caustic/reducer/cyanide	
4 flammable organic	
5 nonflammable organic	
6 peroxide	
7 air or water reactive	
8 inert	

CHEMICAL ANALYSIS:

None

MONTGOMERY WATSON

Drum/Tank Survey

Project Northern Tank Line
Site 16
Location Inside Tank Line Enclosure

Date 6/3/96
Drum/Tank # 16-5 Drum Cracked
Sample # 3
Time

Size: (gals) 10
Dimensions: (ft) 16½ X 15"
Openings: # 1 Drum Lid
Size 15"
Piping: Size
Type: metal ✓
plastic
other

	Prim.	Sec.
Color:	Black/Drum	White/Lid
Size		
Top		
Markings:	∅	
Keyword	∅	
Color		

Conditions: Secured

Content: State Unk. Solid
Amount
Color
Odor
PID Reading ↓

Phase Unknown
Sheen ↓

Extox Reading

SCREENING DATA:

	YES	NO	
Radioactive		N/A	≥ 1mR over background
Acidic			pH ≤ 3
Caustic			pH ≥ 12
Air Reactive			Reaction of ≥ 10·F temp. change
Water Reactive			Reaction of ≥ 10·F temp. change
Water Soluble			Dissolves in water
Water Bath OVA			Reading= ≥ 10 ppm = Yes
Combustible			Catches fire when torched in water bath
Halide			Green flame when heated w/copper
Inorganic			Water Bath OVA and Combustible = No
Organic			Inorganic = No
Alcohol/Aldehyde			Water Bath OVA, Water Soluble and Combustible = Yes
Cyanide			Draeger tube over water bath ≥ 2 ppm
Flammable			Combustible = Yes and SETA flashpoint ≤140·F
Oxidizer			Starch iodine paper shows positive reaction
Inert or Other		↓	Everything "No" except Inorganic or Organic

SCREENING RESULTS (AREA):

0 Unknown	0
1 radioactive	
2 acid/oxidizer	
3 caustic/reducer/cyanide	
4 flammable organic	
5 nonflammable organic	
6 peroxide	
7 air or water reactive	
8 inert	

CHEMICAL ANALYSIS:

MONTGOMERY WATSON

Drum/Tank Survey

Project [illegible] Phase II
Site 16
Location [illegible]

Date 4/3/96
Drum/Tank # 16-6 Drum Overpack
Sample # None
Time

Size: (gals) 10
Dimensions: (ft) [illegible]
Openings: # [illegible]
Size [illegible]
Piping: Size [illegible]

Type: metal ✓
plastic
other

	Prim.	Sec.
Color:	Blue/Drum	Lids/Tops
Size		
Top		
Markings:	ϕ	
Keyword	ϕ	
Color		

Conditions: [illegible]

Content: State (Unknown)
Amount
Color
Odor
PID Reading ↓

Phase (unknown)
Sheen ↓

Extox Reading

SCREENING DATA:

	YES	NO	
Radioactive		N/a	≥ 1mR over background
Acidic			pH ≤ 3
Caustic			pH ≥ 12
Air Reactive			Reaction of ≥ 10-F temp. change
Water Reactive			Reaction of ≥ 10-F temp. change
Water Soluble			Dissolves in water
Water Bath OVA			Reading= ≥ 10 ppm = Yes
Combustible			Catches fire when torched in water bath
Halide			Green flame when heated w/copper
Inorganic			Water Bath OVA and Combustible = No
Organic			Inorganic = No
Alcohol/Aldehyde			Water Bath OVA, Water Soluble and Combustible = Yes
Cyanide			Draeger tube over water bath ≥ 2 ppm
Flammable			Combustible = Yes and SETA flashpoint ≤140-F
Oxidizer			Starch iodine paper shows positive reaction
Inert or Other		✓	Everything "No" except Inorganic or Organic

SCREENING RESULTS (AREA):

0 Unknown	0
1 radioactive	
2 acid/oxidizer	
3 caustic/reducer/cyanide	
4 flammable organic	
5 nonflammable organic	
6 peroxide	
7 air or water reactive	
8 inert	

CHEMICAL ANALYSIS:

None.

MONTGOMERY WATSON

Drum/Tank Survey

Project Northeast Cape Phase II
Site 19
Location Northeast ridge of Site

Date 8/3/96
Drum/Tank # 19-1 AST
Sample # NONE
Time

Size: (gals) 250
Dimensions: (ft) 48" x 29" x 42
Openings: # 3
Size 2"
Piping: Size 4
Type: metal ✓
plastic
other

	Prim.	Sec.
Color:	Red	Red
Size		
Top		
Markings:	Ø	
Keyword	Ø	
Color	Ø	

Conditions: AST Laid on ground

Content: State Liquid
Amount 250 gal
Color Clear Yellow
Odor
PID Reading 0.0
Phase
Sheen Ø
Extox Reading Ø

SCREENING DATA:

	YES	NO	
Radioactive		✓	≥ 1mR over background
Acidic		✓	pH ≤ 3
Caustic		✓	pH ≥ 12
Air Reactive		✓	Reaction of ≥ 10-F temp. change
Water Reactive		✓	Reaction of ≥ 10-F temp. change
Water Soluble	✓		Dissolves in water
Water Bath OVA		✓	Reading= ≥ 10 ppm = Yes
Combustible		✓	Catches fire when torched in water bath
Halide		✓	Green flame when heated w/copper
Inorganic	✓		Water Bath OVA and Combustible = No
Organic		✓	Inorganic = No
Alcohol/Aldehyde		✓	Water Bath OVA, Water Soluble and Combustible = Yes
Cyanide		✓	Draeger tube over water bath ≥ 2 ppm
Flammable		✓	Combustible = Yes and SETA flashpoint ≤140-F
Oxidizer		✓	Starch iodine paper shows positive reaction
Inert or Other	✓		Everything "No" except Inorganic or Organic

SCREENING RESULTS (AREA):

0 Unknown	
1 radioactive	
2 acid/oxidizer	
3 caustic/reducer/cyanide	
4 flammable organic	
5 nonflammable organic	
6 peroxide	
7 air or water reactive	
8 inert	8

CHEMICAL ANALYSIS:

None - Known to be
ethylene Glycol from
Engine Coolant

MONTGOMERY WATSON

Drum/Tank Survey

Project Northeast Expansion Phase II
Site 19
Location Inside Power Building

Date 8/3/96
Drum/Tank # 19-2
Sample # None
Time

Size: (gals) ≈250
Dimensions: (ft) 74" x 28"
Openings: # 3
Size 3"
Piping: Size 3" x 5'

Type: metal ✓
plastic
other

	Prim.	Sec.
Color:	Yellow	Rust
Size		
Top		
Markings:	ϕ	
Keyword	ϕ	
Color		

Conditions: Intact

Content: State ϕ Empty
Amount
Color
Odor
PID Reading ↓

Phase ϕ
Sheen ↓

Extox Reading

SCREENING DATA:

	YES	NO	
Radioactive		ϕ	≥ 1mR over background
Acidic			pH ≤ 3
Caustic			pH ≥ 12
Air Reactive			Reaction of ≥ 10°F temp. change
Water Reactive			Reaction of ≥ 10°F temp. change
Water Soluble			Dissolves in water
Water Bath OVA			Reading= ≥ 10 ppm = Yes
Combustible			Catches fire when torched in water bath
Halide			Green flame when heated w/copper
Inorganic			Water Bath OVA and Combustible = No
Organic			Inorganic = No
Alcohol/Aldehyde			Water Bath OVA, Water Soluble and Combustible = Yes
Cyanide			Draeger tube over water bath ≥ 2 ppm
Flammable			Combustible = Yes and SETA flashpoint ≤140°F
Oxidizer			Starch iodine paper shows positive reaction
Inert or Other		✓	Everything "No" except Inorganic or Organic

SCREENING RESULTS (AREA):

0 Unknown ϕ
1 radioactive
2 acid/oxidizer
3 caustic/reducer/cyanide
4 flammable organic
5 nonflammable organic
6 peroxide
7 air or water reactive
8 inert ↓

CHEMICAL ANALYSIS:

Empty

MONTGOMERY WATSON

FIELD SURVEY

Location Northeast Cape

Site 4

esent and Future Land Uses:

Three (3) of the buildings located within the boundaries of site 4 are used by the local seasonal resident Eugene Tools and his Brother.

Condition and Type of Biota:

Sedges, Grasses, some mosses. Very similar to rest of site.

Vegetation Survey (% of cover, vegetation condition and type):

Nearly 100%, with exception of gravel fill associated with the Cape Beach Road and the Beach area. Vegetation is healthy and thriving.

Soil Adherence Factor (type and condition, grain size, moisture, sorting, color, fetch):

Organic with some wet marshy areas, grasses leading to beach.
Soil have a fetch

rainages or Standing Water (ponds, streams, standing water, size, distance):

Drainage is North towards the Beach with standing water scattered about the site in depressed areas.

Predominant Wind Direction:

S/SW in Summer
N in Winter

Estimate Streamflow (where applicable):

ϕ

Biological Samples (where applicable):

ϕ

Chemical Samples (where applicable):

ϕ

FIELD SURVEY

Location Northeast Cape

Site 10

resent and Future Land Uses:

None / None Anticipated

Condition and Type of Biota:

Limited due to gravel pad area extending from the Cape Beach access road. Those that do exist include sedges, grasses, and some moss all are healthy

Vegetation Survey (% of cover, vegetation condition and type):

< 40% Coverage due to gravel pad. Sedges, grasses, moss, possible lichen.

Soil Adherence Factor (type and condition, grain size, moisture, sorting, color, fetch):

Soil adherence is low to medium fetch in the gravel pad whereas it is quite high in the organic undisturbed area.

rainages or Standing Water (ponds, streams, standing water, size, distance):

Drainage is North/Northwest towards the drainage Basin (Area. w/ 10/10/07).

Predominant Wind Direction:

S/SW in Summer

N in Winter

Estimate Streamflow (where applicable):

ϕ

Biological Samples (where applicable):

ϕ

Chemical Samples (where applicable):

ϕ

FIELD SURVEY

Location Northeast Cape

Site 11

Present and Future Land Uses:

Navy / Navy Anticipated

Condition and Type of Biota:

Sedges, grasses, moss and lichens, all healthy.

Vegetation Survey (% of cover, vegetation condition and type):

>70% Lack of Coverage due to either the presence of the gravel Pad or the Major Diesel fuel Spill. Vegetation that is present appears healthy and fairly dense.

Soil Adherence Factor (type and condition, grain size, moisture, sorting, color, fetch):

In those areas not affected by the gravel Pad soil adherance is high.

Drainages or Standing Water (ponds, streams, standing water, size, distance):

There is a large Pond which leads to the drainage Basin (See Visitor Harris Notebook) for Dimensions

Predominant Wind Direction:

S/SW in Summer

N in Winter

Estimate Streamflow (where applicable):

Streamflow is negligible approaching acquiescence.

Biological Samples (where applicable):

Ø

Chemical Samples (where applicable):

FIELD SURVEY

Location Northeast Cap 1

Site 15

esent and Future Land Uses:

New / None Anticipated

Condition and Type of Biota:

Sparse Grasses.

Vegetation Survey (% of cover, vegetation condition and type):

<5% - Gravel Pad with Scattered stand of grasses.

Soil Adherence Factor (type and condition, grain size, moisture, sorting, color, fetch):

Medium - Fetch (gravel Pad).

rainages or Standing Water (ponds, streams, standing water, size, distance):

Drainage is immediately North towards Site 27 and then through the culvert to the Drainage Basin Area.

Predominant Wind Direction:

S/SW in Summer
N in Winter

Estimate Streamflow (where applicable):

N/A

Biological Samples (where applicable):

N/A

Chemical Samples (where applicable):

N/A

FIELD SURVEY

Location Northeast Cape

Site 16

resent and Future Land Uses:

None / None foreseen.

Condition and Type of Biota:

Sparse Grasses (Grassed Pad)

Vegetation Survey (% of cover, vegetation condition and type):

<10% Vegetation is sparse due to physicaly disturbed earth and gravel Pad. Vegetation that is present appears normal and healthy

Soil Adherence Factor (type and condition, grain size, moisture, sorting, color, fetch):

Soil adherence is low to Medium with the majority of the site being covered with gravel.

Drainages or Standing Water (ponds, streams, standing water, size, distance):

No clear Drainage Pathway as the site is fairly well graded (Manmade).

Predominant Wind Direction:

S/SW in Summer

N in Winter

Estimate Streamflow (where applicable):

N/A

Biological Samples (where applicable):

N/A

Chemical Samples (where applicable):

N/A

FIELD SURVEY

Location Northeast Cape

Site 19

Present and Future Land Uses:

None / None foreseen

Condition and Type of Biota:

Limited to near-Gravel Pad

Vegetation Survey (% of cover, vegetation condition and type):

<5% grasses, Gravel Pad

Soil Adherence Factor (type and condition, grain size, moisture, sorting, color, fetch):

Soil adherence is low to Medium due to gravel Pad.

Drainages or Standing Water (ponds, streams, standing water, size, distance):

Ø, Drainage is to the North toward Site 27 and the large Drainage Basin.

Predominant Wind Direction:

S/SW in Summer

N in Winter

Estimate Streamflow (where applicable):

Ø

Biological Samples (where applicable):

Ø

Chemical Samples (where applicable):

Ø

FIELD SURVEY

Location Northeast Cape

Site 27

esent and Future Land Uses:

None / None foreseen

Condition and Type of Biota:

Sparse due to gravel Pad.

Vegetation Survey (% of cover, vegetation condition and type):

<5% due to gravel Pad. Mainly grasses (Sparse.)

Soil Adherence Factor (type and condition, grain size, moisture, sorting, color, fetch):

Medium to low due to gravel pad construction

rainages or Standing Water (ponds, streams, standing water, size, distance):

Drainage is immediately to the North, both over the road and through the Culvert.

Predominant Wind Direction:

S/SW in Summer

N in Winter

Estimate Streamflow (where applicable):

ϕ

Biological Samples (where applicable):

ϕ

hemical Samples (where applicable):

ϕ

FIELD SURVEY

Location NEC

Site 13

Present and Future Land Uses:

None / None anticipated

Condition and Type of Biota:

Vegetation Survey (% of cover, vegetation condition and type):

Virtually No Vegetation, Area Constructed as gravel fill Pad

Soil Adherence Factor (type and condition, grain size, moisture, sorting, color, fetch):

Same as entire Site on Pad, Med to Small grain gravels with sand.

Drainages or Standing Water (ponds, stream, standing water, size, distance):

Drainage is Northward toward Drainage Basin #1

Predominant Wind Direction:

Same - SouthSouthwest in Summer Northerly in Winter

Estimate Streamflow (where applicable):

Stream flow from Site 13 is Northerly toward the Creek
Stream flow is estimated @ No more than 3-5 gallons per minute
i.e. Stream Flow Measurements at Sand 6

Biological Samples (where applicable):

ϕ

Chemical Samples (where applicable):

ϕ

NEC/12

Photographs and Video:

Photos taken Courtesy of Sub

Field Conceptual Model:

Any Contaminants would migrate downslope and downgradient, past 27, under the Road or through the culvert, and emerge in the Drainage Basin area.

Benthic Sampling (where applicable):

Ø

Zoo and Phytoplankton sampling (where applicable):

Ø

Potential Source of Chemical Release:

Known 40,000 gallon fuel Spill @ sub 15,

Potential Transport Medium:

Percolating Rainwater, Surface Water runoff,

Potential Exposure Pathways:

Ingestion, inhalation, dermal Contact

Potential Receptors:

all wildlife species such as fox, deer, ground squirrel, etc as well as migrating animals and exploring human populations (minor)

Background Contaminant Sample:

FIELD SURVEY

Location [illegible]

Site 14 Utility 2

Present and Future Land Uses:

None/None foreseen

Condition and Type of Biota:

Natural and healthy, Caribou, Fox, Ptarmigan, ground squirrels.

Vegetation Survey (% of cover, vegetation condition and type):

Vegetation ranges from sparse in areas of imported fill to completely covered in undisturbed areas. Grasses, Sedges, Moss, Labrador Tea, etc. Tundra.

Soil Adherence Factor (type and condition, grain size, moisture, sorting, color, fetch):

Gravel fill 4" → < ½", ~3/4" typical

Drainages or Standing Water (ponds, stream, standing water, size, distance):

There is no standing water in the immediate vicinity of the soils

Predominant Wind Direction:

As with all sites from the South/Southwest in Summer
Changing to North/NE in winter

Estimate Streamflow (where applicable):

ϕ

Biological Samples (where applicable):

ϕ

Chemical Samples (where applicable):

ϕ

NEC / 14

Photographs and Video:
Video taken around building, Video Camera then West East

Field Conceptual Model:
Surface Water Drainage is North Northeast towards site #1 (Wastewater Treatment facility)

Benthic Sampling (where applicable):
ϕ

Zoo and Phytoplankton sampling (where applicable):
ϕ

Potential Source of Chemical Release:
[Oil drains on North Side of facility Drained in '94. By NWES.] Drum full of Tailings on South Side
14,000 gallon AST Located on South Side.
Marked and Hazcated on 7-14-96 by MW.

Potential Transport Medium:
Percolating Rainwater to surrounding Vegetation

Potential Exposure Pathways:

Potential Receptors:
Surrounding

Background Contaminant Sample:

FIELD SURVEY

Location NEC

Site 18

Present and Future Land Uses:

Abandoned / none anticipated

Condition and Type of Biota:

native / healthy
Coyote Fox, ground squirrels
native birds

Vegetation Survey (% of cover, vegetation condition and type):

sparse to 100% cover — undisturbed area

Soil Adherence Factor (type and condition, grain size, moisture, sorting, color, fetch):

Drainages or Standing Water (ponds, stream, standing water. size, distance):

No standing water
Drainage East 101E & W (N-end)
to center, N and then W

Predominant Wind Direction:

Summer S - SW
Winter N - NE

Estimate Streamflow (where applicable):

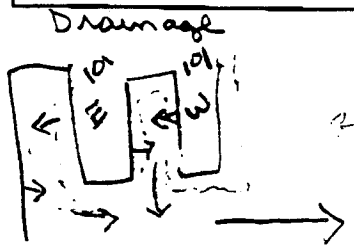
N/A

Biological Samples (where applicable):

N/A

Chemical Samples (where applicable):

See 1994 RI



NFC (10)

Photographs and Video:

Field Conceptual Model:

Benthic Sampling (where applicable):

N/A

Zoo and Phytoplankton sampling (where applicable):

N/A

Potential Source of Chemical Release:

Potential Transport Medium:

Potential Exposure Pathways:

Potential Receptors:

Background Contaminant Sample:

FIELD SURVEY

Location NEL

Site 21

Present and Future Land Uses:

Navy / Navy Reserve

Condition and Type of Biota:

Same

Vegetation Survey (% of cover, vegetation condition and type):

Sand from areas of physically disturbed earth (i.e. earth moving etc) Vegetation is healthy. There is little to no fill @ this site

Soil Adherence Factor (type and condition, grain size, moisture, sorting, color, fetch):

From gravely fill near building to very organic marshy areas & grasses

Drainages or Standing Water (ponds, stream, standing water, size, distance):

Drainage is North/Northwest with known Stream @ the ends of the outfall approximately 1,000 feet West of main structure

Predominant Wind Direction:

Same

Estimate Streamflow (where applicable):

10 gpm - Stream Near Terminus of Outfall

Biological Samples (where applicable):

ϕ

Chemical Samples (where applicable):

ϕ

NSC/21

Photographs and Video:

Photo's taken of site excluding Outfall.
Video - Dead.

Field Conceptual Model:

Benthic Sampling (where applicable):

ϕ

Zoo and Phytoplankton sampling (where applicable):

ϕ

Potential Source of Chemical Release:

Creek/Stream to the west

Potential Transport Medium:

Surface and groundwater flow.

Potential Exposure Pathways:

ingestion

Potential Receptors:

Fauna, Vegetation does not appear to be affected, Very Healthy grass/tundra mat.

Background Contaminant Sample:

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID 96 NE DR 101 PL, EN, ED | **Date** 8 / 5 / 96 (month / day / year) | **Time** 1330

Sample Type

- **Surface Soil** ☐ — Depth (ft)
- **Sediment** ☐
- **Surface Water** ☐ — Temperature (°C)_____ Conductivity (umhos/cm)_____ pH _____ TDS (mg/l)_____ BOD (mg/l)_____
- **Wipe** ☐
- **Lead Paint Chip** ☐
- **TCLP Core Samples** ☐
- **Asbestos** ☐

Field Information

Field Team
Elise Bonnie Dave Victor

Sampler
~~Sampler~~ Bonnie McLean

PID (ppm)

ELISA

	DRO	GRO	PCB
	100 1000	50 200	5 50
screening			
<less than			
>greater than			
spectrophotometer	____	____	____

Weather
Snow Rain Sleet Hail (Clear)
Foggy Overcast Partly Cloudy

Ambient Temperature (°C) 5C

Photo Yes No
Roll # Frame #

Shipping Information

Chain of Custody Number

Shipped Via Goldstreak UPS FedEx DHL

Date Shipped

Airbill Number

Swing Tie Data

North

Comments Mist south ... same as 94SW/SL105 and 94SW/SL102, ... braided creek, standing water in WS smelling with plant ... bottom material ... Black tuff (...)

Revision Date 4/29/96

96 NECDB Z0101 (Location SW/SD #5)
PL101
BT101.

MONTGOMERY WATSON
PHYSICAL CHARACTERIZATION/ WATER QUALITY
FIELD DATA SHEET

Mostly wetlands + ponds, low flowing water (4 an

PHYSICAL CHARACTERIZATION

RIPARIAN ZONE/ INSTREAM FEATURES

1). PREDOMINANT SURROUNDING LAND USE:

Forest Field/Pasture Agriculture Residential Commercial Other Native

2). LOCAL WATERSHED EROSION: (None) Moderate Heavy

3). LOCAL WATERSHED NPS POLLUTION: No Evidence Some Potential (Obvious Source)

4). ~~STREAM~~ Drainage WIDTH ____ m ~20-30'

5). STREAM DEPTH: Riffle ~6-1' Run ____ m Pool ____ m

6). HIGH WATER MARK ____ m 7). VELOCITY ~5gpm 8). DAM PRESENT: Yes ____ No X

9). CHANNELIZED: Yes ____ No X

10). CANOPY COVER (Open) Partly Open Partly Shaded Shaded

Smell of creosote from antenna pole

SEDIMENT/ SUBSTRATE:

11). SEDIMENT ODOR : Normal Sewage (Petroleum) Chemical Anaerobic None Other ____

12). SEDIMENT OILS : Absent (Slight) Moderate Profuse

13). SEDIMENT DEPOSITS: Sludge Sawdust Paper Fiber Sand Relict Shells Other ____

Are the undersides of shallow embedded stones black? Yes ____ No ____

14). INORGANIC SUBSTRATE COMPONENTS Silty Sediments.

SUBSTRATE TYPE	DIAMETER	PERCENT COMPOSITION in SAMPLING AREA
BEDROCK		
BOULDER	> 256-mm (10 in.)	
COBBLE	64-256 mm (2.5- 10 in.)	
GRAVEL	2- 64 mm (0.1-2.5 in.)	
SAND	0.06- 2.00 mm (gritty)	
SILT	.004- .06 mm	
CLAY	<.004- mm (slick)	

PHYSICAL CHARACTERIZATION PAGE 2

15). ORGANIC SUBSTRATE COMPONENTS

SUBSTRATE TYPE	CHARACTERISTIC	PERCENT COMPOSITION in SAMPLING AREA
DETRITOUS	STICKS, WOOD, COARSE PLANT MATERIAL	
(MUCK-MUD)	BLACK, VERY FINE ORGANIC MATERIAL (FPOM)	
MARL	GREY, SHELL FRAGMENTS	

MUCK - mud organic bottom.

WATER QUALITY

TEMPERATURE 10 C DISSOLVED OXYGEN 8.1 ppm pH 6.98 CONDUCTIVITY 75 umhos

INSTRUMENT (s) USED YSI, Beckman, HACH

STREAM TYPE: (COLDWATER) WARMWATER

WATER ODORS: Normal Sewage (Petroleum) Chemical None Other_____

WATER SURFACE OILS: Slick (Sheen) Globs Flecks None

TURBIDITY: Clear (Slighty Turbid) Turbid Opaque Water Color_____

WEATHER CONDITIONS

PHOTOGRAPH NUMBER: ET2 # 3, # 4

OBSERVATIONS:

Sample - mostly organic mat'l, petroleum odor

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID 96 NE DF 102 PL. FN, EC | **Date** 8 / 5 / 96 (month / day / year) | **Time** 1200

Sample Type

- **Surface Soil** ☐ — Depth (ft)
- **Sediment** ☐
- **Surface Water** ☐
  - Temperature (°C)_____
  - Conductivity (umhos/cm)_____
  - pH _____
  - TDS (mg/l)_____
  - BOD (mg/l)_____
- **Wipe** ☐
- **Lead Paint Chip** ☐
- **TCLP Core Samples** ☐
- **Asbestos** ☐

Field Information

Field Team
Elise Bonnie Dave Jim

Sampler
Bonnie McLean

PID (ppm)

ELISA

	DRO		GRO		PCB	
	100	1000	50	200	5	50
screening						
<less than						
>greater than						
spectrophotometer	____		____		____	

Weather

Snow Rain Sleet Hail (Clear)

Foggy Overcast Partly Cloudy

Ambient Temperature (°C) 5°C

Photo Yes No

Roll # Frame #

Shipping Information

Chain of Custody Number

Shipped Via Goldstreak UPS FedEx DHL

Date Shipped

Airbill Number

Swing Tie Data

North

Comments At junction of Stream. Small drainage 117' W of EPE 103, only a few inches deep to .5'. Brown silt organics water in, grass on edges. Petroleum odor when bottom broken.

29/96

Revisi

96 NEC DB Z0102 (location → jct b/w drainage ba + unnamed creek)
PL102
BT102

MONTGOMERY WATSON
PHYSICAL CHARACTERIZATION/ WATER QUALITY
FIELD DATA SHEET

PHYSICAL CHARACTERIZATION

RIPARIAN ZONE/ INSTREAM FEATURES

1). PREDOMINANT SURROUNDING LAND USE:

Forest Field/Pasture Agriculture Residential Commercial Other Native

2). LOCAL WATERSHED EROSION: (None) Moderate Heavy

3). LOCAL WATERSHED NPS POLLUTION: No Evidence Some Potential (Obvious Source)

4). STREAM WIDTH_____ m

5). STREAM DEPTH: (Riffle 6" m) Run_____ m Pool_____ m

6). HIGH WATER MARK _____ m 7). VELOCITY ~10 gpm ~~CFS~~ 8). DAM PRESENT: Yes___ No X

9). CHANNELIZED: Yes_____ No X

10). CANOPY COVER: (Open) Partly Open Partly Shaded Shaded

SEDIMENT/ SUBSTRATE :

11). SEDIMENT ODOR : Normal Sewage (Petroleum) Chemical Anaerobic None Other_____

12). SEDIMENT OILS : Absent Slight (Moderate) Profuse

13). SEDIMENT DEPOSITS: (Sludge) Sawdust Paper Fiber Sand Relict Shells Other_____

Are the undersides of shallow embedded stones black? Yes___ No_____

14). _____ INORGANIC SUBSTRATE COMPONENTS Organic Silt

SUBSTRATE TYPE	DIAMETER	PERCENT COMPOSITION in SAMPLING AREA
BEDROCK		
BOULDER	> 256-mm (10 in.)	
COBBLE	64-256 mm (2.5- 10 in.)	
GRAVEL	2- 64 mm (0.1-2.5 in.)	
SAND	0.06- 2.00 mm (gritty)	
SILT	.004- .06 mm	
CLAY	<.004- mm (slick)	

96 NEC DB Z0 102
PL 102
BT 102

PHYSICAL CHARACTERIZATION PAGE 2

15). ORGANIC SUBSTRATE COMPONENTS

SUBSTRATE TYPE	CHARACTERISTIC	PERCENT COMPOSITION in SAMPLING AREA
DETRITOUS	STICKS, WOOD, COARSE PLANT MATERIAL	
(MUCK-MUD)	BLACK, VERY FINE ORGANIC MATERIAL (FPOM)	
MARL	GREY, SHELL FRAGMENTS	

WATER QUALITY

TEMPERATURE 9° C DISSOLVED OXYGEN ____ ppm pH 7.04 CONDUCTIVITY 100 umho.

INSTRUMENT (s) USED Beckman + YSI

STREAM TYPE: (COLDWATER) WARMWATER

WATER ODORS: Normal Sewage (Petroleum) Chemical None Other____

WATER SURFACE OILS: Slick (Sheen) Globs Flecks None

TURBIDITY: Clear (Slighty Turbid) Turbid Opaque Water Color____

Sunny, Slightly Windy
WEATHER CONDITIONS

PHOTOGRAPH NUMBER: ET2/#2

OBSERVATIONS:

Benthic sample mostly organics, no visible bugs

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID 96 NE DC 103 PL.BN.30 **Date** 8 / 5 / 96 (month / day / year) **Time** 1030

Sample Type

- **Surface Soil** ☐ — Depth (ft)
- **Sediment** ☐
- **Surface Water** ☐ — Temperature (°C)_____ Conductivity (umhos/cm)_____ pH _____ TDS (mg/l)_____ BOD (mg/l)_____
- **Wipe** ☐
- **Lead Paint Chip** ☐
- **TCLP Core Samples** ☐
- **Asbestos** ☐

Field Information

Field Team Elsa Bonnie Dan Victor

Sampler Kyrie McLean

PID (ppm)

ELISA

	DRO		GRO		PCB	
screening	100	1000	50	200	5	50
<less than						
>greater than						
spectrophotometer	___		___		___	

Weather

Snow Rain Sleet Hail (Clear)

Foggy Overcast Partly Cloudy

Ambient Temperature (°C) 5°C

Photo Yes No

Roll # Frame #

Shipping Information

Chain of Custody Number

Shipped Via Goldstreak UPS FedEx DHL

Date Shipped

Airbill Number

Swing Tie Data

North

Comments Same as 96 CNE2L 10'. Completed plankton w/Wide net + collected, 35m w/ 1 - Wide net, 1 Benthic, in triplicate, w/ Wildco dredge (6" x 6" x 2") Strained in net until all [illegible] Mostly organic material

Revision Date 4/29/96

96 NEC DBZ0103 (@ Location SW/SD #7
96 NEC DBPL103
96 NEC DBBT103

MONTGOMERY WATSON
PHYSICAL CHARACTERIZATION/ WATER QUALITY
FIELD DATA SHEET

PHYSICAL CHARACTERIZATION

RIPARIAN ZONE/ INSTREAM FEATURES

1). PREDOMINANT SURROUNDING LAND USE:

Forest Field/Pasture Agriculture Residential Commercial Other Native

2). LOCAL WATERSHED EROSION: (None) Moderate Heavy

3). LOCAL WATERSHED NPS POLLUTION: (No Evidence) Some Potential Obvious Source

4). STREAM WIDTH_____ m < 2-4 ft.

5). STREAM DEPTH: Riffle_____ m Run 1 foot m Pool_____ m

6). HIGH WATER MARK 27" m 7). VELOCITY ~20gpm ~~cfs~~ 8). DAM PRESENT: Yes___ No X

9). CHANNELIZED: Yes X No_____

10). CANOPY COVER: (Open) Partly Open Partly Shaded Shaded

SEDIMENT/ SUBSTRATE :

11). SEDIMENT ODOR: (Normal) Sewage Petroleum Chemical Anaerobic None Other_____

12). SEDIMENT OILS : (Absent) Slight Moderate Profuse

13). SEDIMENT DEPOSITS: Sludge Sawdust Paper Fiber Sand Relict Shells Other_____

Are the undersides of shallow embedded stones black? Yes___ No_____

14). INORGANIC SUBSTRATE COMPONENTS 100% silt

SUBSTRATE TYPE	DIAMETER	PERCENT COMPOSITION in SAMPLING AREA
BEDROCK		
BOULDER	> 256-mm (10 in.)	
COBBLE	64-256 mm (2.5- 10 in.)	
GRAVEL	2- 64 mm (0.1-2.5 in.)	
SAND	0.06- 2.00 mm (gritty)	
SILT	.004- .06 mm	
CLAY	<.004- mm (slick)	

96 NECDBZO 103
PL 103
BT 103

PHYSICAL CHARACTERIZATION PAGE 2

15). ORGANIC SUBSTRATE COMPONENTS

SUBSTRATE TYPE	CHARACTERISTIC	PERCENT COMPOSITION in SAMPLING AREA
	STICKS, WOOD,	
DETRITOUS	COARSE PLANT MATERIAL	
MUCK-MUD	BLACK, VERY FINE ORGANIC MATERIAL (FPOM)	Mostly Muck-Mud
MARL	GREY, SHELL FRAGMENTS	

WATER QUALITY

TEMPERATURE 9° C DISSOLVED OXYGEN 7.9 ppm pH 7.29 CONDUCTIVITY 50 umhos

INSTRUMENT (s) USED Beckman, YSI, + HACH colorimeter

STREAM TYPE: (COLDWATER) WARMWATER

WATER ODORS: Normal Sewage Petroleum Chemical (None) Other

WATER SURFACE OILS: Slick Sheen Globs Flecks (None)

TURBIDITY: (Clear) Slighty Turbid Turbid Opaque Water Color

Sunny, Slightly windy day
WEATHER CONDITIONS

PHOTOGRAPH NUMBER: ET2/#1

OBSERVATIONS:

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)

Northeast Cape, St. Lawrence Island

Sample ID 96 NE DB 104 PL, BN, ZO **Date** 8 (month) / 5 (day) / 96 (year) **Time** 1300

Sample Type

- **Surface Soil** ☐ Depth (ft)
- **Sediment** ☐
- **Surface Water** ☐
  - Temperature (°C)_____
  - Conductivity (umhos/cm)_____
  - pH _____
  - TDS (mg/l)_____
  - BOD (mg/l)_____
- **Wipe** ☐
- **Lead Paint Chip** ☐
- **TCLP Core Samples** ☐
- **Asbestos** ☐

Field Information

Field Team Elsa, Emmie, Dan, Vic

Sampler Bruce McLean

PID (ppm)

ELISA

	DRO		GRO		PCB	
screening	100	1000	50	200	5	50
<less than						
>greater than						
spectrophotometer	____		____		____	

Weather

Snow Rain Sleet Hail (Clear)

Foggy Overcast Partly Cloudy

Ambient Temperature (°C) 5°C

Photo Yes No

Roll # Frame #

Shipping Information

Chain of Custody Number

Shipped Via Goldstreak UPS FedEx DHL

Date Shipped

Airbill Number

Swing Tie Data

North

Comments Most down gradient. No sheen on water. Water bottom water, unbroken ripples, clear appearance, unable to collect. 3 BN samples, no sediment on bottom, silty, gravelly bottom.

Revised 7/29/96

96 NEC DBZ0104 (Location: SW/50 #8)
PL104
BT104

MONTGOMERY WATSON
PHYSICAL CHARACTERIZATION/ WATER QUALITY
FIELD DATA SHEET

PHYSICAL CHARACTERIZATION

RIPARIAN ZONE/ INSTREAM FEATURES

1). PREDOMINANT SURROUNDING LAND USE:

Forest Field/Pasture Agriculture Residential Commercial Other Native

2). LOCAL WATERSHED EROSION: (None) Moderate Heavy

3). LOCAL WATERSHED NPS POLLUTION: No Evidence Some Potential (Obvious Source)

4). STREAM WIDTH 3-5' ~~ft~~

5). STREAM DEPTH: Riffle_____ m Run ~3' ~~ft~~ Pool_____ m

6). HIGH WATER MARK_____ m 7). VELOCITY 20-30 ~~CFS~~ gpm 8). DAM PRESENT: Yes___ No X

9). CHANNELIZED: Yes X No_____

10). CANOPY COVER: (Open) Partly Open Partly Shaded Shaded

SEDIMENT/ SUBSTRATE :

11). SEDIMENT ODOR: (Normal) Sewage Petroleum Chemical Anaerobic None Other_____

12). SEDIMENT OILS: Absent Slight Moderate (Profuse)

13). SEDIMENT DEPOSITS: Sludge Sawdust Paper Fiber Sand Relict Shells Other_____

Are the undersides of shallow embedded stones black? Yes___ No_____

14). INORGANIC SUBSTRATE COMPONENTS Silty, Sandy bottom

SUBSTRATE TYPE	DIAMETER	PERCENT COMPOSITION in SAMPLING AREA
BEDROCK		
BOULDER	> 256-mm (10 in.)	
COBBLE	64-256 mm (2.5- 10 in.)	
GRAVEL	2- 64 mm (0.1-2.5 in.)	
SAND	0.06- 2.00 mm (gritty)	
SILT	.004- .06 mm	
CLAY	<.004- mm (slick)	

PHYSICAL CHARACTERIZATION PAGE 2

15). ORGANIC SUBSTRATE COMPONENTS

SUBSTRATE TYPE	CHARACTERISTIC	PERCENT COMPOSITION in SAMPLING AREA
DETRITOUS	STICKS, WOOD, COARSE PLANT MATERIAL	
(MUCK-MUD)	BLACK, VERY FINE ORGANIC MATERIAL (FPOM)	
MARL	GREY, SHELL FRAGMENTS	

muck - mud organic bottom

WATER QUALITY

TEMPERATURE 9° C DISSOLVED OXYGEN 7.3 ppm pH 7.17 CONDUCTIVITY 50 umho.

INSTRUMENT (s) USED

STREAM TYPE: (COLDWATER) WARMWATER

WATER ODORS: Normal Sewage Petroleum Chemical (None) Other

WATER SURFACE OILS: Slick (Sheen) Globs Flecks None when sods are disturbed

TURBIDITY: (Clear) Slighty Turbid Turbid Opaque Water Color

Sunny, Slightly windy.

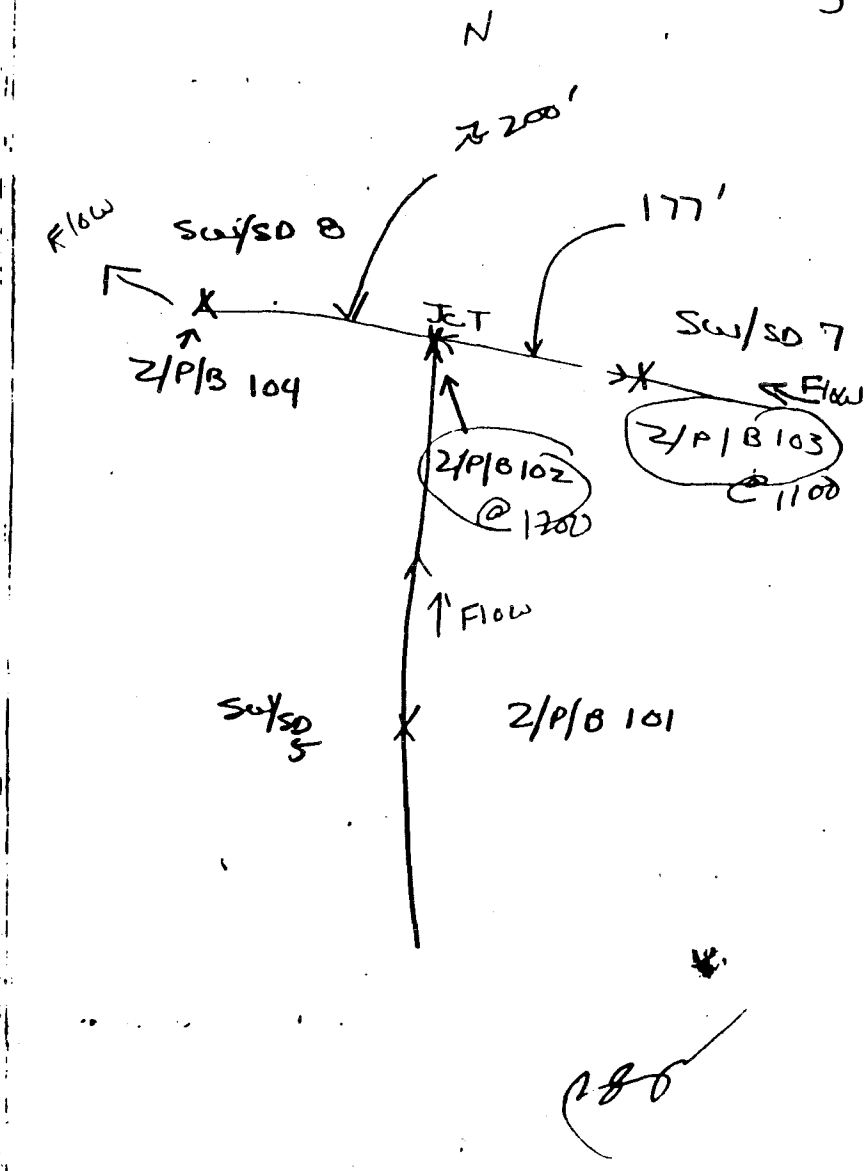
WEATHER CONDITIONS

PHOTOGRAPH NUMBER:

OBSERVATIONS:

Sample was sandy, little organics. Took only two benthic samples, A + B. - (little grabable sediment).

8-5-96 NEC (Mon)



8-5-96 NEC — Mon

Z/P/B 104

1145 at ZPB 102 station
*This is at Junction of streams Collected Plankton, Zoo, Benthos 1200, small drainage .177' west of ZPB 103 only a few inches deep to .5' brown silt organic material grass on edges.
petrosh can seen when bottom broken.

1240 at ZPB 104 —
Most down gradient
NO sheen on water, when you break up bottom material sheen appears — unable to collect 3 BN samples NO sediment on bottom. — silty/gravelly bottom —
Sample time 1300 P.B.2 complete only PL A&B.

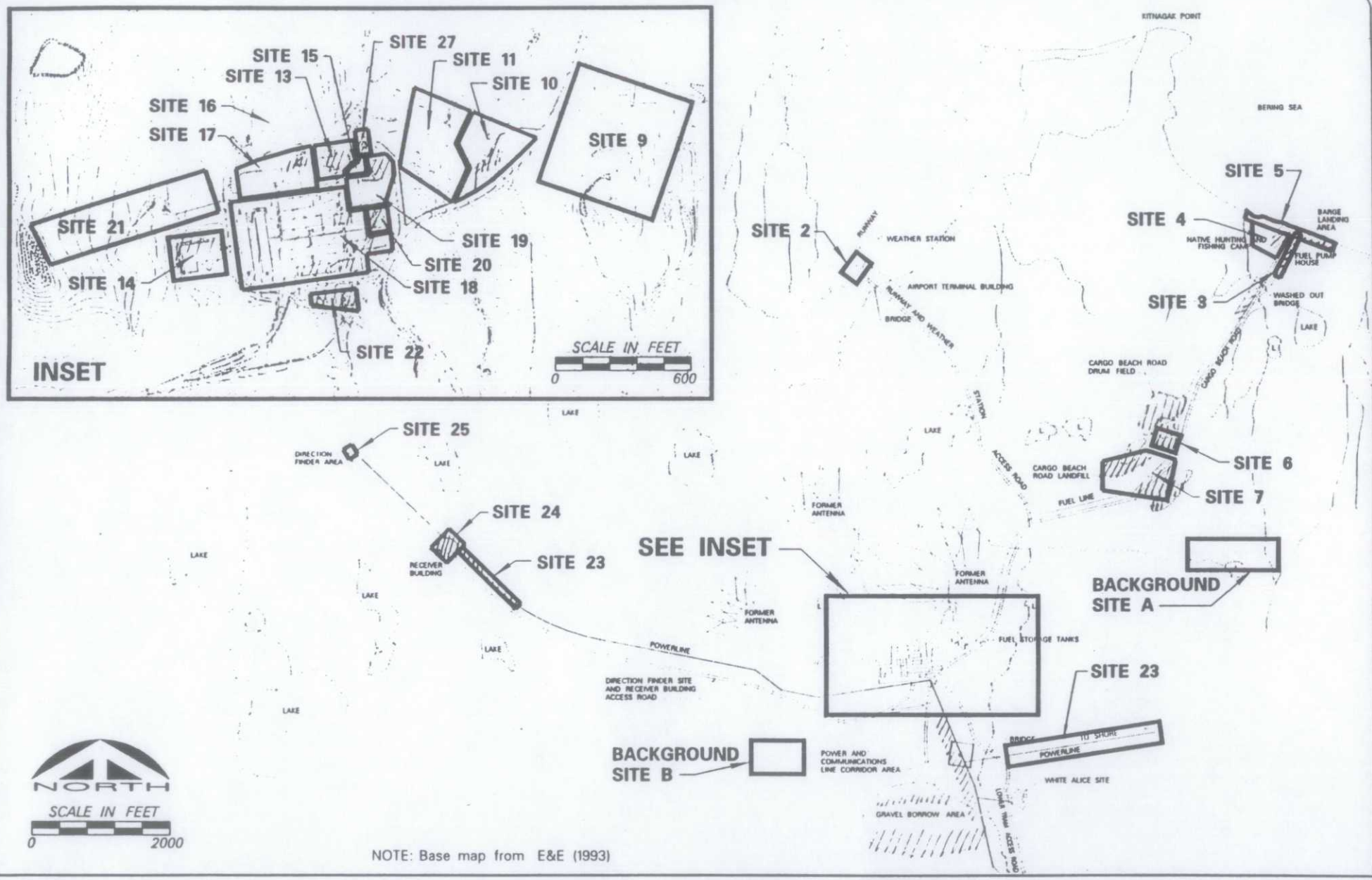
1320 at ZPB 101 —
Most Southerly - same area as 96 SW/SD 5 and 94 SW/SD B-2 very little flow, braided creek standing water on the W side smelling w/petro odor when bottom Bar

Army Corps of Engineers

Northeast Cape, Alaska

Radiological Survey Maps

MONTGOMERY WATSON



NOTE: Base map from E&E (1993)

MONTGOMERY WATSON

Anchorage, Alaska

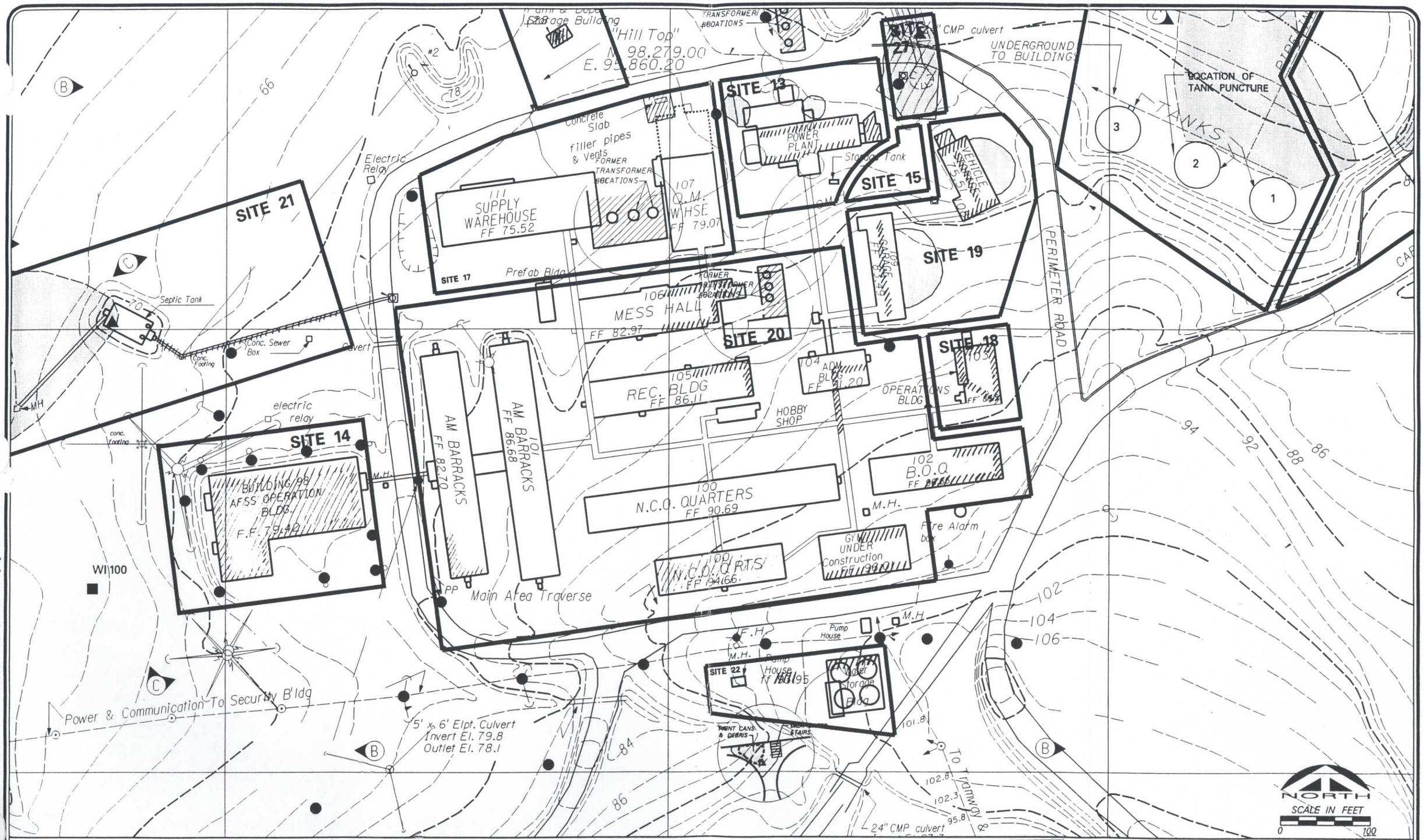
RADIOLOGICAL SURVEY

1111 SURVEY AREA

FIGURE 1-3

ALASKA DISTRICT – CORPS OF ENGINEERS
N.E. CAPE – ST. LAWRENCE ISLAND, ALASKA

SITE MAP



MONTGOMERY WATSON

Anchorage, Alaska

RADIOLOGICAL SURVEY

//// SURVEY AREA

FIGURE 1

U.S. ARMY ENGINEER DISTRICT, ALASKA
N.E. CAPE – ST. LAWRENCE INSLAND, ALASKA

SITE MAP

JOB No. -

FILE: c:\corps\necape\ph2\work\fnl\fgl.dgn

30-JUL-1996 09:33

Army Corps of Engineers

Northeast Cape, Alaska

"Danger" Signs Posted

MONTGOMERY WATSON

"DANGER" SIGNS POSTED FORM

NORTHEAST CAPE, ST. LAWRENCE ISLAND

SITE	BUILDING #	LOCATION (ie. N, S, DOOR)
22	Pumphouse, 114	N. door
22	Water Supply, 113	N. door
21	Well House	E door
20	AGW, 103	N door
20	Corridor -	N side
18	Squad HDQ - 104	N. side
18	Rec Bldg. - 99	S wall
18	Dorm Bldg - 102	N door
18	Dorm Bldg - 102	SE door
18	Dorm Bldg. - 100	SW door
18	BOQ 102	E. door
18	Squad HDQ - 104	E. door
18	Rec. 105	NE Dock
18	Mess 106	SE dock
18	Dorm. 100S	S door
18	Dorm 100S	W door
18	Dorm 100N	W door - landing
18	Interior corridor	101 & 111
17	Gen WHSE 111	N Dock, W side
13	Heat & Elec 110W	W. door outside enclosure
13	Heat & Elec 110W	W. door
13	H 119W	Backdoor W.
13	Heat & Elect 110	E door, inside
18	Dorm E	S door
18	Dorm W	S door
18	Dorm W	W door
18	111 & 101 corridor	- W. door
18	"	SW door
14	Emg Power 98	NE door (inside)
14	Emg Power 98	E door
14	Emg Power 98	S mid door (inside)
14	Emg Power 98	SW door
14	Emg Power 98	W door
17	Warehouse 107	W Dock
17	Warehouse 107	NW dock end

Revision Date 7/26/96

"DANGER" SIGNS POSTED FORM

NORTHEAST CAPE, ST. LAWRENCE ISLAND

Pg 2

SITE	BUILDING #	LOCATION (ie. N, S, DOOR)
17	Gen. Whse 111	N door
17	Gen WHS	S. door
19	Auto Maint 109	East door
19	Auto Maint 109	East garage door
19	Auto Maint 105	S. door
19	Auto Stor 108	E. garage door
19	Auto Stor 108	W. door
3	Pump House	N. side
2	Terminal Bldg.	NW garage door
2	Terminal	N. mid door
2	Terminal	E. door
2	Terminal	E. mid door
2	Terminal	S. garage door
2	Terminal	Door to office from garage
20	ACW 103	N. door
19	Auto Maint 109	W door

Revision Date 7/26/96

Army Corps of Engineers

Northeast Cape, Alaska

Chain of Custody

#	Laboratory
1	MAS
2	NPDL
3	MAS
4	NPNL
5	MW Lab

MONTGOMERY WATSON

#820642

MONTGOMERY WATSON
Anchorage, Alaska

Return Cooler # ____ to:
MONTGOMERY WATSON
4100 Spenard ~~4000 Credit Union Drive, Suite 600~~
Anchorage, Alaska 99503
(907) ~~561-5829~~ 2488883

CHAIN OF CUSTODY FORM

P.2

PROJ. NO.	LABORATORY NAME
Phase II	ATI

SAMPLERS: (Signature) Elise Tugman

AB#	DATE	TIME	GRAB	STATION NUMBER/LOCATION	TOTAL NO. OF CONTAINERS	PCB - wipe	TRPH	PCB	BTEX	REMARKS
01	6/26	1230	G	96GAM001WI	1	X				
02	6/26	1235	G	96GAM011WI	1	X				
03	6/26	1245	G	96GAM062WI	1	X				
04	6/26	1250	G	96GAM003WI	1	X				
05	6/26	1255	G	96GAM100WI	1	X				
06	6/27	1000	G	96NEC001SW	19		X	~~X~~	X	MS/MSD [redacted]
07	6/27	1010	G	96NEC011SW	7		X	NO	X	
08	6/27	1030	G	96NEC002SW	7		X	X	X	
09	6/27	1040	G	96NEC900SW	2				X	

Relinquished by:	Date/Time	Received by:	Relinquished by:	Date/Time	Received by:
Elise Tugman	6/27/96 1400	[signature]	[signature]	6/29/96 1300	

Received for Laboratory by: Marie Miller Date: 6/28/96 Time: 1306

Cooler #1 - 0°C, Cooler #2 - .5°C Cooler #3 - 1°C

JUN 28 '96 02:28PM ATI ANCHORAGE

inc. Phase II

#820684

MONTGOMERY WATSON

C of C # 1

Page 1 of 4

USACE
Northeast Cape, St. Lawrence Island
Phase II

RETURN COOLERS TO:
MONTGOMERY WATSON
4100 Spenard Road
Anchorage, Alaska 99517
(907)248-8883

CHAIN OF CUSTODY FORM

PROJ. NO.	TO:
2198.0420	MAS

SAMPLERS: (Signature)

S: Soil
W: Water
Sl: Sludge

LAB #	DATE	TIME	S/W	SAMPLE ID NUMBER	TOTAL NO. OF CONTAINERS	BETX (SW 8020A) W: 3-40 ml vials w/HCl	DRO (SW 8100 Mod) S: 1-4 oz jar W: 2-1 L amber w/HCl	TRPH (EPA 418.1) S: 1-4 oz jar W: 2-1 L amber w/H2SO4	PCB (SW 8080A) W: 2-1 L amber S: 1-4 oz jar	TCLP - Metals (1311-6010/7000) W: 1-1 L plastic Sl: 1-8 oz jar	Fuel Identification (8015M) W: 2-1 L amber Sl: 1-8 oz jar	Glycol (8015M) W: 2-1 L amber Sl: 1-4 oz jar	REMARKS
01	1996 8/4	1600	W	96NE16TK101	18	✓		✓	✓				ms/msD
02	8/4	1605	W	96NE16TK201	6	✓		✓	✓				
03	8/4	1630	W	96NE13TK101	5	✓		✓					
04	8/4	1300	W	96NE14TK101	6	✓		✓	✓				
05	8/4	1400	W	96NE04TK101	5	✓		✓					
06	8/4	1200	W	96NENASW101	4		✓		✓				
07	8/4	1200	W	96NENASW201	4		✓		✓				
08	8/4	1230	W	96NENASW102	4		✓		✓				
09	8/4	1310	W	96NENASW103	4		✓		✓				
10	8/4	1320	W	96NENASW104	4		✓		✓				
11	8/4	1340	W	96NENASW105	4		✓		✓				
12	8/4	1405	W	96NENASW106	4		✓		✓				

Relinquished by:	Date/Time:	Shipped via:	Notified:	Date/Time:	Received by:
	8/5/96	AK Airlines			

Received for Laboratory by: 8/6/96 0830 4369 8 1730 | Date: 8/6/96 | Time: 154

P.2

AUG 05 '96 08:29AM ATI ANCHORAGE

Revision Date: 4/15/96

#820684

MONTGOMERY WATSON

C of C # 1

Page 2 of PAGE 4

USACE
Northeast Cape, St. Lawrence Island
Phase II

CHAIN OF CUSTODY FORM

RETURN COOLERS TO:
MONTGOMERY WATSON
4100 Spenard Road
Anchorage, Alaska 99517
(907)248-8883

PROJ. NO.	TO:
2198.0420	MAS

SAMPLERS: (Signature)

LAB #	DATE	TIME	S/W	SAMPLE ID NUMBER	TOTAL NO. OF CONTAINERS	BETX (SW 8020A) W: 3-40 ml vials w/HCl	DRO (SW 8100 Mod) S: 1-4 oz jar W: 2-1 L amber w/HCl	TRPH (EPA 418.1) S: 1-4 oz jar W: 2-1 L amber w/H2SO4	PCB (SW 8080A) W: 2-1 L amber S: 1-4 oz jar	TCLP - Metals (1311-6010/7000) W: 1-1 L plastic S: 1-8 oz jar	Fuel Identification (8015M) W: 2-1 L amber S: 1-8 oz jar	Glycol (8015M) W: 2-1 L amber S: 1-4 oz jar	REMARKS
13	1996 8/4	1426	W	96NENASW107	4		✓		✓				
14	8/4	1430	W	96NENASW108	4		✓		✓				
15	8/4	1200	S	96NENASD101	2		✓		✓				
16	8/4	1200	S	96NENASD201	2		✓		✓				
17	8/4	1230	S	96NENASD102	2		✓		✓				
18	8/4	1310	S	96NENASD103	2		✓		✓				
19	8/4	1320	S	96NENASD104	2		✓		✓				
20	8/4	1340	S	96NENASD105	2		✓		✓				
21	8/4	1405	S	96NENASD106	2		✓		✓				
22	8/4	1420	S	96NENASD107	2		✓		✓				
23	8/4	1430	S	96NENASD108	2		✓		✓				
							✓ DD		✓ DD				

Relinquished by:	Date/Time:	Shipped via:	Notified:	Date/Time:	Received by:
	~~8/5/96~~ DD	AK Airlines Goldstreak			

Received for Laboratory by:	Date	Time:
1730 DD 8/6/96 0830 4369 8395	8/6/96	1540

Revision Date: 4/16/96

AUG 08 '96 08:30AM ATI ANCHORAGE P.3

#820684

MONTGOMERY WATSON

USACE
Northeast Cape, St. Lawrence Island
Phase II

RETURN COOLERS TO:
MONTGOMERY WATSON
4100 Spenard Road
Anchorage, Alaska 99517
(907)248-8883

C of C # 1

Page 3 of 3 DUP 4

CHAIN OF CUSTODY FORM

PROJ. NO.	TO:
2198.0420	MAS

SAMPLERS: (Signature)

S: Soil
W: Water
Sl: Sludge

LAB #	DATE	TIME	S/W	SAMPLE ID NUMBER	TOTAL NO. OF CONTAINERS	BETX (SW 8020A) W: 3-40 ml vials w/HCl	DRO (SW 8100 Mod) S: 1-4 oz jar W: 2-1 L amber w/HCl	TRPH (EPA 418.1) S: 1-4 oz jar W: 2-1 L amber w/H2SO4	PCB (SW 8080A) W: 2-1 L amber	TCLP - Metals (1311-6010/7000) S: 1-4 oz jar W: 1-1 L plastic	Fuel Identification (8015M) S: 1-8 oz jar W: 2-1 L amber	Glycol (8015M) S: 1-8 oz jar W: 2-1 L amber	REMARKS
24	1996 8/4	1440	S	96NEDBSS101	1				✓				
25	8/4	1445	S	96NEDBSS102	1				✓				
26	8/4	1450	S	96NEDBSS103	1				✓				
27	8/4	1455	S	96NEDBSS203	1				✓				
	~~8/4~~	~~1500~~	~~S~~										Dupe
28	8/4	1505	S	96NEDBSD109	1				✓				
29	8/4	1510	S	96NEDBSD110	1				✓				
30	8/4	1400	S	96NE14TK102	3					✓	✓	✓	
31	8/4	1620	S	96NE16TK102	1								Floating Product
32	8/4	2100	W	96NE16TB101	3	✓							

Relinquished by:	Date/Time:	Shipped via:	Notified:	Date/Time:	Received by:
	~~8/5/96~~ DD	AK Airlines Gold Streak			

Received for Laboratory by:	Date/Time:	Date	Time:
	1730 DD 8/6/96	8/16/96	154

0830

Revision Date: 4/1/1996

AUG 08 '96 08:30AM ATI ANCHORAGE P.4

#820684

MONTGOMERY WATSON
Anchorage, Alaska

4 of 4

Return Cooler # ____ to:
MONTGOMERY WATSON
4000 Credit Union Drive, Suite 600
Anchorage, Alaska 99503
(907) 561-5829

CHAIN OF CUSTODY FORM

P.5

PROJ. NO.	LABORATORY NAME
298.0420	MAS

SAMPLERS: (Signature)

LAB
1996

	DATE	TIME	GRAB	STATION NUMBER/LOCATION	TOTAL NO. OF CONTAINERS	DRO (SW 8100 mod)	TRPH (EPA 418.1)				REMARKS
33	8/5	1615	S	96NE1055101	2	✓	✓				
34	8/5	1620	S	96NEP55-201	2	✓	✓				
35	8/5	1630	S	96NE1055102	2	✓	✓				
36	8/5	1640	S	96NE1055103	2	✓	✓				
37	8/5	1645	S	96NE1055104	2	✓	✓				
38	8/5	1650	S	96NE1055105	2	✓	✓				
39	8/5	1655	S	96NE1055106	2	✓	✓				
40	8/5	1645	S	96NE1055107	2	✓	✓				
41	8/5	1700	S	96NE1055108	2	✓	✓				

Relinquished by:	Date/Time	Received by:	Relinquished by:	Date/Time	Received by:
	8/6/96 0830				

Received for Laboratory by: Marie Miller Date: 8/6/96 Time: 1540

AUG 06 '96 08:31AM ATI ANCHORAGE

Alaska Airlines

GOLDSTREAK PACKAGE EXPRESS

Copy 1

Airline 027- | Origin ANC | AIR WAYBILL Number 4369 8126

From Shipper: MONTGOMERY WATSON — 907-248-8883

Address: 4100 SPENARD ROAD

Phone:

City: ANCHORAGE — State: AK — Zip Code: 99517

Shipper's Signature | PRINTED NAME | Date | Time a.m. p.m.

X

The Federal Aviation Administration requires Alaska Airlines to inform you of the following "Shipper's Security Notification":

☐ "Cargo items tendered for air transportation are subject to aviation security controls by air carriers and when appropriate, other government regulations. Copies of all relevant shipping documents showing the cargo's consignee, consignor, description, and other relevant data will be retained on file until the cargo completes its air transportation."

☐ "I certify that this shipment does not contain any unauthorized explosive or destructive devices. I am aware that this shipment is subject to appropriate aviation security controls and other relevant government regulations. I am aware that this endorsement original signature, along with other shipping documents will be retained on file until the shipment is delivered."

Contents: SAMPLES

Insured Value:

Declared Value of Customs:

Remarks: 2198.0420/0430

To Consignee: (Complete Consignee information required on package)
MULTICHEM ANALYTICAL SERVICES

Address: 2000 W. INT'L A/P RD, STE C-7 — Phone: 907-248-8273

City: ANCHORAGE — State: AK — Zip Code: 99502

Consignee's Printed Name – Signature (Received in Good Order Except as Noted) | Time a.m. p.m. | Date

Origin Courier Signature X | Date | Time a.m. p.m.

Destination Courier Signature | Date | Time a.m. p.m.

Airline 027- | Origin | AIR WAYBILL Number

This is a non-negotiable AIR WAYBILL subject to the terms and conditions set forth on the reverse of shipper's copy.

Thank you for shipping with Alaska Airlines

Shipper's Receipt

P.O. Box 68900
Seattle, WA 98168

Total Pieces: 8 | Total Weight: 464

Form of Payment

☐ Cash ☐ Check ☐ GBL — Attach GBL

☒ AS / QX Account Number 27440065151

☐ Credit Card Number

Validata Approval V-0d6r5

(Required for all except cash and GBL)

Executed By: Date Time 01 8 Feb 8:49 a.m. p.m.

Carrier	Flight	Destination	E.T.A.
AS	152	ANC	2 PM

CHECK ONE ONLY

☒ AIRPORT TO AIRPORT SERVICE

☐ CITY TO CITY ☐ DEPOT TO DEPOT ☐ DOOR TO DOOR

☐ AGENT TO AGENT ☐ AGENT TO DOOR ☐ DOOR TO AGENT

☐ 2 HOUR SERVICE ☐ 3 HOUR SERVICE

MULTIPLE PIECES FOR AS FLIGHTS ON

Please ✓ If Live Animal ☐

PCS.	WT. RANGE / GSX LETTER	RATE	CHARGE
	GSX LETTER		
	1-15		
	16-50		
	51-70		
	71-100		

Subtotal Charges

Other Charges

1st Carrier

2nd Carrier

3rd Carrier

Tax (Offline only)

AS COURIER CHARGES

Pickup (NON AS COURIER)

Delivery (NON AS COURIER)

Special Service

Insurance

TOTAL 480.00

8/8/96

MultiChem Analytical Services
(Formerly Analytical Technologies, Inc.-Anchorage)
2000 W. Int'l Airport Rd., Ste. C7, Anchorage AK 99502
◆ (907) 248-8273 ◆ Fax (907) 248-8274

SAMPLE RECEIPT ACKNOWLEDGEMENT FAX

Please deliver to the Project Manager below: Total faxed pages: 5

TO (Company): Montgomery Watson

(Client P.M.): Victor Harris

Copy

On 8/6 we received the following samples. Attached is a signed copy of your Chain-of-Custody for your records. Please inspect it for errors. If you find an error, please call your Project Manager at MultiChem Analytical Sciences (MAS) or Sample Control within 24 hrs.
The MAS accession number for your project is: 820684.
Please use this number when inquiring about this project. It will help us serve you in a timely manner.

Other comments/actions needed: _____

Thank you for using MAS, where Quality and Service come first !

#820687

MONTGOMERY WATSON

C of C # 3

Page 1 of 2

USACE
Northeast Cape, St. Lawrence Island
Phase II

CHAIN OF CUSTODY FORM

RETURN COOLERS TO:
MONTGOMERY WATSON
4100 Spenard Road
Anchorage, Alaska 99517
(907)248-8883

PROJ. NO. 2198.0420 | TO: MAS

SAMPLERS: (Signature)

lab ID	DATE	TIME	S/W	SAMPLE ID NUMBER	TOTAL NO. OF CONTAINERS	BETX (SW 8020A) W: 3-40 ml Vials w/HCl	DRO (SW 8100 Mod) S: 1-4 oz jar W: 2-1 L amber w/HCl	TRPH (EPA 418.1) S: 1-4 oz jar W: 2-1 L amber w/H2SO4	PCB (SW 8080A) S: 1-4 oz jar W: 2-1 L amber	TCLP - Metals (1311-6010/7000) S: 1-4 oz jar W: 1-1 L plastic	Fuel Identification (8015M) S: 1-8 oz jar W: 2-1 L amber	Glycol (8015M) S: 1-8 oz jar W: 2-1 L amber	REMARKS
01	1996 8/6	1300	S	96NE27SS101	1		✓						
02	8/6	1305	S	96NE27SS201	1		✓						
03	8/6	1315	S	96NE27SS102	1		✓						
04	8/6	1320	S	96NE27SS103	1		✓						
05	8/6	1325	S	96NE27SS104	1		✓						
06	8/6	1330	S	96NE27SS105	1		✓						
07	8/6	1300	S	96NE27SS106	1			✓	✓				
08	8/6	1255	S	96NE27SS107	1			✓	✓				
09	8/6	1245	S	96NE27SS108	1			✓	✓				
10	8/6	1310	S	96NE27SS109	1				✓				
11	8/6	1200	S	96NE16TK102	3					✓	✓	✓	
12	8/6	1205	S	96NE16TK202	3					✓	✓	✓	

S: Soil
W: Water
Sl: Sludge

Relinquished by:	Date/Time:	Shipped via:	Notified:	Date/Time:	Received by:
	8/7/96	Goldstreak			

Received for Laboratory by:	Date	Time:
A Bernard	8/8/96	0

Revision Date: 4/16/96

AUG 08 '96 11:02AM ATI ANCHORAGE P.3

#820687

MONTGOMERY WATSON

C of C # 3

Page 2 of 2

USACE
Northeast Cape, St. Lawrence Island
Phase II

CHAIN OF CUSTODY FORM

RETURN COOLERS TO:
MONTGOMERY WATSON
4100 Spenard Road
Anchorage, Alaska 99517
(907)248-8883

PROJ. NO. 2198.0420 | TO: MAS

SAMPLERS: (Signature) [signature] BGM

	DATE	TIME	S/W	SAMPLE ID NUMBER	TOTAL NO. OF CONTAINERS	BETX (SW 8020A) W: 3-40 ml vials w/HCl	DRO (SW 8100 Mod) W: 2-1 L amber w/HCl S: 1-4 oz jar	TRPH (EPA 418.1) W: 2-1 L amber w/H2SO4 S: 1-4 oz jar	PCB (SW 8080A) W: 2-1 L amber S: 1-4 oz jar	TCLP - Metals (1311-6010/7000) W: 1-1 L plastic S: 1-8 oz jar	Fuel Identification (8015M) W: 2-1 L amber S: 1-8 oz jar	Glycol (8015M) W: 2-1 L amber S: 1-4 oz jar	REMARKS
	1996					S: Soil W: Water Sl: Sludge							
13	8/6	1515	S	96NEDBSD111	1		✓		✓				Note: only 1 sample Container
14	8/6	1630	S	96NEDBSD112	1		✓		✓				Note: only 1 Sample Container
15	8/6	1115	S	96NE19TK102	3					✓	✓	✓	
16	8/6	1100	S/W	96NE19TK101	6	✓		✓*	✓				* Please add H_2SO_4
17	8/6	2100	W	96NE19TB101	3	✓							
18	8/6	1315	S	96NE10SS107	1				✓				
				LAST			SAMPLE						

Relinquished by:	Date/Time:	Shipped via:	Notified:	Date/Time:	Received by:
[signature] BGM	8/7/96	Alaska Goldstreak			

Received for Laboratory by: Anna Braunard — Date: 8/8/96 — Time: 0915

Revision Date: 4/18/96

P.4

AUG 08 '96 11:03AM ATI ANCHORAGE

Alaska Airlines

GOLDSTREAK PACKAGE EXPRESS

Airline: 027- | Origin: ANC | AIR WAYBILL Number: 4369 8384

From Shipper: MONTGOMERY WATSON — 907 248-8883

Address: 4100 SPENARD ROAD — Phone:

City: ANCHORAGE — State: AK — Zip Code: 99517

Shipper's Signature — PRINTED NAME — Date: 7 Aug — Time: 1350 a.m. p.m.

The Federal Aviation Administration requires Alaska Airlines to inform you of the followin , "Shipper's Security Notification":

☐ "Cargo items tendered for air transportation are subject to aviation security controls by air carriers and when appropriate, other government regulations. Copies of all relevant shipping documents showing the cargo's consignee, consignor, description, and other relevant data will be retained on file until the cargo completes its air transportation."

☐ "I certify that this shipment does not contain any unauthorized explosive or destructive devices. I am aware that this shipment is subject to appropriate aviation security controls and other relevant government regulations. I am aware that this endorsement original signature, along with other shipping documents will be retained on file until the shipment is delivered."

Contents: SAMPLES

Insured Value: Not Insured

Declared Value of Customs

Remarks: 2198.0420/0430

To Consignee: (Complete Consignee information required on package)
MULTICHEM ANALYTICAL SERVICES

Address: 2000 W. INT'L A/P RD, STE C-7 — Phone: 907-248-8273

City: ANCHORAGE — State: AK — Zip Code: 99502

Consignee's Printed Name – Signature (Received in Good Order Except as Noted) — Time a.m. p.m. — Date

Origin Courier Signature: X — Date — Time a.m. p.m.

Destination Courier Signature — Date — Time a.m. p.m.

Total Pieces: 1 — Total Weight: 98

Form of Payment
☐ Cash ☐ Check ☒ GBL — Attach GBL
☒ AS / QX Account Number X 27440065151
☐ Credit Card Number

Validata Approval (Required for an except cash and GBL)

Executed By: Date/Time: 7 Aug 1350 a.m. p.m.

Carrier	Flight	Destination	E.T.A.
AS	153	ANC	1800

CHECK ONE ONLY
☒ AIRPORT TO AIRPORT SERVICE

PICK-UP ONLY	DELIVERY ONLY	ENTER DOOR TO DOOR
☐	☐	☐
AS AGENT	AS AGENT	AS AGENT

AS 800 SERVICES: (800) 634-7113

MULTIPLE PIECES FOR AS FLIGHTS ONLY
Please ✓ If Live Animal ☐

PCS.	WT. RANGE	RATE	CHARGE
	GSX LETTER		
	1-15		
1	16-50	40.00	80.00
	51-70		
	71-100		
	Subtotal Charges		

Other Charges

1st Carrier	80.00
2nd Carrier	
3rd Carrier	
Tax (Offline only)	
Pickup (NON AS COURIER)	
Delivery (NON AS COURIER)	
Special Service	
Insurance	
TOTAL	80.00

Shipper to complete all areas

Airline: 027- | Origin: | AIR WAYBILL Number: 4369 8384

This is a non-negotiable AIR WAYBILL subject to the terms and conditions set forth on the reverse of shipper's copy.

Thank you for shipping with Alaska Airlines

P.O. Box 68900
Seattle, WA 98168

Shipper's Receipt

MultiChem Analytical Services
(Formerly Analytical Technologies, Inc.-Anchorage)
2000 W. Int'l Airport Rd., Ste. C7, Anchorage AK 99502
◆ (907) 248-8273 ◆ Fax (907) 248-8274

SAMPLE RECEIPT ACKNOWLEDGEMENT FAX

Please deliver to the Project Manager below: Total faxed pages: 4

TO (Company): Montgomery Watson

(Client P.M.): Victor Harris

On 8/8 we received the following samples. Attached is a signed copy of your Chain-of-Custody for your records. Please inspect it for errors. If you find an error, please call your Project Manager at MultiChem Analytical Sciences (MAS) or Sample Control within 24 hrs.
The MAS accession number for your project is: 820687.
Please use this number when inquiring about this project. It will help us serve you in a timely manner.

Other comments/actions needed: _____

Thank you for using MAS, where Quality and Service come first !

D

#820689

MONTGOMERY WATSON

C of C # 5

Page 1 of 1

USACE
Northeast Cape, St. Lawrence Island
Phase II

CHAIN OF CUSTODY FORM

RETURN COOLERS TO:
MONTGOMERY WATSON
4100 Spenard Road
Anchorage, Alaska 99517
(907)248-8883

PROJ. NO.	TO:
2198.0420	MAS

SAMPLERS: (Signature)

S: Soil
W: Water
Sl: Sludge

DATE	TIME	S/W	SAMPLE ID NUMBER	TOTAL NO. OF CONTAINERS	BETX (SW 8020A) W: 3-40 ml vials w/HCl	DRO (SW 8100 Mod) W: 2-1 L amber w/HCl	S: 1-4 oz jar	TRPH (EPA 418.1) W: 2-1 L amber w/H2SO4	S: 1-4 oz jar	PCB (SW 8080A) W: 2-1 L amber	S: 1-8 oz jar	TCLP - Metals (1311-6010/7000) W: 1-1 L plastic	Sl: 1-8 oz jar	Fuel Identification (8015M) W: 2-1 L amber	Sl: 1-8 oz jar	Glycol (8015M) W: 2-1 L amber	Sl: 1-4 oz jar	REMARKS
1996 8/7	1700	S	96 NE DB113 SD	2		✓		✓										
8/7			" LAST Sample, Really															
																		4.0°C cooler temp.
Relinquished By: Chris 8/9/96 1500																		

Relinquished by:	Date/Time:	Shipped via:	Notified:	Date/Time:	Received by:
	8/9/96 1315			8/9/96 1315	Chris

Received for laboratory by:	Date	Time:
Kimberly MAS-AK	8/9/96	

Revision Date: 4/16/96

P.3

26#

01

AUG 09 96 03:14PM MWAKRANGE

8/9/96

MultiChem Analytical Services
(Formerly Analytical Technologies, Inc.-Anchorage)
2000 W. Int'l Airport Rd., Ste. C7, Anchorage AK 99502
◆ (907) 248-8273 ◆ Fax (907) 248-8274

SAMPLE RECEIPT ACKNOWLEDGEMENT FAX

Please deliver to the Project Manager below: Total faxed pages: _____

TO (Company): Mont. Watson

(Client P.M.): Bonnie Mclean

On 8 / 9 we received the following samples. Attached is a signed copy of your Chain-of-Custody for your records. Please inspect it for errors. If you find an error, please call your Project Manager at MultiChem Analytical Sciences (MAS) or Sample Control within 24 hrs.
The MAS accession number for your project is: 820689.
Please use this number when inquiring about this project. It will help us serve you in a timely manner.

Other comments/actions needed: _____

Thank you for using MAS, where Quality and Service come first !

MONTGOMERY WATSON
Anchorage, Alaska

CHAIN OF CUSTODY FORM

Return Cooler # ____ to:
MONTGOMERY WATSON
4000 Credit Union Drive, Suite 600
Anchorage, Alaska 99503
(907) 561-5829

PROJ. NO. Phase II	LABORATORY NAME NPDL										
SAMPLERS: (Signature) Elise Tygmar											
DATE	TIME	GRAB	STATION NUMBER/LOCATION	TOTAL NO. OF CONTAINERS	PCB-wipe	TRPH	BTEX	PCB	BTEX		REMARKS
6/26	1240	G	96GAM021WI	1	X						
6/27	1015	G	96WEC021SW	7		X	X	X			
6/27	1010	G	96WEC901SW	2				X			
6/27	1040	G	96WEC001SW								
6/27	1040	G	96WEC011SW								
6/27	1050	G	96WEC002SW	7		X	X	X			
6/27	1040	G	96WEC010SW	—				X			

Relinquished by:	Date/Time	Received by:	Relinquished by:	Date/Time	Received by:
Elise Tygmar	6/27/96 1400			—	

Received for Laboratory by: Date: Time:

QA/QC for USCOE

Project Name Phase II
Project Number 2198 04CO

503
665037

Date: 6/28	COC:	Completed By:		
Primary	**Replicate**	**Split**	**Parameters**	
96GAM1001WI	96GAM1011WI	96GAM1021WI	PCB	
96NEC001SW	96NEC011SW	96NEC021SW	~~Pest~~ TIR PH	PCB ISA ~~Pest~~
~~96DEC900SW~~	~~96DEC900SW~~	~~96NEC901SW~~	~~Pest~~	
	Begin			
		6/28	NO PCB Duplicate Completed	
			Begin	

Trip Blank-P	Trip Blank-S	Trip Blank Date	
96NEC900SW	96NEC901SW	6/27/96	

Rinsate-P	Rinsate-S	Sample Type	Sample Prior	Sample After
None				

MONTGOMERY WATSON

C of C # _____

Page 1 of 1

Northeast Cape, St. Lawrence Island
Phase II

CHAIN OF CUSTODY FORM

RETURN COOLERS TO:
MONTGOMERY WATSON
4100 Spenard Road
Anchorage, Alaska 99517
(907)248-8883

PROJ. NO.	TO:
2198.0420	NPDL

SAMPLERS: (Signature) J Bucha

S: Soil
W: Water
Sl: Sludge

DATE	TIME	S/W	SAMPLE ID NUMBER	TOTAL NO. OF CONTAINERS	BETX (SW 8020A) W: 3-40 ml vials w/HCl	DRO (SW 8100 Mod) W: 2-1 L amber w/HCl S: 1-4 oz jar	TRPH (EPA 418.1) W: 2-1 L amber w/H2SO4 S: 1-4 oz jar	PCB (SW 8080A) W: 2-1 L amber S: 1-4 oz jar	TCLP - Metals (1311-6010/7000) W: 1-1 L plastic Sl: 1-8 oz jar	Fuel Identification (8015M) W: 2-1 L amber Sl: 1-8 oz jar	Glycol (8015M) W: 2-1 L amber Sl: 1-4 oz jar	REMARKS
1996												

Relinquished by:	Date/Time:	Shipped via:	Notified:	Date/Time:	Received by:

Received for Laboratory by:	Date	Time:
8/16/96		

FED EX
0366972535

Revision Date:4/15/96

SENDER'S COPY
DROP OFF YOUR PACKAGE AND SAVE

FEDERAL EXPRESS

USE THIS AIRBILL FOR SHIPMENTS WITHIN THE CONTINENTAL U.S.A., ALASKA AND HAWAII.
USE THE INTERNATIONAL AIR WAYBILL FOR SHIPMENTS TO PUERTO RICO AND ALL NON U.S. LOCATIONS.
QUESTIONS? CALL 800-238-5355 TOLL FREE.

AIRBILL
PACKAGE
TRACKING NUMBER

0366972

0366972535

Copy c. 2

SENDER'S COPY

1 Sender's Federal Express Account Number: 1387-3266-5 Date: 8/6/

From (Your Name) Please Print: Montgomery Watson
Your Phone Number (Very Important): (907) 248-8883
Company:
Department/Floor No.:
Street Address: 4100 SPENARD ROAD
City: Anchorage State: AK ZIP Required: 99517

2 To (Recipient's Name) Please Print: NO DAC DIV LAB
Recipient's Phone Nu: (503) 666-
Company: ATTN: Panida Harlmberg.
Dep
Exact Street Address (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.): 1491 NE Graham Avenue
City: Troutdale State: OR ZIP Required: 97060

YOUR INTERNAL BILLING REFERENCE INFORMATION (First 24 characters will appear on invoice.)

H IF HOLD FOR PICK-UP, Print FEDEX Address Here
Street Address
City State ZIP Required

3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card
5 [ ] Cash/Check Accl./Credit Card No. Exp. Date

4 SERVICES (Check only one box)

Priority Overnight	Standard Overnight
11 [X] YOUR PACKAGING	51 [ ] YOUR PACKAGING
16 [ ] FEDEX LETTER *	56 [ ] FEDEX LETTER *
12 [ ] FEDEX PAK *	52 [ ] FEDEX PAK *
13 [ ] FEDEX BOX	53 [ ] FEDEX BOX
14 [ ] FEDEX TUBE	54 [ ] FEDEX TUBE
Economy Two-Day	**Government Overnight**
30 [ ] ECONOMY	46 [ ] GOVT LETTER
	41 [ ] GOVT PACKAGE

Freight Service
70 [ ] OVERNIGHT FREIGHT ** 80 [ ] TWO-DAY FREIGHT **
†Delivery commitment may *Declared Value Limit $100

DELIVERY AND SPECIAL HANDLING (Check services required)

1 [ ] HOLD FOR PICK-UP (If in Box H)
2 [ ] DELIVER WEEKDAY
3 [ ] DELIVER SATURDAY (Extra charge) (Not available to all locations)
4 [ ] DANGEROUS GOODS (Extra charge)
5 [X] KEEP COOL
6 [ ] DRY ICE ____ Lbs.
7 [ ] OTHER SPECIAL SERVICE
8 [ ]
9 [ ] SATURDAY PICK-UP (Extra charge)
10 [ ]
11 [ ]
12 [ ] HOLIDAY DELIVERY (If offered)

PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE (See rules)
1	10	
Total	Total	Total

DIM SHIPMENT (Chargeable Weight) [ ] ____ ____ lbs.

Received At
1 [ ] Regular Stop 3 [ ] Drop Box
2 [ ] On-Call Stop 4 [ ] B.S.C. 5 [ ] Station

FedEx Date/Time

SERVICE CONDITIONS, DECLARED VALUE AND LIMIT OF LIABILITY

Use of this airbill constitutes your agreement to the service conditions in our current Service Guide, available upon request. See back of sender's copy of this airbill for information. Service conditions may vary for Government Overnight Service. See U.S. Government Service Guide for details.

We will not be responsible for any claim in excess of $100 per packa whether the result of loss, damage, delay, non-delivery, misdelivery, or in formation, unless you declare a higher value, pay an additional charge document your actual loss for a timely claim. Limitations found in the c Federal Express Service Guide apply. Your right to recover from F Express for any loss, including intrinsic value of the package, loss of i income interest, profit, attorney's fees, costs, and other forms of dama whether direct, incidental, consequential, or special is limited to the greater $100 or the declared value specified in the left. Recovery cannot exceed actual documented loss. The maximum Declared Value for FedEx Letter and FedEx Pak packages is $100.00.

In the event of untimely delivery, Federal Express will at your request and with some limitations, refund all transportation charges paid. See Service Guide for further information.

5 Sender authorizes Federal Express to deliver this shipment without obtaining a delivery signature and shall indemnify and hold harmless Federal Express from any claims resulting therefrom.

Release Signature:

Fede
Base C
Decla
Total C
REVISION
PART #1
FORMAT
06
© 1990-9
PRINTED

QA/QC for USCOE

Project Name Northeast Cape Phase II
Project Number 9198.0420/0480

Date:	COC: 1		Completed By: D. Quist	
8/4 & 8/5/96				
Primary	**Replicate**	**Split**	**Parameters**	
96NE16TK301	96NE16TK201	96NE16TK301	BETX, PCB, TRPH	
96NENASW101	96NENASW201	96NENASW301	DRO, PCB	
96NENASD101	96NENASD201	96NENASD301	DRO, PCB	
96NEDBSS103	96NEDBSS203	96NEDBSS303	PCB	
96NE10SS101	96NE10SS201	96NE10SS301	DRO TRPH	
Trip Blank-P	**Trip Blank-S**		**Trip Blank Date**	
96NE16TB101	96NE16TB301		8/4/96	
Rinsate-P	**Rinsate-S**	**Sample Type**	**Sample Prior**	**Sample After**

MONTGOMERY WATSON

C of C # 4

Page 1 of 1

U.S. ACE
Northeast Cape, St. Lawrence Island
Phase II

CHAIN OF CUSTODY FORM

RETURN COOLERS TO:
MONTGOMERY WATSON
4100 Spenard Road
Anchorage, Alaska 99517
(907)248-8883

PROJ. NO.	TO:
2198.0420	NPDL

SAMPLERS: (Signature)

DATE	TIME	S/W	SAMPLE ID NUMBER	TOTAL NO. OF CONTAINERS	BETX (SW 8020A) W: 3-40 ml vials w/HCl	DRO (SW 8100 Mod) S: 1-4 oz jar W: 2-1 L amber w/HCl	TRPH (EPA 418.1) S: 1-4 oz jar W: 2-1 L amber w/H2SO4	PCB (SW 8080A) W: 2-1 L amber S: 1-4 oz jar	TCLP - Metals (1311-6010/7000) W: 1-1 L plastic Sl: 1-8 oz jar	Fuel identification (8015M) W: 2-1 L amber Sl: 1-8 oz jar	Glycol (8015M) W: 2-1 L amber Sl: 1-4 oz jar	REMARKS
1996 8/6/96	1210	S	96NE16TK302	3				✓	✓	✓		
8/6/96	1310	S	96NE27SS301	1		✓						
8/6/96	2115	W	96NE19TB201	3	✓							
			LAST SAMPLE									

Relinquished by:	Date/Time:	Shipped via:	Notified:	Date/Time:	Received by:
	8/7/96	Fed Ex	DO	8/7/96 1430	

Received for Laboratory by:	Date	Time:
5102917005		

Revision Date: 4/16/96

Federal Express

USE THIS AIRBILL FOR SHIPMENTS WITHIN THE CONTINENTAL [illegible] HAWAII.
USE THE INTERNATIONAL AIR WAYBILL FOR SHIPMENTS TO PUERTO [illegible] AND ALL NON U.S. LOCATIONS.
QUESTIONS? CALL 800-238-5355 TOLL FREE.

PACKAGE TRACKING NUMBER 5102917385

5073M 5102917385

Cpy. c 4

SENDER'S COPY

1 SENDER'S FEDERAL EXPRESS ACCOUNT NUMBER: 1387-326-9 Date: 7/7/94

From (Your Name) Please Print	Your Phone Number (Very Important)	2 To (Recipient's Name) Please Print	Recipient's Phone Number (Very Important)
	(907-248-8863	Pam Hertsberg	503 665-4166
Company	**Department/Floor No.**	**Company**	**Department/Floor**
MONTGOMERY WATSON		North Pacific Division Laboratory	
Street Address		**Exact Street Address** (We Cannot Deliver to P.O. Boxes or P.O. Zip Codes.)	
4100 SPENARD RD		1491 N.W. Graham Avenue	
City	**State** / **ZIP Required**	**City**	**State** / **ZIP Required**
ANCHORAGE	AK 9 9 5 1 7	Troutdale	OR 97060-9503

YOUR INTERNAL BILLING REFERENCE INFORMATION (optional) (First 24 characters will appear on invoice.)
18111.8434

H IF HOLD AT FEDEX LOCATION, Print FEDEX Address Here
Street Address
City / State / ZIP Required

3 PAYMENT 1 [X] Bill Sender 2 [ ] Bill Recipient's FedEx Acct. No. 3 [ ] Bill 3rd Party FedEx Acct. No. 4 [ ] Bill Credit Card
5 [ ] Cash/Check Acct./Credit Card No. Exp. Date

4 SERVICES (Check only one box)

City Overnight (Delivery by next business morning†)	Local Overnight (Delivery by next business afternoon. No Saturday delivery†)
11 [X] OTHER PACKAGING	51 [ ] OTHER PACKAGING
16 [ ] FEDEX LETTER*	56 [ ] FEDEX LETTER*
12 [ ] FEDEX PAK*	52 [ ] FEDEX PAK*
13 [ ] FEDEX BOX	53 [ ] FEDEX BOX
14 [ ] FEDEX TUBE	54 [ ] FEDEX TUBE
City Two-Day (Delivery by second business day †)	**Local Two-Day** (Restricted for authorized users only)
30 [ ] ECONOMY*	46 [ ] GOVT LETTER
	41 [ ] GOVT PACKAGE
Two-Day (For packages over 150 lbs.)	
70 [ ] OVERNIGHT FREIGHT** (Confirmed reservation required)	80 [ ] TWO-DAY FREIGHT**

* Economy Letter Rate not available. Minimum charge: One pound Economy rate
† Delivery commitment may be later in some areas.
*Declared Value Limit $500. **Call for delivery schedule.

5 DELIVERY AND SPECIAL HANDLING (Check services required)

Weekday Service
1 [ ] HOLD AT FEDEX LOCATION WEEKDAY (Fill in Section H)
2 [X] DELIVER WEEKDAY

Saturday Service
31 [ ] HOLD AT FEDEX LOCATION SATURDAY (Fill in Section H)
3 [ ] DELIVER SATURDAY (Extra charge) (Not available to all locations)
9 [ ] SATURDAY PICK-UP (Extra charge)

Special Handling
4 [ ] DANGEROUS GOODS (Extra charge)
6 [ ] DRY ICE Dangerous Goods Shipper's Declaration not required
Dry Ice, 9, UN 1845 [X] x ____ kg 904 III
12 [ ] HOLIDAY DELIVERY (If offered) (Extra charge)

6 PACKAGES	WEIGHT In Pounds Only	YOUR DECLARED VALUE (See right)
1	44	
Total	Total 44	Total

Total Shipment Chargeable Weight: ____ lbs.

W x L x H

Received at: [ ] Station [ ] Drop Box [ ] B.S.C.
Drop Station

7 Release Signature:

SERVICE CONDITIONS, DECLARED VALUE AND LIMIT OF LIABILITY

Use of this airbill constitutes your agreement to the service conditions in our current Service Guide, available upon request. See back of sender's copy of this airbill for information. Service conditions may vary for Government Overnight Service. See U.S. Government Service Guide for details.

We will not be responsible for any claim in excess of $100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, and document your actual loss for a timely claim. Limitations found in the current Federal Express Service Guide apply. Your right to recover from Federal Express for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of $100 or the declared value specified to the left. Recovery cannot exceed actual documented loss. The maximum Declared Value for FedEx Letter and FedEx Pak packages is $500.

In the event of untimely delivery, Federal Express will at your request and with some limitations refund all transportation charges paid. See Service Guide for further information.

Sender authorizes Federal Express to deliver this shipment without obtaining a delivery signature and shall indemnify and hold harmless Federal Express from any claims resulting therefrom.

Federal Express Use
Base Charges
Declared Value Charge
Other 1
Other 2
Total Charges

REVISION DATE 4/94
FORMAT #160
160

QA/QC for USCOE

Project Name Northeast Cape Phase II
Project Number 2198 0420

Date:	COC:	Completed By:		
8/7/96	4			

Primary	Replicate	Split	Parameters	
96NE16TK102	96NE16TK202	96NETK302	TPH, Fuel ID, Chlorid	
96NE2755101	96NE2755201	96NE2755301	TH2O	
			mois	

Trip Blank-P	Trip Blank-S	Trip Blank Date	
96NE19TB101	96NE19TB201	8/6/96	

Rinsate-P	Rinsate-S	Sample Type	Sample Prior	Sample After

MONTGOMERY WATSON

Anchorage, Alaska

CCE

CHAIN OF CUSTODY FORM

Return Cooler # ____ to:
MONTGOMERY WATSON
4000 Credit Union Drive, Suite 600
Anchorage, Alaska 99503 99517
(907) 561-5829 907 743 5828

PROJ. NO.	LABORATORY NAME
155041.01	MW Labs - Mid

SAMPLERS: (Signature)

DATE	TIME	GRAB	STATION NUMBER/LOCATION	TOTAL NO. OF CONTAINERS	Purgeable Organics (8260)	Base/Neutrals (8270)	Pesticides (8081)			REMARKS
8/5	1332	✓	96NE DB 101 PL	1		✓				
	1340	✓	96 NE DB 101 BN	3	✓					
	1350	✓	96 NE DB 101 ZN	1			✓			
	1400	✓	96 NE DB 102 PL	1						
	1410	✓	96 NE DB 102 BN	1						
	1420	✓	96 NE DB 103 ZN	1		✓				
	1430	✓	96 NE DB 103 PL	1			✓			
	1440	✓	96 NE DB 103 BN	3	✓					
	1500	✓	96 NE DB 104 ZN	1		✓				
	1510	✓	96 NE DB 104 PL	1			✓			
✓	1520	✓	96 NE DB 104 BN	3	✓					Archive only
8/5	1700	✓	96 NE DR 102 ZN	1		✓				
			EAST SHORE							
				# 75	3	5	6	7	8	

Relinquished by:	Date/Time	Received by:	Relinquished by:	Date/Time	Received by:
	8/15/96 1500				

Received for Laboratory by: Date: Time:

FedEx. USA Airbill Tracking Number 7585674902

108 200 341215

1 From (please print)

Date 8-15-96 Sender's FedEx Account Number 1387-3266-5

Sender's Name Brad Lee Phone (907) 248-8883

Company MONTGOMERY WATSON Dept./Floor Suite/Room

Address 4100 SPENARD RD

City ANCHORAGE State AK Zip 99517

2 Your Internal Billing Reference Information (Optional) (First 24 characters will appear on invoice) 2198.~~0420/0430~~ 0460

3 To (please print)

Recipient's Name Phone (612) 473-4224

Company MONTGOMERY WATSON LABS-MN Dept./Floor Suite/Room

Address (To "HOLD" at FedEx location, print FedEx address here) 14910 28th AVENUE NORTH
(We Cannot Deliver to P.O. Boxes or P.O. Zip Codes)

City PLYMOUTH State MN Zip 55447

For "HOLD" Service check here
☐ Weekday ☐ Saturday (Not available at all locations) (Not available with FedEx First Overnight)

For Saturday Delivery check here
☐ (Extra Charge. Not available to all locations) (Not available with FedEx First Overnight or FedEx Standard Overnight)

4 Service*

☒ FedEx Priority Overnight (Next business morning) ☐ FedEx Standard Overnight (Next business afternoon)
☐ FedEx Govt. Overnight (Authorized user only) ☐ _____
☐ FedEx Overnight Freight ☐ FedEx 2Day Fr
(For packages over 150 pounds. Call for delivery schedule.)
☐ NEW FedEx First Overnight (Earliest next business morning delivery to select locations) (Higher rates apply)

5 Packaging

☐ FedEx Letter* ☐ FedEx Pak* ☐ FedEx Box ☐ Fe Tu
*Declared value limit $500.

6 Special Handling

Does this shipment contain dangerous goods? ☒ No ☐ Yes (As per attached Shipper's Declaration)
☐ Dry Ice Dry Ice, 9, UN 1845 lb. _____ x _____ kg. $84 (Dangerous Goods Shipper's Declaration not required)

7 Payment

Bill to: ☒ Sender (Account no. in Section 1 will be billed) ☐ Recipient ☐ Third Party ☐ (Enter FedEx account no. or Credit Card n

FedEx Account No. _____
Credit Card No. _____

Total Packages _____ Total Weight _____ Total Declared Val $ _____

*When declaring a value higher than $100 per package, you pay an additional charge. See CONDITIONS, DECLARED VALUE AND LIMIT OF LIABILITY section for further information.

8 Release Signature

Your signature authorizes Federal Express to deliver this shipment without obtaining a signature and agrees to indemnify and hold harmless Federal Express from any resulting claims.

23

Service Conditions, Declared Value, and Limit of Liability – By using this Airbill, you agree to the service conditions in our current Service Guide or U.S. Government Service Guide. Both are available on request. See back of Sender's Copy of this airbill for information and additional terms. We will not be responsible for any claim in excess of $100 per package whether the result of loss, damage, or delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, and document your actual loss in a timely manner. Your right to recover from us for any loss includes intrinsic value of the package, loss of sales, interest, profit, attorney's fees, costs, and other forms of damage, whether direct, incidental, consequential, or special, and is limited to the greater of $100 or the declared value but cannot exceed actual documented loss. The maximum declared value for any FedEx Letter and FedEx Pak is $500. Federal Express may, upon your request, and with some limitations, refund all transportation charges paid.

See the FedEx Service Guide for further details.

Questions?
Call 1-800-Go-FedEx

*The World On Time*SM

©19

4/1994-1

PRINTED

FAX

MONTGOMERY WATSON

4100 Spenard Road
Anchorage, Alaska 99517

Tel: (907) 248-8883
Fax: (907) 248-8884

Date: 8-15-96

To:	MW-LAB	**Fax No:**	612 551 1253
From:	Bonnie McLean	**Reference:**	2198.0460
Subject:	Bugs Coming	**No. of Pages:** (including cover)	2

If you do not receive all pages, or if there are any problems with this transmission, please call Brenda Yaw at 907-248-8883.

Two coolers sent 8-16 from Anchorage - To Be Rec'd 8-19 in MW.

B Yaw

cc: COJC
Fedex airbill

Army Corps of Engineers

Northeast Cape, Alaska

Sample Log-In Check List
Discrepancy Notice

MONTGOMERY WATSON

ATI-ALASKA

SAMPLE LOG-IN CHECKLIST

GJC 3

P.2

ACCESSION #: 820687

CLIENT NAME: Mont. Watson

INITIALS: RB

SAMPLES TO BE SUBCONTRACTED? (YES) NO

RENTON X PORTLAND ____ FT COLL ____

PENS'CA X OTHER (list) ____

1. Are Custody seals present on cooler? (YES) NO	16. Are all volatile samples headspace-free (<pea-size)? N/A (YES) NO
If "YES", intact? N/A (YES) NO	17. Are trip blanks included with the samples? (YES) NO
2. Are Custody seals present on sample containers? YES (NO)	18. Shipping container (circle one): (Cooler) Box Other
If "YES", intact? (N/A) YES NO	19. Packing material used? (YES) NO
3. Is the Chain of Custody (C-O-C) complete ? *	20. Refrigerant (circle one): (Gel Ice) Loose Ice None Other
Relinquished by the client? (YES) NO	21. Was refrigerant frozen upon receipt? (YES) NO
Analysis requested marked off? (YES) NO	22. Cooler temperature: 4.5 °C 5.4 °C
4. Is the C-O-C in agreement with samples received?	23. Method of shipping (circle one): Hand Del Courier (Pick-Up)
Sample ID's: (YES) NO	24. Total number of containers received: Soil: 25 Water: 9 Other: ____
Date sampled: (YES) NO	
Matrix: (YES) NO	Sample tagging check for QC:
# Containers: YES (NO)	Sample ID's issued in order of appearance on C-O-C: (YES) NO
5. Has Project Notice binder been checked/lab notified? (YES) NO	Tags placed in appropriate areas of sample containers: (YES) NO
6. Has the main logbook been filled out properly? (YES) NO	If not, were samples retagged? YES NO
7. If samples are RUSH has notice been given? (N/A) YES NO	Initials of reviewer: MM
8. Is proper preservation indicated on label(s)? N/A YES (NO)	Describe any "NO" items from checklist above:
9. Did pH check verify preservative indicated? N/A YES (NO)	For Samples 96NG27551106, 96NG27551107, & 96NG27551108 the C.O.C. indicates 1 jar and we received 2.
10. Is there correct sample volume for analyses? (YES) NO	
11. Are samples in proper containers? (see ref. chart) (YES) NO	
12. Are samples in Brass tubes? YES (NO)	
To be returned? (N/A) YES NO	Was client contacted YES / NO / N/A If "YES", date:
13.. Are all samples within holding times for requested analysis? (YES) NO	Name of person contacted:
14. Are all sample containers intact? (i.e. not broken, leaking...) (YES) NO	Describe client instructions or actions taken:
15. Are samples individually bagged ? (YES) NO (i.e. ziplock/bubble bag...)	

* C-O-C or other representative documents, letters, and/or shipping memos.

AUG 08 '96 11:02AM ATI ANCHORAGE

SC_LOGIN.XLS

AK025.00 rev 2

U.S. ARMY CORPS OF ENGINEERS - NORTH PACIFIC DIVISION LABORATORY
1491 NW Graham Road, Troutdale, Oregon 97060-9508

From: Pamela O. Amie	Office: CENPP-PE-L	Telephone: (503) 666-8143
To: Del Thomas / Chris Brown	Office: CENPA / Montgomery Watson	Telephone: 907/753-2685 / (907)248-8883
Date: 8/8/96	Pages Sent: Header + 0	Signature:

HTRW Discrepancy Notification Form

Project Name: Northeast Cape, St. Lawrence Is. Pkg II W.O.# 96-0314

Problems Encountered:

1. Custody Seals:
   a. ☐ None present
   b. ☐ Broken
   c. ☐ Signature or date did not match Chain of Custody
   d. ☐ Other _____

2. Chain of Custody Form:
   a. ☐ Not signed
   b. ☐ Not dated Complete date not used
   c. ☐ Other _____

3. Temperature:
   a. ☒ EPA requires coolers to arrive at the lab with an internal temperature of 4 ° Celsius ± 2 °, cooler arrived at 1.2 ° Celsius.

4. Packing of Samples:
   a. ☐ Samples were not in individual plastic bags
   b. ☐ Broken containers
   c. ☐ Labels incomplete or did not agree with Chain of Custody
   d. ☐ Improper container size used
   e. ☐ Air bubbles in VOA vials, size of bubble _____.
   f. ☐ Head space in containers
   g. ☒ Improper preservative used
   h. ☐ Other _____

Comments & Corrective action taken: (1a) Received sample 96NE16TK301 for DRO unpreserved. Received sample 96NE16TK301 for TRPH 418.1 unpreserved. Sample preserved at NPDL for both parameters

303 → No Method on Label → should be for PC

If you have any problems or questions regarding this FAX call (503) 665-4166
Our FAX number is (503) 665-0371

U.S. ARMY CORPS OF ENGINEERS - NORTH PACIFIC DIVISION LABORATORY
1491 NW Graham Road, Troutdale, Oregon 97060-9508

From: Pamela O. Amie	Office: CENPP-PE-L	Telephone: (503) 666-8143
To: Chris Brown Del Thomas	Office: Montgomery Watson CENPA	Telephone: 907/248-8883 907/753-2681
Date: 8/9/96	Pages Sent: Header + 0	Signature: PAA

HTRW Discrepancy Notification Form

Project Name: Northeast Cape, St. Lawrence Island W.O.# 96-0314

Problems Encountered:

1. Custody Seals:
   a. ☐ None present
   b. ☐ Broken
   c. ☐ Signature or date did not match Chain of Custody
   d. ☐ Other _____

2. Chain of Custody Form:
   a. ☐ Not signed
   b. ☐ Not dated Complete date not used
   c. ☐ Other _____

3. Temperature:
   a. ☒ EPA requires coolers to arrive at the lab with an internal temperature of 4 ° Celsius ± 2 °, cooler arrived at 12 ° Celsius.

4. Packing of Samples:
   a. ☐ Samples were not in individual plastic bags
   b. ☐ Broken containers
   c. ☐ Labels incomplete or did not agree with Chain of Custody
   d. ☐ Improper container size used
   e. ☐ Air bubbles in VOA vials, size of bubble _____.
   f. ☐ Head space in containers
   g. ☐ Improper preservative used
   h. ☒ Other Samples leaking

Comments & Corrective action taken: Received Sample 96NETK302 for TCLP metals, TPH 8015m and 8015 Glycol in separate bags. However, each sample had oil leaking from lid into bag.

If you have any problems or questions regarding this FAX call (503) 665-4166
Our FAX number is (503) 665-0371

ATI-ALASKA

SAMPLE LOG-IN CHECKLIST

COC 5

ACCESSION #: 820689

CLIENT NAME: Mont. Watson

INITIALS: AB

SAMPLES TO BE SUBCONTRACTED? (YES) NO

RENTON X PORTLAND ____ FT COLL ____

PENS'CA ____ OTHER (list) ____

1. Are Custody seals present on cooler?		(YES)	NO	
If "YES", intact?	N/A	(YES)	NO	
2. Are Custody seals present on sample containers?		(YES)	NO	
If "YES", intact?	N/A	(YES)	NO	
3. Is the Chain of Custody (C-O-C) complete ? *				
Relinquished by the client?		(YES)	NO	
Analysis requested marked off?		(YES)	NO	
4. Is the C-O-C in agreement with samples received?				
Sample ID's:		(YES)	NO	
Date sampled:		(YES)	NO	
Matrix:		(YES)	NO	
# Containers:		(YES)	NO	
5. Has Project Notice binder been checked/lab notified?		(YES)	NO	
6. Has the main logbook been filled out properly?		(YES)	NO	
7. If samples are RUSH has notice been given?	(N/A)	YES	NO	
8. Is proper preservation indicated on label(s)?	(N/A)	YES	NO	
9. Did pH check verify preservative indicated?	(N/A)	YES	NO	
10. Is there correct sample volume for analyses?		(YES)	NO	
11. Are samples in proper containers? (see ref. chart)		(YES)	NO	
12. Are samples in Brass tubes?		YES	(NO)	
To be returned?	(N/A)	YES	NO	
13.. Are all samples within holding times for requested analysis?		(YES)	NO	
14. Are all sample containers intact? (i.e. not broken, leaking...)		(YES)	NO	
15. Are samples individually bagged ? (i.e. ziplock/bubble bag...)		(YES)	NO	
16. Are all volatile samples headspace-free (<pea-size)?	(N/A)	YES	NO	
17. Are trip blanks included with the samples?		YES	(NO)	
18. Shipping container (circle one):	(Cooler)	Box	Other	
19. Packing material used?		(YES)	NO	
20. Refrigerant (circle one):	(Gel Ice)	Loose Ice	None	Other
21. Was refrigerant frozen upon receipt?		(YES)	NO	
22. Cooler temperature:	4 °C	____ °C		
23. Method of shipping (circle one):	(Hand Del)	Courier	Pick-Up	
24. Total number of containers received:	Soil: 2	Water: __	Other: ____	

Sample tagging check for QC:

Sample ID's issued in order of appearance on C-O-C:	(YES)	NO
Tags placed in appropriate areas of sample containers:	(YES)	NO
If not, were samples retagged?	YES	NO

Initials of reviewer: KB 4/9/14

Describe any "NO" items from checklist above:

Was client contacted YES / NO / N/A If "YES", date:

Name of person contacted:

Describe client instructions or actions taken:

* C... other representative documents, letters, and/or shipping memos.

SC_ ...S

AK... ...ev 2

Army Corps of Engineers

Northeast Cape, Alaska

Field Correspondence

MONTGOMERY WATSON

Facsimile Sheet

U.S. Army Engineer District, Alaska
P.O. Box 898
Anchorage, Alaska 99506-0898

BOB SANDERS	EN-EE-II	Telephone No (907)-753-5617
VICTOR HARRIS	Office Symbol	Fax No: (907)-753-5646
		Telephone No 443-3063
	# Pages	Precedence

RES

8/7/96

ST. Lawrence Projects

Victor,

No possibility on the wires...wrong color money...simply no BD/DR funds available. Do only the wire-cutting hours allocated in the DO. Take some good notes and photos of them under the Recon. part of your DO to serve as basis for a description for a Removal Work Plan. The poles themselves alert the local people as to where these wires are, and the obvious guy wires on the poles would tend to keep inteligent people away anyhow; so I do not think signs are in order. If anything they would attract people. I have no idea as to how to protect the reindeer.... "Wolf "scarecrows" ?? or, you might have Herman (?) Toolie simply talk to the reindeer about it...(hey... it works for Disney)

In trying to learn about Antennas and your manholes (Utilidors?), I read some interesting pamphlets intended to brief incomming crew about the st ation. The following statements intrigue me and therefore probably you, too. All but the third item are of unoffdicial interest. Do not go out of your way, but if you converse with Eugene Toolie you might ask about the following statements I found in the pamphlets:

No date, Apparently 1965: "There are 9 Eskimo families that live near the station in the Northeast Cape Village with 40-60 persons. The fluctuation is because school children live and attend schools on the main land." *Seems likely...homes for the local hires working on the station...such as Toolie. Can Toolie tell us about this. Would this be the "Utopia" identified on the USGS Map?*

Ibid: "There is evidence of small abandoned camps on the island established temporarily by the Eskimos and other nations such as the Japanese who have been known to go north of Nome in search of coal". *There is coal North of Nome which whalers and Revenue Cutters mined...but I know of no Japanese use...probably an error, but does Eugene know of any "foriegn" camps?*

Ibid: "We have a fishing camp approximately 18 miles from the station. The fishing camp is reached by vehicle and motor boat." *Any idea where?...Probably a leased or appropriated Native Camp....but could be Military Built, in which case it is of official concern and we should learn all we can about it.*

"From Nov. 1968 "What it is Like": "Local Eskimo Village has a small cofee Shop" .....*That local village again...Lietnik?,...the "Native Fish Camp?*

Incidently, according to a plot plan I found Bldg 101 was "H-shaped", the cross bar being the Laundary. I don't recall seeing such designation previousoly.

-Bob

From: Chris Brown (8/21/96) Frank DeSteno (8/20/96)
To: Bonnie Mclean
CC:
BCC:
Priority: Normal
Date sent: 8/21/96 11:56 AM

REGARDING ⇨ FWD>Biological Samples from Alaska

Bonnie, do you have this info?

Date: 8/20/96 14:18
From: Frank DeSteno
Chris, I need to know a few specifics about the biological samples collected on 8/5/96.
1. how many liters of water were filtered for the zooplankton and phytoplankton samples? 60 L. each

2. What are the measurements of the dregde that was used to collect the benthic invert samples? 6" x 6" x 2"

were the benthic samples filtered through a number 30 standard sieve size during washing step? yes

4. Is there a special protocal that you want followed for the sorting procedure? If not I will sort the entire sample, making three complete passes viewing and hand picking out the organisms found. no, hand pick x 3

5. The samples are very heavy in detritous material and hand picking is going to be quite cumbersome, I think that I can pick and sort each jar in approximately two hours time and figure an hour for ID each container. OK, understand

If you can answer these questions, I would greatly appreciate it and I can get going on the sample sorting and ID work. I will keep you posted on how its going during the ID process.
Thanks CHUCK JOHNSON

Army Corps of Engineers

Northeast Cape, Alaska

Miscellaneous

MONTGOMERY WATSON

	7/22/96	EQUIPMENT SENT TO NOME VIA NAC AIRBILL 49468031				
HAZ MAT						
* CAN GO TO GAMBLE DIRECT						
	ITEM	DISCRIPTION	#	EST. WT. EA.	EXTENDED WT.	REMARKS
	1,2	ATV	2	600	1200	
	3,4	TRL	2	150	300	W/1 WHEEL
	5,6,7	ATV WHEELS	3	20	60	
	8 TO 12	LUMBER	LOT	110	110	
	13	GENERATOR	1	110	110	
	14	PUMPS	2	140	140	2" TRASH
	15	PUMP	1	40	40	11/2"
	16	HOSE	1	45	45	60'
	17	BOTTLES	1	225	225	PALLET
	18	COOLERS	1	505	505	PALLET
	19	COOLERS	1	505	505	PALLET
	20,21,22	TOOLS	1	220	220	
	23	WATER	3	40	120	5-GAL. JUGS
	24	PAIL /WATER	1	15	15	GAMBEL
	25	PAIL/FUNNEL	1	10	10	
	26	FUEL PUMP	1	25	25	
	27	SHOVELS	2	10	20	
	28	FUEL CANS	2	10	20	
	29	HEXANE	1	10	10	IN PAIL
	30	BATTREY	1	35	35	W/CHARGER
	31	CAL. GAS	1	20	20	AIR, NOS
	32	H&S BOX	1	40	40	
	33,34	DRUMS	2	65	130	EMGERC.
	35	SLEEPING BAGS	1	20	20	
	36	WATER	2	15	30	DRINKING
	37,38,39	WATER	3	26	78	DI
	40	CUTTING SAW	1	24	24	IN COOLER
	41	PID	1	20	20	
	42	RADIOS	1	10	10	
	43	OFFICE STUFF	1	25	25	
	44	PACKING	1	25	25	
	45	BUBBLE WRAP	1	12	12	
	46	PERSONAL BAG	1	40	40	
					0	
GAMBEL					0	
	47	PID	1	20	20	
*	48	COOLERS	1	225	210	PALLET OF 7
*	49	BOTTLES	1	20	20	
	50,51	WQ EQUIP.	2	45	90	
*	52	TOOLS	1	40	40	
*	53	PAIL/WATER		15	0	
*	54,55,56	BOOTLES	1	20	20	
*	57	PACKING	1	25	25	IN COOLER
*	58	GENERAL	1	35	35	IN COOLER
	59	FREEZER	1	110	110	None
					4759	
	ADDITIONAL TO FOLLOW:					
		TOOLS	2	100	200	
		BATTRIES	2	25	50	ATV
		FORMIN	1	15	15	
		PERSONAL GEAR	4	40	160	
		PHONE	1	25	25	
					450	
	ADD IN NOME:					
		FUEL	3	550	1650	55-GAL DRUMS
EST. TOTAL					6859	

** STAY in nome

** ** ** ** ** **

570

Airbill 4,868 #

SHIPPER'S DECLARATION FOR DANGEROUS GOODS

(Provide at least two copies to the airline.)

Shipper
VWR SCIENTIFIC
3745 Bayshore Blvd.
Brisbane, CA 94005
Ph. (415) 330-4154

Air Waybill No. 242-70474124 77757

Page 1 of 1 Pages

Shipper's Reference Number (optional) 005 8/1-PSC12-02

Consignee
MONTGOMERY WATSON AMERICA
4100 SPENARD
ANCHORAGE AK 99517

Two completed and signed copies of this Declaration must be handed to the operator

TRANSPORT DETAILS

This shipment is within the limitations prescribed for: *(delete non-applicable)*

PASSENGER AND CARGO AIRCRAFT	~~CARGO~~ AIRCRAFT ONLY

Airport of Departure

Airport of Destination:

WARNING

Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consolidator, a forwarder or an IATA cargo agent.

Shipment type: *(delete non-applicable)*
NON-RADIOACTIVE [redacted]

NATURE AND QUANTITY OF DANGEROUS GOODS *(see Subsections 6.6 and 8.1 of IATA Dangerous Goods Regulations)*

Dangerous Goods Identification							
Proper Shipping Name	Class or Division	UN or ID No.	Packing Group	Subsidiary Risk	Quantity and Type of packing	Packing Inst.	Authorization
ENVIROMENTALLY HAZARDOUS SUBSTANCES, N.O.S.. (FORMALDEHYDE SOLUTIONS)	9	UN3082	III		4 FIBERBOARD BOX CONTAINING 4L EACH	914	

Additional Handling Information

24 hr. Emergency Contact Tel. No. 1-800-424-9300

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked and labelled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Name/Title of Signatory
UNDERWOOD SHIPPING SP

Place and Date
BRISBANE, CA 94005 7 26 96

Signature *(see warning above)*

SHIPPER'S DECLARATION FOR DANGEROUS GOODS

Shipper: Montgomery Watson
Nome, AK

Air Waybill No.

Page 1 of 2 Pages

Shipper's Reference Number *(optional)*

Consignee:
Montgomery Watson
4102 Spenard
Anchorage AK 99515

NORTHERN AIR CARGO
Alaska's First and Only All-Cargo Airline

Two completed and signed copies of this Declaration must be handed to the operator

WARNING

Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consolidator, a forwarder or an IATA cargo agent.

TRANSPORT DETAILS

This shipment is within the limitations prescribed for: *(delete non-applicable)*

PASSENGER AND CARGO AIRCRAFT	CARGO AIRCRAFT ONLY ~~CARGO AIRCRAFT ONLY~~

Airport of Departure: Nome

Airport of Destination: Anchorage

Shipment type: *(delete non-applicable)*
NON-RADIOACTIVE | ~~RADIOACTIVE~~

NATURE AND QUANTITY OF DANGEROUS GOODS

Dangerous Goods Identification: Proper Shipping Name	Hazard Class & Subsid. risk	UN or ID No.	Packing Inst./ Group	Quantity & Description	Pack. Inst.	ERG#
Batteries, wet, filled w Acid	8	UN 2794	III	2 Battery inside wooden crate, 14 kg total	800	154
Hexanes,	3	UN 1208	II	1 - 500 ml. glass container inside plastic bucket w/lid	Y 305	128
Engines, internal Combustion	9	UN 3166		2 - 4 wheeling 905kg; 1 - generator, 55kg	900 or 901	128
Compressed gas NOS (Isobutylene in Air)	2.2	UN 1956		2 - 10T Cubic liters metal cylinders inside fiberboard box	200	126

Additional Handling Information

1 800 535 5053

This shipment prepared according to: ☐ 49CFR ☑ IATA Regulations ☐ ICAO Regulations

I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labelled, and are in all respects in the proper condition for transport by air according to the applicable International and National Government Regulations.

Name/Title of Signatory Bonnie Wheaton FTL

Place and Date Nome, AK 8/8/96

Signature *(see warning above)*

F-83 DETAILED

SHIPPER'S DECLARATION FOR DANGEROUS GOODS

Shipper: Montgomery WATSON
Nome AK

Air Waybill No.

Page 2 of 2 Pages
Shipper's Reference Number (optional)

Consignee
Montgomery WATSON
4100 Spenard Rd
Anchorage, AK. 99517

NORTHERN AIR CARGO
Alaska's First and Only All-Cargo Airline

Two completed and signed copies of this Declaration must be handed to the operator

WARNING

Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consolidator, a forwarder or an IATA cargo agent.

TRANSPORT DETAILS

This shipment is within the limitations prescribed for: *(delete non-applicable)*

PASSENGER AND CARGO AIRCRAFT	~~CARGO AIRCRAFT ONLY~~

Airport of Departure: NONE, AK

Airport of Destination: Anchorage, AK

Shipment type: *(delete non-applicable)*
NON-RADIOACTIVE | ~~RADIOACTIVE~~

NATURE AND QUANTITY OF DANGEROUS GOODS

Dangerous Goods Identification: Proper Shipping Name	Hazard Class & Subsid. risk	UN or ID No.	Packing Inst./ Group	Quantity & Description	Cargo Aircraft Only Packing Inst.	ERG#
BATTERIES, wet, filled with acid	8	UN 2794	III	2 - battery in ATV 14 kg total	800	154
Environmentally Hazardous Substance, NOS (Formaldehyde Solution)	9	UN 3082	III	2 plastic 4L bottles in fiberboard box, 4 kg	914	171

Additional Handling Information

24 HR. EMERGENCY CONTACT TEL. NO. 1800 535 5053

This shipment prepared according to: ☐ 49CFR ☑ IATA Regulations ☐ ICAO Regulations

I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked and labelled, and are in all respects in the proper condition for transport by air according to the applicable International and National Government Regulations.

Name/Title of Signatory Bonnie McLean FTL

Place and Date Nome, AK, 8-8-96

Signature *(see warning above)*

Bonnie McLean

F-83 DETAILED

345 AIRPORT OF DEPARTURE OME 4 938 5453 345 4938 5453

SHIPPER'S NAME AND ADDRESS: Montgomery Watson Amer. NOME AK

SHIPPER'S ACCOUNT NUMBER: 1355

NOT NEGOTIABLE

AIR WAYBILL

(AIR CONSIGNMENT NOTE)

NAC NORTHERN AIR CARGO

NORTHERN AIR CARGO, Inc.
3900 W. INT'L AIRPORT RD., ANCHORAGE, AK 99502 (907) 243-3331
Copies 1, 2, and 3 of this Air Waybill are originals and have the same validity.

PRIORITY ☐ **NACPAC** ☐

CONSIGNEE'S NAME AND ADDRESS: Montgomery Watson Amer. Anchorage

CONSIGNEE'S ACCOUNT NUMBER

IT IS AGREED THAT THE GOODS DESCRIBED HEREIN ARE ACCEPTED FOR CARRIAGE IN APPARENT GOOD ORDER (EXCEPT AS NOTED) AND SUBJECT TO THE CONDITIONS OF CONTRACT ON THE REVERSE HEREOF. THE SHIPPER'S ATTENTION IS DRAWN TO NOTICE CONCERNING CARRIER'S LIMITATION OF LIABILITY.

TO EXPEDITE MOVEMENT, SHIPMENT MAY BE DIVERTED TO MOTOR OR OTHER CARRIER AS PER TARIFF RULE UNLESS SHIPPER GIVES OTHER INSTRUCTIONS HEREON.

ISSUING CARRIER'S AGENT NAME AND CITY

ACCOUNTING INFORMATION (OPTIONAL ALSO NOTIFY NAME AND ADDRESS)

Prepaid charge

-5 . 298.0460

AGENTS IATA CODE | ACCOUNT NO.

AIRPORT OF DEPARTURE (ADDR OF FIRST CARRIER) AND REQUESTED ROUTING: NOME

ROUTING AND DESTINATION

TO	BY FIRST CARRIER	TO	BY	TO	BY
ANC	AU				

CURRENCY	CHGS	WT/VAL PPD	WT/VAL COLL	OTHER PPD	OTHER COLL	DECLARED VALUE FOR CARRIAGE	DECLARED VALUE FOR CUSTOMS
	PP					NVD	NCV

AIRPORT OF DESTINATION: Anchorage

FOR CARRIER USE ONLY: FLIGHT/DATE | FLIGHT/DATE

AMOUNT OF INSURANCE: XXX

INSURANCE - If shipper requests insurance in accordance with conditions on reverse hereof, indicate amount to be insured in figures in box marked amount of insurance.

TC

HANDLING INFORMATION (These commodities licensed by US for ultimate destination. Diversion contrary to US law is prohibited.)

ATTN: BONNY
1-907-248-8883

NO. OF PCS RCP	GROSS WEIGHT	kg / lb	RATE CLASS	COMMODITY ITEM NO.	CHARGEABLE WEIGHT	RATE / CHARGE	TOTAL	NATURE AND QUANTITY OF GOODS (INCL. DIMENSIONS OR VOLUME)
12	4,277				4,277	.28	1,197.56	Tools, Four wheels trailers,
12	4,277						1,197.56	

PREPAID: $1,197.56	WEIGHT CHARGE COLLECT	P.U.P. ZONE / PICKUP CHARGES B.	ORIGIN ADVANCE CHARGES K.	DESCRIPTION OF ORIGIN ADVANCE	ITEMS PREPAID
	VALUATION CHARGE D.	DEL ZONE / DELIVERY CHARGES C.	DEST. ADVANCE CHARGES L.	DESCRIPTION OF DEST. ADVANCE	ITEMS COLLECT
	TAX I.	SHIPPER'S R.F.C. (AMOUNT TO BE ENTERED BY SHIPPER) J.	OTHER CHARGES AND DESCRIPTION: Fuel 70.65 $25.00 Hazmat		
TOTAL OTHER CHARGES DUE AGENT: $70.65					
TOTAL OTHER CHARGES DUE CARRIER: $25.00					
CURRENCY: CD					
TOTAL PREPAID: 193.21	TOTAL COLLECT				
CURRENCY CONVERSION RATES	TOTAL COLLECT IN DESTINATION CURRENCY				

Shipper certifies that the particulars on the face hereof are correct and that insofar as any part of the consignment contains dangerous goods (hazardous materials) such part is properly described by name and is in proper condition for carriage by air according to the applicable government regulations and, for international shipments, the current International Air Transport Association's Dangerous Goods Regulations. It is agreed that the goods described herein are accepted in apparent good order and condition (except as noted) for carriage. SUBJECT TO THE CONDITIONS OF CONTRACT ON THE REVERSE HEREOF. THE SHIPPER'S ATTENTION IS DRAWN OF THE NOTICE CONCERNING CARRIERS LIMITATION OF LIABILITY. Shipper may increase such limitation of liability by declaring a higher value for carriage and pay a supplemental charge if required.

X _____
SIGNATURE OF SHIPPER ABOVE AND INITIAL APPLICABLE BOX BELOW.

☐ THIS SHIPMENT DOES NOT CONTAIN DANGEROUS GOODS

☒ THIS SHIPMENT DOES CONTAIN DANGEROUS GOODS

EXECUTED ON 9/8/96 (Date) (Time) at ATS Nome (Place) Brent M. Wacker SIGNATURE OF ISSUING CARRIER OR ITS AGENT

FOR CARRIERS USE ONLY AT DESTINATION (ALL COLLECT CHARGES IN DESTINATION CURRENCY)	CHARGES AT DESTINATION	TOTAL COLLECT CHARGES

345 4 938 5453

DISTRIBUTION MASTER

Consignee Montgomery Watson

Origin OME Destination ANC

Master Airway Bill 4938 5453

Part A Name	Contact Phone	# Pieces
		6
Description		
Signature in Anchorage		
Part B Name	Contact Phone	# Pieces
		4
Description		
Signature in Anchorage		
Part C Name	Contact Phone	# Pieces
		2
Description missing pcs		
Signature in Anchorage		
Part D Name	Contact Phone	# Pieces
Description		
Signature in Anchorage		
Part E Name	Contact Phone	# Pieces
Description		
Signature in Anchorage		

345 4938 5453 345 4938 5453

NOT NEGOTIABLE

AIR WAYBILL

AIR CONSIGNMENT NOTE)

NORTHERN AIR CARGO, Inc.

3900 W. INT'L AIRPORT RD., ANCHORAGE, AK 99502 (907) 243-3331

Copies 1, 2, and 3 of this Air Waybill are originals and have the same validity.

PRIORITY **NACPAC**

SHIPPER'S NAME AND ADDRESS

SHIPPER'S ACCOUNT NUMBER

CONSIGNEE'S NAME AND ADDRESS

ISSUING CARRIER'S AGENT NAME AND CITY

ACCOUNTING INFORMATION (OPTIONAL ALSO NOTIFY NAME AND ADDRESS)

AGENTS IATA CODE

ACCOUNT NO

AIRPORT OF DEPARTURE

TO | BY FIRST CARRIER

AIRPORT OF DEST

FLIGHT/DATE

AMOUNT OF INSURANCE

INSURANCE

HANDLING INFORMATION

NO OF PIECES RCP	GROSS WEIGHT	RATE CLASS	CHARGEABLE WEIGHT	RATE CHARGE	TOTAL	NATURE AND QUANTITY OF GOODS (INCL DIMENSIONS OR VOLUME)
10				.28		
2						
12					137.76	

PREPAID COLLECT

ORIGIN ADVANCE CHARGES

DESCRIPTION OF ORIGIN ADVANCE

DESCRIPTION OF DEST ADVANCE

75.45

SHIPPER'S R.F.C.

OTHER CHARGES AT DESTINATION

111.45

COD

TOTAL PREPAID

TOTAL COLLECT

THIS SHIPMENT DOES CONTAIN DANGEROUS GOODS

EXECUTED ON

(Date) (Time) (at) (Place) SIGNATURE OF ISSUING CARRIER OR ITS AGENT

FOR CARRIERS USE ONLY AT DESTINATION (ALL COLLECT CHARGES IN DESTINATION CURRENCY)

345 4938 5453

COPY 2 ORIGINAL FOR CONSIGNEE

345 4 938 5556

345 4 938 5556

NOT NEGOTIABLE

AIR WAYBILL

(AIR CONSIGNMENT NOTE)

NORTHERN AIR CARGO, Inc.
3900 W. INT'L AIRPORT RD., ANCHORAGE, AK 99502 (907) 243-3331

Copies 1, 2, and 3 of this Air Waybill are originals and have the same validity

PRIORITY ☐ **NACPA**

SHIPPER'S NAME AND ADDRESS: (Age Smythe. Nenana

SHIPPER'S ACCOUNT NUMBER:

CONSIGNEE'S NAME AND ADDRESS: Montgomery Watson 266-1147 Anchorage AK Attn: Victor

CONSIGNEE'S ACCOUNT NUMBER: 1355

It is agreed that the goods described herein are received in apparent good order, except as noted on the face hereof. SUBJECT TO THE CONDITIONS OF CONTRACT on the reverse hereof.

Samuel Age 8/16/96 1:00

ISSUING CARRIER'S AGENT NAME AND CITY:

ACCOUNTING INFORMATION (OPTIONAL ALSO NOTIFY NAME AND ADDRESS)

P/O for NWB Ref # 4938.545 Collect Charge

AGENTS IATA CODE:

ACCOUNT NO.:

AIRPORT OF DEPARTURE (ADDR OF FIRST CARRIER) AND REQUESTED ROUTING: Nenana

TO: Anc BY FIRST CARRIER: 51

CURRENCY | CHGS CODE | WT/VAL PPD X | WT/VAL COLL | OTHER PPD | OTHER COLL X | DECLARED VALUE FOR CARRIAGE: 9 | DECLARED VALUE FOR CUSTOMS: Orange

AIRPORT OF DESTINATION: Anchorage

FLIGHT/DATE | FLIGHT/DATE

AMOUNT OF INSURANCE: $

INSURANCE - If shipper requests insurance in accordance with conditions on reverse hereof, indicate amount to be insured in figures in box marked "Amount of Insurance".

HANDLING INFORMATION: 266-1147 Van [redacted] 8/14/96. 100 (N/A Attn: Victor Harris

NO. OF PIECES RCP	GROSS WEIGHT	lb/kg	RATE CLASS / COMMODITY ITEM NO.	CHARGEABLE WEIGHT	RATE / CHARGE	TOTAL	NATURE AND QUANTITY OF GOODS (INCL. DIMENSIONS OR VOLUME)
9	326			326	.32	104.32	Lumber [redacted] NOT THICK. 3 f.w. gal buckets WATER
9	326					104.32	

PREPAID / WEIGHT CHARGE / COLLECT

A. 104.32

VALUATION CHARGE

D.

TAX

I.

TOTAL OTHER CHARGES DUE AGENT

TOTAL OTHER CHARGES DUE CARRIER: 6.15

SHIPPER'S R.F.C.

J.

OTHER CHARGES AND DESCRIPTION: 6.15 Fuel

B. X

C. X

K.

L.

DESCRIPTION OF ORIGIN ADVANCE

DESCRIPTION OF DEST. ADVANCE

TERMS PREPAID

TERMS COLLECT

Shipper certifies that the particulars on the face hereof are correct and that insofar as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by air according to the applicable governmental regulations and, for international shipments, the current International Air Transport Association's Dangerous Goods Regulations. It is agreed that the goods described herein are accepted in apparent good order and condition (except as noted) for carriage SUBJECT TO THE CONDITIONS OF CONTRACT ON THE REVERSE HEREOF. THE SHIPPER'S ATTENTION IS DRAWN TO THE NOTICE CONCERNING CARRIER'S LIMITATION OF LIABILITY. Shipper may increase such limitation of liability by declaring a higher value for carriage and pay a supplemental charge if required.

X

SIGNATURE OF SHIPPER ABOVE AND INITIAL APPLICABLE BOX BELOW

☐ THIS SHIPMENT DOES NOT CONTAIN DANGEROUS GOODS

☐ THIS SHIPMENT DOES CONTAIN DANGEROUS GO

COD

CURRENCY

TOTAL PREPAID

TOTAL COLLECT: 110.47

EXECUTED ON: 8/13/96 (Date) 4:00 (Time) one AYS (at) (Place) TLS SIGNATURE OF ISSUING CARRIER OR ITS AGENT

FOR CARRIERS USE ONLY AT DESTINATION (ALL COLLECT CHARGES IN DESTINATION CURRENCY)

CHARGES AT DESTINATION

TOTAL COLLECT CHARGES

345 4 938 5556

COPY 2 ORIGINAL FOR CONSIGNEE

FORM 0047 UNIVERSAL AIRWAYBILL PRINTED IN U.S.A.

345 OME 4 938 5556 345 4 938 5556

SHIPPER'S NAME AND ADDRESS: Cape Smythe Nome

SHIPPER'S ACCOUNT NUMBER:

NOT NEGOTIABLE

AIR WAYBILL

(AIR CONSIGNMENT NOTE)

NORTHERN AIR CARGO, Inc.
3900 W. INT'L AIRPORT RD., ANCHORAGE, AK 99502 (907) 243-3331
Copies 1, 2, and 3 of this Air Waybill are originals and have the same validity.

NAC NORTHERN AIR CARGO

PRIORITY ☐ NACPAC ☐

CONSIGNEE'S NAME AND ADDRESS: Montgomery Watson 266-1147 Anchorage AK Attn: Victor

CONSIGNEE'S ACCOUNT NUMBER: 1353

IT IS AGREED THAT THE GOODS DESCRIBED HEREIN ARE ACCEPTED FOR CARRIAGE IN APPARENT GOOD ORDER (EXCEPT AS NOTED) AND SUBJECT TO THE CONDITIONS OF CONTRACT ON THE REVERSE HEREOF. THE SHIPPER'S ATTENTION IS DRAWN TO NOTICE CONCERNING CARRIER'S LIMITATION OF LIABILITY.

TO EXPEDITE MOVEMENT, SHIPMENT MAY BE DIVERTED TO MOTOR OR OTHER CARRIER AS PER TARIFF RULE UNLESS SHIPPER GIVES OTHER INSTRUCTIONS HEREON.

ISSUING CARRIER'S AGENT NAME AND CITY: FAX 248-8884

ACCOUNTING INFORMATION (OPTIONAL ALSO NOTIFY NAME AND ADDRESS): Collect Charge

AGENT'S IATA CODE:

ACCOUNT NO.:

AIRPORT OF DEPARTURE (ADDR OF FIRST CARRIER) AND REQUESTED ROUTING: NOME

ROUTING AND DESTINATION

TO	BY FIRST CARRIER	TO	BY	TO	BY
ANC	BY				

CURRENCY	CHGS CODE	WT/VAL PPD	WT/VAL COLL	OTHER PPD	OTHER COLL	DECLARED VALUE FOR CARRIAGE	DECLARED VALUE FOR CUSTOMS
USD	CAL		X		X	0	0

AIRPORT OF DESTINATION: Anchorage

FOR CARRIER USE ONLY — FLIGHT/DATE: — FLIGHT/DATE:

AMOUNT OF INSURANCE: 0

INSURANCE - If shipper requests insurance in accordance with conditions on reverse hereof, indicate amount to be insured in figures in box marked amount of insurance.

HANDLING INFORMATION (These commodities licensed by US for ultimate destination Diversion contrary to US law is prohibited)

266-1147

NOA [illegible] Attn: Victor

NO OF PIECES RCP	GROSS WEIGHT	kg lb	RATE CLASS / COMMODITY ITEM NO	CHARGEABLE WEIGHT	RATE / CHARGE	TOTAL	NATURE AND QUANTITY OF GOODS (INCL. DIMENSIONS OR VOLUME)
9	326			326	.32	104.32	Lumber Ladder 3 five gal buckets WAter
9	326					104.32	

Do Not pay

PREPAID / COLLECT — WEIGHT CHARGE: A. 104.32	P.U. X / PICKUP CHARGES: B. X	ORIGIN ADVANCE C: K.	ITEMS PREPAID
VALUATION CHARGE: D.	DEL X / DELIVERY CHARGES: C. X	DEST. ADVANCE CH: L.	ITEMS COLLECT
TAX: I.	SHIPPER'S R.F.C. (AMOUNT TO BE ENTERED BY SHIPPER): J.	OTHER CH: 6.15	
TOTAL OTHER CHARGES DUE AGENT:			
TOTAL OTHER CHARGES DUE CARRIER: 6.15			
COD ➡ CURRENCY:			
TOTAL PREPAID	TOTAL COLLECT: 110.47		
CURRENCY CONVERSION RATES	TOTAL COLLECT IN DESTINATION CURRENCY		
FOR CARRIERS USE ONLY AT DESTINATION (ALL COLLECT CHARGES IN DESTINATION CURRENCY)	CHARGES AT DESTINATION	TOTAL COLLECT CHARGES	

Shipper certifies that the particulars on the face hereof are correct and insofar as any part of the consignment contains dangerous goods (hazardous materials) such part is properly described by name and is in proper condition for carriage by air according to the applicable government regulations and, for international shipments, the current International Air Transport Association's Dangerous Goods Regulations. It is agreed that the goods described herein are accepted in apparent good order and condition (except as noted) for carriage. SUBJECT TO THE CONDITIONS OF CONTRACT ON THE REVERSE HEREOF, THE SHIPPER'S ATTENTION IS DRAWN OF THE NOTICE CONCERNING CARRIERS LIMITATION OF LIABILITY. Shipper may increase such limitation of liability by declaring a higher value for carriage and pay a supplemental charge if required.

X R. Burnetts - Cape Smythe
SIGNATURE OF SHIPPER ABOVE AND INITIAL APPLICABLE BOX BELOW.

☐ THIS SHIPMENT DOES NOT CONTAIN DANGEROUS GOODS ☐ THIS SHIPMENT DOES CONTAIN DANGEROUS GOODS

EXECUTED ON: 8/13/96 (Date) 400 (Time) one (at) ATS (Place) TLS
SIGNATURE OF ISSUING CARRIER OR ITS AGENT

345 4 938 5556

COPY 3 ORIGINAL FOR SHIPPER

Army Corps of Engineers

Northeast Cape, Alaska

1998 Sample Plan Checklist

MONTGOMERY WATSON

SAMPLE CHECKLIST
1998 PHASE II REMEDIAL INVESTIGATION
NORTHEAST CAPE, ST. LAWRENCE ISLAND, ALASKA

Quanterra

~~Multichem Analytical Services~~, Contact: ~~Mike Vogel~~ cindy Lefebvre

~~2000 W. International Airport R~~ Phone: (907) ~~248-8273~~ 265-8128/265-9263 FAX

Anchorage, AK 99502 Fax: (907) ~~248-8274~~

7-DAY TURNAROUND Sample Identification	Date	Time	Depth	Field: PID Sample Required	Field: PID Reading (in PID Units)	Water: BTEX - EPA 8021A (3- 40 ml glass vials w/ teflon-lined cap, HCl)	Water: GRO - AK101 (1L amber glass w/teflon lined cap, 7/8 full, HCl)	Water: DRO - AK102 (1L amber glass w/teflon lined cap, 7/8 full, HCl)	Water: AAF DRO - ADEC 18 AAC 75 (2- 1L amber glass w/teflon lined cap, 7/8 full, HCl)	Water: RRO - AK103 (1L amber glass w/teflon lined cap, 7/8 full, HCl)	Water: AAF RRO - ADEC 18 AAC 75 (2- 1L amber glass w/teflon lined cap, 7/8 full, HCl)	Water: PAHs - EPA 8270 SIM (2- 1L amber glass w/Teflon line cap, 7/8 full)	Water: VOCs - EPA 8260 (3- 40 ml glass vials w/ teflon-lined cap, HCl)	Water: PCBs - EPA 8082 (8 oz amber glass)	Water: Lead - EPA 7241 (500 ml polyethylene w/HNO_3)	Water: Total Organic Carbon - EPA 415.1 (250 ml amber glass w/H_2SO_4)	Water: Natural Attenuation Parameters (see CoC)	Soil: BTEX - EPA 8021A (4 oz jar w/ teflon-lined cap, MeOH)	Soil: DRO - AK102 (4 oz amber glass with teflon-lined cap)	Soil: AAF DRO - 18 AAC 75 (8 oz amber glass with teflon-lined cap)	Soil: RRO - AK103 (4 oz amber glass with teflon-lined cap)	Soil: AAF RRO - 18 AAC 75 (8 oz amber glass with teflon-lined cap)	Soil: PAHs EPA 8270 SIM (8 oz amber glass w/teflon lined cap)	Soil: PCBs - EPA 8270 SIM (8 oz amber)	Soil: Dioxin	Soil: TOC 9060 MOD (4 oz glass w/teflon lined cap)	Soil: Bulk Density ASTM D2937	Soil: Moisture Content ASTM D2216	Soil: Sieve Analysis D2487-93
SITE 2		Budgeted Maximum Number of Samples															1	2		1		1						
SOIL																												
98NE02SS 801	9-14	1650	2.1'	X				DRO/RRO				201		1650			X	X		X		X						
98NE02SS 802	9-14	1615	.5	X										1615			X	X										
SITE 3		Budgeted Maximum Number of Samples		1		1		1				1																
GROUNDWATER																												
98NE03GW 801	9-11	1730	WP1			X		X				X																
SITE 4		Budgeted Maximum Number of Samples		1		1		1				1																
GROUNDWATER																												
98NE04GW 801	9-11	1800	WP1			X		X				X																
SITE 6		Budgeted Maximum Number of Samples															1	1	1						1	1	1	
SOIL																												
98NE06SS 801	9-15	1500		X													X	X	X						X	X	X	
98NE06SS 802	9-15	1510																										
SITE 7		Budgeted Maximum Number of Samples		1		1		1				1						1		1					1			
GROUNDWATER																												
98NE07GW 801	9-12	1215	7-4			X		X				X																
SOIL																												
98NE07SS 801	9-15	1520		X														X		X					X			
98NE07SS				X																								

SAMPLE CHECKLIST
1998 PHASE II REMEDIAL INVESTIGATION
NORTHEAST CAPE, ST. LAWRENCE ISLAND, ALASKA

Quanterra

~~Multichem Analytical Services~~, Contact: ~~Mike Vogel~~ Cindy Lefevre

2000 W. International Airport F Phone: (907) ~~248-8273~~ 265-8128 / 265-9263 FAX

Anchorage, AK 99502 Fax: (907) 248-8274

				Field		Water															Soil											
7-DAY TURNAROUND						BTEX - EPA 8021A 3- 40 ml glass vials w/ teflon-lined cap, HCl	GRO - AK101 1L amber glass w/teflon lined cap, 7/8 full, HCl	DRO - AK102 1L amber glass w/teflon lined cap, 7/8 full, HCl	AAF DRO - ADEC 18 AAC 75 2- 1L amber glass w/teflon lined cap, 7/8 full, HCl	RRO - AK103 1L amber glass w/teflon lined cap, 7/8 full, HCl	AAF RRO - ADEC 18 AAC 75 2- 1L amber glass w/teflon lined cap, 7/8 full, HCl	PAHs - EPA 8270 SIM 2- 1L amber glass w/Teflon line cap, 7/8 full	VOCs - EPA 8260 3- 40 ml glass vials w/ teflon-lined cap, HCl	PCBs - EPA 8082 8 oz amber glass	Lead - EPA 7241 500 ml polyethylene w/HNO_3	Total Organic Carbon - EPA 415.1 250 ml amber glass w/H_2SO_4	Natural Attenuation Parameters see CoC	BTEX - EPA 8021A 4 oz jar w/ teflon-lined cap, MeOH	DRO - AK102 4 oz amber glass with teflon-lined cap	AAF DRO - 18 AAC 75 8 oz amber glass with teflon-lined cap	RRO - AK103 4 oz amber glass with teflon-lined cap	AAF RRO - 18 AAC 75 8 oz amber glass with teflon-lined cap	PAHs EPA 8270 SIM 8 oz amber glass w/teflon lined cap	PCBs - EPA 8270 SIM 8 oz amber	Diesix	TOC 9060 MOD 4 oz glass w/teflon lined cap	Bulk Density ASTM D2937	Moisture Content ASTM D2216	Seive Analysis D2487-93
Sample Identification	**Date**	**Time**	**Depth**	**PID Sample Required**	**PID Reading (in PID Units)**																											
SITE 9		**Budgeted Maximum Number of Samples**				3		3										1	1		1		1			1						
GROUNDWATER																																
98NE09GW 801	9-12	1510	9-1			X		X																								
98NE09GW 802	9-12	1600	9-2			X		X																								
98NE09GW 803	9-12	1630	9-3			X		X																								
SOIL																																
98NE09SS 801	9-15	1540		X														X	X		X		X			X					
98NE09SS 802	9-15	1530		X																						X						
SITES 10,11		**Budgeted Maximum Number of Samples**				4		4			4							1	1	1	1					1			1			
GROUNDWATER																																
98NE10GW 801	9-12	1730	10-1		BHGC	X		X			X																					
98NE10GW 802	9-12	1800	10-4			X		X			X																					
98NE11GW 801	9-13	1130	11-2			X		X			X																					
98NE11GW 802	9-13	1200	11-3			X		X			X																					
SOIL																																
BKG 98NE10SS 801	9-16	1350		X														X	X	X	X					X			X			
SITE 14		**Budgeted Maximum Number of Samples**				1	1	1			1		1				1	2	2	1	2		1	1		1			1			
GROUNDWATER																																
BKG 98NE14GW 801	9-11	1600	VHF-1			X	X	X			X		X				X															
SOIL																																
98NE14SS 801	9-14	1330		X														X	X		X		X	X		X					
98NE14SS 802	9-14	1345		X														X	X	X	X					X			X			
~~98NE14SS~~				X														X	X	X	X					X			X			
QASS 801	9-14	1200																														

SAMPLE CHECKLIST
1998 PHASE II REMEDIAL INVESTIGATION
NORTHEAST CAPE, ST. LAWRENCE ISLAND, ALASKA

Quanterra
~~Multichem Analytical Services~~, Contact: ~~Mike Vogel~~ Cindy LaFevre
2000 W. International Airport F Phone: (907) ~~248-8273~~ 258-8128/258-9263 FAx
Anchorage, AK 99502 Fax: (907) ~~248-8274~~

7-DAY TURNAROUND				Field		Water														Soil													
Sample Identification	Date	Time	Depth	PID Sample Required	PID Reading (in PID Units)	BTEX - EPA 8021A 3 - 40 ml glass vials w/ teflon-lined cap, HCl	GRO - AK101 1L amber glass w/teflon lined cap, 7/8 full, HCl	DRO - AK102 1L amber glass w/teflon lined cap, 7/8 full, HCl	AAF DRO - ADEC 18 AAC 75 2 - 1L amber glass w/teflon lined cap, 7/8 full, HCl	RRO - AK103 1L amber glass w/teflon lined cap, 7/8 full, HCl	AAF RRO - ADEC 18 AAC 75 2 - 1L amber glass w/teflon lined cap, 7/8 full, HCl	PAHs - EPA 8270 SIM 2 - 1L amber glass w/Teflon line cap, 7/8 full	VOCs - EPA 8260 3 - 40 ml glass vials w/ teflon-lined cap, HCl	PCBs - EPA 8082 8 oz amber glass	Lead - EPA 7241 500 ml polyethylene w/HNO3	Total Organic Carbon - EPA 415.1 250 ml amber glass w/H2SO4	Natural Attenuation Parameters See CoC	BTEX - EPA 8021A 4 oz jar w/ teflon-lined cap, MeOH	DRO - AK102 4 oz amber glass with teflon-lined cap	AAF DRO - 18 AAC 75 8 oz amber glass with teflon-lined cap	RRO - AK103 4 oz amber glass with teflon-lined cap	AAF RRO - 18 AAC 75 8 oz amber glass with teflon-lined cap	PAHs EPA 8270 SIM 8 oz amber glass w/teflon lined cap	PCBs - EPA 8270 SIM 8 oz amber	Dioxin	TOC 9060 MOD 4 oz glass w/teflon lined cap	Bulk Density ASTM D2937	Moisture Content ASTM D2216	Sieve Analysis D2487-93
SITE 16		Budgeted Maximum Number of Samples																															
GROUNDWATER													2		2																		
98NE16GW 801	9-13	1500	16-1			QA/QC/MS/MSD							X		X																		
98NE16GW 802	9-13	1515	16-3																														
98NE16GW 201	9-13	1510	16-1										X		X																		
SITE 25		Budgeted Maximum Number of Samples																															
SOIL																																	
98NE25SS 801	9-13	1000	.5																														
MAIN OPERATIONS COMPLEX			Maximum Number of Samples			6	1	6		6			1				1																
GROUNDWATER																											3						
98NE13GW 801	9-13		13-1			X		X		X																							
98NE13GW 001	9-13	1630				X		X		X																							
98NE15GW 801	9-13	1630	15-1			(X)	QA QC	(X)		(X)																							
98NE19GW 801	9-13	1230	19-1			(X)		(X)		(X)																							
98NE27GW 801	9-12	1700	27-1			(X)		(X)		(X)																							
98NE27GW 001	9-13	1600				X	X	X		X			X																				
98NE13GW 802	9-13	1430	R-2			(X)		(X)		(X)							X																
SOIL																																	
98NE13SS 801	9-14	1200																									X						
98NE13SS 802	9-14	1215																									X						
98NE13SS 803	9-14	1230																									X						
		WP	14-1																														

BLG 98NEC C05501
9-14 1200
801?

98 NEC 27 SL 001 9-16 1200 X X X Soap
98 NEC 13GW 802 9-16 1230 ?801?

MONTGOMERY WATSON

8/21/98

SAMPLE CHECKLIST
1998 PHASE II REMEDIAL INVESTIGATION
NORTHEAST CAPE, ST. LAWRENCE ISLAND, ALASKA

Multichem Analytical Services, Contact: Mike Vogel
2000 W. International Airport I Phone: (907) 248-8273
Anchorage, AK 99502 Fax: (907) 248-8274

7-DAY TURNAROUND Sample Identification	Date	Time	Depth	Field: PID Sample Required	Field: PID Reading (in PID Units)	Water: BTEX - EPA 8021A (3- 40 ml glass vials w/ teflon-lined cap, HCl)	Water: GRO - AK101 (1L amber glass w/teflon lined cap, 7/8 full, HCl)	Water: DRO - AK102 (1L amber glass w/teflon lined cap, 7/8 full, HCl)	Water: AAF DRO - ADEC 18 AAC 75 (2- 1L amber glass w/teflon lined cap, 7/8 full, HCl)	Water: RRO - AK103 (1L amber glass w/teflon lined cap, 7/8 full, HCl)	Water: AAF RRO - ADEC 18 AAC 75 (2- 1L amber glass w/teflon lined cap, 7/8 full, HCl)	Water: PAHs - EPA 8270 SIM (2- 1L amber glass w/Teflon line cap, 7/8 full	Water: VOCs - EPA 8260 (3- 40 ml glass vials w/ teflon-lined cap, HCl)	Water: PCBs - EPA 8082 (8 oz amber glass	Water: Lead - EPA 7241 (500 ml polyethylene w/HNO_3	Water: Total Organic Carbon - EPA 415.1 (250 ml amber glass w/H_2SO_4	Water: Natural Attenuation Parameters (see CoC	Soil: BTEX - EPA 8021A (4 oz jar w/ teflon-lined cap, MeOH)	Soil: DRO - AK102 (4 oz amber glass with teflon-lined cap	Soil: AAF DRO - 18 AAC 75 (8 oz amber glass with teflon-lined cap	Soil: RRO - AK103 (4 oz amber glass with teflon-lined cap	Soil: AAF RRO - 18 AAC 75 (8 oz amber glass with teflon-lined cap	Soil: PAHs EPA 8270 SIM (8 oz amber glass w/teflon lined cap	Soil: PCBs - EPA 8270 SIM (8 oz amber	Soil: Diesels	Soil: TOC 9060 MOD (4 oz glass w/teflon lined cap	Soil: Bulk Density ASTM D2937	Soil: Moisture Content ASTM D2216	Soil: Sieve Analysis D2487-93
DRAINAGE BASIN AREA		**Budgeted Maximum Number of Samples**																										
SEDIMENT																		5	9	9	9	9	5	2		3	3	3	3
98NEDBSD 801	9/12/98	1710	6"															X	X	X	X	X	X				X	X	X
98NEDBSD 802	9/12/98	1730	6"															X	X	X	X	X	X				X	X	X
98NEDBSD 803	9/12/98	1750	6"															X	X	X	X	X	X				X	X	X
SOIL																													
98NEDBSS 803	9/12/98	1740	6"	X																						X			
98NEDBSS 804	9/12/98	1720	6"	X																						X			
98NEDBSS 805	9/12/98	1705	6"	X																						X			
98NEDBSS 806	9/12/98	1645	6"	X																						X			
98NEDBSS 807	9/12/98	1630	6"	X															X	X	X	X							
98NEDBSS 808	9/12/98	1840	6"	X															X	X	X	X							
98NEDBSS 809	9/12/98	1825	6"	X															X	X	X	X							
98NEDBSS 802	9/12/98	1820	6"	X															X	X	X	X							
98NEDBSS 801	9/12/98	1800	6"	X														X	X	X	X	X	X	X					
																		X	X	X	X	X	X	X					

SAMPLE CHECKLIST
1998 PHASE II REMEDIAL INVESTIGATION
NORTHEAST CAPE, ST. LAWRENCE ISLAND, ALASKA

Quanterra Cindy LaFevre

Multichem Analytical Services, Contact: Mike Vogel 265-8128/265-9263 FAX
2000 W. International Airport F Phone: (907) 248-8273
Anchorage, AK 99502 Fax: (907) 248-8274

40ml ↑

7-DAY TURNAROUND Sample Identification	Date	Time	Depth	Field: PID Sample Required	Field: PID Reading (in PID Units)	Water: BTEX - EPA 8021A (3- 40 ml glass vials w/ teflon-lined cap, HCl)	Water: GRO - AK101 (1L amber glass w/teflon lined cap, 7/8 full, HCl)	Water: DRO - AK102 (1L amber glass w/teflon lined cap, 7/8 full, HCl)	Water: AAF DRO - ADEC 18 AAC 75 (2- 1L amber glass w/teflon lined cap, 7/8 full, HCl)	Water: RRO - AK103 (1L amber glass w/teflon lined cap, 7/8 full, HCl)	Water: AAF RRO - ADEC 18 AAC 75 (2- 1L amber glass w/teflon lined cap, 7/8 full, HCl)	Water: PAHs - EPA 8270 SIM (2- 1L amber glass w/Teflon line cap, 7/8 full)	Water: VOCs - EPA 8260 (3- 40 ml glass vials w/ teflon-lined cap, HCl)	Water: PCBs - EPA 8082 (8 oz amber glass)	Water: Lead - EPA 7241 (500 ml polyethylene w/HNO3)	Water: Total Organic Carbon - EPA 415.1 (250 ml amber glass w/H2SO4)	Water: Natural Attenuation Parameters (see CoC)	Soil: BTEX - EPA 8021A (4 oz jar w/ teflon-lined cap, MeOH)	Soil: DRO - AK102 (4 oz amber glass with teflon-lined cap)	Soil: AAF DRO - 18 AAC 75 (8 oz amber glass with teflon-lined cap)	Soil: RRO - AK103 (4 oz amber glass with teflon-lined cap)	Soil: AAF RRO - 18 AAC 75 (8 oz amber glass with teflon-lined cap)	Soil: PAHs EPA 8270 SIM (8 oz amber glass w/teflon lined cap)	Soil: PCBs - EPA 8270 SIM (8 oz amber)	Soil: Diesel	Soil: TOC 9060 MOD (4 oz glass w/teflon lined cap)	Soil: Bulk Density ASTM D2937	Soil: Moisture Content ASTM D2216	Soil: Sieve Analysis D2487-93
UNCONTAMINATED (REFERENCE) DRAINAGE																														
Budgeted Maximum Number of Samples						2		2	2	2	2	2				2			2	2	2	2	2	2			2			
SURFACE WATER																														
98NEBKSW						X		X	X	X	X	X				X														
98NEBKSW						X		X	X	X	X	X				X														
SEDIMENT																														
98NEBKSD																			X	X	X	X	X	X			X			
98NEBKSD																			X	X	X	X	X	X			X			
98NEBKSD																														
TOTAL NUMBER OF PRIMARY SAMPLES						25	8	25	8	19	8	12	3	6	2	2	2		20	25	20	23	17	16	12	1	10	4	6	3
DUPLICATE SAMPLES					1	3	1	3	1	2	1	2	1	1					3	3	2	3	2	2	2		1			
QA SPLIT SAMPLES					1	3	1	3	1	2	1	2	1	1					3	3	2	3	2	2	2		1			
TRIP BLANK													1																	
MS/MSD					1	1	1	1	1	1	1	1	1	1	1		1		2	2	1	2	1	1	1					
TOTAL SAMPLES						33	11	32	10	24	10	17	5	9	3	3	3		28	33	25	31	22	21	17	1	12	4	6	3

NO QC ↑ NO QA/QC ↑

MS/MSD

SAMPLE CHECKLIST
1998 PHASE II REMEDIAL INVESTIGATION
NORTHEAST CAPE, ST. LAWRENCE ISLAND, ALASKA

Quanterra

~~Multichem Analytical Services~~, Contact: ~~Mike Vogel~~ Cindy LeFevre
2000 W. International Airport F Phone: (907) ~~348-8273~~ 265-8128/265-9263 FAX
Anchorage, AK 99502 Fax: (907) ~~348-8274~~

7-DAY TURNAROUND Sample Identification	Date	Time	Depth	Field: PID Sample Required	Field: PID Reading (in PID Units)	Water: BTEX - EPA 8021A 3- 40 ml glass vials w/ teflon-lined cap, HCl	Water: GRO - AK101 1L amber glass w/teflon lined cap, 7/8 full, HCl	Water: DRO - AK102 1L amber glass w/teflon lined cap, 7/8 full, HCl	Water: AAF DRO - ADEC 18 AAC 75 2- 1L amber glass w/teflon lined cap, 7/8 full, HCl	Water: RRO - AK103 1L amber glass w/teflon lined cap, 7/8 full, HCl	Water: AAF RRO - ADEC 18 AAC 75 2- 1L amber glass w/teflon lined cap, 7/8 full, HCl	Water: PAHs - EPA 8270 SIM 2- 1L amber glass w/Teflon lins cap, 7/8 full	Water: VOCs - EPA 8260 3- 40 ml glass vials w/ teflon-lined cap, HCl	Water: PCBs - EPA 8082 8 oz amber glass	Water: Lead - EPA 7241 500 ml polyethylene w/HNO3	Water: Total Organic Carbon - EPA 415.1 250 ml amber glass w/H_2SO_4	Water: Natural Attenuation Parameters see CoC	Soil: BTEX - EPA 8021A 4 oz jar w/ teflon-lined cap, MeOH	Soil: DRO - AK102 4 oz amber glass with teflon-lined cap	Soil: AAF DRO - 18 AAC 75 8 oz amber glass with teflon-lined cap	Soil: RRO - AK103 4 oz amber glass with teflon-lined cap	Soil: AAF RRO - 18 AAC 75 8 oz amber glass with teflon-lined cap	Soil: PAHs EPA 8270 SIM 8 oz amber glass w/teflon lined cap	Soil: PCBs - EPA 8270 SIM 8 oz amber	Soil: Diesels	Soil: TOC 9060 MOD 4 oz glass w/teflon lined cap	Soil: Bulk Density ASTM D2937	Soil: Moisture Content ASTM D2216	Soil: Sieve Analysis D2487-93
RECEPTOR CREEK AREA		Budgeted Maximum Number of Samples				6	6	6	6	6	6	6		6					6	6	6	6	6	6					
SURFACE WATER																													
98NERCSW 806	9-13	1245	6"			X	X	X	X	X	X	X		X															
98NERCSW 805	9-13	1330	6"			X	X	X	X	X	X	X		X															
98NERCSW 804	9-13	1400	6"			X	X	X	X	X	X	X		X															
98NERCSW 803	9-13	1430	6"			X	X	X	X	X	X	X		X															
98NERCSW 802	9-13	1530	6"	MS/SD		X	X	X	X	X	X	X		X															
98NERCSW 801	9-13	1755	6"			X	X	X	X	X	X	X		X															
202	9-13	1535	6"																										
SEDIMENT																													
98NERCSD 806	9/12/98	1830	6"																X	X	X	X	X	X	X				
98NERCSD 805	9/12/98	1900	6"																X	X	X	X	X	X	X				
98NERCSD 804	9/13/98	1415	6"																X	X	X	X	X	X	X				
98NERCSD 803	9/13/98	1445	6"																X	X	X	X	X	X	X				
98NERCSD 802	9/13/98	1600	6"			MS/SD													X	X	X	X	X	X	X				
98NERCSD 801	9/13/98	1800	6"																X	X	X	X	X	X	X				
202	9/13/98	1605	6"																										

Army Corps of Engineers

Northeast Cape, Alaska

1998 Field Notebooks

MONTGOMERY WATSON

NEC

SEPTEMBER 1998

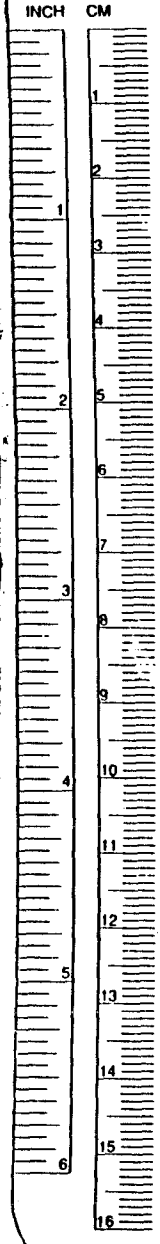
"Rite in the Rain"

ALL-WEATHER

Horizontal Line

No. 390

Victor Harris



MEASUREMENT CONVERSIONS

IF YOU KNOW	MULTIPLY BY	TO FIND
LENGTH		
inches	2 540	centimeters
feet	30 480	centimeters
yards	0 914	meters
miles	1 609	kilometers
millimeters	0 039	inches
centimeters	0 393	inches
meters	3 280	feet
meters	1 093	yards
kilometers	0 621	miles
WEIGHT		
ounces	28 350	grams
pounds	0 453	kilograms
grams	0 035	ounces
kilograms	2 204	pounds
VOLUME		
fluid ounces	29 573	milliliters
pints	0 473	liters
quarts	0 946	liters
gallons (U S)	3 785	liters
milliliters	0 033	fluid ounces
liters	1 056	quarts
liters	0 264	gallons (U S)
TEMPERATURE		

°C = (°F - 32) x 555
°F = (°C x 1 8) + 32

Inches	Decimals of foot	Milli-meters
1/16	0052	1 5875
1/8	0104	3 1750
3/16	0156	4 7625
1/4	0208	6 3500
5/16	0260	7.9350
3/8	0313	9 5250
1/2	0417	12 700
5/8	0521	15 875
3/4	0625	19 050
7/8	0729	22.225
1"	0833	25 400
2"	1667	50 800
3"	2500	76 200
4"	3333	101 60
5"	4167	127 00
6"	5000	152 40
7"	5833	177 80
8"	6667	203 20
9"	7500	228 60
10"	8333	254 00
11"	9167	279 40
1 foot	1 0000	304 80

"Rite in the Rain" ®
ALL-WEATHER WRITING PAPER

Name Victor Harris

Address 4100 Spenard Road
Anchorage, AK 99517

Phone (907) 266-1140

Project Northeast Cape
1998 Phase II Field Work

"Rite in the Rain" - a unique all-weather writing surface created to shed water and to enhance the written image. Makes it possible to write sharp, legible field data in any kind of weather.

a product of

J. L. DARLING CORPORATION
TACOMA, WA 98424-1017 USA

CONTENTS

ATT 1-800-528-6556
Apt No 12 443-2998
Apt No 6 443-2916
NAL - Shannon 5035
Jacobs 563-3322
Marie / Merriam - 984 6228 (Savoonga)
Rich Jackson 753-5606
Floyd Kingeekuk 984-6514

Bernie
Dee
Doug Dickens
Rel.
Harold Brown

Chronological Notes –

9/9/98 Arr AIA w/ Bonnie 5:30a
FLT @ 6:15 cancelled – take
6:40 FLT via Kotzebue

Arr OME 10:00 – Boring has flown
to NEL w/ NAC pilot. check into
apartments
12:30p – NAC informs us NEL
fogged. NAC will offloads gear
and transfer to Boring. Bonnie
investigate other transpod. Routed
13:00 Call Rich – Request weather
dog PFAQ and inform. Deb
not in office.

14:00 FLOYD calls – cannot reach Eugene
15:00 Vic & Bonnie mob to BERRINGS
17:00 FINISH mob / Repack tasks
@ Boring. Schedule CASH and
Navajo for noon
17:30 – eat dinner, off

④

September 10, 1998 Thursday

7:30 Mob to Bennett Air. Bonnie loads Navajo. Casa will standby until wind of clear weather. Purchase supplies at store.

9:10 LOAD INTO Navajo N4117B

9:16 ROTATE - 2 pilots

10:00 ARRIVE NEC ~300' CEILING

11:30 CASA ARRIVE - Bonnie, Vic SQUARE GEAR

13:30 CALL Deb - ADVISE

14:30 VIC/Bonnie REFUEL WELLS SQUIRT BOTTLE HAMMER TOW ROPE

11 1/4 USED

⑤

MW	STEEL ABOVE GL.	FROM PVC T.D.	DTW	PVC ABOVE G.S	
	3.1'	12.09	3.66	3.31'	14:45

7-4 APPARENT JACKING ~0.7'
NO SHEEN or ODOR observed

9-1	STEEL LOOSE (MUD)	9.82	3.81	3.75'	15:00

APPARENT JACKING >0.7'
NO SHEEN or ODOR

9-2	STEEL LOOSE	8.57	4.93	3.81'	15:10

APPARENT JACKING >1.2'
NO ODOR or SHEEN

9-3	STEEL LOOSE MUD	11.39	4.86	3.55	15:20

APPARENT JACKING 0.80'
NO ODOR or SHEEN

10-1	11.75'	2.00	2.01'	15:50

No APPARENT JACKING, but both casings loose
NO APPARENT ODOR OR SHEEN

10-4	8.06	2.24	2.14'	16:00

No APPARENT JACKING, BUT CONC. CRACKED - CULVERT TYPE. NO SHEEN or ODOR

11-2	12.01	6.74	6.56	16:10

CEMENT CRACKED, JACKING MINOR

(6)

MW	Steel Above G.L	From PVC T.D	From PVC DTW	PVC Above G.L
11-3	2.79	20.11	8.69	2.41

No sheen, odor. Approx jacking ≥ 0.2'

16-3	2.84	17.28	11.17	2.58

No jacking apparent, no odor, sheen

16-1	3.29	16.84	10.92	2.96

No apparent jacking, smells similar to paint thinner

13-2	2.75	16.40	8.05	2.42

No apparent jacking. Diesel odor - slight sheen?

13-1	3.09	17.65	11.11	2.82

No app. jacking. Diesel smell

15-1	3.10	16.52	6.90	2.99

No app jacking. H.C (diesel?) smell

27-1	2.27	20.19	2.53	2.22

Slight jacking of inner casing. No jacking of outer. Small slight, no sheen - gas?

19-1	3.10	20.10	6.50	2.92

No apparent jacking, no odor or sheen

(7)

MW	Steel Above G.L	PVC TD	PVC DTW	PVC Above G.L
19.2	2.89	21.86	13.59	2.68

Jacking approx 0.2' of outer steel - NO ODOR

22-1	3.55	35.51	25.96	2.95

Approx jacking 0.35' (steel only)

UNKNOWN - MW @ UST near water tanks

17:30 Mob to airport to call Bering Air. Drive to Site 4 to ask Eugene to call us at 8:00 am for weather report

18:50 Take off from NEL w. 1 - 2 pilots

19:45 Here None

20:15 Pick up Doug

20:30 Back to Apts, off

(8)

9-11-98

Mob to Bering 8:30a
-load Navajo
Rotate 9:16 for NEL
pilot Larry + 1

10:00 Mob gear and try phone

11:00 → 14:00 INSTALL well points at Sites 3 & 4, 14

14:00 → 15:00 Lunch

15:30 - State ss locs (3) of NO., EAST, WEST SIDE of powerplant
16:00 - State site 25
17:00 Recon Site 9 AND STAKE
- MOUND SHOWN ON MAP IS only Approximately correct (map APPEARS inaccurate) It is an elongate E-W trending MOUND that APPEARS native (not a part of the landfill mass).

(9)

17:00 → 1900
Doug finishes sampling of WP @ site 3 (Bonnie and Doug have previously finished the background WP @ Site 14 and the WELL point @ Site 4.
- STOW GEAR
20:00 TAKE off from NEL in Navajo w/ Larry & Blond

20:45 AER OME. Amanda & Eileen have taken Vans - get taxi

21:30 Aer Home - off

NOT USED

(10)

NOTES ON TO-DO ITEMS

Site 2 - MAP STAINED SOILS ~~NOW~~
HAND AUGER or DIG ON PAD
(MOVE STAKE TO MARGIN)

Sites 3 & 4 - AS SURVEYOR ABOUT
apparent DISCREPANCY. DEBRIS
INVENTORY

Site 5 - BD/DE ✓

Site 6 - Staining REMAP + WATER ✓
observe (sheen?). BD/DE

Site 7 - BD/DE, Note contents ✓
surface water map (sheen

Site 9 - map surface water ✓
remap MOUND. Note DEBRIS
type. LOCATE BACKGROUND

10, 11 Ask Eugene to VISIT
SITE AND Describe spill
- NAME CKE
update maps

(11)

STAKES:

Site	States
✓ 2	2 (SS)
7	1 background, 1 DRO/RRO
✓ 6	1 BKGND
✓ 9	1 SOIL, 1 BCKGND
✓ 10, 11	1 BKGROUND
✓ 14	1 AST 1 DOOR & 14 1 BCKGRND
✓ 16	NONE
✓ 25	DIOXIN
✓ 13	3 DOOR

DB 3 SED FROM 27-1 to UNNAMED
2 SS FROM W.O CHANNEL
4 SS Deliniation
6 Water / SED
* 2 SW/SED FROM VARIOUS Ref
↳ cannot take control
Ref channel selected

* Site 22 - Remap stained area

(12)

9-12-98

7:30 Mob to store for supplies. Amanda and Eileen home arrived last night. Bonnie briefs Eileen.
8:20 Mob to Boring for flight to NEC
ROTATE 8:58 w Kevin + Blond
Piper Navajo 12E
Doug, Bonnie, Vic, Amanda

ARR NEC 9:45 - UNLOAD
10:30 - 15:00 Doug & Vic stake DB AND RC AREA. Bonnie & Amanda SAMPLE 7-4

13:00-13:30 LUNCH
13:30 - 18:30 Bonnie & Amanda SAMPLE SITES 9, 10. Doug SAMPLES SS & SEDS FROM DB and RC AREA. Vic completes STAKING of All remainng sites (including photos).
19:04 ROTATE NEC w/ Blonde + 1 fem + Piper Navajo 12E.
* NOTE: CHON LOG SKIPS to p25

(13)

PHOTO Log
Roll 1 9-12-98

FRAME
1 - RC SD 801 VIEW WEST
2 - " 802 " "
3 - " 803 " "
4 - " 804 " "
5 - DB SD 803 VIEW WEST - NOTE THIS SAMPLE IS COINCIDENT W/ ROC of SF-3
6 - DB 801 VIEW SD. THIS IS 20' N.O. SF-3 line
7 - DB SS 804, VIEW NW. NOTE. pole 1 AND SD 802
8 - DB SD 802 VIEW SW
9 - DB SS 807 VIEW SOUTH
NOTE: THIS IS 15' E.O. 96 sample
10 - DB SD 803 @ NO SIDE of pond
11 - DB SS 805 (TOC) VIEW SE
12 - DB SS 808 VIEW SW
13 DB SS 809 " "
14 DB SS 806 SE
15 DB SS 802
16 DB SS 801 SE
17 RC SD 806 WEST ~ 150' FROM BENO
18 RC SD 805 Note Pole 2

(14)

Photo Log Con't

19 - 1355 801 SE (W. side of Road)
20 - 1355 802 SE (No. " ")
21 - 1355 803 V. SW
22. 09 SS 802 View NW. Note MW 9-3 and CB Road in Bckground
23 - MW 9-2 w/ 09 SS 801 in Bckgrnd View NE
24 - 0955 801 9-2 in Bckgrnd View SW
25 - 0955 801 View E. showing mound
26 - 09 SS 801 View SE
27 - 10 SS 801 View NW Tank 1 in Bckgrnd

—— Roll 2 -

Frame:
1 - 1455 802, NW (E end of Tank 14-1)
2 - 1455 801 View W. (entrance to trans)
3 - WP 14-1 and 00 SS 801. View SE Mic Pad and White Alice in Bck.
4 - DB showing Delin, Sed, and TOC Doug taking samp?, Pole 1, 2
5 - 06 SS 801 View SO to site 6
6 - SO. side of site 7 View West
7 - 0755 801 View West. Note, this is an isolated area near drum size ≈ 5 ft²
8, 9 - Site 6 - sample loc may be visable left of silver cannister (surf zone)

(15)

Photo Log Con't (Roll 2)

10 - 07 SS 802 View NE showing 9-13-94 slope of L.F. mass
11 - Site 5 Photo NW
12 - Site 25 SS 801 View west
13 - From 25 showing cable and Drums to Site 24
14 - Site 5 DB Cat, drums, Mantex matting in behind beach berm View NE
15 - Site 3 pumphouse - note well point, tanks (Soil sample was from tank pad, 1994) View NNW
16 - Site 4 - Large tank, vechicles W (note smaller tank not visable behind larger tank)
17 - Site 6 (view) E-SE
18 - Site 6 - close up of stained area - this is probably boomy oil
19 - Site 6 - view NO. Note stained area and bckgrnd sample loc. in distance
20 - Site 6 - View NE from other side of pond. Note MW 6-1 and Bckgrnd sample loc. to right of ATV.
21 - Site 13 - Bonnie/Amanda sampling of 13-1

(16)

22-27 - Site 21
PANORAMA - VIEW EAST to CISTERN, ROTATING clockwise
Roll 3
Frame 1-7 - completion of panorama
8 - Site 21 - typical iron oxide staining w/ organic (vs. Petroleum Sheen)
9 - inside of my pocket
10 - SITE 21 TANK - VIEW WEST, Note previous panorama was taken from cistern in background
11 - Site 16 - drums believed to have been left by NES
12 - Site 2 view NO. 2 soil sample hole
13 - Site 2 staging area photo

(17)

(20)

(21)

CHRON Log Con't 9-12-98

NOTE: TODAY I ASKED EUGENE to NAME the receptor CREEK. He SAID IT HAD a NAME: "SAUKI" This is UNDOUBTEDLY INCORRECT spelling, but EUGENE could NOT HELP ME W/ THE SPELLING

19:45 - LAND IN NOME
20:30 - END log @ NANOOK apts

9-13-98
Mob to AIRPORT 8:10
8:36 Rotate Nanook 12E w/Larry + Eula
Arr Nec 9:30
10:30 Vic mobs to Site 3, 4
Bonnie, Amanda to main apts
Doug + DB + Sit 25

11:00 VISIT SITE 5 - 55-60 RUSTED ~~DRUMS~~ DRUMS, 1 small engine (ice compressor) and ~ 30 lbs misc metallic debris
- No evidence of release.
+ 2 gal metal trash cans
DRUMS BADLY RUSTED
misc elec debris (40lbs) 30' NW

11:25 Site 25
Foundation w/ ~ 1,000 lbs
of metal debris. W/ 20 drums.

12:00 - 12:45 Doug & Vic Recon
potential Ref Stream V.O. SITE
25. Access stream by end
of runway, left on beach,
then ~ 1 mi to point, ~ 1/4 mi
past shack

12:50 Site 5 - Loc of Cat on
beach. This SITE IS 300 to
500' E.O Eugene's House (scattered)
Estimate 75 Rusted DRUMS +
3,000 lbs mailon matting
D-8 Cat on beach left rieck
1961 Note: 100 W.O CAT
is only safe barge landing
area (ROCKS)

13:00 → 18:30 Bonnie / Amanda complete
MW sampling. Vic completes BD/OR
Doug works at drainage basin

Note: Site 21 - No sheen apparent
vegetation is lush. Iron bacteria
AND iron sheen typical. No disturbed
veg found.

18:00 Recon. SITE

19:00 Rotate Nec w/ Bert, Leroy
Navajo

20:00 Ann OMG

20:45 Talk with Rich on the
phone from Nome. He will
bring out Dee Ginter, Bernie
Gagnon, Horace Brown (and
Rick Jacksons)

NOT USED

9-14-98 (MONDAY)

07:45 Mob to AIRport

08:42 Rotate on King AIR N79CF
w/ Don Mudligen + Shane (helper)
Bonnie, Amanda, Vic
plus pilots Lowry and Jim

9:30 ACE NEC. Line out surveyor

10:00 COE ARRIVE - Bernie Grayson, Rich Jackson, DEE GINTER, Harold BROWN, Doug Dieter

MOB TO Main Op Complex
so that Eugene can Explain
HOW fuel leaked. Eugene explains:
"There were 8 guys working on snow removal, I guy volunteered because there was lots of snow. He got too close to the tank, and hit IT. This happened on a FRIDAY night. THREE days later the commander → HE covered IT w/ SNOW AND DIDnt tell ANyone

It happened in March

discovered IT, and saw fuel in the snow. This was in 1967/68. His name was SGT. Vaith. No cleanup was attempted. The diesel was 1" thick all the way to the mouth of the river. At least 100,000 gallons was lost. There was no ice, just blowing snow. The diesel probably followed the drainage course.

Eugene also described the drum storage at Site 10. Many drums, UNKNOWN contents. Reworked by GI's in 1977.

Eugene also described the leak in the pipeline (3?") that ran from the tanks to the 20K UST. It was discovered when the UST would not fill. It had been filling slowly for some time. Nobody knows how much was lost. This fuel was found in the

snow in the adjacent drainage basin. This is the snow that was collected and burned north of Site 16 on the pad.

Eugene also described the Site 8 spill (junction of cargo and Airport roads) About 500 gallons was lost. This fuel was pumped by Eugene into a tank that now sits NE of the paint & dope building. Eugene later used this fuel for personal use after water decanted from freezing.

Recap:

YEAR	EST GALLONS	DESCRIPTION
1973	500	Site 8 spill
1967/68	> 110K gal	Tank No 2
1971	UNKN	Rupture of buried line — Site 15
1977	UNKN	fuel bladder

Who tells

Eugene said that to his knowledge, there were no other major losses of fuel.

We also toured Site 13 and 14 with the group. We also looked at the estimated area of clean fill from the 1996 Phase II report We looked at the MK well and the well by the water tanks. Rich and Dee went with me to the borrow area. Then Bernie Dee, and Doug walked the drainage basin to the Airport

Doug Dietert and went to the reference stream and stacked two locations. The hardwood-moist location is where bio sampling should occur.

Harold, Dee, Bernie and I tried to go to site 7 and spent about 5 min, but weather turned bad. COE left site about 16:00.

9-14-98 Cow't

16:30 Went to talk to Eugene about spending the night.

Eugene noted that there is no fish in the reference stream we had selected. He noted also that the "unamed stream" (goes past Site 2) usually had breached the beach berm in the summertime.

Marie helped me with the spelling of the stream "Suqi" from hence forth we will call it the Suqi River. (There is no "O" in the Yupik language.

Amanda, Bonnie, Vic, Don, Shane leave NEC about 6:00 pm with Lonz and another pilot → Kong Air

9-15-98

8:00 am call Bering Air for weather report – unknown. Receive call about 8:15 that weather looks ok in Savoonga. M6 to Airport and pick up Don Mulligan. After waiting for Shane, we leave Nome about 9:16, with Beth and blond male pilot in Navajo 12E.

Arr NEC 10:00

- Vic/Bonnie MIB STB and DS-2 gear to staging area
- Doug/Amanda take soil samples from Reference Creek
- Surveyors Don Mulligan and Shane finish surveying

13:00 Begin packing of STB
- Full blue 55 gal overpack. Est. wt 350 lbs
- 4 containers of DS-2 in yellow drums, only top container had fluid
  - 2 – No 2 guards, No Squad
  - 1 – PPE
- 7 – yellow drums total
- 1 – blue overpack

(34)

9-15-98 Con't

15:30 Demob from BLOG 101 w/ Doug / Amanda continue soil sampling. Bonnie completes labeling of drums and paperwork Surgerors complete work

Vic pays Eugene:

ATV	7 @ $100	700
BEAD	7 @ $100	700
	SHOES	(100)
	CIGS	(100)
		$1,200

18:15 Lv NEL w/ Pilots Doug AND Dave IN King Aire
PAX: Bonnie / Doug / Amanda / Steve / Don / Vic

(35)

9-16-98

9:00 Doug, Bonnie, Amanda mob to boring. Fly Navajo to NEL arr 10:50
Crew follows
Navajo stands by
Ret, Nome. Left NEL 13:30
Arr Ome 14:00
Vic stays back - EXHAUSTED
Pay hotel bill and mail certified mail for NOI's and

18:00 mob to Nome AIRport to catch 18:40 flight

END FIELD NOTES

"Rite in the Rain"®

All-Weather HORIZONTAL LINE NOTEBOOK

No. 391

1998 Northeast Cape, St. Lawrence
Montgomery/Watson
Douglas Dust
9-11-98 to 9-16-98

4 5/8" x 7" with 48 Numbered Pages

"Rite in the Rain"®
ALL-WEATHER WRITING PAPER

Name Douglas Quist
Montgomery Watson
Address 4100 Spenard Road
Anchorage, AK 99517
Phone (907) 248-8883

Project Northeast Cape RI 1998

Yellow Polyethylene Protective Slipcovers (Item #31) are available for this style of notebook. Helps protect your notebook from wear & tear. Contact your dealer or the J. L. Darling Corporation.

CONTENTS

9-11-98 Northeast Cape, St. Lawrence Island

Mob to Site @ 0900

Begin Push Technology Well Point Installation @ Site 4.

Site 4 Well Point Complete

Begin Well Point Installation @ Site 3.

Site 3 Well Point Complete

Notice Discrepancy on Maps as to location of Sites 3 & 4 relative to one another Appears that Site 4 should be up the Cargo Beach Road 100-150' towards the Main Complex Will have Surveyor

9-11-98

9-11-98 Northeast Cape, St. Lawrence Island

Go to Sample Well Point @ Site 14 Geopump not working @ that depth Will Hand Bail instead.

Sample Well Point 3-1 with hand Bailer goes dry will return.

Sample Well Point 4-1 with hand Bailer

Return to Complete Sampling @ 3-1 WP.

See Bonnie McClean field Book for field parameters

9-11-98

9-12-98 Northeast Cape, St. Lawrence Island

	Sampled	8oz	8oz	8oz, 8oz, 8oz Mesh
98NECDB801	✓	AAF DRO/RRO, DRO/RRO, PAH, PCB, BTEX		
98NECDBSS802	✓	"		
98NECDBSS803	✓	TOC		4oz
98NECDBSS804	✓	TOC		4oz
98NECDBSS805	✓	TOC		4oz
98NECDBSS806	✓	AAF DRO/RRO, DRO/RRO		
98NECDBSS807	✓	"		
98NECDBSS808	✓	"		
98NECDBSS809	✓	"		
~~98NECDBSD801~~ PCB		AAF DRO/RRO, DRO/RRO, PAH, BTEX		
~~98NECDB~~ SD 801	✓	"		
~~98NECDB SD 802~~ PCB		"		
98NECDB SD 802	✓	"		
~~98NECDB SD 803~~ PCB		"		
98NECDB SD 803	✓	"		
98NECRC SW/SD 801		AAF DRO/RRO, DRO/RRO, PAH, BTEX, SD PCB		
98NECRC SW/SD 802				
98NECRC SW/SD 803				
98NECRC SW/SD 804				
98NECRC SW/SD 805				
98NECRC SW/SD 806				

9/12/98

9-12-98 Northeast Cape, St. Lawrence Island

Will Combine the following Due to Sample Jars Available.

DRO/RRO/AAF DRO/AAF RRO	8oz
PAH/PCB	8oz

Sampled All SS + SD from DB
Sampled SD from RC 801 & RC 802
Will finish SD Sampling & SW's for all of RC on 9-13-98

DB
BD
RC ←
BK
TB

9/12/98

9-13-98 Northeast Cape, St. Lawrence Island

0800 - Depart for Bering Air

Arrive @ NEC prepare for SS, SW/SD Sampling to Complete DB/RC then Continue onto Site 25.

Calibrated PID @ 0 & 97.00 ppmV

Collect 98NEC25SS801 Next to SS178 from 1994 RI. 1000

PID Over Entire Site 0 ppm

Follow Background Stream to Outlet @ Bering Sea

7/13/98

9-13-98 Northeast Cape, St. Lawrence Island

- Collect 98NEC RCSW/SD 804 Odor Water No Sheen / Sediment Very Stained & Collect 98NEC RCSW/SD 803 Water No Sheen When Undisturbed Sediment Very Stained & Odor.

Collect 98NECRCSW/SD 802.

802 SW - 1530 802 SW - 1535 802 SW 1540

802 SD - 1600

Water	Primary	QA	QC	MS/MSD
DRO	1530	1540	1535	
DRO AAF	1530	1540	1535	
RRO	1530			~~1530~~ DP
RRO AAF	1530	1540	1535	1530
PAH	1530	1540	1535	1530
PCB	1530	1540	1535	1530

Soil	P	QA	QC
	1600	1605	1610

7/13/98

9-13-98 Northeast Cape, St. Lawrence.

98NECRCSW801	1755	
98NEC RCSD801	1800	
98NEC RCSD 201	1805	QC
98NEC RCSD 301	1810	QA

Sample appears unaffected by Diesel Spill @ Site 10. Very Deep Channel > 6'.

9/13/98

9-14-98 Northeast Cape, St. Lawrence Island
Staying in Nome to Package Samples w/ Eileen -

9/14/98

10

9-15-98 Northeast Cape, St. Lawrence Island

Reference Drainage

BTEX, DRO, RRO, DRO AAF, RRO AAF, PAH, TOC

3 VOAs, 4 x HCL, 2 x ϕ, 2 x VOA (X 2 sites)

BTEX, DRO, RRO, DRO AAF, RRO AAF, PAH, TOC

40m, (80m x 2) 40m x (2 sites)

98NECBKSW801 - 1030

98NECBKSD801 - 1045

98NECBKSW802 - 1000

98NECBKSW802 - 1015

Both Samples Appear Clean and have not been impacted by the Northeast Cape Site

Regroup @ site 2 for continued Surface Soil Sampling

Doug Clark 9/15/98

11

9-15-98 Surface Soils

Site 6 98NECO6SS801 - BTEX, DRO, RRO 1500

Site 7 ~~1500~~ 98NECO6SS802 - Relocate to Similar Soil

98NECO7SS801 - TOC 1520

Site 9 ~~1520~~ 98NECO9SS801 1510

98NECO9SS802 1530

Site 10 98NEC10SS801 1550

Groundwater.

Site 13 MW13-1 1730

Site 27 MW27-1 1700

Amend COC to include PAH from DRO/or RRO

Jar Collected 9-13-98

∞ Methane 1700

Doug Clark 9-15-98

1-16-98 Northeast Cape St Lawrence Island
Depart Nome for Nec for Demob & Collect 1 SW.
27-Site - 1200

98NEC27SW801 -

BTEX	3 VOA
GRO	3 VOA
DRO	1 HCL
RRO	1 HCL
PAH	1 G
~~TOC~~ Del	
Manganese	1 HNO_3
Nitrate/Sulfate/Alkalinity	1 cube
Field Parameters.	1 cube

Return to Complete DeMob.
Arrive Anchorage ± 2140

9-16-98

"Rite in the Rain®"

All-Weather HORIZONTAL LINE NOTEBOOK

No. 391

NEC
1998
1189098.050101

4 5/8" x 7" with 48 Numbered Pages

9-9-98 NEC 98 Day 1 Wed.

0530 Arrived AIA

Flight cancelled, rebooked on 645A to KOZ - None arriving 945

Called NEC - Don said can take two on jumpseats from Nome

Called - left message Bering Air to take NSE pilot to NEC

1000 Arrived Nome - P/U VANS

Bering Air - NEC flight left 940 - 1hr.

Got apt temp - Bering Air

Called - heavy fog @ NEC

Could not see ground

NAC will off load equipment

Spoke w/ Dave - Bering Air will use Cessna & Beech 1900 to get equipment to NEC

@ B.A had to research Equipment & Priorities

Bryan

9-9-98 (cont) NEE 98

for Cassa shipment.

1530 Completed breakdown
- ice in freezer
- Gambell stuff on separate pallet
- to Stone
- get gas - 30 gals.

Called Deb - not in.
Vit called Rich left message - for weather day.
Delayed DQ & Eileen for Thurs
Broke out bottles.
Notify don't need apt. #6 this date.

Bgm

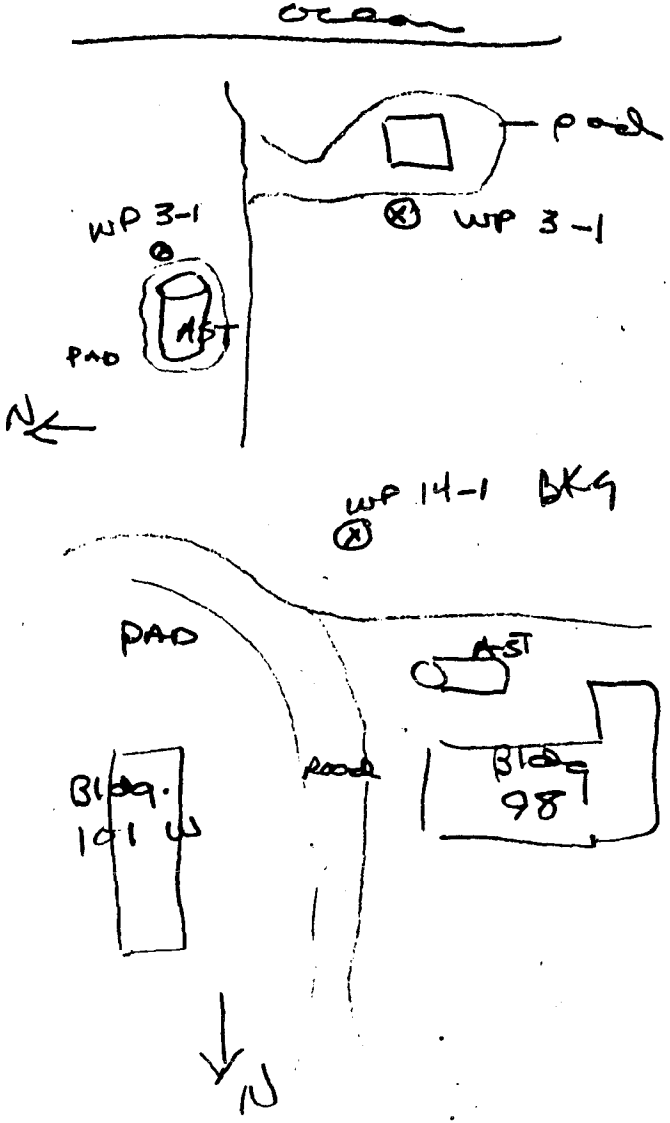
9-10-98 NEE Dz Thurs

0800 @ BA loaded NAJ. reviewed load plan for CASSA
1000 @ NEC - off loaded NAJ set up net area
1120 Cassa arrives. off loaded stuff Eugene helps.
Set-up & sort equipment
Set-up & test phone.
Victor starts staking sampling points
Calibrate all WQ equipment.

1900 Nfg arrives
2000 arrives NOME
Dorey arrives AK Air
Get set up for Fridays sampling

Bgm

9-11-98
well pt. construction



9-11-98 NEC

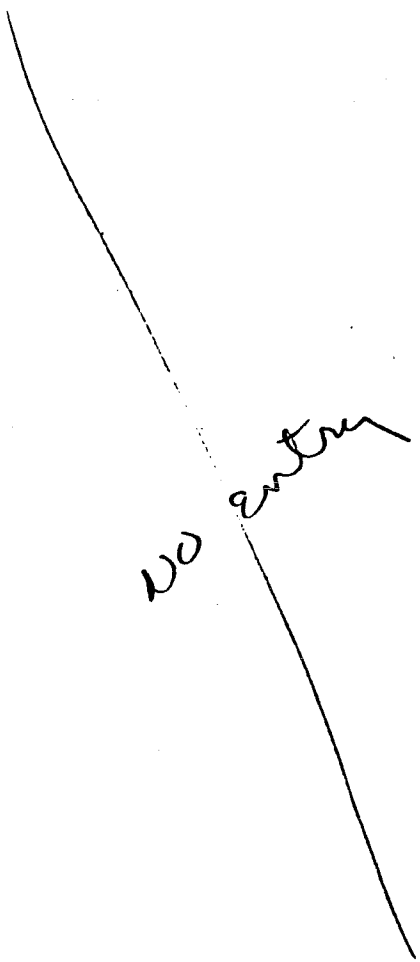
D3
Friday

0800 arrive BA
0845 leave home
1000 arrive NEC
1030 Safety meeting
Set-up for well pt.
installation
Doug & Victor set DB
sampling pt.
1230 Black arrives on
ATV & Trl
1330 break up for well pt.
construction
at site 4, set WP 4-1 ≈3'
at site 3 set WP 3-1 ≈3'
at site 27-S of pad
Set WP-00 ≈ 9'

well pt installed easily.

DB & I started sampling
WP 3, 4 & 27 completed
Packed up for travel to
Nome, BA arrives 1930

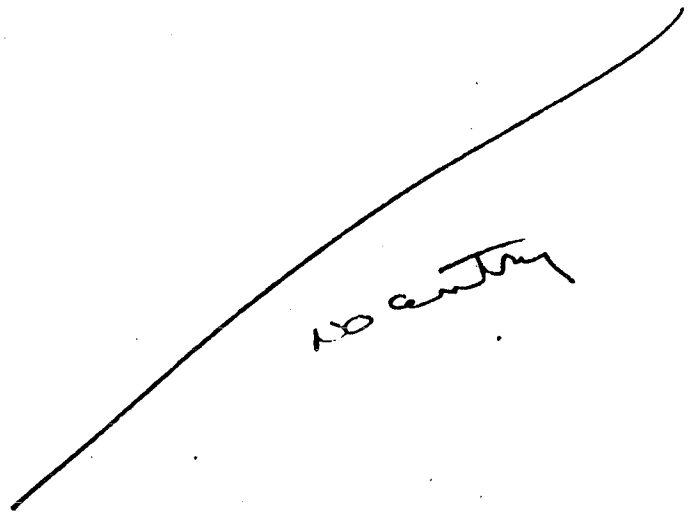
Bgm



9-11-98 NEC (Cont) D3 Friday

Arrive Nome 2030
Eileen & Amanda arrived
Via AKAL
Pln VAN
DP, VH, & I taxi to apt.
~~Called~~ Eileen we arrived.
~~Left~~ Don confirm survey Monday
20~~Received~~ samples complete
this date.

Bgn

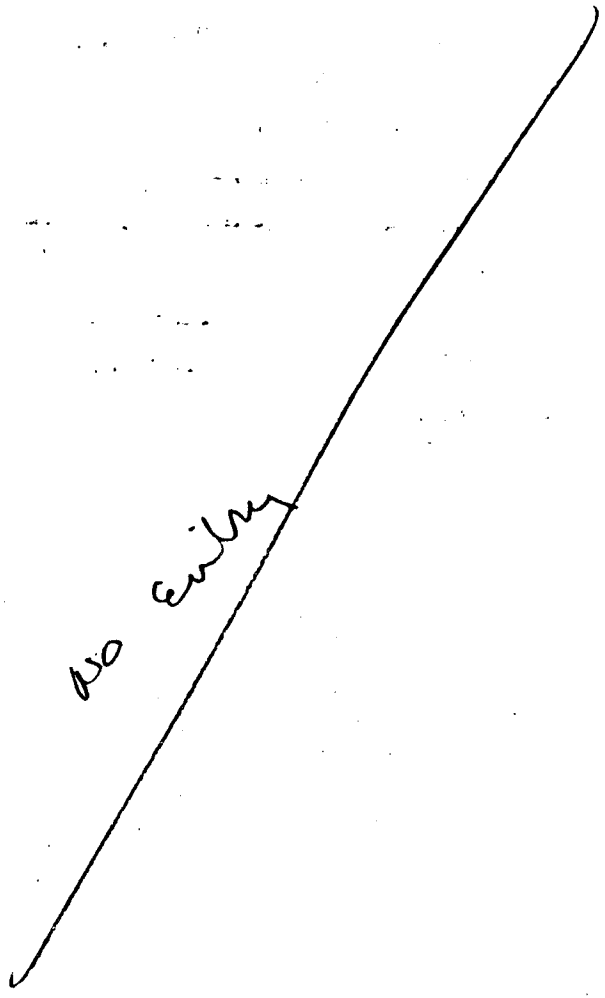


D4
Sat

9-12-98

815 arrive BA, load up
900 leave Nome
1025 arrive NSC, off. load
1110 Safety meeting
Amanda & I set up for GW sampling
Doug for SD/SW in DB
Victor to do inventory
Samples
MW 7-1
MW 9-1, 9-2, 9-3
MW 10-1 10-2
1800 start pack up to Nome
1900 BA arrives
2000 arrive Nome,
2040 arrive Apt
Review samples w/ Eileen

Bye



12

D5
Sun

9-13-98 NEC

810 @ BA
850 leave home
1000 arrive NEC
Safety meeting
Prepare Sampling
GW 11-1 27-1
11-2
16-2 Collect
16-3 Sulfate only
15-1 for Bkg "00"
13-1 WP" 14-1

1900 B.A. arrives, leave NEC
2050 arrive Nome, offload
Confirm COE have NAJ for NEC-Hon.
Don calls confirms is in
Nome will be at B A.
@ 800

D6
Mon

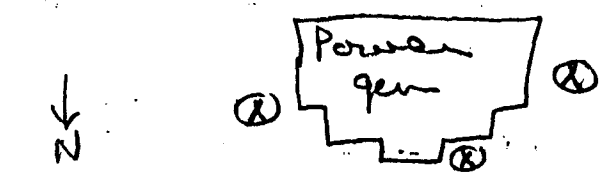
9-14-98 NEC

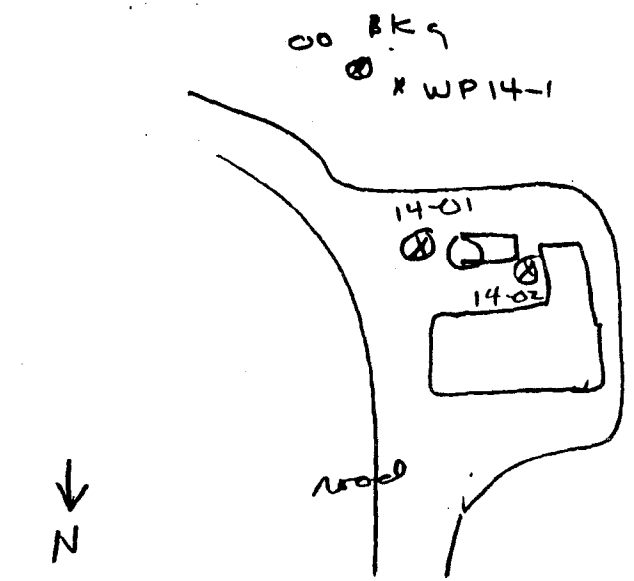
0800 at B A. Load equip
take king air - Doug stays Nome
0830 leave Nome / 2 surveyors
0930 arrive NEC
Weather heavy rain, cold
wind 20 knots
Eugene says will be
40 knots by pm.
prepare to sample SS.
Nay. arrives w/ 5 COE
Safety meeting - completed
Review needs w/ Don
for survey info.
Our radios won't work
with GPS running -

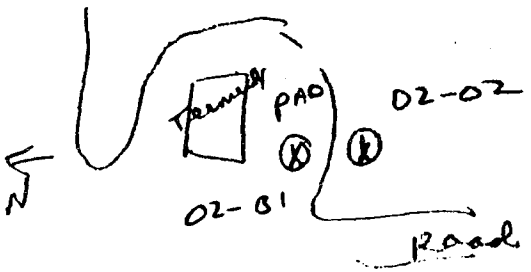
weather a major factor.
Some COE don't have
rain gear nor boots
Supply lined rubber
gloves, trash bags.
Take Resh to main complex
Take Eugene to house -
his ATV won't start

11

9-14-98







9-14-98 (cont)

D6 Monday

Dee is ATV Trained, reviews hows ours work
Helmets offered - all refused
Wind increasing.

at Site B		Completed
SS	13-1	@ .5'
	13-2	@ .5'
	13-3	at doors to @ .5'
Power Gen Bldg		
SS	00 -	Bkg near WP14-1
SS	14-1	.5
SS	14-2	.5

Terminal

SS 2-01	2'
SS 2-02	.5

Dee sign manifest for STB needs
Ng pilots want to leave because of severe weather
Call BA for a phone for us.

Bye

D6

9-14-98 NEC Mon

Cont

1600 COE phone leaves
prepare for severe
weather

Take down phone antennia

17.45 B.A. in

Visibility better

leave for Nome

18.45 arrive Nome

Pack out Equipment

Review samples

Doug & Eileen get out
15 coolers - Layout
all wet gear

2000 to Bongs for dinner

Bgm

D7

9-15-98 NEC Tues

0810 @ BA

1010 NAD to NEC arrive

1040 Safety meeting -
Vic & I will set-up
for waste removal

DQ & AD will complete
sampling:

MW 13-1

27-1 for additional
penetration

00- methane
only

at all remaining
wells.

1230 at Bldg 101 W.
Complete Safety Briefing

Doug & I will pack
waste.

Victor will be safety
person -

Amanda will not suit
up & will be runner
& safety

Bgm

9-15-98 (cont.) NEC

VH, DQ & Bgm suited up w/ resp - chlorine / HEPA filter.
DQ & Bgm packed STB - powder, wet from

5 - 5 gal rusted pails in 1 - 55 gal HDP drum. We shoveled with plastic scoop. STB which had spilled on floor from rusted pail
The powder had gotten wet & expanded = "Bloomy" the pails -
The STB had expanded to 150% of original size - 3 -
The waste container was completely full & weighed ≈ 400 lbs.
Moving was slow & dangerous. The drum was washed in the room Bgm

11 89 98 . 0520 1

the waste was removed. Heavy rain had flooded the room - 2-4" water was on the floor.

The drum was moved onto an ATV trailer & secured.

Gloves & respirators filters were changed to organic & HEPA.

The four five gallon pails of DB2 were stacked one on top of each other in the SW corner - only the top pail had any product in it. the three remaining pails were empty -
Each was placed into a 12 gal epoxy lined open top drum.

Bgm

9-15-98 (cont.) NEC

Six smaller cans-qt size were laying on the floor. three had "2" three had "3" on side. The "2"'s were placed in one drum and the "3"'s in a separate drum.

All six drums were secured in a 2nd ATV.

Equipment was decontaminated (wipe down & shovel) placed in 6 mil bag. Gloves and Boots washed. PPE removed & bagged.

The drums were taken to the Terminal area. The STB remained on the ATV trl. placed on a liner.

The 6 little drums were placed on plywood over a liner at the pad area.

Drums were labeled and marked as appropriate.

De-mob of equipment was started.

Survey on reports finished. Weather getting worse. Call for King Air - 1730 King Air arrives load some equipment. David (Bering Air) says remaining staff should get on Casad & NW 1900 arrive Nome - off load Bgm

1189098

9-16-98 NEC · 050101

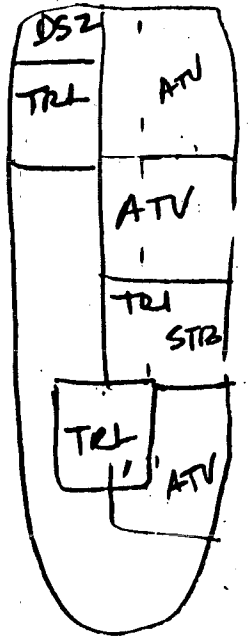
730 DQ takes cooler to AK AL & Calls Bering Air
Ck. out weather
awaiting gold shark manifest
DS2 NEC-01
900 Victoria mail ADEC notes
910 plu manifest NEC-01
1000 leave for NEC
1050 arrive NEC -
Visibility @ 110' - rough landing
Doug to collect seep Sample
Start demob NAT.
Eugene arrives to help.
Cargo arrives
Drive ATV w/ STB Trl. on plane
Load DS2 in front
David sign Transportation for Bering Air
Completed demob.

1230 Take off NEC
315 arrive Home

Wed.

9-16-98 1189098 050101
Cessna
load plan

Front CASSA Load



9-16-98 (cont) NEC
Took TRLr w/ STB & 6-drums
to NAC Directly.
Went w/ David & observed
Transporter #2 signoff
by Sterling Buffaloe for NAC.

Shipment should go out WED
to Anchorage.
Carol Dale let her know.

Complete demob
separated some stuff to
Gambell.

To apt. cleaned out
refrig / cupboards
Coal stamped — VAN will
be kept at airport - keys
over weekend per V. V. list.

Filled w/ gas & 31.50 N/e.
Automated system failed
to produce.
1845 Left Nome
2140 arrive Anchorage.
Bm

NEC

DURA-Rite WATERPROOF

HORIZONTAL LINE

NOTEBOOK NO. 691

St. Lawrence Island /
North East Cape 1998 Summer
Property of Montgomery Watson,
Anchorage, Alaska.
Amanda Dreyer/Environmental
Specialist

September 12, 1998
Amanda Dreyer; Bonnie
Doug
Victor

Arrived at airport "Bering Air" at 8:00am
Took off from airport at 8:30am
Arrived at campsite North East Cape at 9:45am
We unloaded the plane (not too difficult) and went into the camp. I recieved a safety and instrumentation use breifing by Bonnie.
We then took off to engage in some awsome monitoring well sampling.
We began sampling wells at 12:00am
We came back to unload the ATV from the beach plaine that landed around 3pm
Then went back into the field to collect more samples.
The samples collected were:
Site 7
Site 13
Site 27
We finished sample collection for today at 6:00pm
We then loaded up the plane and took off at around 7pm. Now we are flying! We arrived back at the airport at 7:46pm
Amanda Dreyer

September 13th, 1998

Arrived at Airport at 8:15am, took off in plane at 8:30am. Arrived at North East Cape at 9:30am. We had our safety breifing and went out into the field. Bonnie and I collected samples from Monitoring Wells 11-2, 11-3, 19-1, 19-2, 16-1, 16-3, 15-1, 27-1, 13-1.
We ~~kickout~~ AD kicked out a bunch! The plane arrived early. We packed it up and ~~was~~ AD took off at 7:00pm.
We arrived at Nome at 8:00pm.
Amanda Dreyer
15th AD
Sept. 14th on page 5

September ~~17th~~, 1998
Arrived at Airport at 8:15am, took off in plane at 8:30am. Arrived at NEC at 9:46am. Doug and I started sampling. We collected soil samples from Site 6 and took water surface samples from the unnamed Receptor Creek - upstream and downstream. I collected samples from site 13 and 27-2 or 1 monitoring wells.
AD
con't.

I also assisted in Decontamination of tools used to clean up the hazardous materials in one of the buildings. We then took the contained wastes to the airport staging area. We left NEC at 6pm and arrived in Nome at 7pm. I then assisted Doug in labeling for 1 hour later tonight.

Amanda Dreyer

September 16th, 1998
We left the airport at 9:30am and arrived at NEC at ~~9~~ 10:30am. We started packing up ~~the van~~ plane and the bigger plane which flew in. We left at 12:30pm. We arrived at 1:30pm and unpacked and repacked until 5:30pm. We then left for Alaska Airlines for our 6:45pm flight out of Nome to Anchorage. We arrived in Anchorage at 9:45pm.

Amanda Dreyer

September 14th, 1998
We left the airport at 8:30am and started soil sampling. We left at ~~7~~ 8pm and returned to Nome at 8pm.

Amanda Dreyer

Army Corps of Engineers

Northeast Cape, Alaska

1998 Field Forms

MONTGOMERY WATSON

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)
Northeast Cape, St. Lawrence Island

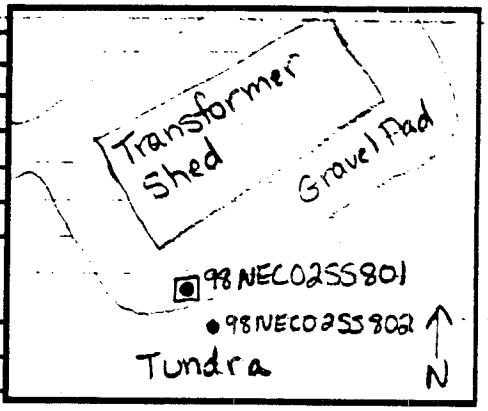
Site No. 2

Description: 98 NEC 02 SS 801

Sample ID:
Date: 9/14/1998
Time: 1600
Temperature: 35°F
Weather: rain 60 mph wind
Physical Description:(color, size, turbidity, stained soil, etc.)

Field Team: ~~[redacted]~~ BGM /AD
Sampler: BGM
Custody: Maintained
Photo: Roll# _____ Frame# _____

Swing Tie Data



Shipping Information

Chain-of-Custody Number: 98NEC012
Custody Seal Number:
Date Shipped: 9/15/98
Shipped Via: Goldstreak
Laboratory Notified: ____Initial ____Phone __X__Fax ____Date/Time

COMMENTS/PROBLEMS: grab taken at a depth of 2ft and one inch.

Complete Back Side

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)
Northeast Cape, St. Lawrence Island

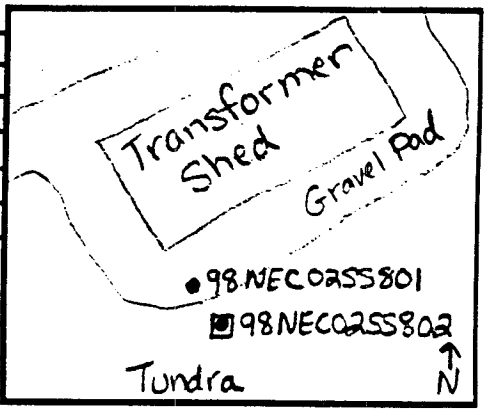
Site No. 2

Description: 98 NEC 02 SS 802

Sample ID:
Date: 9/14/1998
Time: 1615
Temperature: 35°F
Weather: rain 60 mph wind
Physical Description:(color, size, turbidity, stained soil, etc.)

Field Team: [redacted] BGM/AD
Sampler: AD
Custody: Maintained
Photo: Roll# _____ Frame# _____

Swing Tie Data



Shipping Information

Chain-of-Custody Number: 98NEC012
Custody Seal Number: _____
Date Shipped: 9/15/98
Shipped Via: Goldstreak
Laboratory Notified: ___Initial ___Phone _X_Fax ___Date/Time

COMMENTS/PROBLEMS:

Sample taken at a muddy cut - 3-4

Complete Back Side

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NEC06SS801 | **Date** 9 / 14 / 98 (month / day / year) | **Time** 1500

Sample Type

- Surface Soil [X] — Depth (ft) 6"
- Sediment [ ]

Sample ID

- Temperature (°C) _____
- Conductivity (umhos/cm) _____
- pH _____
- TDS (mg/l) _____
- BOD (mg/l) _____

- Wipe [ ]
- Lead Paint Chip [ ]
- TCLP Core Samples [ ]
- Asbestos [ ]

Field Information

- Field Team DQ + AD
- Sampler AD
- PID (ppm) 0
- ELISA screening (<less than, >greater than, spectrophotometer) — DRO 100 1000 | GRO 50 200 | PCB 5 50

Weather

Snow Rain Sleet Hail
Foggy Overcast Partly Cloudy Clear

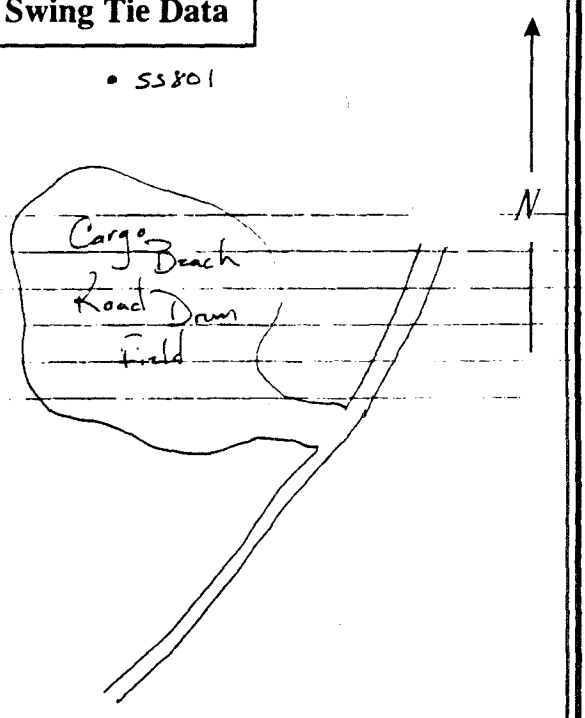
Ambient Temperature (°C)

Photo Yes No
Roll# Frame #

Shipping Information

- Chain of Custody Number 98NEC015
- Shipped Via Goldstreak UPS FedEx DHL
- Date Shipped 9/
- Airbill Number

Swing Tie Data



Comments Background Sample - No visible Contamination.

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NEC06SS802 | **Date** 9/14/98 (month day year) | **Time** 1570

Sample Type

- Surface Soil [X] — Depth (ft) 6"
- Sediment [ ]
- Sample ID [ ]
- Temperature (°C) _____
- Conductivity (umhos/cm) _____
- pH _____
- TDS (mg/l) _____
- BOD (mg/l) _____
- Wipe [ ]
- Lead Paint Chip [ ]
- TCLP Core Samples [ ]
- Asbestos [ ]

Field Information

- Field Team DCF + AD
- Sampler DCF
- PID (ppm) NA
- ELISA screening (<less than, >greater than, spectrophotometer)

	DRO		GRO		PCB
	100	1000	50	200	5 50

Weather

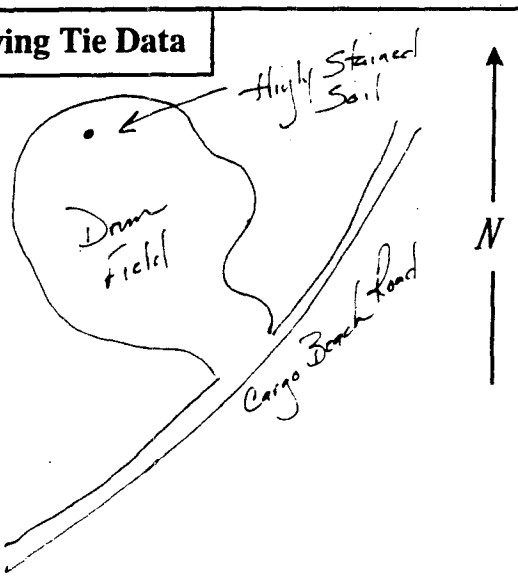
Snow Rain Sleet Hail
Foggy (Overcast) Partly Cloudy Clear

- Ambient Temperature (°C) 42
- Photo (Yes) No
  Roll# NA Frame # N4

Shipping Information

- Chain of Custody Number 98NEC015
- Shipped Via (Goldstreak) UPS FedEx DHL
- Date Shipped 9/15/98
- Airbill Number

Swing Tie Data



Comments

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NEC07SS802 | **Date** 9 / 14 / 98 (month / day / year) | **Time** 1520

Sample Type

- Surface Soil [X] — Depth (ft) 0 11
- Sediment [ ]
- Sample ID [ ]
- Temperature (°C) _____
- Conductivity (umhos/cm) _____
- pH _____
- TDS (mg/l) _____
- BOD (mg/l) _____
- Wipe [ ]
- Lead Paint Chip [ ]
- TCLP Core Samples [ ]
- Asbestos [ ]

Field Information

- Field Team DQ & AD
- Sampler AD
- PID (ppm) NA
- ELISA screening (<less than, >greater than, spectrophotometer): DRO 100 1000 _____ _____ | GRO 50 200 _____ _____ | PCB 5 50 _____ _____

Weather

Snow Rain Sleet Hail Foggy (Overcast) Partly Cloudy Clear

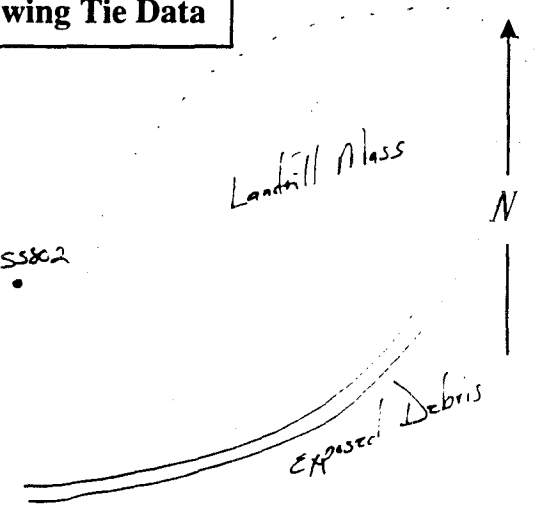
- Ambient Temperature (°C) 42
- Photo (Yes) No — Roll# NA Frame # NA

Shipping Information

- Chain of Custody Number 98NEC015
- Shipped Via (Goldstreak) UPS FedEx DHL
- Date Shipped 9/15/98
- Airbill Number

Comments

Swing Tie Data



MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NEC095580 | **Date** 9/14/98 (month day year) | **Time** 1540

Sample Type

- Surface Soil [X] — Depth (ft) 6"
- Sediment [ ]
- Sample ID [ ]
- Temperature (°C) _____
- Conductivity (umhos/cm) _____
- pH _____
- TDS (mg/l) _____
- BOD (mg/l) _____
- Wipe [ ]
- Lead Paint Chip [ ]
- TCLP Core Samples [ ]
- Asbestos [ ]

Field Information

- Field Team LC + NA
- Sampler LC
- PID (ppm) NA
- ELISA screening (<less than, >greater than, spectrophotometer)

	DRO		GRO		PCB
	100	1000	50	200	5 50

Weather

Snow Rain Sleet Hail Foggy (Overcast) Partly Cloudy Clear

Ambient Temperature (°C) 42

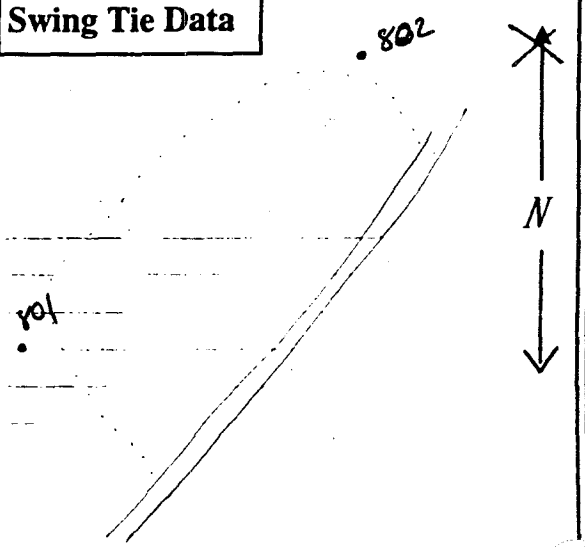
Photo (Yes) No

Roll# NA Frame # NA

Shipping Information

- Chain of Custody Number 98NEC015
- Shipped Via (Goldstreak) UPS FedEx DHL
- Date Shipped 7/15/98
- Airbill Number

Swing Tie Data



Comments

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NEC0955802 | **Date** 9/14/98 (month day year) | **Time** 1530

Sample Type

- **Surface Soil** [X] — Depth (ft) 6"
- **Sediment** [ ]
- **Sample ID** [ ]
  - Temperature (°C) _____
  - Conductivity (umhos/cm) _____
  - pH _____
  - TDS (mg/l) _____
  - BOD (mg/l) _____
- **Wipe** [ ]
- **Lead Paint Chip** [ ]
- **TCLP Core Samples** [ ]
- **Asbestos** [ ]

Field Information

- **Field Team** DQ + AL
- **Sampler** DG
- **PID (ppm)** NA
- **ELISA** screening (<less than, >greater than, spectrophotometer)

	DRO		GRO		PCB
	100	1000	50	200	5 50

Weather

Snow Rain Sleet Hail
Foggy (Overcast) Partly Cloudy Clear

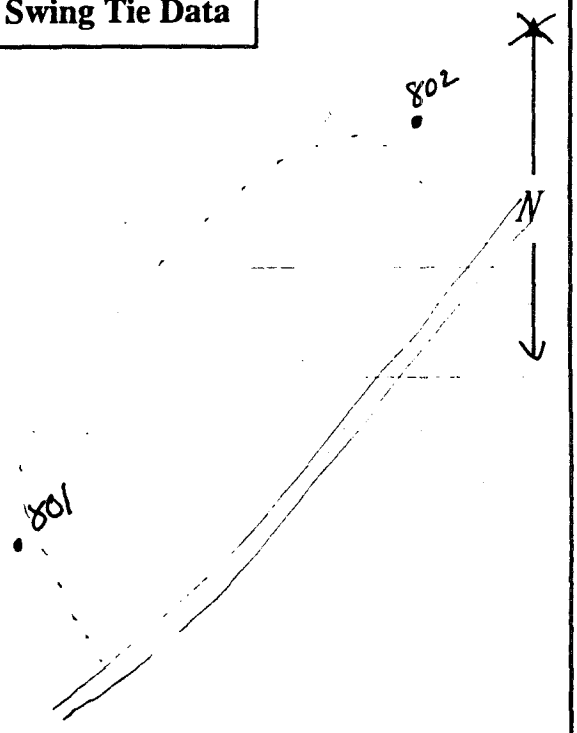
Ambient Temperature (°C) 42

Photo (Yes) No
Roll# NA Frame # NA

Shipping Information

- **Chain of Custody Number** 98NEC015
- **Shipped Via** (Goldstreak) UPS FedEx DHL
- **Date Shipped** 9/15/98
- **Airbill Number**

Swing Tie Data



Comments

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NEC10SS801 | **Date** 9/14/98 (month / day / year) | **Time** 1550

Sample Type

- **Surface Soil** [X] — Depth (ft) 6"
- **Sediment** [ ]
- **Sample ID** [ ]
- Temperature (°C) _____
- Conductivity (umhos/cm) _____
- pH _____
- TDS (mg/l) _____
- BOD (mg/l) _____
- **Wipe** [ ]
- **Lead Paint Chip** [ ]
- **TCLP Core Samples** [ ]
- **Asbestos** [ ]

Field Information

- **Field Team** DQ & AD
- **Sampler** DC
- **PID (ppm)** NA
- **ELISA** screening (<less than, >greater than, spectrophotometer)

	DRO 100 1000	GRO 50 200	PCB 5 50

Weather

Snow Rain Sleet Hail Foggy (Overcast) Partly Cloudy Clear

Ambient Temperature (°C) 42

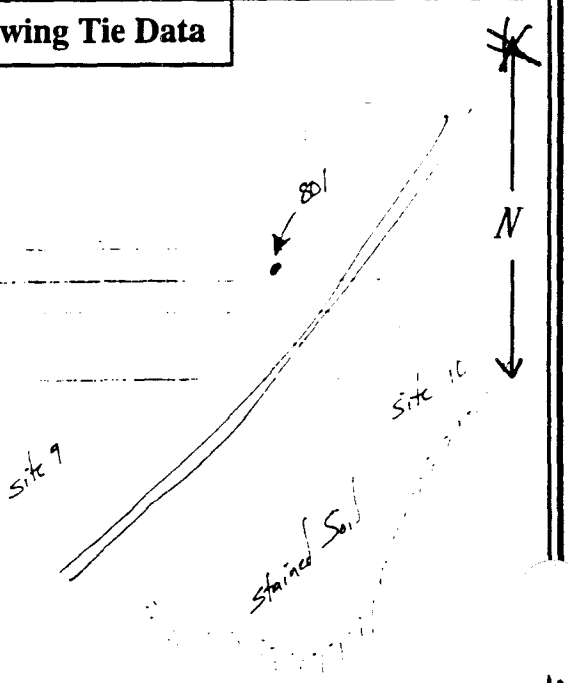
Photo (Yes) No

Roll# NA Frame # NA

Shipping Information

- **Chain of Custody Number** 98NECO15
- **Shipped Via** (Goldstreak) UPS FedEx DHL
- **Date Shipped** 9/15/98
- **Airbill Number**

Swing Tie Data



Comments

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)
Northeast Cape, St. Lawrence Island

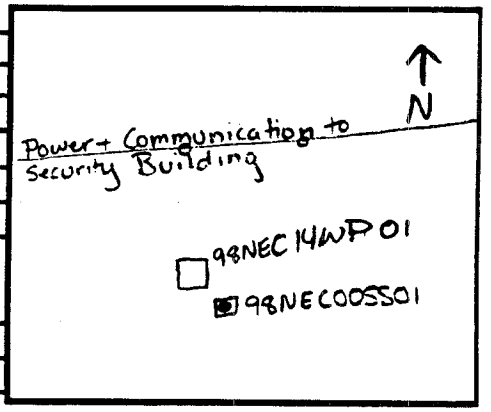
Site No. 14

Description: 98NEC00SS801

Sample ID:
Date: 9-14-1998
Time: 1200
Temperature: 35°
Weather: Windy, Rainy
Physical Description:(color, size, turbidity, stained soil, etc.)
No stain

Field Team: [redacted]
Sampler: BGM/AD
Custody: 98NEC012
Photo: Roll# _____ Frame# _____

Swing Tie Data



Shipping Information

Chain-of-Custody Number: 98NEC012
Custody Seal Number:
Date Shipped: 9-15-98
Shipped Via: Hand delivered
Laboratory Notified: ___Initial ___Phone ___Fax ___Date/Time

COMMENTS/PROBLEMS: at depth of 6 inches

Complete Back Side

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)
Northeast Cape, St. Lawrence Island

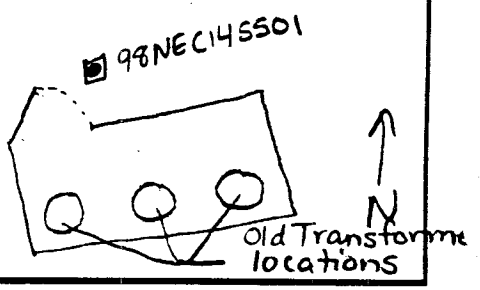
Site No. 14

Description: 98NEC14SS801

Sample ID:
Date: 9/14/98
Time: 1330
Temperature: 35°
Weather: Windy, Rainy
Physical Description:(color, size, turbidity, stained soil, etc.)

Field Team: [redacted]
Sampler: BGM/AD
Custody: 98NEC012
Photo: Roll# _____ Frame# _____

Swing Tie Data



Shipping Information

Chain-of-Custody Number: 98NEC012
Custody Seal Number: _____
Date Shipped: 9-15-98
Shipped Via: Hand delivered
Laboratory Notified: ____Initial ____Phone ____Fax ____Date/Time

COMMENTS/PROBLEMS: depth 6 inches

Complete Back Side

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)
Northeast Cape, St. Lawrence Island

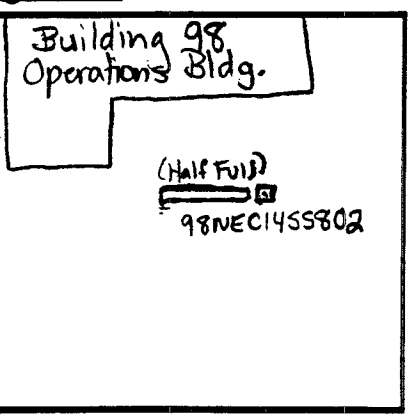
Site No. 14

Description: 98NEC14SS802

Sample ID:
Date: 9-14-1998
Time: 1345
Temperature: 35°F
Weather: Rainy, Windy
Physical Description:(color, size, turbidity, stained soil, etc.)

Field Team: [redacted]
Sampler: BGM/AD
Custody: 98NEC012
Photo: Roll# _____ Frame# _____

Swing Tie Data



Shipping Information

Chain-of-Custody Number: 98NEC012
Custody Seal Number: _____
Date Shipped: 9-15-1998
Shipped Via: Hand delivered
Laboratory Notified: ____Initial ____Phone ____Fax ____Date/Time

COMMENTS/PROBLEMS: depth @ 6 inches

Complete Back Side

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)
Northeast Cape, St. Lawrence Island

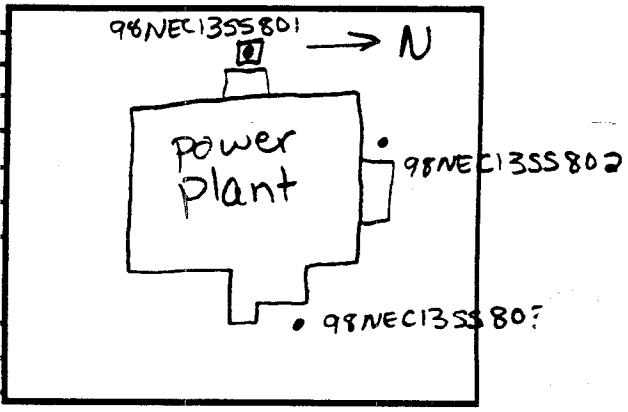
Site No. 13

Description: 98NEC13SS801

Sample ID:
Date: 9-14-1998
Time: 1200
Temperature: 35°F
Weather: Rainy, Windy
Physical Description:(color, size, turbidity, stained soil, etc.)

Field Team: [redacted]
Sampler: BGM/AD
Custody: 98NEC012
Photo: Roll# _____ Frame# _____

Swing Tie Data



Shipping Information

Chain-of-Custody Number: 98NEC012
Custody Seal Number:
Date Shipped: 9-15-98
Shipped Via: Hand delivered
Laboratory Notified: ____Initial ____Phone ____Fax ____Date/Time

COMMENTS/PROBLEMS: depth @ 6 inches

Complete Back Side

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)
Northeast Cape, St. Lawrence Island

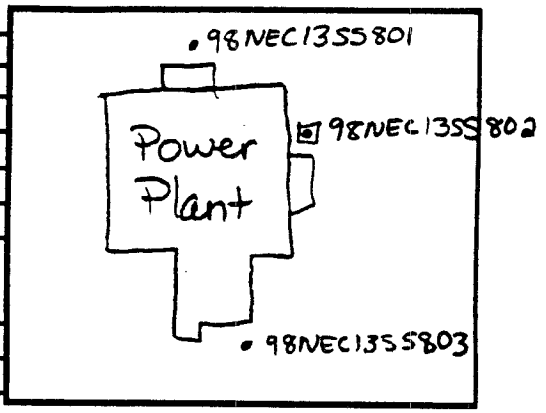
Site No. 13

Description: 98NEC B SS 802

Sample ID:
Date: 9-14-98
Time: 1230
Temperature: 35°F
Weather: Rain, Windy
Physical Description:(color, size, turbidity, stained soil, etc.)

Field Team: [redacted]
Sampler: BGM/AD
Custody: 98NEC012
Photo: Roll# _____ Frame# _____

Swing Tie Data



Shipping Information

Chain-of-Custody Number: 98NEC012
Custody Seal Number: _____
Date Shipped: 9-15-98
Shipped Via: Hand delivered
Laboratory Notified: ____Initial ____Phone ____Fax ____Date/Time

COMMENTS/PROBLEMS: depth @ 6 inches

Complete Back Side

MONTGOMERY WATSON

FIELD NOTE FORM

USCOE (ALASKA)
Northeast Cape, St. Lawrence Island

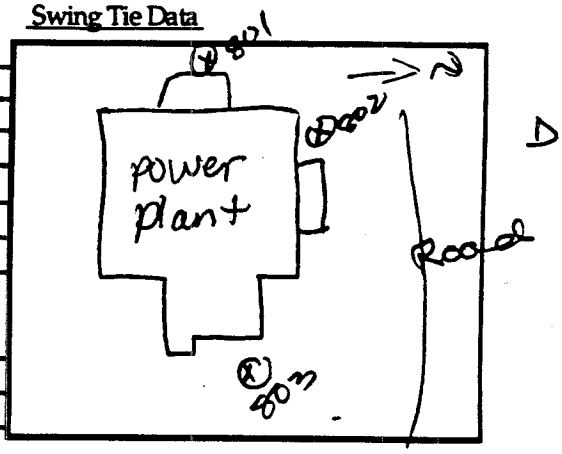
Site No. 13

Description: 19 WSC 13 SS 803

Sample ID:
Date: 9-14-98
Time:
Temperature: 35°F 12:15
Weather: rain 10 mph
Physical Description:(color, size, turbidity, stained soil, etc.)
stained

Field Team: [redacted] Bergmann
Sampler: Custer
Custody:
Photo: Roll# _____ Frame# _____

Swing Tie Data



Shipping Information

Chain-of-Custody Number:
Custody Seal Number:
Date Shipped:
Shipped Via:
Laboratory Notified: ____Initial ____Phone ____Fax ____Date/Time

COMMENTS/PROBLEMS:

Complete Back Side

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NECDB5S801 | **Date** 9 / 12 / 98 (month / day / year) | **Time** 1502

Sample Type

- **Surface Soil** [X] — Depth (ft) 6"
- **Sediment** [ ]
- **Sample ID** [ ]
  - Temperature (°C) _____
  - Conductivity (umhos/cm) _____
  - pH _____
  - TDS (mg/l) _____
  - BOD (mg/l) _____
- **Wipe** [ ]
- **Lead Paint Chip** [ ]
- **TCLP Core Samples** [ ]
- **Asbestos** [ ]

Field Information

- **Field Team** DCf
- **Sampler** DCf
- **PID (ppm)** 0
- **ELISA** screening (<less than, >greater than, spectrophotometer)

	DRO		GRO		PCB
	100	1000	50	200	5 50

Weather

Snow Rain Sleet Hail Foggy (Overcast) Partly Cloudy Clear

Ambient Temperature (°C) 42

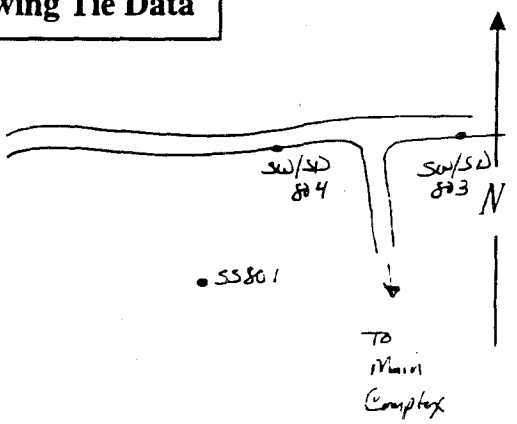
Photo (Yes) No

Roll# NA Frame # NA

Shipping Information

- **Chain of Custody Number** 98NECO05
- **Shipped Via** (Goldstreak) UPS FedEx DHL
- **Date Shipped** 9/12/98
- **Airbill Number**

Swing Tie Data



Comments Background Sample - No Staining / Odor

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NECDBSS802 | **Date** 9 / 14 / 98 (month / day / year) | **Time** 1820

Sample Type

- Surface Soil [X] — Depth (ft) 6"
- Sediment [ ]
- Sample ID [ ]
- Temperature (°C) _____
- Conductivity (umhos/cm) _____
- pH _____
- TDS (mg/l) _____
- BOD (mg/l) _____
- Wipe [ ]
- Lead Paint Chip [ ]
- TCLP Core Samples [ ]
- Asbestos [ ]

Field Information

- Field Team DCF
- Sampler DCF
- PID (ppm) 0
- ELISA screening (<less than, >greater than, spectrophotometer)

	DRO		GRO		PCB
	100	1000	50	200	5 50

Weather

Snow Rain Sleet Hail Foggy (Overcast) Partly Cloudy Clear

Ambient Temperature (°C) 42

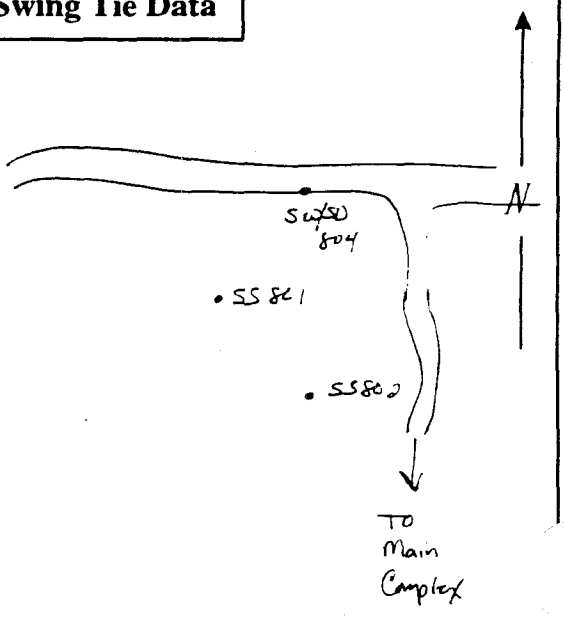
Photo (Yes) No

Roll# NA Frame # 14

Shipping Information

- Chain of Custody Number 98NEC005
- Shipped Via (Goldstreak) UPS FedEx DHL
- Date Shipped 9/14/98
- Airbill Number

Swing Tie Data



Comments Background Soil Sample - No Staining/Odor

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NECDBSS803 | **Date** 9 / 12 / 98 (month / day / year) | **Time** 1740

Sample Type

- Surface Soil [X] — Depth (ft) 6"
- Sediment [ ]
- Sample ID [ ]
- Temperature (°C) _____
- Conductivity (umhos/cm) _____
- pH _____
- TDS (mg/l) _____
- BOD (mg/l) _____
- Wipe [ ]
- Lead Paint Chip [ ]
- TCLP Core Samples [ ]
- Asbestos [ ]

Field Information

- Field Team DG
- Sampler DG
- PID (ppm) 0
- ELISA screening (<less than, >greater than, spectrophotometer)

	DRO		GRO		PCB
	100	1000	50	200	5 50

Weather

Snow Rain Sleet Hail Foggy (Overcast) Partly Cloudy Clear

Ambient Temperature (°C) 42

Photo (Yes) No

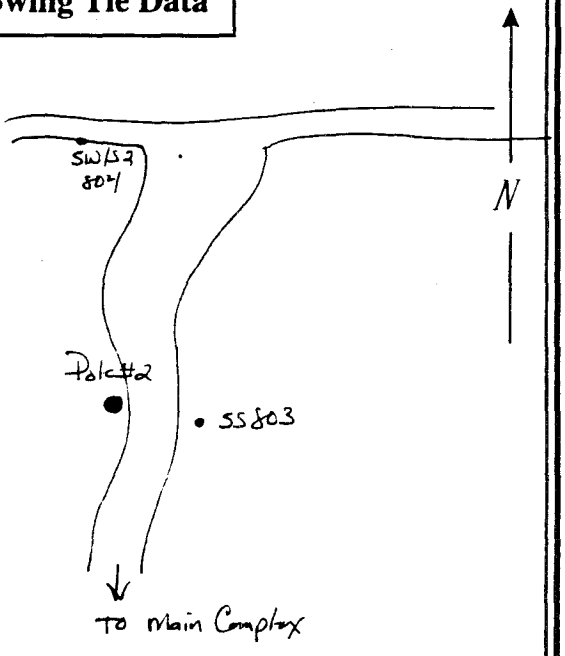
Roll# NA Frame # N/A

Shipping Information

- Chain of Custody Number 98NEC005
- Shipped Via (Goldstreak) UPS FedEx DHL
- Date Shipped 9/14/98
- Airbill Number

Comments TCC Sample - Highly Organic

Swing Tie Data



MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID	Date	Time
98NECDBSS804	9 / 12 / 98 (month / day / year)	1720

Sample Type

Surface Soil [X]	Sample ID [ ]	Wipe [ ]
Depth (ft) 6"	Temperature (°C)	Lead Paint Chip [ ]
Sediment [ ]	Conductivity (umhos/cm)	TCLP Core Samples [ ]
	pH	
	TDS (mg/l)	Asbestos [ ]
	BOD (mg/l)	

Field Information

Field Team DQ

Sampler DQ

PID (ppm) 0

ELISA screening (<less than, >greater than, spectrophotometer)

	DRO 100 1000	GRO 50 200	PCB 5 50

Weather

Snow Rain Sleet Hail Foggy (Overcast) Partly Cloudy Clear

Ambient Temperature (°C) 42

Photo (Yes) No

Roll# NA Frame # NA

Shipping Information

Chain of Custody Number 98NEC005

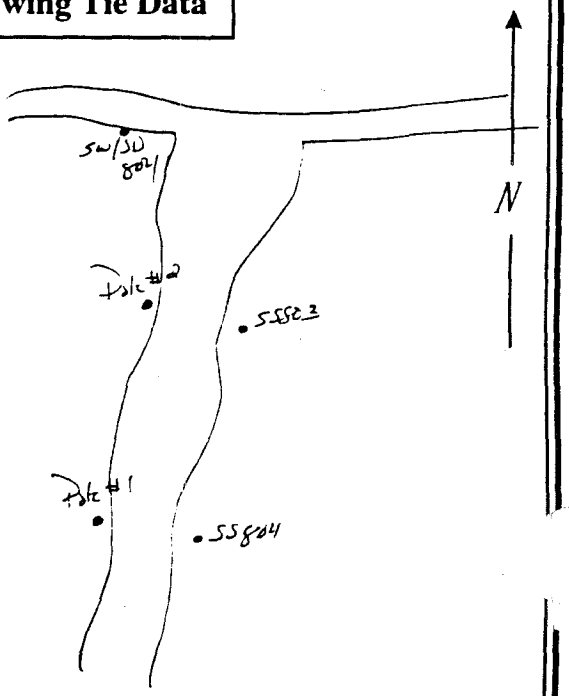
Shipped Via (Goldstreak) UPS FedEx DHL

Date Shipped 9/14/98

Airbill Number

Comments TOC - Sample Highly Organic

Swing Tie Data



MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NECDBSS805 | **Date** 9/12/98 (month day year) | **Time** 1700

Sample Type

- Surface Soil [X] — Depth (ft) 6"
- Sediment [ ]
- Sample ID [ ]
- Temperature (°C) ____
- Conductivity (umhos/cm) ____
- pH ____
- TDS (mg/l) ____
- BOD (mg/l) ____
- Wipe [ ]
- Lead Paint Chip [ ]
- TCLP Core Samples [ ]
- Asbestos [ ]

Field Information

- Field Team DCL
- Sampler DCL
- PID (ppm) 0
- ELISA screening (<less than, >greater than, spectrophotometer) — DRO 100 1000 ____ ____ | GRO 50 200 ____ ____ | PCB 5 50 ____ ____

Weather

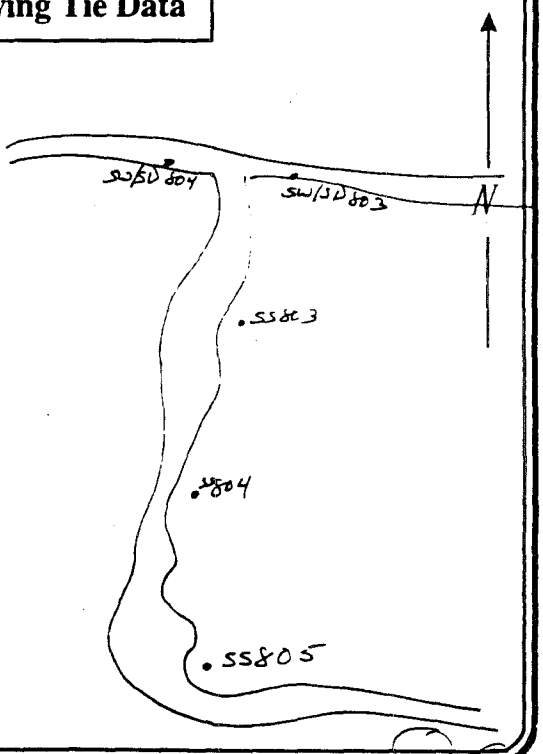
Snow Rain Sleet Hail Foggy (Overcast) Partly Cloudy Clear

- Ambient Temperature (°C) 42
- Photo (Yes) No — Roll# NA Frame # NA

Shipping Information

- Chain of Custody Number 98NEC005
- Shipped Via (Goldstreak) UPS FedEx DHL
- Date Shipped 9/14/98
- Airbill Number

Swing Tie Data



Comments TOC - Sample Highly Organic

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NECD3SS806 | **Date** 9/12/98 (month / day / year) | **Time** 1640

Sample Type

- Surface Soil: X — Depth (ft): 6"
- Sediment:
- Sample ID
- Temperature (°C):
- Conductivity (umhos/cm):
- pH:
- TDS (mg/l):
- BOD (mg/l):
- Wipe:
- Lead Paint Chip:
- TCLP Core Samples:
- Asbestos:

Field Information

- Field Team: DCf
- Sampler: DCf
- PID (ppm): 0
- ELISA screening (<less than, >greater than, spectrophotometer): DRO 100 1000 | GRO 50 200 | PCB 5 50

Weather

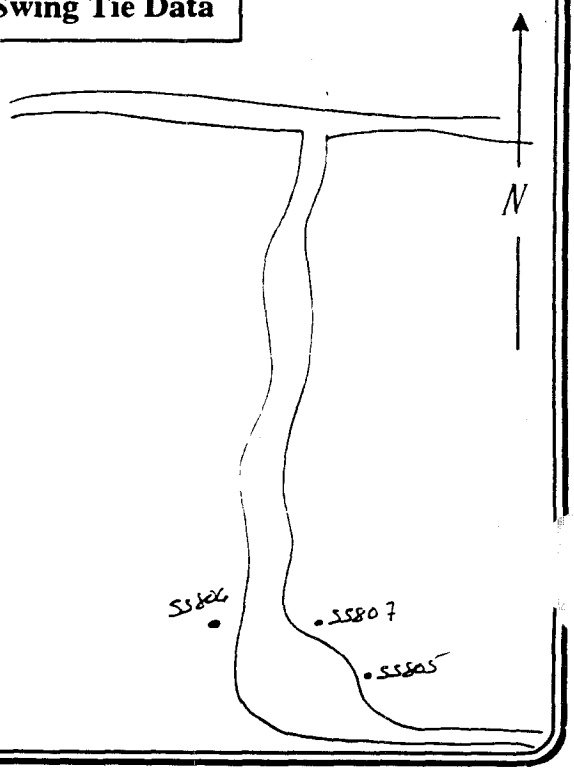
Snow Rain Sleet Hail
Foggy (Overcast) Partly Cloudy Clear

- Ambient Temperature (°C): 42
- Photo: (Yes) No — Roll# NA Frame # NA

Shipping Information

- Chain of Custody Number: 98NEC005
- Shipped Via: (Goldstreak) UPS FedEx DHL
- Date Shipped: 9/14/98
- Airbill Number:

Swing Tie Data



Comments Boundary Sample - Highly Organic.
No Contamination Noted

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NECDBSS807 | **Date** 9/12/98 (month / day / year) | **Time** 1620

Sample Type

- **Surface Soil** [X] — Depth (ft) 6"
- **Sediment** [ ]
- **Sample ID** [ ]
- Temperature (°C) _____
- Conductivity (umhos/cm) _____
- pH _____
- TDS (mg/l) _____
- BOD (mg/l) _____
- **Wipe** [ ]
- **Lead Paint Chip** [ ]
- **TCLP Core Samples** [ ]
- **Asbestos** [ ]

Field Information

- **Field Team** DCJ
- **Sampler** DCJ
- **PID (ppm)** 0
- **ELISA** screening (<less than, >greater than, spectrophotometer)

	DRO		GRO		PCB
	100	1000	50	200	5 50

Weather

Snow Rain Sleet Hail Foggy (Overcast) Partly Cloudy Clear

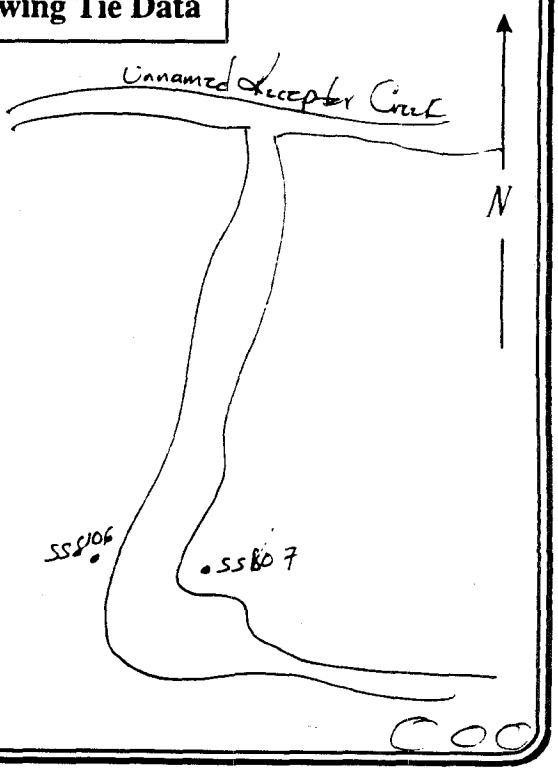
- **Ambient Temperature** (°C) 42
- **Photo** (Yes) No — Roll# NA Frame # NA

Shipping Information

- **Chain of Custody Number** 98NECC005
- **Shipped Via** (Goldstreak) UPS FedEx DHL
- **Date Shipped** 9/14/98
- **Airbill Number**

Comments Boundary Sample - Highly Organic. No Contamination Noted

Swing Tie Data



MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NECDB SS 808 | **Date** 9 / 12 / 98 (month / day / year) | **Time** 1840

Sample Type

- **Surface Soil** [X] — Depth (ft) 6"
- **Sediment** [ ]
- **Sample ID** [ ]
  - Temperature (°C) _____
  - Conductivity (umhos/cm) _____
  - pH _____
  - TDS (mg/l) _____
  - BOD (mg/l) _____
- **Wipe** [ ]
- **Lead Paint Chip** [ ]
- **TCLP Core Samples** [ ]
- **Asbestos** [ ]

Field Information

- **Field Team** DCD
- **Sampler** DCD
- **PID (ppm)** 0
- **ELISA** screening (<less than, >greater than, spectrophotometer)

	DRO		GRO		PCB
	100	1000	50	200	5 50

Weather

Snow Rain Sleet Hail Foggy (Overcast) Partly Cloudy Clear

Ambient Temperature (°C) 42

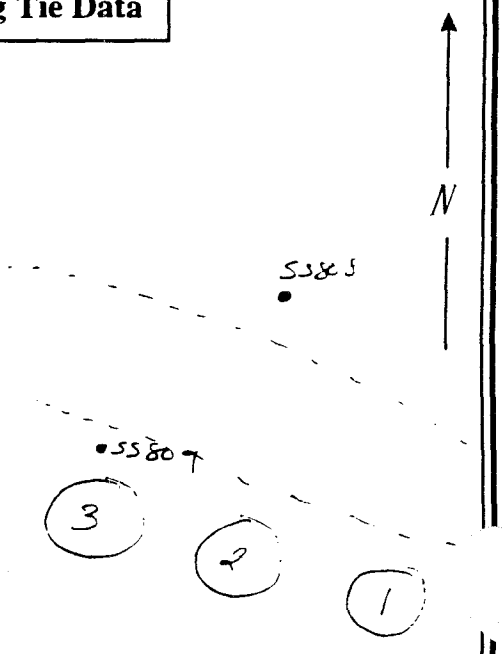
Photo (Yes) No

Roll# NA Frame # NA

Shipping Information

- **Chain of Custody Number** 98NECO05
- **Shipped Via** (Goldstreak) UPS FedEx DHL
- **Date Shipped** 9/14/98
- **Airbill Number**

Swing Tie Data



Comments Boundary Sample - No Visible Contamination

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NECDB SS 809 | **Date** 9 / 12 / 98 (month / day / year) | **Time** 1600

Sample Type

- Surface Soil [X] — Depth (ft) 6"
- Sediment [ ]
- Sample ID [ ]
- Temperature (°C) _____
- Conductivity (umhos/cm) _____
- pH _____
- TDS (mg/l) _____
- BOD (mg/l) _____
- Wipe [ ]
- Lead Paint Chip [ ]
- TCLP Core Samples [ ]
- Asbestos [ ]

Field Information

- Field Team DQ
- Sampler DQ
- PID (ppm) 0
- ELISA screening (<less than, >greater than, spectrophotometer): DRO 100 1000 _____ | GRO 50 200 _____ | PCB 5 50 _____

Weather

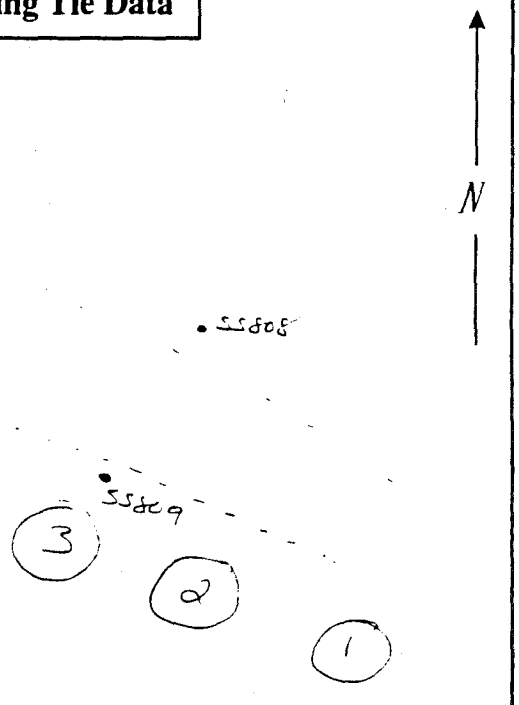
Snow Rain Sleet Hail Foggy (Overcast) Partly Cloudy Clear

- Ambient Temperature (°C) 42
- Photo (Yes) No — Roll# NA Frame # NA

Shipping Information

- Chain of Custody Number 98NEC005
- Shipped Via (Goldstreak) UPS FedEx DHL
- Date Shipped 9/14/98
- Airbill Number

Swing Tie Data



Comments Boundary Sample - No Contamination Noted

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NECBKSW801 / 98NECBKSD801 | **Date** 9/15/98 (month day year) | **Time** 1036 / 1045

Sample Type

- Surface Soil — Depth (ft)
- Sediment X — Surface Water
- Sample ID
- Temperature (°C)
- Conductivity (umhos/cm)
- pH
- TDS (mg/l)
- BOD (mg/l)
- Wipe
- Lead Paint Chip
- TCLP Core Samples
- Asbestos

Field Information

- Field Team: DP & AD
- Sampler: DP
- PID (ppm): 0
- ELISA screening (<less than, >greater than, spectrophotometer): DRO 100 1000 | GRO 50 200 | PCB 5 50

Weather

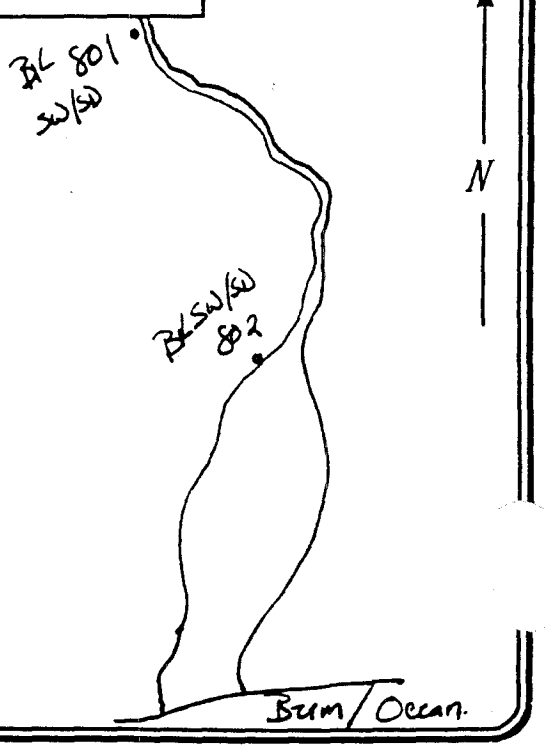
Snow Rain Sleet Hail Foggy (Overcast) Partly Cloudy Clear

- Ambient Temperature (°C): 42
- Photo: (Yes) No — Roll# NM Frame # NM

Shipping Information

- Chain of Custody Number: 98NEC013
- Shipped Via: (Goldstreak) UPS FedEx DHL
- Date Shipped: 9/16/98
- Airbill Number:

Swing Tie Data



Comments

Background Creek Surface Water/Sediment Sample

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NECBKSW802 / 98NECBKSD802 | **Date** 9 / 15 / 98 (month / day / year) | **Time** 1080 / 1015

Sample Type

- Surface Soil — Depth (ft)
- Sediment X — Surface Water
- Sample ID
- Temperature (°C) ____
- Conductivity (umhos/cm) ____
- pH ____
- TDS (mg/l) ____
- BOD (mg/l) ____
- Wipe
- Lead Paint Chip
- TCLP Core Samples
- Asbestos

Field Information

- Field Team DQ & AD
- Sampler DQ
- PID (ppm) 0
- ELISA screening (<less than, >greater than, spectrophotometer)

	DRO 100 1000	GRO 50 200	PCB 5 50

Weather

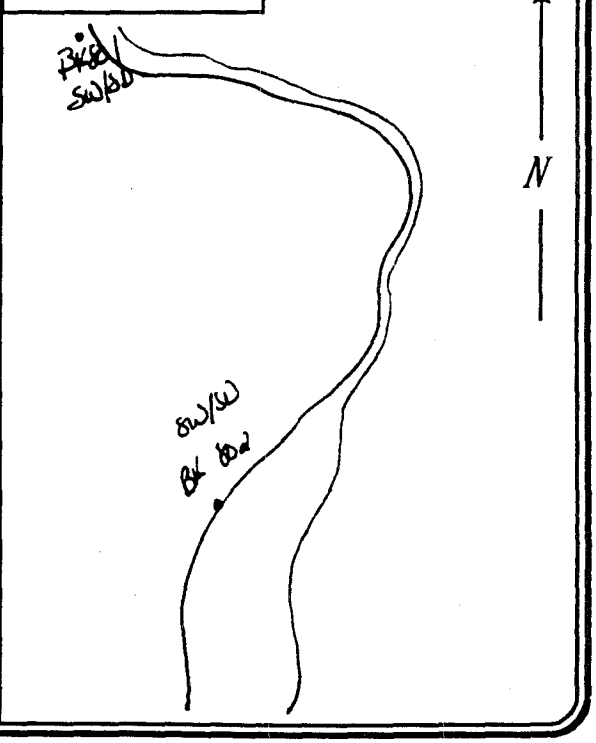
Snow Rain Sleet Hail
Foggy Overcast Partly Cloudy Clear

- Ambient Temperature (°C) 43
- Photo Yes No — Roll# NA Frame # NA

Shipping Information

- Chain of Custody Number 98NEC013
- Shipped Via Goldstreak UPS FedEx DHL
- Date Shipped 9/14/98
- Airbill Number

Swing Tie Data



Comments Background Creek Surface Water / Sediment Sample.

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID	Date (month / day / year)	Time
98NEC27SW801	9 / 16 / 98	1200

Sample Type

Surface Soil		Sample ID	Wipe
Depth (ft)		Temperature (°C)	Lead Paint Chip
~~Sediment~~ Surface Water	X	Conductivity (umhos/cm)	TCLP Core Samples
		pH	
		TDS (mg/l)	Asbestos
		BOD (mg/l)	

Field Information

Field Team DQ

Sampler DQ

PID (ppm) NA

ELISA screening (<less than, >greater than, spectrophotometer)

	DRO 100 1000	GRO 50 200	PCB 5 50

Weather

Snow Rain Sleet Hail Foggy (Overcast) Partly Cloudy Clear

Ambient Temperature (°C) 40

Photo (Yes) No

Roll# NA Frame # NA

Shipping Information

Chain of Custody Number 98NEC016

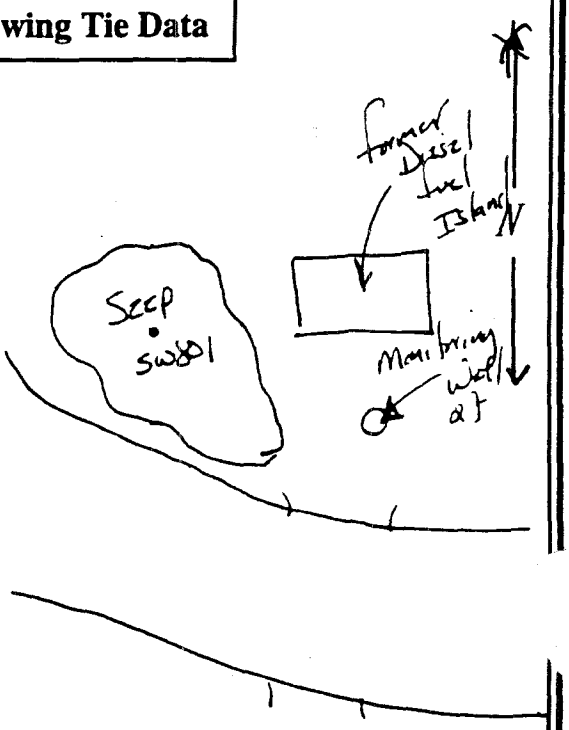
Shipped Via Hand Delivered
Goldstreak UPS FedEx DHL

Date Shipped 9/17/98

Airbill Number NA

Comments Surface Water Seep Emanating from

Swing Tie Data



MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NECRCSW801 / 98NECRCSD801 | **Date** 9/13/98 (month day year) | **Time** 1755 / 1800

Sample Type

- Surface Soil — Depth (ft)
- Sediment X — Surface Water
- Sample ID
- Temperature (°C) _____
- Conductivity (umhos/cm) _____
- pH _____
- TDS (mg/l) _____
- BOD (mg/l) _____
- Wipe
- Lead Paint Chip
- TCLP Core Samples
- Asbestos

Field Information

- Field Team DQ
- Sampler DQ
- PID (ppm) NA
- ELISA screening (<less than, >greater than, spectrophotometer): DRO 100 1000 _____ | GRO 50 200 _____ | PCB 5 50 _____

Weather

Snow Rain Sleet Hail
Foggy (Overcast) Partly Cloudy Clear

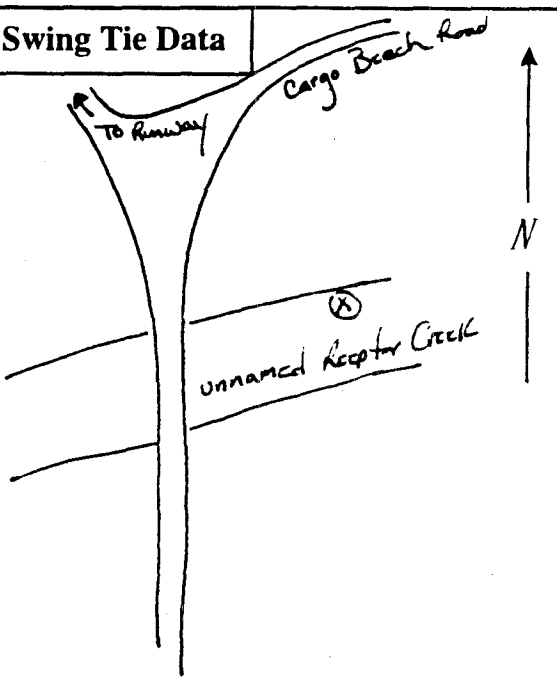
Ambient Temperature (°C) 42

Photo (Yes) No
Roll# NA Frame # NA

Shipping Information

- Chain of Custody Number 98NEC005
- Shipped Via (Goldstreak) UPS FedEx DHL
- Date Shipped 9/14/98
- Airbill Number

Swing Tie Data



Comments

QA Sediment Sample 98NECRCSD301
QC Sediment Sample 98NECRCSD201

No Visible Staining/Sheen or odor detected

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NECRCSW802 / 98NECRCSD802 | **Date** 9/14/98 (month day year) | **Time** 1530 / 1600

Sample Type

- Surface Soil ☐ — Depth (ft)
- Sediment ☒ Surface Water
- Sample ID ☐
- Temperature (°C) _____
- Conductivity (umhos/cm) _____
- pH _____
- TDS (mg/l) _____
- BOD (mg/l) _____
- Wipe ☐
- Lead Paint Chip ☐
- TCLP Core Samples ☐
- Asbestos ☐

Field Information

- Field Team DQ
- Sampler DQ
- PID (ppm) NA
- ELISA screening (<less than, >greater than, spectrophotometer)

	DRO		GRO		PCB
	100	1000	50	200	5 50

Weather

Snow Rain Sleet Hail Foggy (Overcast) Partly Cloudy Clear

Ambient Temperature (°C) 42

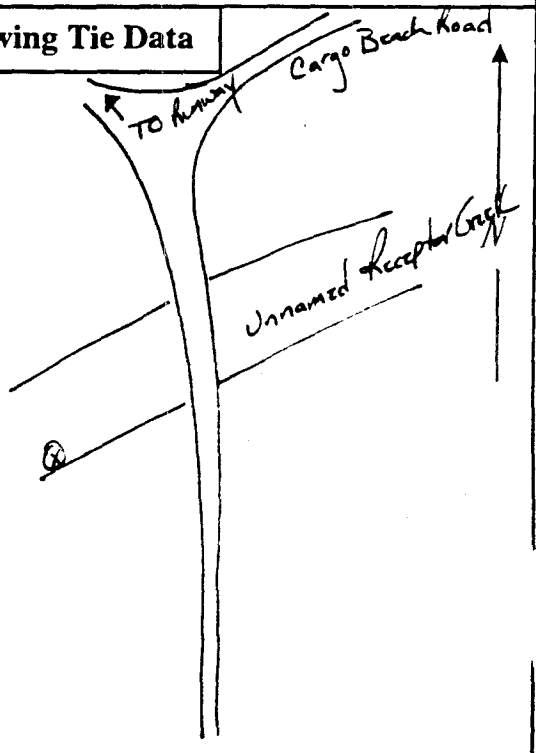
Photo (Yes) No

Roll# NA Frame # NA

Shipping Information

- Chain of Custody Number 98NEC006
- Shipped Via (Goldstreak) UPS FedEx DHL
- Date Shipped 9/14/98
- Airbill Number

Swing Tie Data



Comments QA/QC Surface Water + Sediment MS/MSD

98NECRCSW802
98NECRCSD802
98NECRCSW302
98NECRCSD302
No Visible Staining / Sheen or Odor.

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NECRCSW803 / 98NECRCSD803 | **Date** 9/13/98 (month day year) | **Time** 1430/

Sample Type

- Surface Soil — Depth (ft)
- Sediment X — Surface Water.

Sample ID

- Temperature (°C) _____
- Conductivity (umhos/cm) _____
- pH _____
- TDS (mg/l) _____
- BOD (mg/l) _____

- Wipe
- Lead Paint Chip
- TCLP Core Samples
- Asbestos

Field Information

- Field Team DP
- Sampler DP
- PID (ppm) NA
- ELISA screening (<less than, >greater than, spectrophotometer)

	DRO 100 1000	GRO 50 200	PCB 5 50

Weather

Snow Rain Sleet Hail Foggy (Overcast) Partly Cloudy Clear

Ambient Temperature (°C) 42

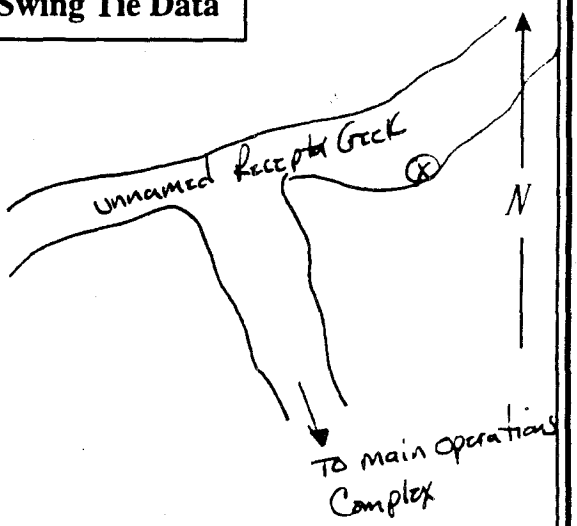
Photo (Yes) No

Roll# NA Frame # NA

Shipping Information

- Chain of Custody Number / 98NEC005 / 98NEC011
- Shipped Via (Goldstreak) UPS FedEx DHL
- Date Shipped 9/14/98
- Airbill Number

Swing Tie Data



Comments No Sheen on Water When Sediment Undisturbed. Sediment Very Stained beneath Surface heavy petrol odor

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NECRCSW804 / 98NECRCSD804 | **Date** 9/13/98 (month day year) | **Time** 1400

Sample Type

- Surface Soil — Depth (ft)
- Sediment X — Surface Water
- Sample ID
- Temperature (°C) _____
- Conductivity (umhos/cm) _____
- pH _____
- TDS (mg/l) _____
- BOD (mg/l) _____
- Wipe
- Lead Paint Chip
- TCLP Core Samples
- Asbestos

Field Information

- Field Team Def
- Sampler Def
- PID (ppm) NA
- ELISA screening (<less than, >greater than, spectrophotometer)

	DRO	GRO	PCB
	100 1000	50 200	5 50

Weather

Snow Rain Sleet Hail Foggy (Overcast) Partly Cloudy Clear

Ambient Temperature (°C) 42

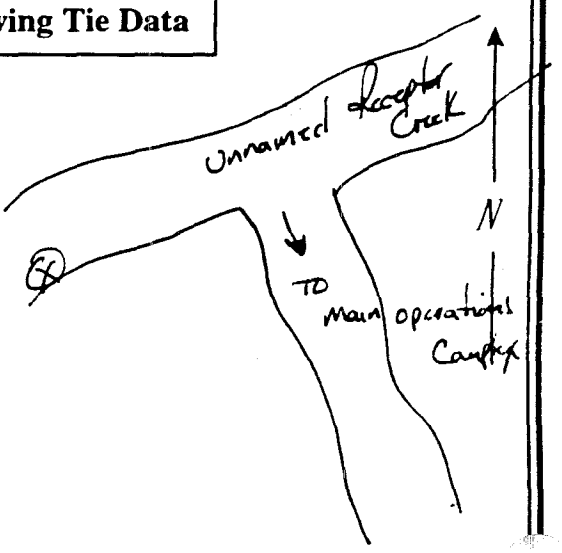
Photo (Yes) No

Roll# NA Frame # NA

Shipping Information

- Chain of Custody Number 98NEC011
- Shipped Via (Goldstreak) UPS FedEx DHL
- Date Shipped 9/14/98
- Airbill Number

Swing Tie Data



Comments No Sheen on Water When Sediment undisturbed. Sediment Very Stained beneath Surface, Heavy Petrol odor.

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NEERCSW805 | **Date** 9 / 13 / 98 (month / day / year) | **Time** 1330

Sample Type

- Surface Soil ☐ — Depth (ft)
- ~~Sediment~~ ☒ — Surface Water

Sample ID ☐

- Temperature (°C) _____
- Conductivity (umhos/cm) _____
- pH _____
- TDS (mg/l) _____
- BOD (mg/l) _____

- Wipe ☐
- Lead Paint Chip ☐
- TCLP Core Samples ☐
- Asbestos ☐

Field Information

- Field Team dcf
- Sampler dcf
- PID (ppm) NA
- ELISA screening (<less than, >greater than, spectrophotometer)

	DRO 100 1000	GRO 50 200	PCB 5 50

Weather

Snow Rain Sleet Hail
Foggy (Overcast) Partly Cloudy Clear

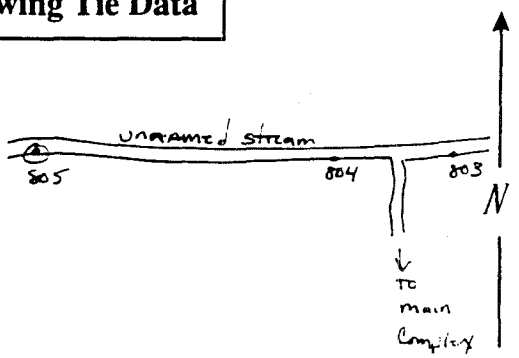
Ambient Temperature (°C) 42

Photo (Yes) No
Roll# NA Frame # NA

Shipping Information

- Chain of Custody Number 98NECC
- Shipped Via (Goldstreak) UPS FedEx DHL
- Date Shipped 9/14/98
- Airbill Number

Swing Tie Data



Comments No Sheen Noted when Sediments undisturbed

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NECRCSD806 | **Date** 9/12/98 (month day year) | **Time** 1850

Sample Type

- Surface Soil — Depth (ft)
- Sediment [X]
- Sample ID
  - Temperature (°C) _____
  - Conductivity (umhos/cm) _____
  - pH _____
  - TDS (mg/l) _____
  - BOD (mg/l) _____
- Wipe
- Lead Paint Chip
- TCLP Core Samples
- Asbestos

Field Information

- Field Team DCF
- Sampler DCF
- PID (ppm) NA
- ELISA screening (<less than, >greater than, spectrophotometer)

	DRO		GRO		PCB
	100	1000	50	200	5 50

Weather

Snow Rain Sleet Hail Foggy (Overcast) Partly Cloudy Clear

Ambient Temperature (°C) 42

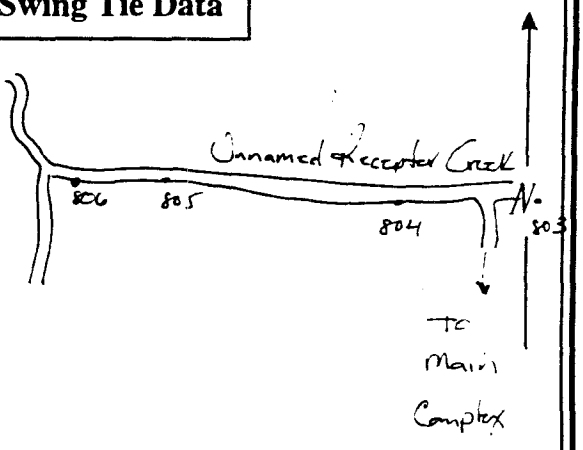
Photo (Yes) No

Roll# NA Frame # NA

Shipping Information

- Chain of Custody Number 98NECC
- Shipped Via (Goldstreak) UPS FedEx DHL
- Date Shipped 9/14/98
- Airbill Number

Swing Tie Data



Comments No Staining, No Odor

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NECRCSD805 | **Date** 7 / 12 / 98 (month / day / year) | **Time** 1900

Sample Type

- Surface Soil ☐ — Depth (ft)
- Sediment ☒ X

Sample ID

Temperature (°C) _____
Conductivity (umhos/cm) _____
pH _____
TDS (mg/l) _____
BOD (mg/l) _____

- Wipe ☐
- Lead Paint Chip ☐
- TCLP Core Samples ☐
- Asbestos ☐

Field Information

- Field Team DG
- Sampler DG
- PID (ppm) NA
- ELISA screening (<less than, >greater than, spectrophotometer)

	DRO 100 1000	GRO 50 200	PCB 5 50

Weather

Snow Rain Sleet Hail
Foggy (Overcast) Partly Cloudy Clear

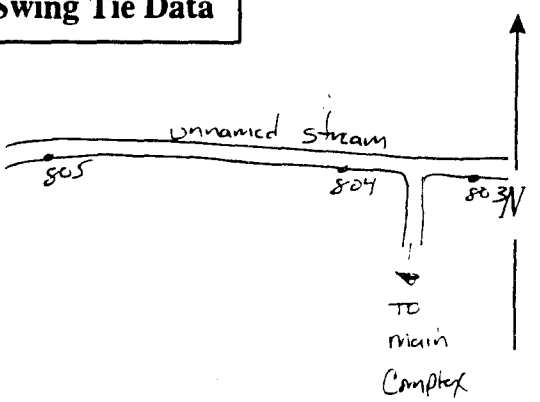
Ambient Temperature (°C) 42

Photo (Yes) No
Roll# NA Frame # NA

Shipping Information

- Chain of Custody Number 98NEC
- Shipped Via (Goldstreak) UPS FedEx DHL
- Date Shipped 7/14/98
- Airbill Number

Swing Tie Data



Comments No Staining Noted, No Odor.

MONTGOMERY WATSON

FIELD NOTE FORM
USCOE (ALASKA)

Location

Sample ID 98NECRCSW806 | **Date** 7/13/98 (month day year) | **Time** ~~1458~~ 1330

Sample Type

- Surface Soil — Depth (ft)
- ~~Sediment~~ Surface Water [X]

Sample ID

Temperature (°C) _____
Conductivity (umhos/cm) _____
pH _____
TDS (mg/l) _____
BOD (mg/l) _____

- Wipe
- Lead Paint Chip
- TCLP Core Samples
- Asbestos

Field Information

- Field Team DC
- Sampler DC
- PID (ppm) NA
- ELISA screening (<less than, >greater than, spectrophotometer)

	DRO 100 1000	GRO 50 200	PCB 5 50
spectrophotometer			

Weather

Snow Rain Sleet Hail Foggy (Overcast) Partly Cloudy Clear

Ambient Temperature (°C) 42

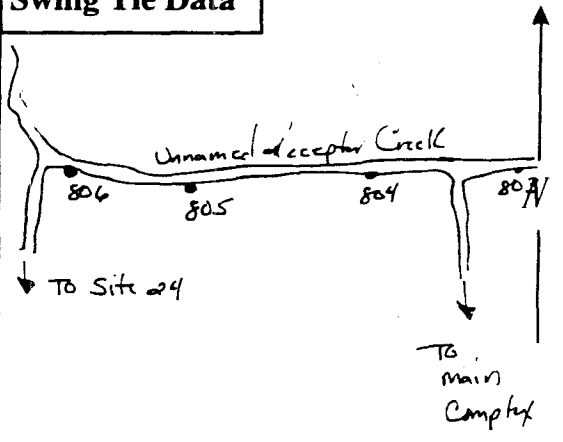
Photo (Yes) No

Roll# NA Frame # NA

Shipping Information

- Chain of Custody Number 98NEC
- Shipped Via (Goldstreak) UPS FedEx DHL
- Date Shipped 9/14/98
- Airbill Number

Swing Tie Data



Comments No Sheen When Sediments Disturbed
No Odor

GROUNDWATER SAMPLING
FIELD NOTE FORM

SITE: **NORTHEAST CAPE** Sample ID #: WP 3-1 DATE: 9-10-98
SAMPLE TYPE: **GRAB** FIELD CREW: Bgm / DQ TIME: start 1700 end Cont.
WEATHER: SKY: cldy PRECIP: fog WIND: 5-10 KTS E
AIR TEMP: ____

GROUNDWATER SAMPLING X
Well Condition: 1.25" - SS screen 3' - well point
Casing Ht. Above Ground: 1.6 (FT.) Diameter: 1.25 in.
Well Depth: 5.25 ft. BTOC (Meas./~~Rec.~~) Static Water Level: 3.15 ft. BTOC
Casing (C) = X Well N/A Outside Protective
ONE PURGE VOLUME: 3 x 7.48 x (dia./24)^2 x 3.14 x (Depth-W. L.)= _____ gal.

PURGING: METHOD	Gallons	Time	Temperature °C	E.C. (µmhos/cm)*	pH*	Fe (II)	Methane	DO
(Bailer)	1775	1715	3.9	318	7.2	70		N/A
Subm. Pump								
Ded. Pump								
Suction Pump								
_____								
(other)								

* TEMP. CORRECTED @ 25C

N/R Turb. & contamination interference w/ DO - photometer

98 NEC 03 GWB01 Slow Recharge

SAMPLE COLLECTION METHOD: Silty — Fuel odor
Method: Purge _____ Bailer _____ Appearance: DRK BRN, sheen

Analyte		Time	Analyte	Time			
DRO/~~RRO AK102/103~~	✓	1730	Lead				
~~GRO AK101~~			Manganese				
~~DRO/RRO AAF ADEC~~			Sulfate				
BETX	✓	1730	NO3				
~~VOC 8260~~			Alkalinity				
PAH	✓	1730					
~~PCBs~~							
~~TOC~~							

COMMENTS: Split _____ Dupl. _____ Trip Blank _____ Other _____
PHOTO TAKEN: YES NO
Calibration/Standard: (pH) (EC) DO HR & LA CO2
Decon completed: by Bgm date 9-10-98
Remarks

GROUNDWATER SAMPLING
FIELD NOTE FORM

SITE: **NORTHEAST CAPE** Sample ID #: WP 4-1 DATE: 9-11-98
SAMPLE TYPE: **GRAB** FIELD CREW: Beg M TIME: start 1750 end [illegible]
WEATHER: SKY: Cloudy PRECIP: Foggy WIND: 5-7 Knots EAST
AIR TEMP: 40°F

GROUNDWATER SAMPLING X
Well Condition: WELL pf. -3' screen
Casing Ht. Above Ground: 2.75 (FT.) Diameter: 1.25 in.
Well Depth: 5.25 ft. BTOC (Meas./~~Rec.~~) Static Water Level: 3.00 ft. BTOC
Casing (C) = X Well N/A Outside Protective
ONE PURGE VOLUME: 3 x 7.48 x (dia./24)^2 x 3.14 x (Depth-W. L.)= _____ gal.

N/A

PURGING: METHOD	Gallons	Time	Temperature °C	E.C. (µmhos/cm)*	pH*	Fe (II)	Methane	DO
(Bailer)	1	1750	4.8	186	7.1	50		N/A
Subm. Pump								
Ded. Pump								
Suction Pump								
_____ (other)								

98 DEC 04 GW 801 * TEMP. CORRECTED

N/R - high turbidity interference unable to read
redox + 3.4

SAMPLE COLLECTION METHOD:
Method: Purge _____ Bailer √ Appearance: Very Turbid. reddish brown

Analyte	Time	Analyte	Time
DRO/~~RRO~~ AK102/~~103~~	1800	Lead	
~~GRO AK101~~		Manganese	
~~DRO/RRO AAF ADEC~~		Sulfate	
~~BETX~~	1800	NO3	
~~VOC 8260~~		Alkalinity	
~~PAH~~	1800		
~~RCRa~~			
~~TOC~~			

COMMENTS: Split _____ Dupl. _____ Trip Blank _____ Other _____
PHOTO TAKEN: YES NO
Calibration/Standard: (pH) (EC) DO HR / LH CO2
Decon completed: by date
Remarks

GROUNDWATER SAMPLING
FIELD NOTE FORM

MW

SITE: **NORTHEAST CAPE** Sample ID #: 7-4S DATE: 9-12-98
SAMPLE TYPE: **GRAB** FIELD CREW: BGM / AD TIME: start 1140 end 1230
WEATHER: SKY: pt cldy PRECIP: 0 WIND: 10-15 kn
AIR TEMP: 35°F

GROUNDWATER SAMPLING ✓
Well Condition: Concrete broken Locking cap
Casing Ht. Above Ground: 3.31 (FT.) PVC Diameter: 2 in.
Well Depth: 12.09 ft. BTOC (Meas./~~Rec.~~) Static Water Level: 3.66 ft. BTOC
Casing (C) = ✓ Well _____ Outside Protective
ONE PURGE VOLUME: ~~3 x 7.48~~ x (dia./24)^2 x 3.14 x (Depth-W. L.)= 4.2 gal. 1.5 gal

PURGING: METHOD	Gallons	Time	Temperature °C	E.C. (µmhos/cm)*	pH*	Fe (II)	Methane
	1.5	1210	4.7	244	5.4	Dry	—
Bailer							
Subm. Pump							
Ded. Pump							
Suction Pump							
Purger (other)							

DO mg/l 1.5

* TEMP. CORRECTED @ 25C

98 NEC 07 GW 801

3.1' steel to GRD

SAMPLE COLLECTION METHOD:
Method: Purge ✓ Bailer _____ Appearance: No sheen no odor

Analyte	Time	Analyte	Time			
DRO/~~BRO~~ AK102/~~103~~	1215	Lead				
GRO AK101		Manganese				
DRO/RRO AAF ADEC		Sulfate				
BETX	1215	NO3				
VOC 8260		Alkalinity				
PAH	1215					
PCBs						
TOC						

COMMENTS: Split _____ Dupl. _____ Trip Blank _____ Other _____
PHOTO TAKEN: (YES) NO
Calibration/Standard: pH (EC) DO HR CO2
Decon completed: by BGM date 9-12-98
Remarks

GROUNDWATER SAMPLING
FIELD NOTE FORM

MW

SITE: **NORTHEAST CAPE** Sample ID #: 9-1 DATE: 9-12-98
SAMPLE TYPE: **GRAB** FIELD CREW: Beam / A.D TIME: start 1430 end _____
WEATHER: SKY: Cldy PRECIP: 0 WIND: 5-10 kts
AIR TEMP: 35-40°

GROUNDWATER SAMPLING _____
Well Condition: Protective cap on loose
Casing Ht. Above Ground: 3.75 (FT.) PVC Diameter: 2 in.
Well Depth: 9.82 ft. BTOC (Meas./~~Rec.~~) Static Water Level: 3.81 ft. BTOC
Casing (C) = ✓ Well _____ Outside Protective
ONE PURGE VOLUME: 3 x 7.48 x (dia./24)^2 x 3.14 x (Depth-W. L.)= 3 gal.

PURGING: METHOD	Gallons	Time	Temperature °C	E.C. (µmhos/cm)*	pH*	Fe (II)	Methane
	1.00	1445	4.4	882	7.0	Dry	—
	1.5	1500	4.1	867	6.7	—	—
Bailer							
Subm. Pump							
Ded. Pump							
Suction Pump							
Purged (other)							

* TEMP. CORRECTED (

98 NEC 09 GW801
Very slow recharge
SAMPLE COLLECTION METHOD: Extremely Turb, TAN color
Method: Purge ✓ Bailer ✓ Appearance: No sheen, no odor

Analyte	Time	Analyte	Time			
DRO/~~RRO~~ AK102/103	1520	Lead				
~~GRO AK101~~	—	Manganese				
~~DRO/RRO AAF ADEC~~	—	Sulfate				
BETX	1520	NO3				
~~VOC 8260~~	—	Alkalinity				
PAH	1580					
~~PCBs~~	—					
~~TOC~~						

COMMENTS: Split _____ Dupl. _____ Trip Blank _____ Other _____
PHOTO TAKEN: YES NO
Calibration/Standard: pH 4 7 EC 1413 DO HR CO2
Decon completed: by Beam date 9-12-98
Remarks

GROUNDWATER SAMPLING
FIELD NOTE FORM

SITE: **NORTHEAST CAPE** Sample ID #: MW 9-2 DATE: 9-12-98
SAMPLE TYPE: **GRAB** FIELD CREW: Bgm / AD TIME: start 1510 end _____
WEATHER: SKY: Cldy PRECIP: 0 WIND: <10 mph
AIR TEMP: 38 °F

GROUNDWATER SAMPLING ✓
Well Condition: Locking apparent, steel casing loose
Casing Ht. Above Ground: 3.87 (FT.) PVC Diameter: 2 in.
Well Depth: 8.57 ft. BTOC (Meas./~~Rec.~~) Static Water Level: 4.93 ft. BTOC
Casing (C) = X Well _____ Outside Protective
ONE PURGE VOLUME: 3 x 7.48 x (dia./24)^2 x 3.14 x (Depth-W. L.)= 2 gal.

PURGING: METHOD	Gallons	Time	Temperature °C	E.C. (µmhos/cm)*	pH*	Fe (II)	Methane	DO
	1.	1530	1.9	134	7.29	—	—	7.1
Bailer								mg/L
Subm. Pump								
Ded. Pump								
Suction Pump								
Purger (other)								

* TEMP. CORRECTED @ 25C

98 NEC 09 GW802

SAMPLE COLLECTION METHOD: MeO Turb/slight TAN
Method: Purge ✓ Bailer ✓ Appearance: no sheen, NO odor

Analyte	Time	Analyte	Time
DRO/~~RRO~~ AK102/~~103~~	1600	Lead	
GRO AK101		Manganese	
DRO/RRO AAF ADEC		Sulfate	
BETX	1600	NO3	
VOC 8260		Alkalinity	
PAH	1600		
PCBs			
TOC			

COMMENTS: Split_____ Dupl._____ Trip Blank_____ Other_____
PHOTO TAKEN: YES NO
Calibration/Standard: pH 4/7 EC 1413 DO Hr2 CO2
Decon completed: by Bgm date 9-12-98
Remarks

GROUNDWATER SAMPLING
FIELD NOTE FORM

MW

SITE: **NORTHEAST CAPE** Sample ID #: 93 DATE: 9-12-98
SAMPLE TYPE: **GRAB** FIELD CREW: Bgm/AD TIME: start 1600 end _____
WEATHER: SKY: cloudy PRECIP: 0 WIND: 5-10 kts
AIR TEMP: 40 °F

GROUNDWATER SAMPLING X
Well Condition: loose, thickening apparent, 8'
Casing Ht. Above Ground: 3.55 (FT.) Diameter: 2 in.
Well Depth: 11.39 ft. BTOC (Meas./~~Rec.~~) Static Water Level: 4.86 ft. BTOC
Casing (C) = ✓ Well _____ Outside Protective
ONE PURGE VOLUME: 3 x 7.48 x (dia./24)^2 x 3.14 x (Depth-W. L.)= 3 gal.

PURGING: METHOD	Gallons	Time	Temperature °C	E.C. (µmhos/cm)*	pH*	Fe (II)	Methane
	1	1610	3.1	263	7.15	N/A	DRY
Bailer							
Subm. Pump							
Ded. Pump							
Suction Pump							
Purge (other)							

* TEMP. CORRECTED

98NEC09GW803

SAMPLE COLLECTION METHOD:
Method: Purge ✓ Bailer ✓ Appearance: Hvy Turb. TAN

Analyte	Time	Analyte	Time
DRO/~~RRO~~ AK102/103	1630	Lead	
GRO AK101	—	Manganese	
DRO/RRO AAF ADEC	—	Sulfate	
BETX	1630	NO3	
VOC 8260	—	Alkalinity	
PAH	1630		
PCBs			
TOC			

COMMENTS: Split _____ Dupl. _____ Trip Blank _____ Other _____
PHOTO TAKEN: YES NO
Calibration/Standard: pH 4/7 EC 1430 DO HR CO2
Decon completed: by Bgm date 9-12-98
Remarks

GROUNDWATER SAMPLING
FIELD NOTE FORM

SITE: **NORTHEAST CAPE** Sample ID #: 10-1 DATE: 9-12-98
SAMPLE TYPE: **GRAB** FIELD CREW: Bgm/AD TIME: start 1715 end 1745
WEATHER: SKY: clear PRECIP: 0 WIND: < 5 kn
AIR TEMP: 35

GROUNDWATER SAMPLING
Well Condition: casing down
Casing Ht. Above Ground: 2.00 (FT.) PVC Diameter: 2 in.
Well Depth: 11.75 ft. BTOC (Meas./Rec.) Static Water Level: 2.00 ft. BTOC
Casing (C) = X Well _____ Outside Protective
ONE PURGE VOLUME: 3 x 7.48 x (dia./24)^2 x 3.14 x (Depth-W. L.)= 4.5 gal.

PURGING: METHOD	Gallons	Time	Temperature °C	E.C. (µmhos/cm)*	pH*	Fe (II)	Methane	D.O
	2	1725	3.4	98	7.67	—	—	
	5	1728	3.1	92	6.7	—	—	
Bailer	8	1730	3.0	93	6.6	—	—	
~~Subm.~~ Pump								
Ded. Pump								
Suction Pump								
_____								
(other)								

* TEMP. CORRECTED @ 25C

@ 1730 Primary @ 98 NEC 10 GW 801 > D
1740 @ 98 NEC 10 GW 207
1745 @ 98 NEC 10 GW 301 = E

SAMPLE COLLECTION METHOD:
Method: Purge _____ Bailer _____ Appearance: no odor, No sheen

Analyte	Time	Analyte	Time			
DRO/RRO AK102/103	✓ 1735	Lead				
GRO AK101		Manganese				
DRO/RRO AAF ADEC		Sulfate				
BETX	✓ 1730	NO3				
VOC 8260		Alkalinity				
PAH						
PCBs						
TOC						

1745 1740

COMMENTS: Split X Dupl. X Trip Blank _____ Other _____
PHOTO TAKEN: YES NO
Calibration/Standard: pH EC DO CO2
Decon completed: by date
Remarks

GROUNDWATER SAMPLING
FIELD NOTE FORM

SITE: **NORTHEAST CAPE** Sample ID #: 10-4 DATE: 9-12
SAMPLE TYPE: **GRAB** FIELD CREW: Bamm/AD TIME: start 1745 end 1830
WEATHER: SKY: cldy PRECIP: NONE WIND: <5kn
AIR TEMP: 35°

GROUNDWATER SAMPLING X Culvert protective
Well Condition: Concrete cracked, no jacking apparent
Casing Ht. Above Ground: 2.4 (FT.) PVC Diameter: 2 in.
Well Depth: 8.06 ft. BTOC (Meas./~~Rec.~~) Static Water Level: 2.24 ft. BTOC
Casing (C) = X Well _____ Outside Protective
ONE PURGE VOLUME: 3 x 7.48 x (dia./24)^2 x 3.14 x (Depth-W. L.)= 3 gal.

PURGING: METHOD	Gallons	Time	Temperature °C	E.C. (µmhos/cm)*	pH*	Fe (II)	Methane	DO
	1.5	1800	4.7	232	6.92	DRY	—	—
Bailer								
Subm. Pump								
Ded. Pump								
Suction Pump								
Purger								
(other)								

* TEMP. CORRECTED

98 NEC 10 GW802

SAMPLE COLLECTION METHOD:
Method: Purge √ Bailer √ Appearance: No Sheen, no odor

Analyte	Time	Analyte	Time			
DRO/RRO AK102/103	1800	Lead				
GRO AK101		Manganese				
DRO/RRO AAF ADEC		Sulfate				
BETX	1850	NO3				
VOC 8260		Alkalinity				
PAH						
PCBs						
TOC						

COMMENTS: Split _____ Dupl. _____ Trip Blank _____ Other _____
PHOTO TAKEN: YES NO
Calibration/Standard: pH EC DO CO2
Decon completed: by date
Remarks

GROUNDWATER SAMPLING
FIELD NOTE FORM

MW

SITE: **NORTHEAST CAPE** Sample ID #: 11-2 DATE: 9-13-98
SAMPLE TYPE: **GRAB** FIELD CREW: Bam/AD TIME: start 1120 end 1140
WEATHER: SKY: cldy PRECIP: 0 WIND: > 10 mp
AIR TEMP: 35° F

GROUNDWATER SAMPLING X
Well Condition: Concrete cracked, minor jacking
Casing Ht. Above Ground: 6.56 (FT.) PVC Diameter: 2 in.
Well Depth: 12.0 ft. BTOC (Meas./~~Rec.~~) Static Water Level: 6.74 ft. BTOC
Casing (C) = X Well _____ Outside Protective
ONE PURGE VOLUME: 3 x 7.48 x (dia./24)^2 x 3.14 x (Depth-W. L.)= 3 gal.

PURGING: METHOD	Gallons	Time	Temperature °C	E.C. (µmhos/cm)*	pH*	Fe (II)	Methane
	1.0	1125	2.4	101	7.07	—	—
	1.5	1130	2.4	101		DRY	
Bailer							
Subm. Pump							
Ded. Pump							
Suction Pump							
Plugs (other)							

* TEMP. CORRECTED @ 25C

N ← 0x00 98NEC11 GW801

SAMPLE COLLECTION METHOD:
Method: Purge ✓ Bailer ✓ Appearance: no odor, no sheen

Analyte	Time	Analyte	Time
DRO/RRO AK102/103	1130	Lead	
GRO AK101		Manganese	
DRO/RRO AAF ADEC		Sulfate	
BETX	1130	NO3	
VOC 8260		Alkalinity	
PAH			
PCBs			
TOC			

COMMENTS: Split_____ Dupl._____ Trip Blank_____ Other_____
PHOTO TAKEN: YES NO
Calibration/Standard: pH 4/7 EC DO CO2
Decon completed: by date
Remarks

GROUNDWATER SAMPLING
FIELD NOTE FORM

SITE: **NORTHEAST CAPE** Sample ID #: 11-3 DATE: 9-13-99
SAMPLE TYPE: **GRAB** FIELD CREW: Bergm TIME: start 1140 end 1200
WEATHER: SKY: Cldy PRECIP: 0 WIND: 20 mph
AIR TEMP: 37 °F

GROUNDWATER SAMPLING X
Well Condition: Apparent jacking
Casing Ht. Above Ground: 2.41 (FT.) Diameter: 2 in.
Well Depth: 20.11 ft. BTOC (Meas./~~Rec.~~) Static Water Level: 8.69 ft. BTOC
Casing (C) = X Well _____ Outside Protective
ONE PURGE VOLUME: 3 x 7.48 x (dia./24)^2 x 3.14 x (Depth-W. L.)= 5.7 gal.

PURGING: METHOD	Gallons	Time	Temperature °C	E.C. (µmhos/cm)*	pH*	Fe (II)	Methane	DO
	1.0	1148	1.7	167	6.4	—	—	
	5.0	1155	2.0	133	6.5	—	—	
Bailer	7.0	1202	2.1	147	6.4	—	—	6.7
Subm. Pump								MS/
Ded. Pump								
Suction Pump								
Purger (other)								

* TEMP. CORRECTED @

(X)
N ← OOO

98 DEC 11 GW 802

SAMPLE COLLECTION METHOD:
Method: Purge ✓ Bailer ✓ Appearance: no sheen Diesel odor

Analyte	Time	Analyte	Time			
DRO/RRO AK102/103	1200	Lead				
GRO AK101		Manganese				
DRO/RRO AAF ADEC		Sulfate				
BETX	1202	NO3				
VOC 8260		Alkalinity				
PAH						
PCBs						
TOC						

COMMENTS: Split _____ Dupl. _____ Trip Blank _____ Other _____
PHOTO TAKEN: YES NO
Calibration/Standard: pH EC DO CO2
Decon completed: by Bergm date 9-13
Remarks

GROUNDWATER SAMPLING
FIELD NOTE FORM

SITE: **NORTHEAST CAPE** Sample ID #: NP 14-01 DATE: 9-11-98
SAMPLE TYPE: **GRAB** FIELD CREW: Bgm/DQ TIME: start 1520 end 1645
WEATHER: SKY: Cldy PRECIP: fog WIND: 5-10 kn
AIR TEMP: 36

GROUNDWATER SAMPLING X
Well Condition: 1¼" SS 3' screen WELL pt.
Casing Ht. Above Ground: 3.7 (FT.) Diameter: 1.25 in.
Well Depth: 14.13 ft. BTOC (Meas./~~Rec.~~) Static Water Level: 11.24 ft. BTOC
Casing (C) = X Well N/A ~~Outside Protective~~ N/A
ONE PURGE VOLUME: 3 x 7.48 x (dia./24)^2 x 3.14 x (Depth-W. L.)= _____ gal.

N/A

PURGING: METHOD	Gallons	Time	Temperature °C	E.C. (µmhos/cm)*	pH*	Fe (II)	Methane
	1	1600	3.2	79	8.0	0	N/A
Bailer							
Subm. Pump							
Ded. Pump							
Suction Pump							
(other)							

* TEMP. CORRECTED @ 25C

redox -35.4

Ferrous - 2X Dilute <0
Iron, total 2X. Dilute <0

98 NEC 14 GW 801 (00)
Emw 9/13/98

SAMPLE COLLECTION METHOD:
Method: Purge _____ Bailer ✓ Appearance: slty tannish - no odor

Analyte	Time	Analyte	Time
DRO/RRO AK102/103	1600	Lead	
GRO AK101	1600	Manganese	✓
DRO/RRO AAF ADEC		Sulfate	✓
BETX	1600	NO3	✓
VOC 8260		Alkalinity	
PAH	1600		
PCBs			
TOC			

COMMENTS: Split _____ Dupl. _____ Trip Blank _____ Other _____
PHOTO TAKEN: YES NO
Calibration/Standard: pH EC DO HR CO2
Decon completed: by Bgm date 9-11-98
Remarks

GROUNDWATER SAMPLING
FIELD NOTE FORM

MW

SITE: **NORTHEAST CAPE** Sample ID #: 13-1 DATE: 9-13-98
SAMPLE TYPE: **GRAB** FIELD CREW: Begin / AD TIME: start 1615 end ____
WEATHER: SKY: cloudy PRECIP: 0 WIND: 5-10 mph
AIR TEMP: 40°F

GROUNDWATER SAMPLING X
Well Condition: no apparent locking
Casing Ht. Above Ground: 2.82 (FT.) Diameter: 2 in.
Well Depth: 17.65 ft. BTOC (Meas./~~Rec.~~) Static Water Level: 11.11 ft. BTOC
Casing (C) = X Well ____ Outside Protective
ONE PURGE VOLUME: 3 x 7.48 x (dia./24)^2 x 3.14 x (Depth-W. L.)= 3.25 gal.

PURGING:	Gallons	Time	Temperature °C	E.C. (µmhos/cm)*	pH*	Fe (II)	Methane
METHOD	2	1620	2.3	214	7.30		
	5	1625	2.2	189	7.32		
Bailer	7	1630	2.0	180	7.21		
Subm. Pump							
Ded. Pump							
Suction Pump							
Purged (other)							

* TEMP. CORRECTED

steel to grd
3.09'

98 NEC 13 GW 001

SAMPLE COLLECTION METHOD: sheen on water
Method: Purge ✓ Bailer ✓ Appearance: sheen above

Analyte	Time	Analyte	Time			
DRO/RRO AK102/103	1630	Lead				
GRO AK101		Manganese				
DRO/RRO AAF ADEC		Sulfate				
BETX	1630	NO3				
VOC 8260		Alkalinity				
PAH						
PCBs						
TOC						

COMMENTS: Split ____ Dupl. ____ Trip Blank ____ Other ____
PHOTO TAKEN: (YES) NO
Calibration/Standard: pH ____ EC ____ DO ____ CO2 ____
Decon completed: by Sam date 9-13-98
Remarks

GROUNDWATER SAMPLING
FIELD NOTE FORM

SITE: **NORTHEAST CAPE** Sample ID #: 13-2 DATE: /
SAMPLE TYPE: **GRAB** FIELD CREW: BGM/AD TIME: start ____ end ____
WEATHER: SKY: cloudy PRECIP: rain WIND: 20 mph
AIR TEMP: 35°

GROUNDWATER SAMPLING
Well Condition: no apparent tracking
Casing Ht. Above Ground: 2.42 (FT.) Diameter: 2 in.
Well Depth: 16.4 ft. BTOC (Meas./~~Rec.~~) Static Water Level: 8.05 ft. BTOC
Casing (C) = X Well ____ Outside Protective
ONE PURGE VOLUME: 3 x 7.48 x (dia./24)^2 x 3.14 x (Depth-W. L.)= 4.2 gal.

PURGING: METHOD	Gallons	Time	Temperature °C	E.C. (µmhos/cm)*	pH*	Fe (II)	Methane
Bailer							
Subm. Pump	10	5					
Ded. Pump							
Suction Pump							
____							
(other)							

* TEMP. CORRECTED @ 25C

steel to grd.
2.75'

SAMPLE COLLECTION METHOD:
Method: Purge ____ Bailer ____ Appearance: diesel odor

Analyte	Time	Analyte	Time			
DRO/RRO AK102/103		Lead				
GRO AK101		Manganese				
DRO/RRO AAF ADEC		Sulfate				
BETX		NO3				
VOC 8260		Alkalinity				
PAH						
PCBs						
TOC						

COMMENTS: Split ____ Dupl. ____ Trip Blank ____ Other ____
PHOTO TAKEN: YES NO
Calibration/Standard: pH EC DO CO2
Decon completed: by date
Remarks

Power (Y)

GROUNDWATER SAMPLING
FIELD NOTE FORM

MW

SITE: **NORTHEAST CAPE** Sample ID #: 15-1 DATE: 9-13-98
SAMPLE TYPE: **GRAB** FIELD CREW: Bgm / AD TIME: start 1605 end 1630
WEATHER: SKY: Cldy PRECIP: 0 WIND: <5 mph
AIR TEMP: 38 °F

GROUNDWATER SAMPLING X

Well Condition: no apparent jacking
Casing Ht. Above Ground: 2.99 (FT.) PVC Diameter: 2 in.
Well Depth: 16.52 ft. BTOC (Meas./~~Rec.~~) Static Water Level: 6.90 ft. BTOC
Casing (C) = X Well _____ Outside Protective
ONE PURGE VOLUME: 3 x 7.48 x (dia./24)^2 x 3.14 x (Depth-W. L.)= 5 gal.

PURGING: METHOD	Gallons	Time	Temperature °C	E.C. (µmhos/cm)*	pH*	Fe (II)	Methane	DO
	2	1615	3.3	164	6.0	Dry		
	3	1625	3.4	166	5.8			
Bailer								
Subm. Pump								
Ded. Pump								
Suction Pump								
_____								
(other)								

* TEMP. CORRECTED @

Betx 98 NEC 15 801 @ 1630
QC 98 NEC 15 201 @ 1620
QA 98 NEC 15 301 @ 1625

3.10' Steel to Grd

SAMPLE COLLECTION METHOD: Dry @ 2 gals
High Turb. Brown
Method: Purge ✓ Bailer ✓ Appearance: dieselodor, sheen

Analyte	Time	Analyte	Time
DRO/RRO AK102/103	1630	Lead	
GRO AK101		Manganese	
DRO/RRO AAF ADEC		Sulfate	
BETX QA/QC	1630	NO3	
VOC 8260		Alkalinity	
PAH			
PCBs			
TOC			

COMMENTS: Split X Dupl. X only Betx Trip Blank 1900 Other _____
PHOTO TAKEN: YES NO
Calibration/Standard: pH EC DO CO2
Decon completed: by date
Remarks

GROUNDWATER SAMPLING
FIELD NOTE FORM

MW

SITE: **NORTHEAST CAPE** Sample ID #: 19-1 DATE: 9-13-98
SAMPLE TYPE: **GRAB** FIELD CREW: Bgm MD TIME: start 1205 end 1245
WEATHER: SKY: cloudy PRECIP: 0 WIND: <5 mph
AIR TEMP: 40°F

GROUNDWATER SAMPLING X
Well Condition: good
Casing Ht. Above Ground: 2.92 (FT.) PVC Diameter: 2 in.
Well Depth: 20.10 ft. BTOC (Meas./~~Rec.~~) Static Water Level: 6.50 ft. BTOC
Casing (C) = x Well ____ Outside Protective
ONE PURGE VOLUME: 3 x 7.48 x (dia./24)^2 x 3.14 x (Depth-W. L.)= 7 gal.

PURGING:	Gallons	Time	Temperature °C	E.C. (µmhos/cm)*	pH*	Fe (II)	Methane
METHOD	1	1210	3.4	175		—	—
	4	1215	3.4	164		—	—
Bailer	8	1220					
Subm. Pump							
Ded. Pump							
Suction Pump							
Purge (other)							

* TEMP. CORRECTED @ 25C

Prim. 98 NEC 19 GW801 MS/MSD
QC 98 NEC 19 GW201 @ 1240 MS/MSD
3.10 Steel to Grade QA 98 NEC 19 GW301 @ 1235 MS/MSD

SAMPLE COLLECTION METHOD:
Method: Purge ✓ Bailer ✓ Appearance: light solvent odor slight sheen

Analyte	Time	Analyte	Time			
DRO/RRO AK102/103	1230	Lead				
GRO AK101		Manganese				
DRO/RRO AAF ADEC		Sulfate				
BETX	1230	NO3				
VOC 8260		Alkalinity				
PAH						
PCBs						
TOC						

COMMENTS: Split ✓ Dupl. ✓ Trip Blank ____ Other ____
PHOTO TAKEN: YES NO
Calibration/Standard: pH EC DO CO2
Decon completed: by date
Remarks

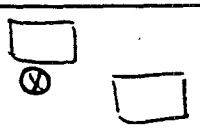
GROUNDWATER SAMPLING
FIELD NOTE FORM

SITE: **NORTHEAST CAPE** Sample ID #: MW 19.2 DATE: 9-13-98
SAMPLE TYPE: **GRAB** FIELD CREW: BJ mm TIME: start 1400 end 1445
WEATHER: SKY: clear PRECIP: cl WIND: 10-15 mph
AIR TEMP: 35°F

GROUNDWATER SAMPLING X
Well Condition: Outside casing jacked .2
Casing Ht. Above Ground: 2.95 (FT.) Diameter: 2 in.
Well Depth: 35.51 ft. BTOC (Meas./~~Rec.~~) Static Water Level: 25.96 ft. BTOC
Casing (C) = X Well _____ Outside Protective
ONE PURGE VOLUME: 3 x 7.48 x (dia./24)^2 x 3.14 x (Depth-W. L.)= 5 gal.

PURGING: METHOD	Gallons	Time	Temperature °C	E.C. (µmhos/cm)*	pH*	Fe (II)	Methane	DO
	3	1410	2.9	103	6.4			
	7	1420	2.6	100	6.2			
Bailer	10	1430	2.7	101	6.1			
Subm. Pump								
Ded. Pump								
Suction Pump								
Purger (other)								

→ N * TEMP. CORRECTED



98 NEC 19 GW802

SAMPLE COLLECTION METHOD: Clear
Method: Purge ✓ Bailer ✓ Appearance: odor, no sheen

Analyte	Time	Analyte	Time
DRO/RRO AK102/103	1430	Lead	
GRO AK101		Manganese	
DRO/RRO AAF ADEC		Sulfate	
BETX	1430	NO3	
VOC 8260		Alkalinity	
PAH			
PCBs			
TOC			

COMMENTS: Split _____ Dupl. _____ Trip Blank _____ Other _____
PHOTO TAKEN: (YES) NO
Calibration/Standard: pH EC DO CO2
Decon completed: by BJ mm date 4-13-98
Remarks

GROUNDWATER SAMPLING
FIELD NOTE FORM

MW

SITE: **NORTHEAST CAPE** Sample ID #: 27-1 DATE: 9-13-98
SAMPLE TYPE: **GRAB** FIELD CREW: Bam TIME: start 1545 end 1610
WEATHER: SKY: cldy PRECIP: 0 WIND: 10-15 mph
AIR TEMP: 35°F

GROUNDWATER SAMPLING X
Well Condition: Slight cracking of PVC
Casing Ht. Above Ground: 2.22 (FT.) Diameter: 2 in.
Well Depth: 20.19 ft: BTOC (Meas./~~Est.~~) Static Water Level: 2.53 ft. BTOC
Casing (C) = X Well _____ Outside Protective
ONE PURGE VOLUME: 3 x 7.48 x (dia./24)^2 x 3.14 x (Depth-W. L.)= 9 gal.

PURGING:	Gallons	Time	Temperature °C	E.C. (µmhos/cm)*	pH*	Fe (II)	Methane
METHOD	3	1550	1.8	188	6.1		
	7	1555	1.3	188	5.9		
Bailer	10	1558	0.8	189	6.0		
Subm. Pump	15	1603	0.8	193	5.9		
Ded. Pump							
Suction Pump							
Purger							
(other)							

* TEMP. CORRECTED @ 25C

98 NEC 27 GW001

2.27' Steel to Grnd

SAMPLE COLLECTION METHOD: grey tub. -
Method: Purge ✓ Bailer ✓ Appearance: slight fuel smell

Analyte	Time	Analyte	Time
DRO/RRO AK102/103	1600	Lead	
GRO AK101		Manganese	
DRO/RRO AAF ADEC		Sulfate	
BETX	1600	NO3	
VOC 8260		Alkalinity	
PAH			
PCBs			
TOC			

COMMENTS: Split_____ Dupl._____ Trip Blank_____ Other_____
PHOTO TAKEN: YES NO
Calibration/Standard: pH EC DO CO2
Decon completed: by 9-13-98 date Bam
Remarks Seep from 3 springs on pond and then drains under road into DB - No sheen or odor observed heavy algae growth

GROUNDWATER SAMPLING
FIELD NOTE FORM

SITE: **NORTHEAST CAPE** Sample ID #: 16-1 DATE: 9-13-98
SAMPLE TYPE: **GRAB** FIELD CREW: Bgm / AO TIME: start 1440 end 1500
WEATHER: SKY: cl dy PRECIP: 0 WIND: 10-15 mph
AIR TEMP: 35°F

GROUNDWATER SAMPLING X
Well Condition: no locking cap present
Casing Ht. Above Ground: 2.96 (FT.) PVC Diameter: 2 in.
Well Depth: 16.84 ft. BTOC (Meas./~~Rec.~~) Static Water Level: 10.92 ft. BTOC
Casing (C) = X Well _____ Outside Protective
ONE PURGE VOLUME: 3 x 7.48 x (dia./24)^2 x 3.14 x (Depth-W. L.)= 3 gal.

PURGING: METHOD	Gallons	Time	Temperature °C	E.C. (µmhos/cm)*	pH*	Fe (II)	Methane	DO
	4	1450	3.8	196	7.0	X	X	
	6	1455	3.6	202	7.2	X	X	
Bailer	10	1505	3.6	201	7.4			
Subm. Pump					est			
Ded. Pump								
Suction Pump								
Purge (other)								

* TEMP. CORRECTED

Cle-list / NO QA/QC / NO QC

Pb	MS/MSD	QC	Primm	98	NEC	16 GW 801 2G1	@ 1510
VOA	VOC	QC	Duppe	98	NEC	16 GW	
VOA	Lead	QA	Split	98	NEC	16 GW 301	@ 1505

SAMPLE COLLECTION METHOD: Grey Tygb., slight sheen
Method: Purge ✓ Bailer _____ Appearance: paint thinner odor

Analyte	Time	Analyte	Time
DRO/RRO AK102/103		Lead ✓	1500
GRO AK101		Manganese	
DRO/RRO AAF ADEC		Sulfate	
BETX		NO3	
VOC 8260 ✓	1554	Alkalinity	
PAH			
PCBs			
TOC			

@ 1900

COMMENTS: Split ✓ Dupl. ✓ Trip Blank VOC Other _____
PHOTO TAKEN: (YES) NO
Calibration/Standard: pH EC DO CO2
Decon completed: by Bgm date 9-13-98
Remarks

N ← [+ paint dope]

GROUNDWATER SAMPLING
FIELD NOTE FORM

MW

SITE: **NORTHEAST CAPE** Sample ID #: 16-3 DATE: 9-13-98
SAMPLE TYPE: **GRAB** FIELD CREW: Bgm TIME: start 1505 end 1515
WEATHER: SKY: Cldy PRECIP: 0 WIND: 10-15 mph
AIR TEMP: 35°F

GROUNDWATER SAMPLING X
Well Condition: no locking apparent
Casing Ht. Above Ground: 2.58 (FT.) PVC Diameter: 2 in.
Well Depth: 17.28 ft. BTOC (Meas./~~Rec.~~) Static Water Level: 11.17 ft. BTOC
Casing (C) = X Well _____ Outside Protective
ONE PURGE VOLUME: 3 x 7.48 x (dia./24)^2 x 3.14 x (Depth-W. L.)= 2.5 gal.

PURGING: METHOD	Gallons	Time	Temperature °C	E.C. (µmhos/cm)*	pH*	Fe (II)	Methane	DO
	5	1510	3.0	186	7.1			
	10	1513	2.5	189	7.1			
Bailer								
Subm. Pump								
Ded. Pump								
Suction Pump								
Purger (other)								

* TEMP. CORRECTED @ 25C

steel 2 yrd. 2,84'

N ←

paint dope ⊗

98 NEC 16 GW 802

SAMPLE COLLECTION METHOD:
Method: Purge ✓ Bailer ✓ Appearance: Slight tannish edge, no sheen

Analyte	Time	Analyte	Time			
DRO/RRO AK102/103		Lead ✓	1515			
GRO AK101		Manganese				
DRO/RRO AAF ADEC		Sulfate				
BETX		NO3				
VOC 8260 ✓	1515	Alkalinity				
PAH						
PCBs						
TOC						

COMMENTS: Split _____ Dupl. _____ Trip Blank _____ Other _____
PHOTO TAKEN: (YES) NO
Calibration/Standard: pH EC DO CO2
Decon completed: by Bgm date 9-13-98
Remarks

Paint Dope ⊗

Army Corps of Engineers

Northeast Cape, Alaska

1998 Chain-of-Custody

MONTGOMERY WATSON

MONTGOMERY WATSON

Montgomery Watson 4100 Spenard Road Anchorage AK 99517 (907)248-8883 Fax (907) 248-8884 ATTN: Eileen Maus	Laboratory: Quanterra Inc. 5761 Silverado Way Suite N Anchorage, Ak 99518 907-265-8128 907-265-8263 FAX Attn: Cindy LeFever **MW Job Number:** **1189098.050101** **30-DAY** **TURNAROUND**		SOIL: DRO/RRO - AK 102/103 (8 oz amber glass); AAF/DRO & RRO - ADEC 18 ACC 75 (8 oz amber glass); BTEX - EPA 8021A (4 oz amber glass w/MeOH); PAHs - EPA 8270 SIM (8 oz amber glass); PCBs - EPA 8082 (8 oz amber glass); Diesle - EPA 8290 (8 oz amber glass); TOC - SW 9060 (4 oz jar); Bulk Density - ASTM D-2937; Moisture Content - ASTM D-2216; Sieve Analysis - ASTM D-2487	WATER: DRO/RRO - AK 102/103 (2 - 1 L amber w/HCl); AAF/DRO & RRO - ADEC 18 ACC 75 (2 - 1 L amber w/HCl); GRO - AK 101 (2 - 40 mL vials w/HCl); BTEX - EPA 8021A (3 - 40 ml vials w/HCl); VOC - EPA 8260 (3 - 40 ml vials w/HCl); PAHs - EPA 8270 SIM (2-1L amber glass w/HCl); PCBs - EPA 8082 (2 - 1L amber glass); TOC - EPA 415.1 (250 ml amber glass w/H_2SO_4); Lead EPA 7421/Manganese SW 6010 (500 ml polyethylene w/HNO_3); Sulfide - EPA 376.0 (125 mL high density polyethylene); Nitrate - EPA 353.3 (250 mL high density polyethylene); Alkalinity (bicarbonate) - EPA 310.1 (1 L polyethylene)	U.S. Army Corps of Engineers - Northeast Cape Comments: 98NEC001 COC #
Sampler's Signature	F. McLean				

Date	Time	Sample ID	Matrix	# Containers	DRO/RRO	AAF/DRO & RRO	BTEX	PAHs	PCBs	Diesle	TOC	Bulk Density	Moisture Content	Sieve Analysis	DRO/RRO	AAF/DRO & RRO	GRO	BTEX	VOC	PAHs	PCBs	TOC	Lead	Sulfide	Nitrate	Alkalinity			
9/11	1730	98 NE C03 GW801	W	2												X												DRO only
9/11	1800	98 NE C04 GW801	W	2												X												DRO only
9/11	1600	98 NE C00 GW801	W	2											X													DRO/RRO
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										

Relinquished by:	Date: 9/12/99	Hand Delivered: Y N O	Shipped Via: Goldstreak	Airbill Number: 1151 1165	Date
F. McLean/Fina	Time: 1500				Time
Received for Laboratory by:	Date	Cooler Temperature upon arrival ℃		Laboratory Notified	
	Time			Faxed	

MONTGOMERY WATSON

Montgomery Watson 4100 Spenard Road Anchorage AK 99517 (907)248-8883 Fax (907) 248-8884 ATTN: Eileen Maus	Laboratory: Quanterra Inc. 5761 Silverado Way Suite N Anchorage, Ak 99518 907-265-8128 907-265-8263 FAX Attn: Cindy LeFever **MW Job Number:** **1189098.050101** **30-DAY** **TURNAROUND**		SOIL: DRO/RRO - AK 102/103 (8 oz amber glass)	SOIL: GAF/DRO & RRO - ADEC 18 ACC 75 (8 oz amber glass)	SOIL: BTEX - EPA 8021A (4 oz amber glass w/MeOH)	SOIL: PAHs - EPA 8270 SIM (8 oz amber glass)	SOIL: PCBs - EPA 8082 (8 oz amber glass)	SOIL: Dioxin - EPA 8290 (8 oz amber glass)	SOIL: TOC - SW 9060 (4 oz jar)	SOIL: Bulk Density - ASTM D-2937	SOIL: Moisture Content - ASTM D-2216	SOIL: Sieve Analysis - ASTM D-2487	WATER: DRO/RRO - AK 102/103 (2-1 L amber w/HCl)	WATER: GAF/DRO & RRO - ADEC 18 ACC 75 (2-1 L amber w/HCl)	WATER: GRO - AK 101 (2 - 40 mL vials w/HCl)	WATER: BTEX - EPA 8021A (3-40 ml vials w/HCl)	WATER: VOC - EPA 8260 (3-40 ml vials w/HCl)	WATER: PAHs - EPA 8270 SIM (2-1L amber glass w/HCl 9/12/98)	WATER: PCBs - EPA 8082 (2 - 1L amber glass)	WATER: TOC - EPA 415.1 (250 ml amber glass w/H_2SO_4)	WATER: Lead EPA 7421/manganese SW 6010 (500 ml polyethylene w/HNO3)	WATER: Sulfate - EPA 300.0 (125 mL high density polyethylene)	WATER: Nitrate - EPA 353.3 (250 mL high density polyethylene)	WATER: Alkalinity (bicarbonate) - EPA 310.1 (1 L polyethylene)	U.S. Army Corps of Engineers - Northeast Cape **Comments:** 98NEC002 COC #		
Sampler's Signature	BGM																										
9/11	1300	98 NE CC GW 01	W	5													X		X								
9/11	1500	98 NE CC GW 02	W	5													X		X								
9/11	1600	98 NE CC GW 03	W	4												X	X		X			X					
9/11	1500	98 NE CC TB 01	W	2												X	X										
		98 NE																									
		98 NE																									
		98 NE																									
		98 NE																									
		98 NE																									
		98 NE																									
		98 NE																									
		98 NE																									

Relinquished by: BGM/EMcC	Date 9/12/98	Hand Delivered Y N	Shipped Via Goldstreak	Airbill Number: 0214 4660	Date 9/13/98
	Time 1500				Time 1500
Received for Laboratory by:	Date	Cooler Temperature upon arrival °C		Laboratory Notified Faxed	
	Time				

9/9/9

MONTGOMERY WATSON

00214

CK LAB

Montgomery Watson 4100 Spenard Road Anchorage AK 99517 (907)248-8883 Fax (907) 248-8884 ATTN: Eileen Maus	Laboratory: Quanterra Inc. 5761 Silverado Way Suite N Anchorage, Ak 99518 907-265-8128 907-265-8263 FAX Attn: Cindy LeFever **MW Job Number:** **1189098.050101** **30-DAY** **TURNAROUND**		SOIL: DRO/RRO - AK 102/103 8 oz amber glass; GAF/DRO & RRO - ADEC 18 ACC 75 8 oz amber glass; BTEX - EPA 8021A 4 oz amber glass w/MeOH; PAHs - EPA 8270 SIM 8 oz amber glass; PCBs - EPA 8082 8 oz amber glass; Dioxin - EPA 8290 8 oz amber glass; TOC - SW 9060 4 oz jar; Bulk Density - ASTM D-2937; Moisture Content - ASTM D-2216; Sieve Analysis - ASTM D-2487	WATER: DRO/RRO - AK 102/103 2- 1 L amber w/HCl; GAF/DRO & RRO - ADEC 18 ACC 75 2- 1 L amber w/HCl; GRO - AK 101 2 - 40 mL vials w/HCl; BTEX - EPA 8021A 3-40 ml vials w/HCl; PAHs - EPA 8270 SIM 2-1L amber glass w/HCl; PCBs - EPA 8082 2 - 1L amber glass; TOC - EPA 415.1 250 ml amber glass w/H_2SO_4; Lead EPA 7421/Manganese SW 6010 500 ml polyethylene w/HNO_3; Sulfate - EPA 300.0 125 mL high density polyethylene; Nitrate - EPA 353.3 250 mL high density polyethylene; Alkalinity (bicarbonate) - EPA 310.1 1 L polyethylene	U.S. Army Corps of Engineers - Northeast Cape **Comments:** 98NEC003 COC #

Sampler's Signature: Bob McCann

Date	Time	Sample ID	Matrix	Containers	DRO/RRO	GAF/DRO & RRO	GRO	BTEX	PAHs	PCBs	TOC	Lead	Sulfate	Nitrate	Alkalinity	Comments
9/12	1215	98 NEC07GW801	W	5	X			X	X							DRO
9/12	1500	98 NEC09GW801	W	5	X			X	X							DRO
9/12	1600	98 NEC09GW802	W	5	X			X	X							DRO
9/12	1630	98 NEC09GW803	W	5	X			X	X							DRO
9/12	1900	98 NECTB002	W	2												
		98 NE														
		98 NE														
		98 NE														
		98 NE														
		98 NE														
		98 NE														
		98 NE														

Relinquished by: Bob McCann / GMccann	Date 9/13/98 Time 1500	Hand Delivered Y X N	Shipped via: Goldstreak
Received for Laboratory by:	Date Time	Cooler Temperature upon arrival °C	Laboratory Notified Faxed

Airbill Number: 0214 4671

Date 9/13/98
Time 1500

MONTGOMERY WATSON

Montgomery Watson
4100 Spenard Road
Anchorage AK 99517
(907)248-8883
Fax (907) 248-8884
ATTN: Eileen Maus

Laboratory:
Quanterra Inc.
5761 Silverado Way Suite N
Anchorage, Ak 99518
907-265-8128
907-265-8263 FAX
Attn: Cindy LeFever

MW Job Number:
1189098.050101
30-DAY
TURNAROUND

U.S. Army Corps of Engineers - Northeast Cape
Comments:
98NEC004
COC # ______

Sampler's Signature

					SOIL										WATER											
		Sample ID			DRO/RRO - AK 102/103 8 oz amber glass	AAF/DRO & RRO - ADEC 18 ACC 75	BTEX - EPA 8021A 4 oz amber glass w/MeOH	PAHs - EPA 8270 SIM 8 oz amber glass	PCBs - EPA 8082 8 oz amber glass	Dioxin - EPA 8290 8 oz amber glass	TOC - SW 9060 4 oz jar	Bulk Density - ASTM D-2937	Moisture Content - ASTM D-2216	Sieve Analysis - ASTM D-2487	DRO/RRO - AK 102/103 2- 1 L amber w/HCl	AAF/DRO & RRO - ADEC 18 ACC 75 2- 1 L amber w/HCl	GRO - AK 101 2 - 40 mL vials w/HCl	BTEX - EPA 8021A 3- 40 ml vials w/HCl	VOC - EPA 8260 3- 40 ml vials w/HCl	PAHs - EPA 8270 SIM 2-1L amber glass ~~w/HCl~~	PCBs - EPA 8082 2 - 1L amber glass	TOC - EPA 415.1 250 ml amber glass w/H_2SO_4	Lead EPA 7421/Manganese SW 6010 500 ml polyethylene w/HNO_3	Sulfate - EPA 300.0 125 mL high density polyethylene	Nitrate - EPA 353.3 250 mL high density polyethylene	Alkalinity (bicarbonate) - EPA 310.1 1 L polyethylene
9/12	1215	98 NE C07GW801	W	2																\						
9/12	1500	98 NE C09GW801	W	2																X						
9/12	1600	98 NE C09GW802	W	2																X						
9/12	1630	98 NE C09GW803	W	2																X						
		98 NE																								
		98 NE																								
		98 NE																								
		98 NE																								
		98 NE																								
		98 NE																								
		98 NE																								
		98 NE																								

Relinquished by: BGMcbe / EMa	Date 9/13/98 Time 1500	Hand Delivered Y N	Shipped Via Goldstreak	Airbill Number: 0214 4682	Date 9/13/98 Time 1500
Received for Laboratory by:	Date Time	Cooler Temperature upon arrival °C		Laboratory Notified Faxed	

MONTGOMERY WATSON

Montgomery Watson 4100 Spenard Road Anchorage AK 99517 (907)248-8883 Fax (907) 248-8884 ATTN: Eileen Maus	Laboratory: Quanterra Inc. 5761 Silverado Way Suite N Anchorage, Ak 99518 907-265-8128 907-265-8263 FAX Attn: Cindy LeFever **MW Job Number:** **1189098.050101** **30-DAY** **TURNAROUND**		U.S. Army Corps of Engineers - Northeast Cape Comments: C18NEC005 COC # _____

Sampler's Signature: DGM

					SOIL											WATER																			
					DRO/RRO - AK 102/103 8 oz amber glass	AAF/DRO & RRO - ADEC 18 ACC 75	BTEX - EPA 8021A 4 oz amber glass w/MeOH	PAHs - EPA 8270 SIM 8 oz amber glass	PCBs - EPA 8082 8 oz amber glass	Dioxin - EPA 8290 8 oz amber glass	TOC - SW 9060 4 oz jar	Bulk Density - ASTM D-2937	Moisture Content - ASTM D-2216	Sieve Analysis - ASTM D-2487	DRO/RRO - AK 102/103 2- 1 L amber w/HCl	AAF/DRO & RRO - ADEC 18 ACC 75 2- 1 L amber w/HCl	GRO - AK 101 2 - 40 mL vials w/HCl	BTEX - EPA 8021A 3- 40 ml vials w/HCl	VOC - EPA 8260 3- 40 ml vials w/HCl	PAHs - EPA 8270 SIM 2-1L amber glass w/HCl	PCBs - EPA 8082 2 - 1L amber glass	TOC - EPA 415.1 250 ml amber glass w/H_2SO_4	Lead EPA 7421/Manganese SW 6010 500 ml polyethylene w/HNO_3	Sulfate - EPA 300.0 125 mL high density polyethylene	Nitrate - EPA 353.3 250 mL high density polyethylene	Alkalinity (bicarbonate) - EPA 310.1 1 L polyethylene			
9/12	1710	98 NE	DBSSD601	C	2	X	X	X	X	X																								
9/12	1730	98 NE	DBSSD602	S	3	X	X	X	X																									
9/12	1750	98 NE	DBSSD603	S	2	X	X	X	X																									
9/12	740	98 NE	DBSS603	S	1						X																							
9/12	720	98 NE	DBSS604	S	1						X																							
9/12	700	98 NE	DBSS605	S	1						X																							
9/12	1640	98 NE	DBSS606	S	2	X	X																											
9/12	1620	98 NE	DBSS607	S	2	X	X																											
9/12	1640	98 NE	DBSS608	S	2	X	X																											
9/12	1600	98 NE	DBSS609	S	2	X	X																											
9/12	820	98 NE	DBSS801	S	3	X	X	X	X	X																								
9/12	1500	98 NE	DBSS801	S	3	X	X	X	X	X																								

Relinquished by: DGM/EMaus	Date 1200	Hand Delivered Y / N	Shipped Via Goldstreak	Airbill Number: 0214 [illegible]	Date 1/11/12
	Time				Time 1200
Received for Laboratory by:	Date	Cooler Temperature upon arrival °C		Laboratory Notified	
	Time			Faxed	

9/9/9811:46 AM

MONTGOMERY WATSON

Montgomery Watson 4100 Spenard Road Anchorage AK 99517 (907)248-8883 Fax (907) 248-8884 ATTN: Eileen Maus	Laboratory: Quanterra Inc. 5761 Silverado Way Suite N Anchorage, Ak 99518 907-265-8128 907-265-8263 FAX Attn: Cindy LeFever **MW Job Number:** **1189098.050101** **30-DAY** **TURNAROUND**	U.S. Army Corps of Engineers - Northeast Cape Comments: 98NECO06 COC # _____

Sampler's Signature: [signature]

					SOIL											WATER																			
					DRO/RRO - AK 102/103 8 oz amber glass	AAF/DRO & RRO - ADEC 18 ACC 75 8 oz amber glass	BTEX - EPA 8021A 4 oz amber glass w/MeOH	PAHs - EPA 8270 SIM 8 oz amber glass	PCBs - EPA 8082 8 oz amber glass	Dioxin - EPA 8290 8 oz amber glass	TOC - SW 9060 4 oz jar	Bulk Density - ASTM D-2937 Tube	Moisture Content - ASTM D-2216 Tube	Sieve Analysis - ASTM D-2487 Tube	DRO/RRO - AK 102/103 2- 1 L amber w/HCl	AAF/DRO & RRO - ADEC 18 ACC 75 2- 1 L amber w/HCl	GRO - AK 101 2 - 40 mL vials w/HCl	BTEX - EPA 8021A 3- 40 ml vials w/HCl	VOC - EPA 8260 3- 40 ml vials w/HCl	PAHs - EPA 8270 SIM 2-1L amber glass w/HCl	PCBs - EPA 8082 2 - 1L amber glass	TOC - EPA 415.1 250 ml amber glass w/H_2SO_4	Lead EPA 7421/Manganese SW 6010 500 ml polyethylene w/HNO_3	Sulfate - EPA 300.0 125 mL high density polyethylene	Nitrate - EPA 353.3 250 mL high density polyethylene	Alkalinity (bicarbonate) - EPA 310.1 1 L polyethylene										
Date	Time	Sample ID	Matrix	Cont.																														
7/12	1100	98 NECRCSD005	S	2	X	X		X	X																									
7/12	1250	98 NECRCSD206	S	2	X	X		X	X																									
		98 NE																																
		98 NE																																
		98 NE																																
		98 NE																																
		98 NE																																
		98 NE																																
		98 NE																																
		98 NE																																
		98 NE																																
		98 NE																																

Relinquished by: [signature]	Date 7/13/98 Time 1100	Hand Delivered Y (N)	Shipped Via Gold Crest	Airbill Number: 08147730	Date 7/13/98 Time 1300
Received for Laboratory by:	Date Time	Cooler Temperature upon arrival °C		Laboratory Notified Faxed	

6

9r

MONTG[illegible]RY WATSON

985211

Montgomery Watson 4100 Spenard Road Anchorage AK 99517 (907)248-8883 Fax (907) 248-8884 ATTN: Eileen Maus	Laboratory: Quanterra Inc. 5761 Silverado Way Suite N Anchorage, Ak 99518 907-265-8128 907-265-8263 FAX Attn: Cindy LeFever **MW Job Number:** **1189098.050101** **30-DAY** **TURNAROUND**		SOIL: DRO/RRO - AK 102/103 · 8 oz amber glass	SOIL: GAF/DRO & RRO - ADEC 18 ACC 75 · 8 oz amber glass	SOIL: BTEX - EPA 8021A · 4 oz amber glass w/MeOH	SOIL: PAHs - EPA 8270 SIM · 8 oz amber glass	SOIL: PCBs - EPA 8082 · 8 oz amber glass	SOIL: Diesin - EPA 8290 · 8 oz amber glass	SOIL: TOC - SW 9060 · 4 oz jar	SOIL: Bulk Density - ASTM D-2937	SOIL: Moisture Content - ASTM D-2216	SOIL: Sieve Analysis - ASTM D-2487	WATER: DRO/RRO - AK 102/103 · 2 - 1 L amber w/HCl	WATER: GAF/DRO & RRO - ADEC 18 ACC 75 · 2 - 1 L amber w/HCl	WATER: GRO - AK 101 · 2 - 40 mL vials w/HCl	WATER: BTEX - EPA 8021A · 3 - 40 ml vials w/HCl	WATER: VOC - EPA 8260 · 3 - 40 ml vials w/HCl	WATER: PAHs - EPA 8270 SIM · 2 - 1L amber glass w/HCl	WATER: PCBs - EPA 8082 · 2 - 1L amber glass	WATER: TOC - EPA 415.1 · 250 ml amber glass w/H_2SO_4	WATER: Lead EPA 7421/Manganese SW 6010 · 500 ml polyethylene w/HNO_3	WATER: Sulfate - EPA 300.0 · 125 mL high density polyethylene	WATER: Nitrate - EPA 353.3 · 250 mL high density polyethylene	WATER: Alkalinity (bicarbonate) - EPA 310.1 · 1 L polyethylene	U.S. Army Corps of Engineers - Northeast Cape **Comments:** 98NEC 007 COC #
Sampler's Signature: Bruce McLean																									
Date / Time		Sample Number																							
(1) 9/13/98 1600		98 NE C00GW801	W	1																				X	X
		98 NE																							
		98 NE																							
		98 NE																							
		98 NE																							
		98 NE																							
		98 NE																							
		98 NE																							
		98 NE																							
		98 NE																							
		98 NE																							
		98 NE																							

Relinquished by: Bruce McLean — Date: 9/14/98 — Time:

Received by Laboratory: Tara Stowell — Date: 9/14/98 — Time: 1520

Hand Delivered: Y (N) — Cooler Temperature upon arrival: °C

Shipped Via: AK Airbics GS

Airbill Number: 0214 5006

Laboratory Notified

Faxed

Date: 9/14/98 — Time:

7

9/9/9811:46 AM

MONTG WATSON

Montgomery Watson 4100 Spenard Road Anchorage AK 99517 (907)248-8883 Fax (907) 248-8884 ATTN: Eileen Maus	Laboratory: Quanterra Inc. 5761 Silverado Way Suite N Anchorage, Ak 99518 907-265-8128 907-265-8263 FAX Attn: Cindy LeFever **MW Job Number:** **1189098.050101** **30-DAY** **TURNAROUND**		SOIL: DRO/RRO - AK 102/103 8 oz amber glass	SOIL: GAF/DRO & RRO - ADEC 18 ACC 75	SOIL: BTEX - EPA 8021A 4 oz amber glass w/MeOH	SOIL: PAHs - EPA 8270 SIM 8 oz amber glass	SOIL: PCBs - EPA 8082 8 oz amber glass	SOIL: Dioxin - EPA 8290 8 oz amber glass	SOIL: TOC - SW 9060 4 oz jar	SOIL: Bulk Density - ASTM D-2937	SOIL: Moisture Content - ASTM D-2216	SOIL: Sieve Analysis - ASTM D-2487	WATER: DRO/RRO - AK 102/103 2 - 1 L amber w/HCl	WATER: GAF/DRO & RRO - ADEC 18 ACC 75 2 - 1 L amber w/HCl	WATER: GRO - AK 101 2 - 40 mL vials w/HCl	WATER: BTEX - EPA 8021A 3 - 40 ml vials w/HCl	WATER: VOC - EPA 8260 3 - 40 ml vials w/HCl	WATER: PAHs - EPA 8270 SIM 2-1L amber glass w/HCl	WATER: PCBs - EPA 8082 2 - 1L amber glass	WATER: TOC - EPA 415.1 250 ml amber glass w/H_2SO_4	WATER: Lead EPA 7421/Manganese SW 6010 500 ml polyethylene w/HNO_3	WATER: Sulfate - EPA 300.0 125 mL high density polyethylene	WATER: Nitrate - EPA 353.3 250 mL high density polyethylene	WATER: Alkalinity (bicarbonate) - EPA 310.1 1 L polyethylene	U.S. Army Corps of Engineers - Northeast Cape Comments: 98NEC008 COC #
Sampler's Signature: BGM																								
9/10/98	1730	98 NE C 10GW801	W	5										X			X								
9/10/98	1740	98 NE C 10GW201	W	5										X			X								
9/10/98	1800	98 NE C 10GW802	W	5										X			X								
9/10/98	1900	98 NE CTB003	W	3													X								
		98 NE																							
		98 NE																							
		98 NE																							
		98 NE																							
		98 NE																							
		98 NE																							
		98 NE																							
		98 NE																							

Relinquished by: BGM EMaus	Date: 9/14/98 Time: 1500	Hand Delivered Y N	Shipped Via	Airbill Number:	Date Time
Received for Laboratory by:	Date Time	Cooler Temperature upon arrival °C		Laboratory Notified Faxed	

9/9[illegible] AM

MONTGOMERY WATSON

Rush to call us

Montgomery Watson 4100 Spenard Road Anchorage AK 99517 (907)248-8883 Fax (907) 248-8884 ATTN: Eileen Mass	Analytica Quanterra Inc 5761 Silverado Way, Suite M Anchorage, AK 99518 907-365-8128 907-365-8969 FAX Attn: Cindy LeFever MW Job Number: 1189098.050101 30-DAY TURNAROUND		SOIL: DRO/RRO - AK 102/103, 8 oz amber glass	SOIL: AAF/DRO & RRO - AK102/103 AK103	SOIL: BTEX - EPA 8021A, 4 oz amber glass w/MeOH	SOIL: PAHs - EPA 8270 SIM, 8 oz amber glass	SOIL: PCBs - EPA 8082, 8 oz amber glass	SOIL: Dioxin - EPA 8290, 8 oz amber glass	SOIL: TOC - SW 9060, 4 oz jar	SOIL: Bulk Density - ASTM D-2937	SOIL: Moisture Content - ASTM D-2216	SOIL: Sieve Analysis - ASTM D-2487	WATER: DRO/RRO - AK 102/103, 2 - 1 L amber w/HCl	WATER: AAF/DRO & RRO - AK102/103 AK103, 2 - 1 L amber w/HCl	WATER: GRO - AK 101, 2 - 40 mL vials w/HCl	WATER: BTEX - EPA 8021A, 3 - 40 ml vials w/HCl	WATER: VOC - EPA 8260, 3 - 40 ml vials w/HCl	WATER: PAHs - EPA 8270 SIM, 2-1L amber glass w/HCl	WATER: PCBs - EPA 8082, 2 - 1L amber glass	WATER: TOC - EPA 415.1, 250 ml amber glass w/H_2SO_4	WATER: Lead EPA 7421/Manganese SW 6010, 500 ml polyethylene w/HNO_3	WATER: Sulfate - EPA 300.0, 125 mL high density polyethylene	WATER: Nitrate - EPA 353.3, 250 mL high density polyethylene	WATER: Alkalinity (bicarbonate) - EPA 310.1, 1 L polyethylene	U.S. Army Corps of Engineers - Northeast Cape Comments: 98NEC009 COC #		
Sampler's Signature: BSM																											
Collection Date	Collection Time	Sample Identification	Matrix	# of Containers																									
9/12	1745	98 NE C106W301	W	5	X		X																						
9/12	1900	98 NE CTB004	W	3			X																						
		98 NE																											
		98 NE																											
		98 NE																											
		98 NE																											
		98 NE																											
		98 NE																											
		98 NE																											
		98 NE																											
		98 NE																											
		98 NE																											
		98 NE																											

Relinquished by: BSM/EMass	Date: 9/14/98 Time: 1500	Hand Delivered: Y (N)	Shipped Via: Goldstreak	Airbill Number: 08232943	Date: 9/14/98 Time: 1500
Received for Laboratory by:	Date Time	Cooler Temperature upon arrival °C		Laboratory Notified Faxed	

MONTGOMERY WATSON

Need to call Lab

[illegible]

Montgomery Watson
4100 Spenard Road
Anchorage AK 99517
(907)248-8883
Fax (907) 248-8884
ATTN: Eileen Maus

Analytica

Laboratory:
~~Quanterra Inc.~~
~~5761 Silverado Way, Suite N~~
~~Anchorage, AK 99518~~
~~[illegible]~~
~~[illegible] FAX~~
~~Attn: [illegible]~~

MW Job Number:
1189098.050101
30-DAY
TURNAROUND

U.S. Army Corps of Engineers - Northeast Cape
Comments:
~~98NEC00~~ EMM 9/14/98
98NEC010
1 of 2

COC # ____________

Sampler's Signature BGM/DQ

					SOIL										WATER														
					DRO/RRO - AK 102/103 8 oz amber glass	AAF/DRO & RRO - ADEC 18 ACC 75	BTEX - EPA 8021A 4 oz amber glass w/MeOH	PAHs - EPA 8270 SIM 8 oz amber glass	PCBs - EPA 8082 8 oz amber glass	Dioxin - EPA 8290 8 oz amber glass	TOC - SW 9060 4 oz jar	Bulk Density - ASTM D-2937	Moisture Content - ASTM D-2216	Sieve Analysis - ASTM D-2487	DRO/RRO - AK 102/103 2- 1 L amber w/HCl	AAF/DRO & RRO - ADEC 18 ACC 75 2- 1 L amber w/HCl	GRO - AK 101 2 - 40 mL vials w/HCl	BTEX - EPA 8021A 3- 40 ml vials w/HCl	VOC - EPA 8260 3- 40 ml vials w/HCl	PAHs - EPA 8270 SIM 2-1L amber glass w/HCl	PCBs - EPA 8082 2 - 1L amber glass	TOC - EPA 415.1 250 ml amber glass w/H_2SO_4	Lead EPA 7421/Manganese SW 6010 500 ml polyethylene w/HNO_3	Sulfate - EPA 300.0 125 mL high density polyethylene	Nitrate - EPA 353.3 250 mL high density polyethylene	Alkalinity (bicarbonate) - EPA 310.1 1 L polyethylene			
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]																							[illegible]	[illegible]	[illegible]
9/13	1625	98 NE C15GW301	W	3														X											
9/13	1505	98 NE C16GW301	W	4															X				X						
9/13	1235	98 NE C19GW301	W	10											X			X											MS/MSD
9/13	1900	98 NE CTB005	W	3															X										
		98 NE																											
		98 NE																											
		98 NE																											
		98 NE																											
		98 NE																											
		98 NE																											
		98 NE																											
		98 NE																											

Relinquished by: BGM/DQ/Emaus
Date 9/14/98
Time 1500
Hand Delivered Y [✓ N]
Shipped Via Goldstreak
Airbill Number 08232943
Date 9/14/98
Time 1500

Received for Laboratory by:
Date
Time
Cooler Temperature upon arrival °C
Laboratory Notified
Faxed

10

MONTGOMERY WATSON

Montgomery Watson 4100 Spenard Road Anchorage AK 99517 (907)248-8883 Fax (907) 248-8884 ATTN: Eileen Mans	Analytica 811 W. 8th AVE Anchorage, AK 99501 Laboratory Quanterra Inc 5761 Silverado Way Suite N Anchorage, AK 99518 907-267-8128 907-269-0363 Fax Attn: Cindy LaFleur **MW Job Number:** **1189098.050101** **30-DAY** **TURNAROUND**		SOIL										WATER													U.S. Army Corps of Engineers - Northeast Cape Comments: 98NEC010 2 of 2 COC #
Sampler's Signature			DRO/RRO - AK 102/103 8 oz amber glass	AAF/DRO & RRO - ADEC 18 AAC 75	BTEX - EPA 8021A 4 oz amber glass w/MeOH	PAHs - EPA 8270 SIM 8 oz amber glass	PCBs - EPA 8082 8 oz amber glass	Dioxin - EPA 8290 8 oz amber glass	TOC - SW 9060 4 oz jar	Bulk Density - ASTM D-2937	Moisture Content - ASTM D-2216	Sieve Analysis - ASTM D-2487	DRO/RRO - AK 102/103 2 - 1 L amber w/HCl	AAF/DRO & RRO - ADEC 18 AAC 75 2 - 1 L amber w/HCl	GRO - AK 101 2 - 40 mL vials w/HCl	BTEX - EPA 8021A 3 - 40 ml vials w/HCl	VOC - EPA 8260 3 - 40 ml vials w/HCl	PAHs - EPA 8270 SIM 2-1L amber glass w/HCl	PCBs - EPA 8082 2 - 1L amber glass	TOC - EPA 415.1 250 ml amber glass w/H_2SO_4	Lead EPA 7421/Manganese SW 6010 500 ml polyethylene w/HNO_3	Sulfate - EPA 300.0 125 mL high density polyethylene	Nitrate - EPA 353.3 250 mL high density polyethylene	Alkalinity (bicarbonate) - EPA 310.1 1 L polyethylene			
9-13	1810	98 NE CRC301	S	4	X	X	X	X	X																
9-13	1610	98 NE CRC302	S	3	X	X	X	X	X																
		98 NE ~~CRC30E~~																							
9-13	1540	98 NE CRCSW302	W										X	X				X	X		Revised		9-14-98		
		98 NE																							
		98 NE																							
		98 NE																							
		98 NE																							
		98 NE																							
		98 NE																							
		98 NE																							
		98 NE																							

Relinquished by:	Date 9/14/98	Hand Delivered (Y) (N)	Shipped Via AK Airlines Gold Streak	Airbill Number: 0823 2943
Received for Laboratory by:	Time Date	Cooler Temperature upon arrival °C		Laboratory Notified Faxed

Date 9/14/98
Time

9/9/98 11:46 AM

FAX

MONTGOMERY WATSON

4100 Spenard Road
Anchorage, Alaska 99517

Tel: (907) 248-8883
Fax: (907) 248-8884

Date:

To: Analytica Angie Caudell **Fax No:** 907 258 6034

From: ~~Eileen~~ Maus **Reference:** Northeast Cape

Subject: COC# 98NECO10 page 2 **No. of Pages:** 2 **(including cover)**

Please see revision in COC# 98NECO10 page 2

Sample # 98NECRCSW302W

Parameters:

DRO/RRO	AK 102/103	(1)
AMF DRO/RRO	~~AB~~	(1)
~~RH~~, PAHs	unpreserved	(1)
PCB	unpreserved	(1)

Thank You, Ellen

If you do not receive all pages, or if there are any problems with this transmission, please call Angela King at 907-248-8883.

Need to chg to Pb only

Montgomery Watson
4100 Spenard Road
Anchorage AK 99517
(907)248-8883
Fax (907) 248-8884
ATTN: Eileen Maus

Laboratory:
Quanterra Inc.
5761 Silverado Way Suite N
Anchorage, AK 99518
907-265-8128
907-265-8263 FAX
Attn: Cindy LeFever

MW Job Number:
1189098.050101
30-DAY
TURNAROUND

U.S. Army Corps of Engineers - Northeast Cape
Comments:

98NEC011

1 of 4

COC # ______

Sampler's Signature BGM/DQ

Date	Time	Sample ID	[illegible]	[illegible]	SOIL: DRO/RRO - AK 102/103 8 oz amber glass	SOIL: AAF/DRO & RRO - ADEC 18 ACC 75	SOIL: BTEX - EPA 8021A 4 oz amber glass w/MeOH	SOIL: PAHs - EPA 8270 SIM 8 oz amber glass	SOIL: PCBs - EPA 8082 8 oz amber glass	SOIL: Dioxin - EPA 8290 8 oz amber glass	SOIL: TOC - SW 9060 4 oz jar	SOIL: Bulk Density - ASTM D-2937	SOIL: Moisture Content - ASTM D-2216	SOIL: Sieve Analysis - ASTM D-2487	WATER: DRO/RRO - AK 102/103 2 - 1 L amber w/HCl	WATER: AAF/DRO & RRO - ADEC 18 ACC 75 2 - 1 L amber w/HCl	WATER: GRO - AK 101 2 - 40 mL vials w/HCl	WATER: BTEX - EPA 8021A 3 - 40 ml vials w/HCl	WATER: VOC - EPA 8260 3 - 40 ml vials w/HCl	WATER: PAHs - EPA 8270 SIM 2-1L amber glass w/HCl	WATER: PCBs - EPA 8082 2 - 1L amber glass	WATER: TOC - EPA 415.1 250 ml amber glass w/H_2SO_4	WATER: Lead EPA 7421/~~Manganese SW 6010~~ 500 ml polyethylene w/HNO_3	WATER: Sulfate - EPA 300.0 125 mL high density polyethylene	WATER: Nitrate - EPA 353.3 250 mL high density polyethylene	WATER: Alkalinity (bicarbonate) - EPA 310.1 1 L polyethylene	[illegible]	[illegible]	[illegible]
9/13	1130	98 NE C11GW801	W	5											X			X											
9/13	1200	98 NE C11GW802	W	5											X			X											
9/13	1630	98 NE C13GW001	W	5											X			X											
9/13	1630	98 NE C15GW801	W	5											X			X											
9/13	1620	98 NE C15GW201	W	5														X											
9/13	1500	98 NE C16GW801	W	7															X				X						MS/MSD
9/13	1510	98 NE C16GW201	W	7															X				X						
9/13	1515	98 NE C16GW802	W	4															X				X						
9/13	1230	98 NE C19GW801	W	10											X			X											MS/MSD
9/13	1240	98 NE C19GW201	W	10											X			X											MS/MSD
9/13	1430	98 NE C19GW802	W	5											X			X											
9/13	1600	98 NE C27GW001	W	5											X			X											

Relinquished by: BGM/DQ Emes	Date 9/14/98 Time 1500	Hand Delivered Y ○	Shipped Via Goldstreak	Airbill Number: 0214 4741	Date 9/14/98 Time 1500
Received for Laboratory by:	Date Time	Cooler Temperature upon arrival °C		Laboratory Notified Faxed	

9/9/98 11:46 AM

12

MONTGOMERY WATSON

Montgomery Watson 4100 Spenard Road Anchorage AK 99517 (907)248-8883 Fax (907) 248-8884 ATTN: Eileen Mans	Laboratory: Quanterra Inc. 5761 Silverado Way Suite N Anchorage, AK 99518 907-365-8128 907-365-8263 FAX Attn: Cindy LeFever **MW Job Number:** **1189098.050101** **30-DAY** **TURNAROUND**		SOIL: DRO/RRO - AK 102/103 8 oz amber glass; AAF/DRO & RRO - AMRC 18 ACC 75 8 oz amber glass; BTEX - EPA 8021A 4 oz amber glass w/MeOH; PAHs - EPA 8270 SIM 8 oz amber glass; PCBs - EPA 8082 8 oz amber glass; Dioxin - EPA 8290 8 oz amber glass; TOC - SW 9060 4 oz jar; Bulk Density - ASTM D-2937; Moisture Content - ASTM D-2216; Sieve Analysis - ASTM D-2487 WATER: DRO/RRO - AK 102/103 2 - 1 L amber w/HCl; AAF/DRO & RRO - AMRC 18 ACC 75 2 - 1 L amber w/HCl; GRO - AK 101 2 - 40 mL vials w/HCl; BTEX - EPA 8021A 3 - 40 ml vials w/HCl; VOC - EPA 8260 3 - 40 ml vials w/HCl; PAHs - EPA 8270 SIM 2-1L amber glass w/HCl; PCBs - EPA 8082 2 - 1L amber glass; TOC - EPA 415.1 250 ml amber glass w/H_2SO_4; Lead EPA 7421/Manganese 6W 6010 500 ml polyethylene w/HNO_3; Sulfate - EPA 300.0 125 mL high density polyethylene; Nitrate - EPA 353.3 250 mL high density polyethylene; Alkalinity (bicarbonate) - EPA 310.1 1 L polyethylene	U.S. Army Corps of Engineers - Northeast Cape Comments: 98NEC011 2 of 4 COC #
Sampler's Signature: BSM/DG				

Date	Time	Sample ID	Matrix	# Containers	DRO/RRO	AAF/DRO & RRO	BTEX	PAHs	PCBs	Dioxin	TOC	Bulk Density	Moisture Content	Sieve Analysis	DRO/RRO	AAF/DRO & RRO	GRO	BTEX	VOC	PAHs	PCBs	TOC	Lead	Sulfate	Nitrate	Alkalinity	Comments
9/13	1100	98 NE CTB006	W	3															X								
		98 NE																									
		98 NE																									
		98 NE																									
		98 NE																									
		98 NE																									
		98 NE																									
		98 NE																									
		98 NE																									
		98 NE																									
		98 NE																									
		98 NE																									

Relinquished by: BSM/DG/EMans	Date: 9/14/98 Time: 1500	Hand Delivered: Y (N)	Shipped Via: Goldstreak	Airbill Number: 0214 4741
Received for Laboratory by:	Date: Time:	Cooler Temperature upon arrival: °C	Laboratory Notified: Faxed	Date: 9/14/98 Time: 1500

MONTGOMERY WATSON

Montgomery Watson 4100 Spenard Road Anchorage AK 99517 (907)248-8883 Fax (907) 248-8884 ATTN: Eileen Mans	Laboratory: Quanterra Inc. 5761 Silverado Way Suite N Anchorage, AK 99518 907-365-8128 907-365-8263 FAX Attn: Cindy LeFever **MW Job Number:** **1189098.050101** **30-DAY** **TURNAROUND**		SOIL: DRO/RRO - AK 102/103 8 oz amber glass; GAF/DRO & RRO - ADEC 18 AAC 78; BTEX - EPA 8021A 4 oz. amber glass w/MeOH; PAHs - EPA 8270 SIM 8 oz amber glass; PCBs - EPA 8082 8 oz amber glass; Dioxin - EPA 8290 8 oz amber glass; TOC - SW 9060 4 oz jar; Bulk Density - ASTM D-2937; Moisture Content - ASTM D-2216; Sieve Analysis - ASTM D-2487 WATER: DRO/RRO - AK 102/103 2- 1 L amber w/HCl; GAF/DRO & RRO - ADEC 18 AAC 78 2- 1 L amber w/HCl; GRO - AK 101 2 - 40 mL vials w/HCl; BTEX - EPA 8021A 3- 40 ml vials w/HCl; VOC - EPA 8260 3- 40 ml vials w/HCl; PAHs - EPA 8270 SIM 2-1L amber glass w/HCl; PCBs - EPA 8082 2 - 1L amber glass; TOC - EPA 415.1 250 ml amber glass w/H_2SO_4; Lead EPA 7421/Manganese SW 6010 500 ml polyethylene w/HNO_3; Sulfate - EPA 300.0 125 mL high density polyethylene; Nitrate - EPA 353.3 250 mL high density polyethylene; Alkalinity (bicarbonate) - EPA 310.1 1 L polyethylene	U.S. Army Corps of Engineers - Northeast Cape Comments: 98NEC011 3 of 4 COC #

Sampler's Signature

Date	Time	Sample Identification	Matrix	# of Containers	DRO/RRO	GAF/DRO & RRO	BTEX	PAHs	PCBs	Dioxin	TOC	Bulk Density	Moisture Content	Sieve Analysis	DRO/RRO	GAF/DRO & RRO	GRO	BTEX	VOC	PAHs	PCBs	TOC	Lead	Sulfate	Nitrate	Alkalinity	Analysis Requested	Analysis Requested	Comments
9-13	1000	98 NEC25SS801	S	1						X																			
9-13	1415	98 NECRCSD 804	S	3	X	X	X	X	X																		50	25	
9-13	1445	98 NECRCSD 803	S	3	X	X	X	X	X																		50	25	
9-13	1600	98 NECRCSD 802	S	5	X	X	X	X	X																		50	25	MS/MSD
9-13	1605	98 NECRCSD 202	S	3	X	X	X	X	X																		50	25	
9-13	1800	98 NECRCSD 801	S	3	X	X	X	X	X																		50	25	
9-13	1805	98 NECRCSD 201	S	3	X	X	X	X	X																		50	25	
		98 NE																											
		98 NE																											
		98 NE																											
		98 NE																											
		98 NE																											

Relinquished by:	Date 9/14/98 Time	Hand Delivered Y (N)	Shipped Via Air Airlines Goldstraff	Airbill Number: 0214 4741	Date 9/14/98 Time
Received for Laboratory by:	Date Time	Cooler Temperature upon arrival °C		Laboratory Notified Faxed	

9/9/98 11:46 AM

MONTGOMERY WATSON

Montgomery Watson 4100 Spenard Road Anchorage AK 99517 (907)248-8883 Fax (907) 248-8884 ATTN: Eileen Mans	Laboratory: Quanterra Inc. 5761 Silverado Way Suite N Anchorage, Ak 99518 907-265-8128 907-265-8263 FAX Attn: Cindy LeFever MW Job Number: 1189098.050101 30-DAY TURNAROUND		SOIL: DRO/RRO - AK 102/103 3 oz amber glass; GAAF/DRO & RRO - ADEC 18 ACC 75 3 oz amber glass; BTEX - EPA 8021A 4 oz amber glass w/MeOH; PAHs - EPA 8270 SIM 8 oz amber glass; PCBs - EPA 8082 8 oz amber glass; Dioxin - EPA 8290 8 oz amber glass; TOC - SW 9060 4 oz jar; Bulk Density - ASTM D-3937; Moisture Content - ASTM D-2216; Sieve Analysis - ASTM D-2487 WATER: DRO/RRO - AK 102/103 2- 1 L amber w/HCl; GAAF/DRO & RRO - ADEC 18 ACC 75 2- 1 L amber w/HCl; GRO - AK 101 2 - 40 mL vials w/HCl; BTEX - EPA 8021A 3- 40 ml vials w/HCl; VOC - EPA 8260 3- 40 ml vials w/HCl; PAHs - EPA 8270 SIM 2-1L amber glass w/HCl; PCBs - EPA 8082 2 - 1L amber glass; TOC - EPA 415.1 250 ml amber glass w/H_2SO_4; Lead EPA 7421/Manganese SW 6010 500 ml polyethylene w/HNO_3; Solids - EPA 300.0 125 mL high density polyethylene; Nitrate - EPA 353.3 250 mL high density polyethylene; Alkalinity (bicarbonate) - EPA 310.1 1 L polyethylene	U.S. Army Corps of Engineers - Northwest Cape Comments: 98NEC011 4 of 4 COC #
Sampler's Signature				

9/13	1245	98 NE CRCSW806	W	10											X	X	X	X		X	X									
9/13	1330	98 NE CRCSW805	W	10											X	X	X	X		X	X									
9/13	1400	98 NE CRCSW804	W	10											X	X	X	X		X	X									
9/13	1430	98 NE CRCSW803	W	10											X	X	X	X		X	X									
9/13	1530	98 NE CRCSW802	W	18											X	X	X	X		X	X									MS/MSD
9/13	1535	98 NE CRCSW202	W	9											X	X	X	X		X	X									
9/13	1755	98 NE CRCSW801	W	10											X	X	X	X		X	X									
		98 NE																												
		98 NE																												
		98 NE																												
		98 NE																												
		98 NE																												

Padded 9/16/98

Relinquished by:	Date 9/14/98	Hand Delivered Y (N)	Shipped Via AK Airlines Goldstreak	Airbill Number: 0214 4741	Date 9/14/98
Received for Laboratory by:	Time	Cooler Temperature upon arrival °C		Laboratory Notified	Time
	Date			Faxed	
	Time				

15

9/9/99

MONTGOMERY WATSON

Montgomery Watson 4100 Spenard Road Anchorage AK 99517 (907)248-8883 Fax (907) 248-8884 ATTN: Eileen Maus	Laboratory: Quanterra Inc. 5761 Silverado Way Suite N Anchorage, Ak 99518 907-265-8128 907-265-8263 FAX Attn: Cindy LeFevre **MW Job Number:** **1189098.050101** **14-DAY** **TURNAROUND**		U.S. Army Corps of Engineers - Northeast Cape Comments: COC# 98NEC012 COC #

Sampler's Signature: BM/AD

					SOIL										WATER																
					DRO/RRO - AK 102/103 8 oz amber glass	AAF/DRO & RRO - ADEC 18 ACC 75	BTEX - EPA 8021A 4 oz amber glass w/MeOH	PAHs - EPA 8270 SIM 8 oz amber glass	PCBs - EPA 8082 8 oz amber glass	Dioxin - EPA 8290 8 oz amber glass	TOC - SW 9060 4 oz jar	Bulk Density - ASTM D-2937	Moisture Content - ASTM D-2216	Sieve Analysis - ASTM D-2487	DRO/RRO - AK 102/103 2- 1 L amber w/HCl	AAF/DRO & RRO - ADEC 18 ACC 75 2- 1 L amber w/HCl	GRO - AK 101 2 - 40 mL vials w/HCl	BTEX - EPA 8021A 3- 40 ml vials w/HCl	VOC - EPA 8260 3- 40 ml vials w/HCl	PAHs - EPA 8270 SIM 2-1L amber glass	PCBs - EPA 8082 2 - 1L amber glass	TOC - EPA 415.1 250 ml amber glass w/H_2SO_4	Lead EPA 7421/Manganese SW 6010 500 ml polyethylene w/HNO_3	Sulfide - EPA 376.0 125 mL high density polyethylene	Nitrate - EPA 353.3 250 mL high density polyethylene	Alkalinity (bicarbonate) - EPA 310.1 1 L polyethylene			
9/14	1600	98 NE C02SS801	S	3	X		X	X										4	MS	MSD	DRO	RRO			DRO/RRO BTEX
9/14	1615	98 NE C02SS802	S	2	X		X																						DRO only + BT
9/14	1615	98 NE C02SS201	S	1	X																								
9/14	1330	98 NE C14SS801	S	1					X																				
9/14	1345	98 NE C14SS802	S		X	X	X				X																		
9/14	1200	98 NE C13SS801	S	1					X																				
9/14	1230	98 NE C13SS802	S	1					X																				
9/14	1245	98 NE C13SS803	S	1					X																				
9/14	1200	98 NE C00SS801	S		X	X	X				X																		
		98 NE																											
		98 NE																											
		98 NE																											

Relinquished by: BM/AD	FOR LAB 9/16/98 1407	Date 9/15/98 Time 1500	Hand Delivered (Y) N	Shipped Via	Airbill Number:	Date Time
Received for laboratory by: Eileen Maus	Lynn A Smith	Date 9/16/98 Time 1200	Cooler Temperature upon arrival 5.6 °C		Laboratory Notified Faxed	

9/16/9810:37 AM

MONTGO. WATSON

Montgomery Watson 4100 Spenard Road Anchorage AK 99517 (907)248-8883 Fax (907) 248-8884 ATTN: Eileen Maus	Analytica Laboratory: Organicrra Inc. 5761 Silverado Way, Suite N Anchorage, Ak 99518 907-265-8128 907-265-8369 FAX Attn: Cindy Sciver **MW Job Number:** **1189098.050101** **14-DAY** **TURNAROUND**		SOIL: DRO/RRO - AK 102/103 (8 oz amber glass); GAF/DRO & RRO - ADEC 18 ACC 75 (8 oz amber glass); BTEX - EPA 8021A (4 oz amber glass w/MeOH); PAHs - EPA 8270 SIM (8 oz amber glass); PCBs - EPA 8082 (8 oz amber glass); Dioxin - EPA 8290 (8 oz amber glass); TOC - SW 9060 (4 oz jar); Bulk Density - ASTM D-2937; Moisture Content - ASTM D-2216; Sieve Analysis - ASTM D-2487 WATER: DRO/RRO - AK 102/103 (2- 1 L amber w/HCl); GAF/DRO & RRO - ADEC 18 ACC 75 (2- 1 L amber w/HCl); GRO - AK 101 (3 - 40 mL vials w/HCl); BTEX - EPA 8021A (3- 40 ml vials w/HCl); VOC - EPA 8260 (3- 40 ml vials w/HCl); PAHs - EPA 8270 SIM (2-1L amber glass); PCBs - EPA 8082 (2 - 1L amber glass); TOC - EPA 415.1 (250 ml amber glass w/H_2SO_4); Lead EPA 7421/Manganese SW 6010 (500 ml polyethylene w/HNO_3); Sulfate - EPA 300.0 (125 mL high density polyethylene); Nitrate - EPA 353.3 (250 mL high density polyethylene); Alkalinity (bicarbonate) - EPA 310.1 (1 L polyethylene) U.S. Army Corps of Engineers - Northeast Cold Comments: 98NEC013 ddc

Sampler's Signature: BAM/AD

Date	Time	Sample ID	Matrix	Cont. Cond.	SOIL	WATER
9/14	1610	98 NEC02SS301	S		X	
		98 NE				
		98 NE				
		98 NE				
		98 NE				
		98 NE				
		98 NE				
		98 NE				
		98 NE				
		98 NE				
		98 NE				
		98 NE				
		98 NE				

Relinquished By: BAM/AD — Date 9/15/98 — Time 1500

Received By/Laboratory By: Eileen Maus — Date 9/15/98 — Time 1300

Hand Delivered: (Y) N

Shipped Via: Hand delivered by Eileen Maus

Cooler Temperature upon arrival: 4.9°C ✓Seals

Laboratory Notified Faxed

Reed Lindela

Date 9/16/98 — Time 1310

9/16

17

Montgomery Watson
4100 Spenard Road
Anchorage AK 99517
(907)248-8883
Fax (907) 248-8884
ATTN: Eileen Mann

CTE

~~Laboratory:~~
~~Quanterra Inc.~~
~~5761 Silverado Way Suite N~~
~~Anchorage, AK 99518~~
~~907-[illegible]-8128~~
~~907-[illegible] FAX~~
~~Attn: Cindy [illegible]~~

MW Job Number:
1189098.050101
30-DAY
TURNAROUND

Sampler's Signature

U.S. Army Corps of Engineers - Northeast Cape

Comments:

98NEC014

COC # ______

					SOIL										WATER													
					DRO/RRO - AK 102/103 8 oz amber glass	AAF/DRO & RRO - ADEC 18 AAC 75	BTEX - EPA 8021A 4 oz amber glass w/MeOH	PAHs - EPA 8270 SIM 8 oz amber glass	PCBs - EPA 8082 8 oz amber glass	Dioxin - EPA 8290 8 oz amber glass	TOC - SW 9060 4 oz jar	Bulk Density - ASTM D-2937	Moisture Content - ASTM D-2216	Sieve Analysis - ASTM D-2487	DRO/RRO - AK 102/103 2, 1 L amber w/HCl	AAF/DRO & RRO - ADEC 18 AAC 75 2, 1 L amber w/HCl	GRO - AK 101 2 - 40 mL vials w/HCl	BTEX - EPA 8021A 3, 40 ml vials w/HCl	VOC - EPA 8260 3, 40 ml vials w/HCl	PAHs - EPA 8270 SIM 2-1L amber glass w/HCl	PCBs - EPA 8082 2 - 1L amber glass	TOC - EPA 415.1 250 ml amber glass w/H_2SO_4	Lead EPA 7421/Manganese SW 6010 500 ml polyethylene w/HNO_3	Sulfate - EPA 300.0 125 mL high density polyethylene	Nitrate - EPA 353.2 250 mL high density polyethylene	Alkalinity (bicarbonate) - EPA 310.1 1 L polyethylene		
~~9/15~~		~~98 NE C27GN801~~	~~W~~	~~2~~																				~~X~~	~~X~~	~~X~~		
9/15		98 NE C27GN801	W	2																				X	X	X		
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										

Relinquished by:
Date
Time
Hand Delivered Y N
Shipped Via
Airbill Number:
Date
Time

Received for Laboratory by:
Date
Time
Cooler Temperature upon arrival °C
Laboratory Notified
Faxed

18

MONTGOMERY WATSON

Montgomery Watson 4100 Spenard Road Anchorage AK 99517 (907)248-8883 Fax (907) 248-8884 ATTN: Eileen Maus	Laboratory: Quanterra Inc. 5761 Silverado Way Suite N Anchorage, AK 99518 907-265-8128 907-265-8263 FAX Attn: Cindy LeFever MW Job Number: 1189098.050101 30-DAY TURNAROUND		SOIL: DRO/RRO - AK 102/103 8 oz amber glass; GAF/DRO & RRO - ADEC 18 AAC 75 8 oz amber glass; BTEX - EPA 8021A 4 oz amber glass w/MeOH; PAHs - EPA 8270 SIM 8 oz amber glass; PCBs - EPA 8082 8 oz amber glass; Diesia - EPA 8290 8 oz amber glass; TOC - SW 9060 4 oz jar; Bulk Density - ASTM D-2937; Moisture Content - ASTM D-2216; Sieve Analysis - ASTM D-2487 WATER: DRO/RRO - AK 102/103 2 - 1 L amber w/HCl; GAF/DRO & RRO - ADEC 18 AAC 75 2 - 1 L amber w/HCl; GRO - AK 101 2 - 40 mL vials w/HCl; BTEX - EPA 8021A 3 - 40 ml vials w/HCl; VOC - EPA 8260 3 - 40 ml vials w/HCl; PAHs - EPA 8270 SIM 2-1L amber glass w/HCl; PCBs - EPA 8082 2 - 1L amber glass; TOC - EPA 415.1 250 ml amber glass w/H_2SO_4; Lead - EPA 7421/Manganese SW 6010 500 ml polyethylene w/HNO_3; Sulfate - EPA 300.0 125 mL high density polyethylene; Nitrate - EPA 353.3 250 mL high density polyethylene; Alkalinity (bicarbonate) - EPA 310.1 1 L polyethylene	U.S. Army Corps of Engineers - Northwest Cape Comments: 98NEC015 1 of 2 COC #

9/15	1030	98 NE CBKSW801	W	10											X	X		X		X		X								
9/15	1060	98 NE CBKSW802	W	10											X	X		X		X		X								
9/15	1730	98 NE C13GW802	W	5											X			X												
9/15	1760	98 NE C27GW801	W	4													X						X							
9/15	1700	98 NE C00GW801	W	1																							Methanol			
9/15	1045	98 NE CBKSD801	SD	3	X	X	X	X			X																			
9/15	1015	98 NE CBKSD802	SD	3	X	X	X	X			X																			
9/15	1500	98 NE C06SS801	S		X		X				X	X	X																	
9/15	1510	98 NE C06SS802	S	2	X																									
9/15	1520	98 NE C07SS802	S	1							X																			
9/15	1940	98 NE C09SS801	S		X		X	X																						
9/15	1530	98 NE C09SS802	S								X																			

Relinquished by: | Date | Time | Hand Delivered (Y / N) | Shipped Via | Airbill Number: | Date | Time

Received for Laboratory by: | Date | Time | Cooler Temperature upon arrival °C | Laboratory Notified Faxed

Added 9/18/98 EMW

Added 9/18/98 EMW

9/9/98

19

...KY WATSON

Montgomery Watson 4100 Spenard Road Anchorage AK 99517 (907)248-8883 Fax (907) 248-8884 ATTN: Eli. Mass	Laboratory: Quanterra Inc. 5741 Silverado Way Suite N Anchorage, Ak 99518 907-265-8128 907-265-8363 FAX Attn: Cindy LaFever **MW Job Number:** **1189098.050101** **30-DAY** **TURNAROUND**	Sampler's Signature:

Date	Time	Sample Identification	Matrix	Number of Containers	SOIL: DRO/RRO - AK 102/103 8 oz amber glass	SOIL: AAF/DRO & RRO - ADEC 18 ACC 78 8 oz amber glass	SOIL: BTEX - EPA 8021A 4 oz amber glass w/MeOH	SOIL: PAHs - EPA 8270 SIM 8 oz amber glass	SOIL: PCBs - EPA 8082 8 oz amber glass	SOIL: Dioxin - EPA 8290 8 oz amber glass	SOIL: TOC - SW 9060 4 oz jar	SOIL: Bulk Density - ASTM D-2937	SOIL: Moisture Content - ASTM D-2216	SOIL: Sieve Analysis - ASTM D-2487	WATER: DRO/RRO - AK 102/103 2- 1 L amber w/HCl	WATER: AAF/DRO & RRO - ADEC 18 ACC 78 2- 1 L amber w/HCl	WATER: GRO - AK 101 2 - 40 mL vials w/HCl	WATER: BTEX - EPA 8021A 3- 40 ml vials w/HCl	WATER: VOC - EPA 8260 3- 40 ml vials w/HCl	WATER: PAHs - EPA 8270 SIM 2-1L amber glass w/HCl (Emily)	WATER: PCBs - EPA 8082 2 - 1L amber glass	WATER: TOC - EPA 415.1 250 ml amber glass w/H_2SO_4	WATER: Lead EPA 7421/Manganese SW 6010 500 ml polyethylene w/HNO_3	WATER: Sulfate - EPA 300.0 125 mL high density polyethylene	WATER: Nitrate - EPA 353.3 250 mL high density polyethylene	WATER: Alkalinity (Bicarbonate) - EPA 310.1 1 L polyethylene	Comments	Comments
9/15	1550	98 NE C10 5580 1	S	4	X	X	X				X																	
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										
		98 NE																										

U.S. Army Corps of Engineers - Northeast Cape

Comments:

98NEC015
2 of 2

COC # _____

Relinquished by:	Date	Hand Delivered Y N	Shipped Via	Airbill Number:	Date
	Time				Time
Received for Laboratory by:	Date	Cooler Temperature upon arrival °C		Laboratory Notified	
	Time			Faxed	

20

9/9/2011 46 AM

MONTGOMERY WATSON

Montgomery Watson 4100 Spenard Road Anchorage AK 99517 (907)248-8883 Fax (907) 248-8884 ATTN: Eileen Mass	Laboratory: Quanterra Inc. 5741 Silverado Way Suite N Anchorage, AK 99518 907-265-8128 907-265-8263 FAX Attn: Cindy LePrevost MW Job Number: 1189098.050101 30-DAY TURNAROUND		SOIL: DRO/RRO - AK 102/103 (3 oz amber glass); AAE/DRO & RRO - ADEC 18 ACC 75 (4 oz amber glass w/MeOH); BTEX - EPA 8021A (3 oz amber glass); PAHs - EPA 8270 SIM (3 oz amber glass); PCBs - EPA 8082 (8 oz amber glass); Dioxins - EPA 8290 (3 oz amber glass); TOC - SW 9060 (4 oz jar); Bulk Density - ASTM D-2937; Moisture Content - ASTM D-2216; Sieve Analysis - ASTM D-2487 WATER: DRO/RRO - AK 102/103 (2- 1 L amber w/HCl); AAE/DRO & RRO - ADEC 18 ACC 75 (2- 1 L amber w/HCl); GRO - AK 101 (2 - 40 mL vials w/HCl); BTEX - EPA 8021A (3-40 ml vials w/HCl); VOC - EPA 8260 (3-40 ml vials w/HCl); PAHs - EPA 8270 SIM (2-1L amber glass w/HCl); PCBs - EPA 8082 (2 - 1L amber glass); TOC - EPA 415.1 (250 ml amber glass w/H_2SO_4); Lead EPA 7421/Manganese SW 6010 (500 ml polyethylene w/HNO_3); Sulfate - EPA 300.0 (125 mL high density polyethylene); Nitrate - EPA 353.3 (250 mL high density polyethylene); Alkalinity (bicarbonate) - EPA 310.1 (1 L polyethylene)	U.S. Army Corps of Engineers - Northeast Cops Comments: 98NEC016 COC #

Sampler's Signature

9/16	1000	98 NE CA75W501	XW	9											X		X	X		X											
9/16	1900	98 NE CTB007	W	3													X	X													
		98 NE																													
		98 NE																													
		98 NE																													
		98 NE																													
		98 NE																													
		98 NE																													
		98 NE																													
		98 NE																													
		98 NE																													
		98 NE																													

Relinquished by	Date 9/17/98 Time 1025	Hand Delivered Y / N	Shipped Via	Airbill Number:
Received by Laboratory by	Date 9/17/98 Time 1025	Cooler Temperature upon arrival 2.7 °C		Laboratory Notified Faxed

Temp

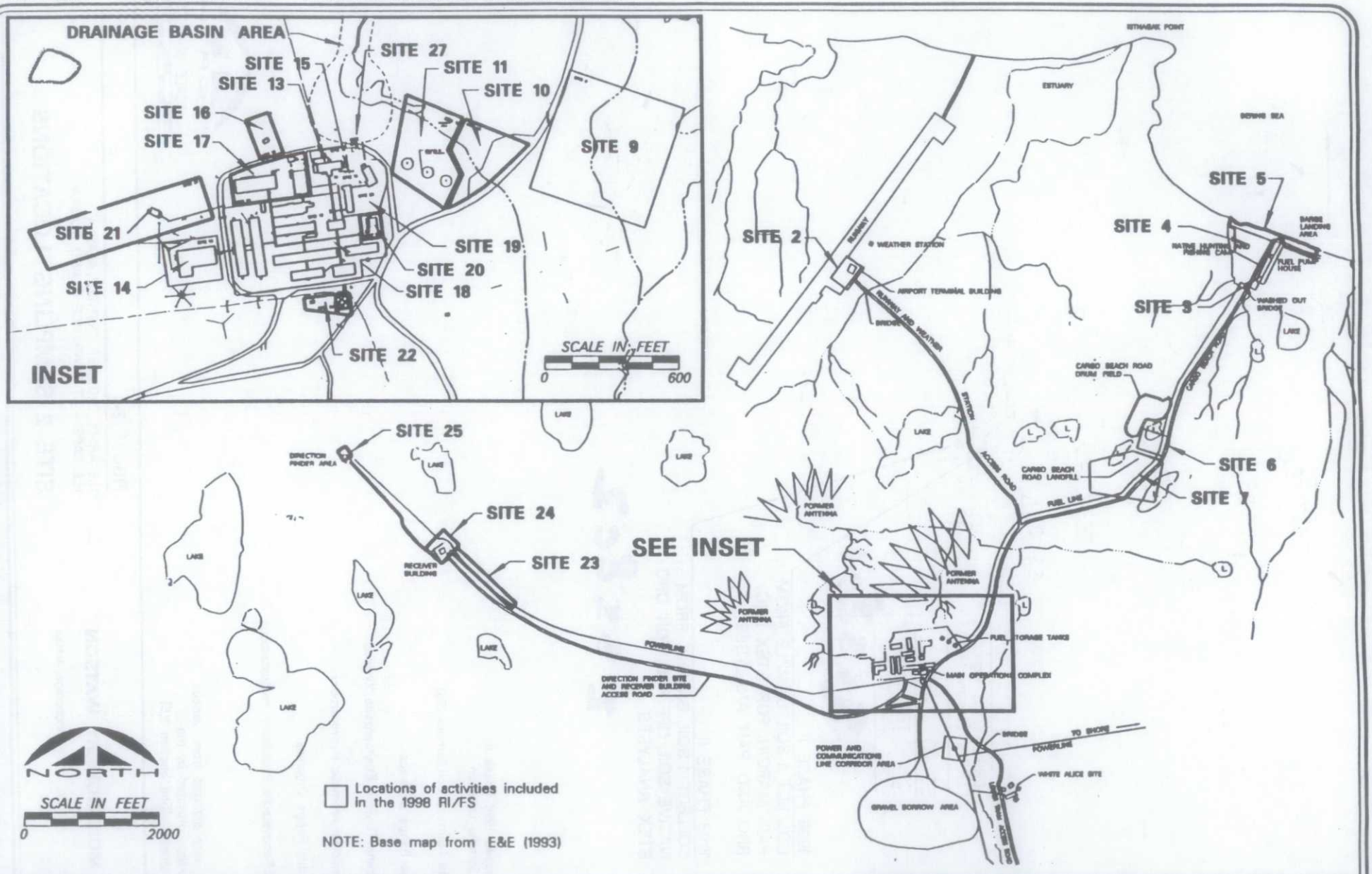
9/97

Army Corps of Engineers

Northeast Cape, Alaska

1998 Sample Location Maps

MONTGOMERY WATSON



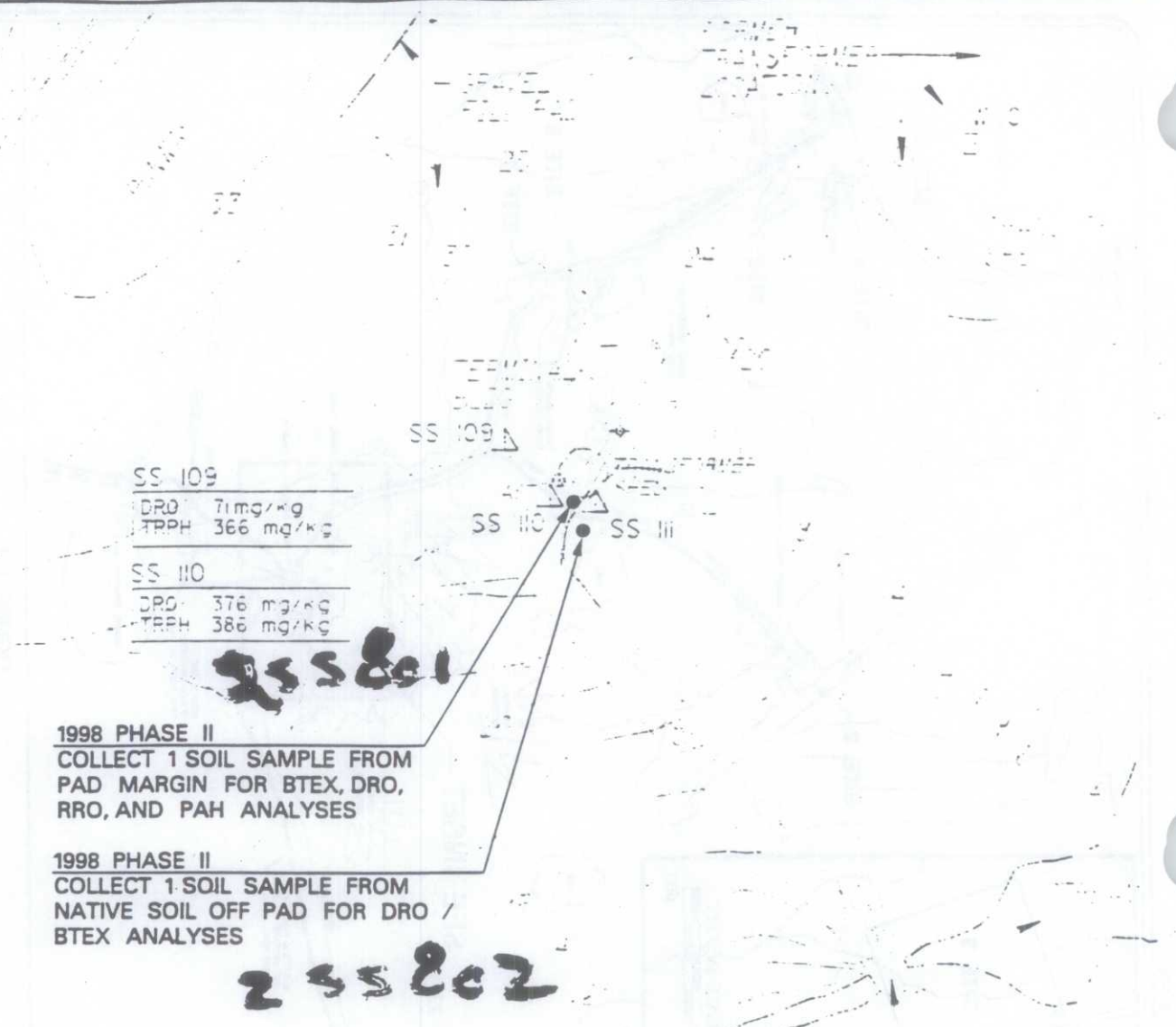
MONTGOMERY WATSON

Anchorage, Alaska

FIGURE 1-3

U.S. ARMY ENGINEER DISTRICT, ALASKA
N.E. CAPE – ST. LAWRENCE ISLAND, ALASKA

SITE MAP



LEGEND

- ● Proposed 1998 Phase II Soil Sample Location
- ⚠ Phase I Surface Soil Sample (SS)

DRO Diesel Range Organics

BTEX Benzene, Toluene, Ethylbenzene, Xylenes

PAH Polynuclear Aromatic Hydrocarbons

RRO Residual Range Organics

TRPH Total Recoverable Petroleum Hydrocarbons

NOTES

Base maps were digitized from various as-built drawings provided by the Corps of Engineers. (See Section 2.5)

NORTH

SCALE IN FEET

0 10

MONTGOMERY WATSON

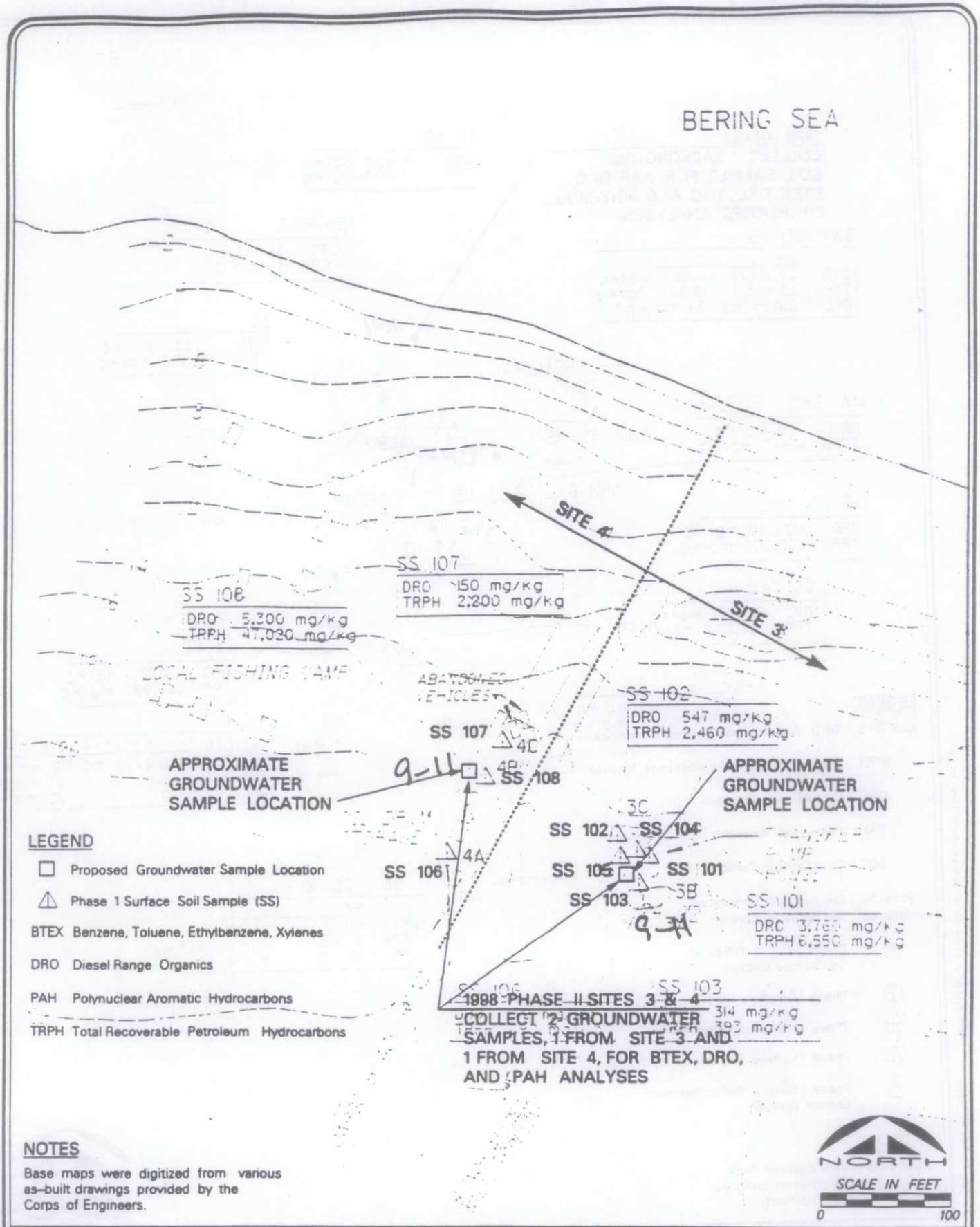
Anchorage, Alaska

FIGURE 2-1

U.S. ARMY ENGINEER DISTRICT, ALASKA
P.E. CAPE - ST. LAWRENCE ISLAND, ALASKA

SITE 2 SAMPLING LOCATIONS

JOB NO. 8. ..50101 TIME: 24-AUG-1998 08:32 FILE: s:\cad\projects\necape\ph2ekphn\98wp\fig2_1.dgn



MONTGOMERY WATSON

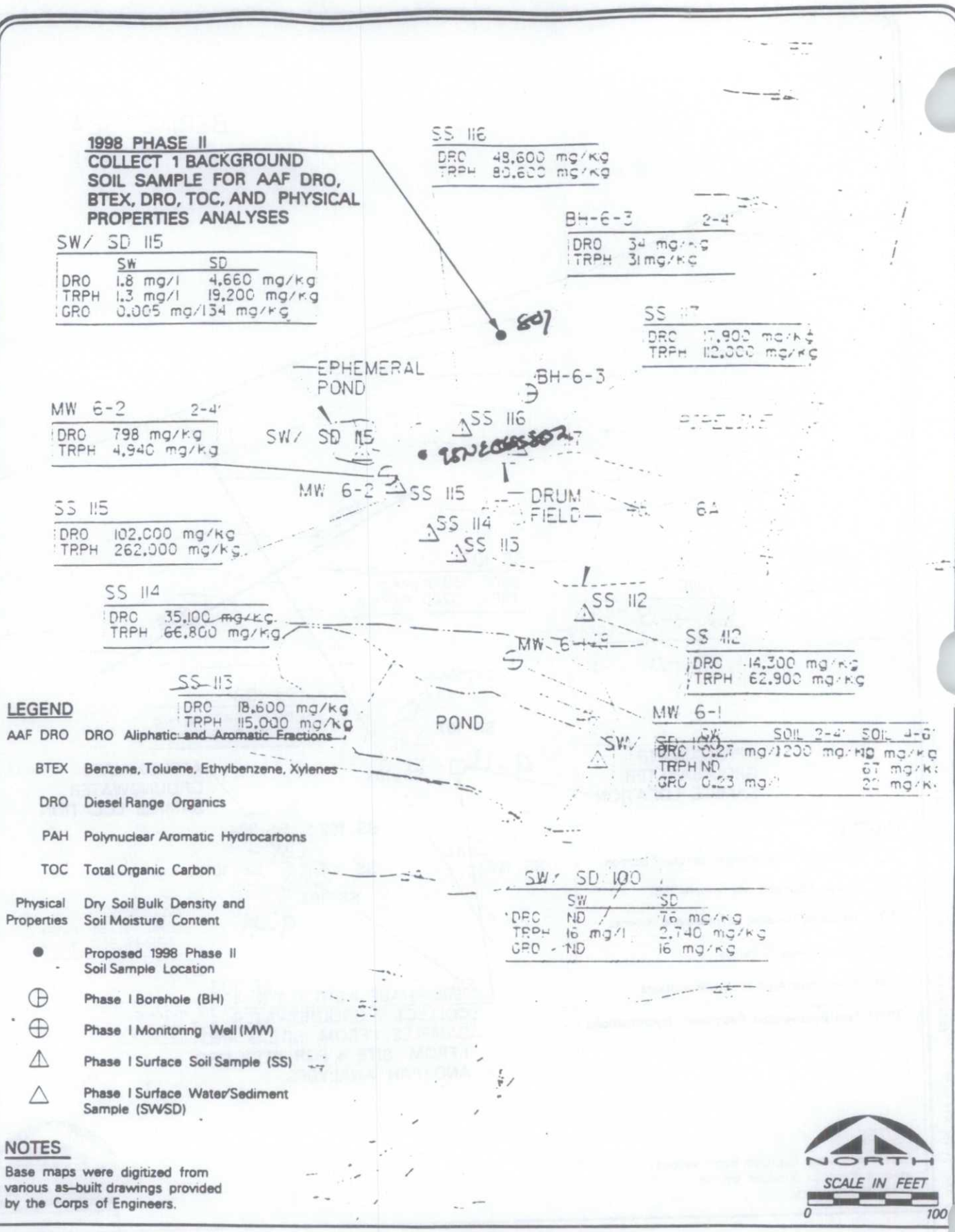
Anchorage, Alaska

FIGURE 2-2

U.S. ARMY ENGINEER DISTRICT, ALASKA
N.E. CAPE – ST. LAWRENCE ISLAND, ALASKA

SITES 3 & 4 SAMPLING LOCATIONS

JOB No. ... DESIGN TIME: 24-AUG-1998 08:33 FILE: s:\cad\proj\corps\necape\ph2\ekpln\98wp\fg2_2.dgn



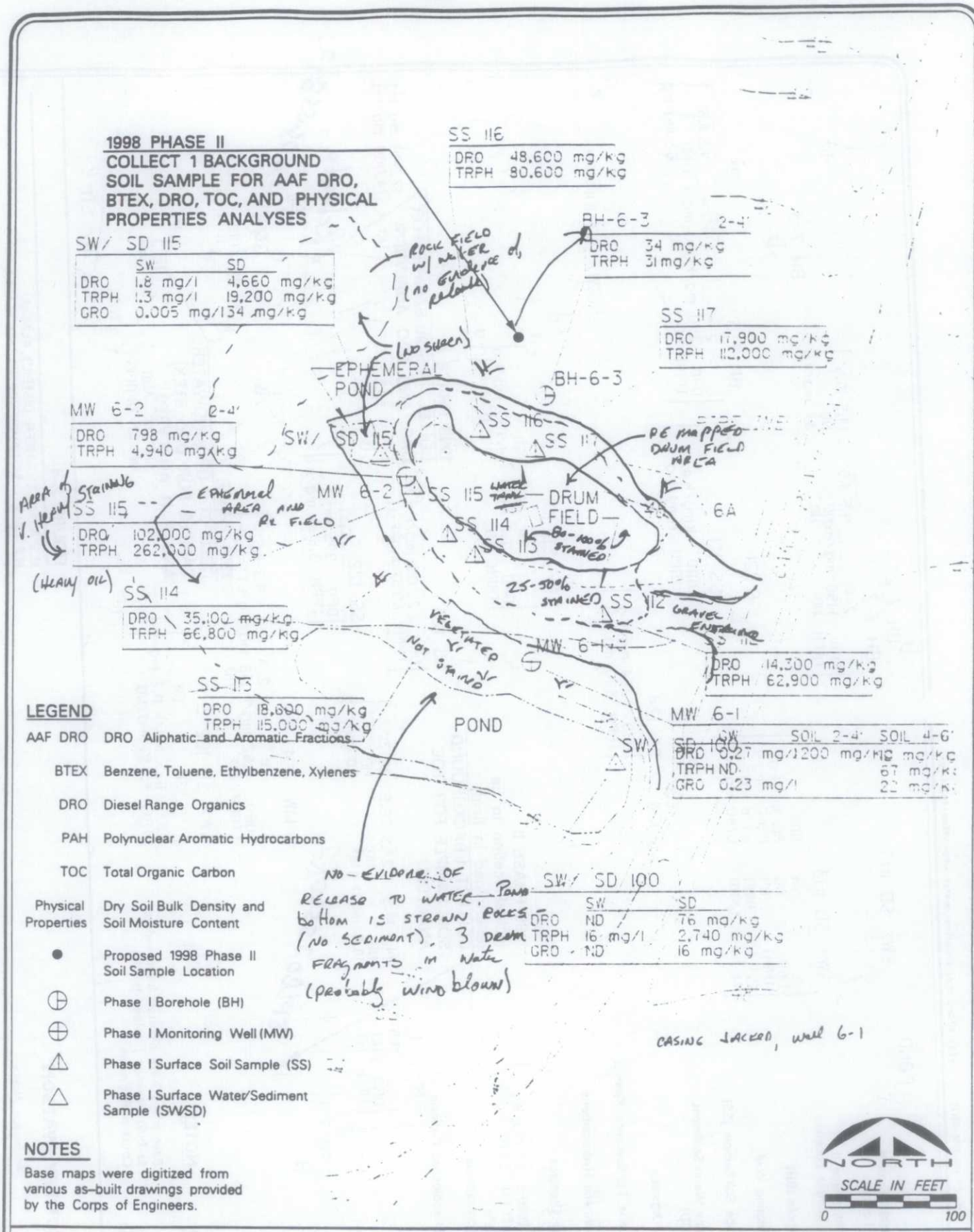
MONTGOMERY WATSON

Anchorage, Alaska

FIGURE 2-3

U.S. ARMY ENGINEER DISTRICT, ALASKA
N.E. CAPE - ST. LAWRENCE ISLAND, ALASKA

SITE 6 SAMPLING LOCATIONS



JOB NO. ...50101 TIME: 24-AUG-1998 08:34 FILE: s:\cad\proj\corps\necape\ph2wkpln\98wp\fg2-3.dgn

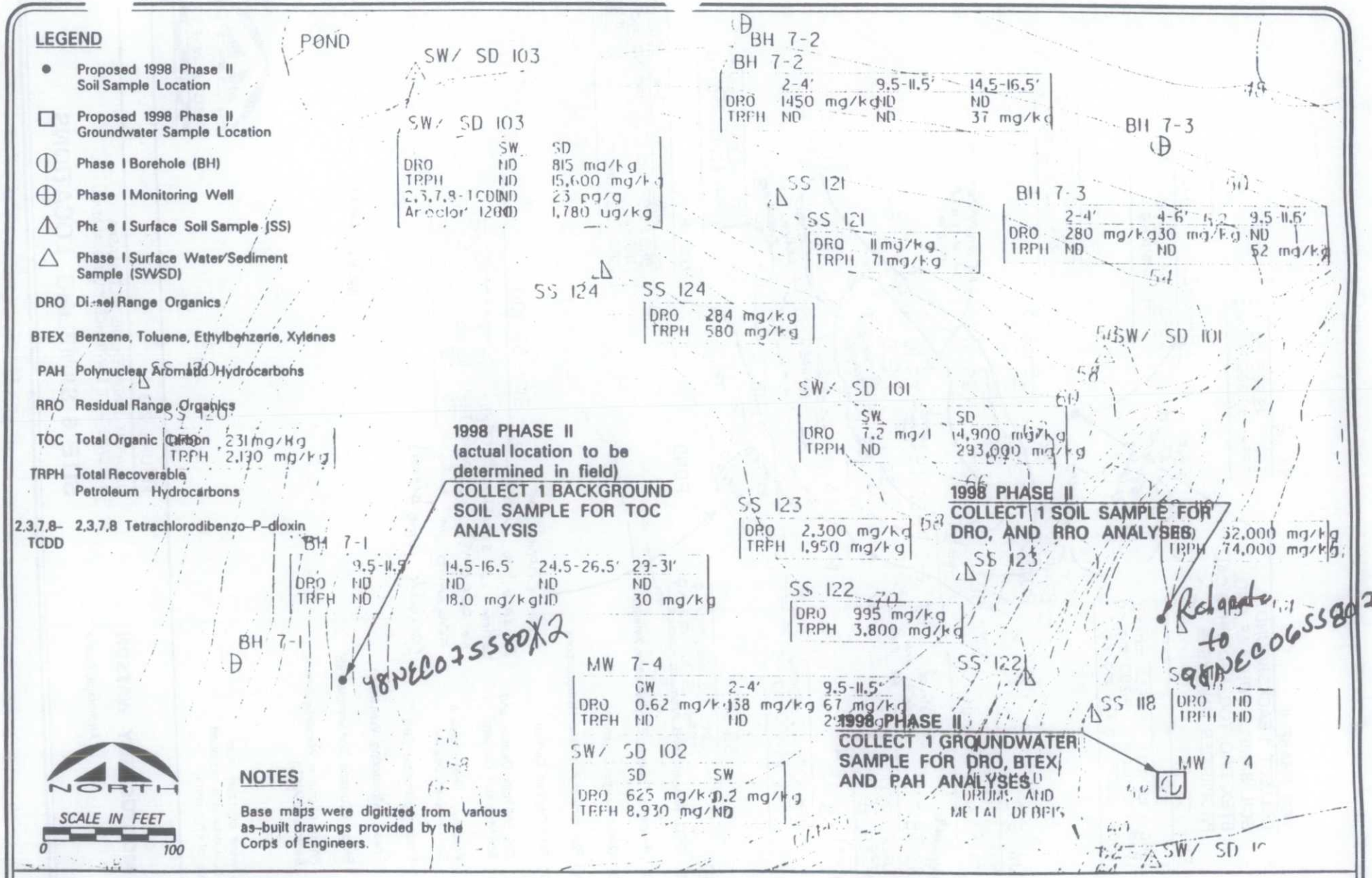
MONTGOMERY WATSON
Anchorage, Alaska

FIGURE 2-3

U.S. ARMY ENGINEER DISTRICT, ALASKA
N.E. CAPE – ST. LAWRENCE ISLAND, ALASKA

SITE 6 SAMPLING LOCATIONS

JOB No. # 101 TIME: 24-AUG-1998 08:35 FILE: s:\cad\proj\corps\necape\ph2wkpln\98wp\fg2_4.dgn



NOTES

Base maps were digitized from various as-built drawings provided by the Corps of Engineers.

MONTGOMERY WATSON

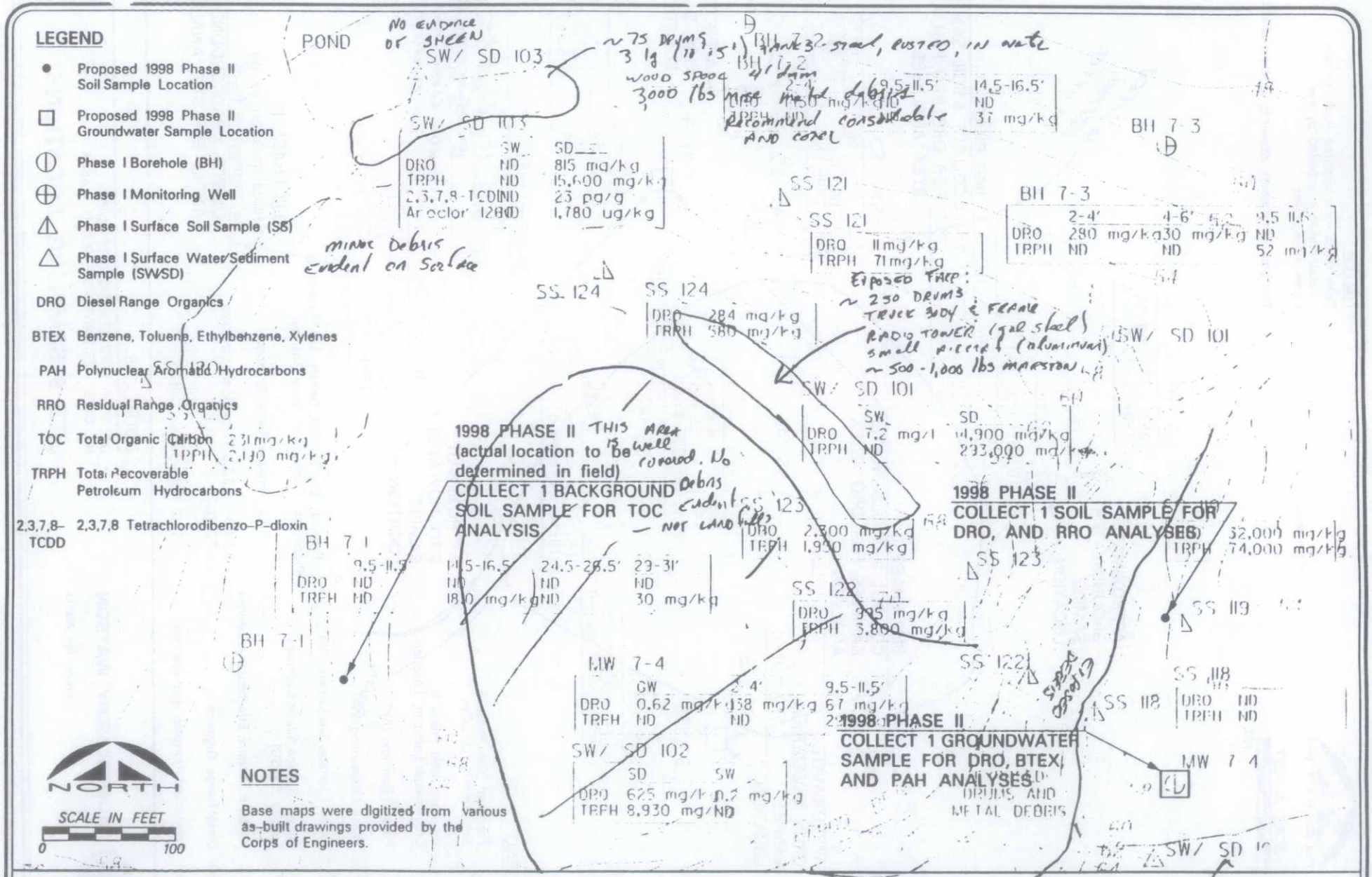
Anchorage, Alaska

FIGURE 2-4

U.S. ARMY ENGINEER DISTRICT, ALASKA
N.E. CAPE - ST. LAWRENCE ISLAND, ALASKA

SITE 7 SAMPLING LOCATIONS

JOB No. 889C. DI TIME: 24-AUG-1998 08:35 FILE: s:\cod\proj\corps\necape\ph2wkpln\98wp\fg2_4.dgn



NOTES

Base maps were digitized from various as-built drawings provided by the Corps of Engineers.

Question: DID tops exist prior? Did the only dump on face (north) — compare to geophysics. Top ripcord value

NO EVIDENCE of sheen

DID ROAD PRE-DATE LF?

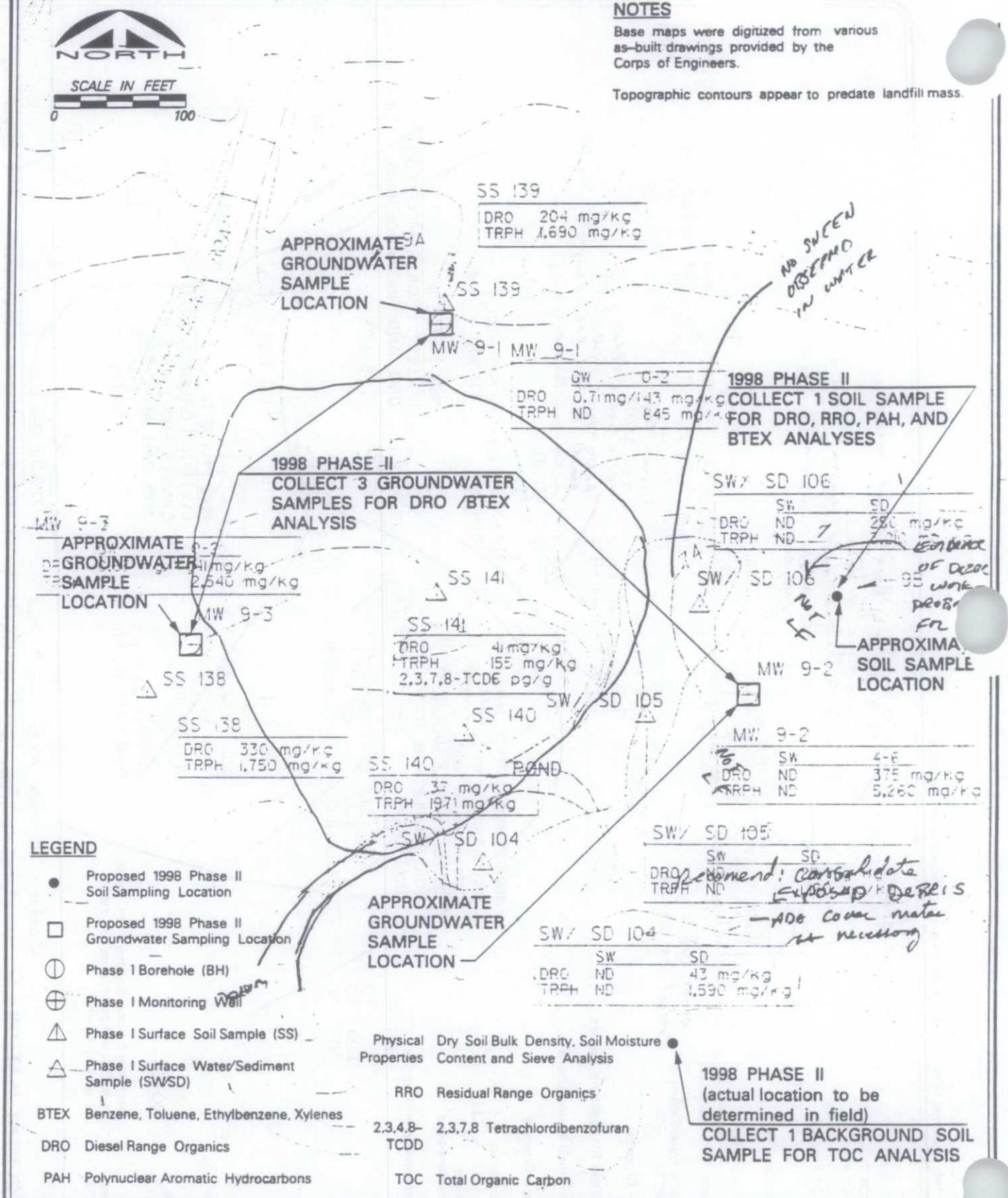
MONTGOMERY WATSON

Anchorage, Alaska

FIGURE 2-4

U.S. ARMY ENGINEER DISTRICT, ALASKA
N.E. CAPE - ST. LAWRENCE ISLAND, ALASKA

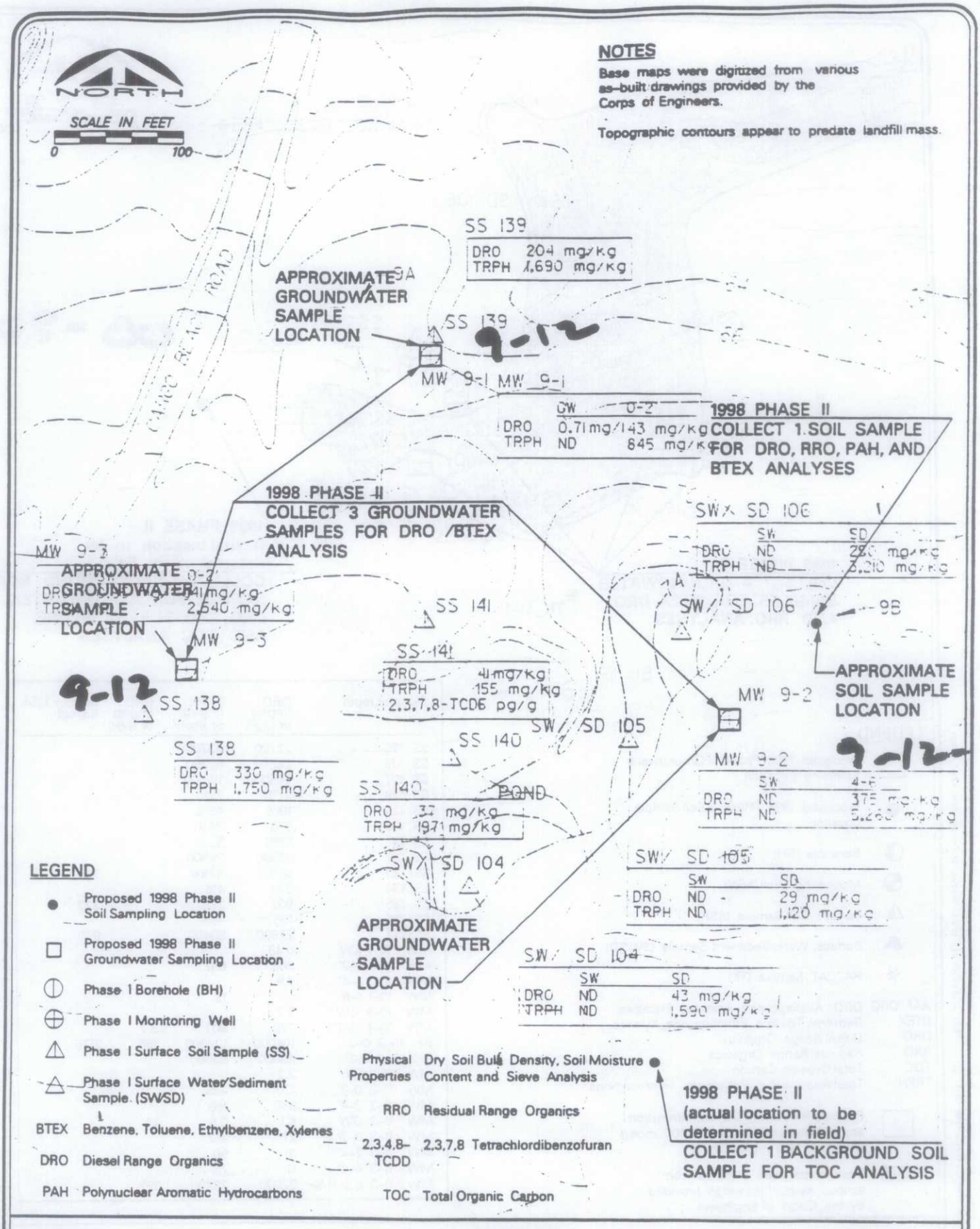
SITE 7 SAMPLING LOCATIONS



MONTGOMERY WATSON
Anchorage, Alaska

FIGURE 2-5
U.S. ARMY ENGINEER DISTRICT, ALASKA
N.E. CAPE – ST. LAWRENCE ISLAND, ALASKA
SITE 9 SAMPLING LOCATIONS

JOB NO. 8894.J0101 TIME: 24-AUG-1998 08:36 FILE: s:\cod\proj\corps\necape\ph2wkpln\98wp\fg2.5.dgn



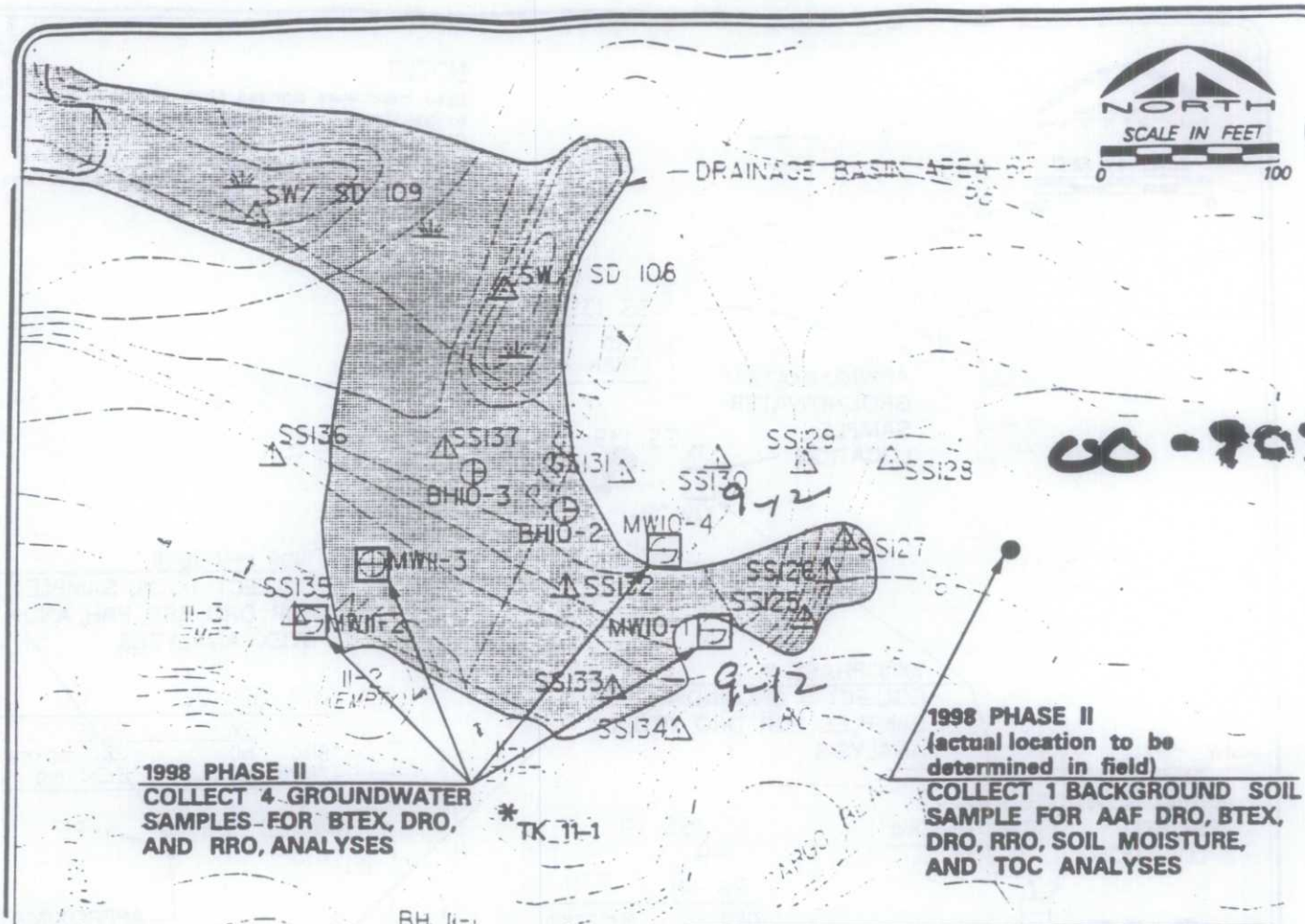
JOB No. 8B5~ JOIOI TIME: 24-AUG-1998 08:36 FILE: ak\cad\proj\corps\necape\ph2\rkphn\98sp\fg2_5.dgn

MONTGOMERY WATSON
Anchorage, Alaska

FIGURE 2-5

U.S. ARMY ENGINEER DISTRICT, ALASKA
N.E. CAPE – ST. LAWRENCE ISLAND, ALASKA

SITE 9 SAMPLING LOCATIONS



60-702

Sample/Depth	DRO (mg/kg or mg/l)	TRPH (mg/kg or mg/l)	GRO (mg/kg or mg/l)	Aroclor 1254 (ug/kg)
SS 125	22700	43700		
SS 126	26500	62300		
SS 127	24500	119000		
SS 128	2170	7910		
SS 129	1860	4850		
SS 130	348	2450		
SS 131	1260	5230		
SS 132	35800	24500		
SS 133	69100	32100		793
SS 134	379	416		
SS 135	902	2120		323
SS 136	195	464		
SS 137	22600	80400		979
MW 10-1 GW	0.49			
MW 10-1 0-2'	366	810		
MW 10-1 2-4'	7.9			
MW 10-1 4-6'		12		
MW 10-4 GW	3.2			
MW 10-4 0-2'	720	907	3.7	
BH 10-2 0-2'	104000	104000	166	2170
BH 10-3 0-2'	43000	83600		
MW 11-2 GW	3.2			
MW 11-2 0-2'	130	436		
MW 11-2 2-4'	358	168		
MW 11-3 GW	6.1	6.6	1.1	
MW 11-3 0-2'	27	182		
MW 11-3 2-4'	31	90		
MW 11-3 4-6'	11	76		
MW 11-3 9.5-11.5'	22000	29200	192	

LEGEND

- Proposed 1998 Phase II Groundwater Sampling Location
- Proposed 1998 Phase II Soil Sample Location
- Borehole (BH)
- Monitoring Well (MW)
- Surface Soil Sample (SS)
- Surface Water/Sediment Sample (SW/SD)
- HAZCAT Sample (TK)

AAF DRO	DRO Aliphatic and Aromatic Fractions
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
DRO	Diesel Range Organics
RRO	Redisual Range Organics
TOC	Total Organic Carbon
TRPH	Total Recoverable Petroleum Hydrocarbons

Potential extent of POL contamination above benchmark criteria >100 mg/kg DRO or 1,000 mg/kg TRPH

NOTE: Base maps were digitized from various as-built drawings provided by the Corps of Engineers.

MONTGOMERY WATSON
Anchorage, Alaska

FIGURE 2-6

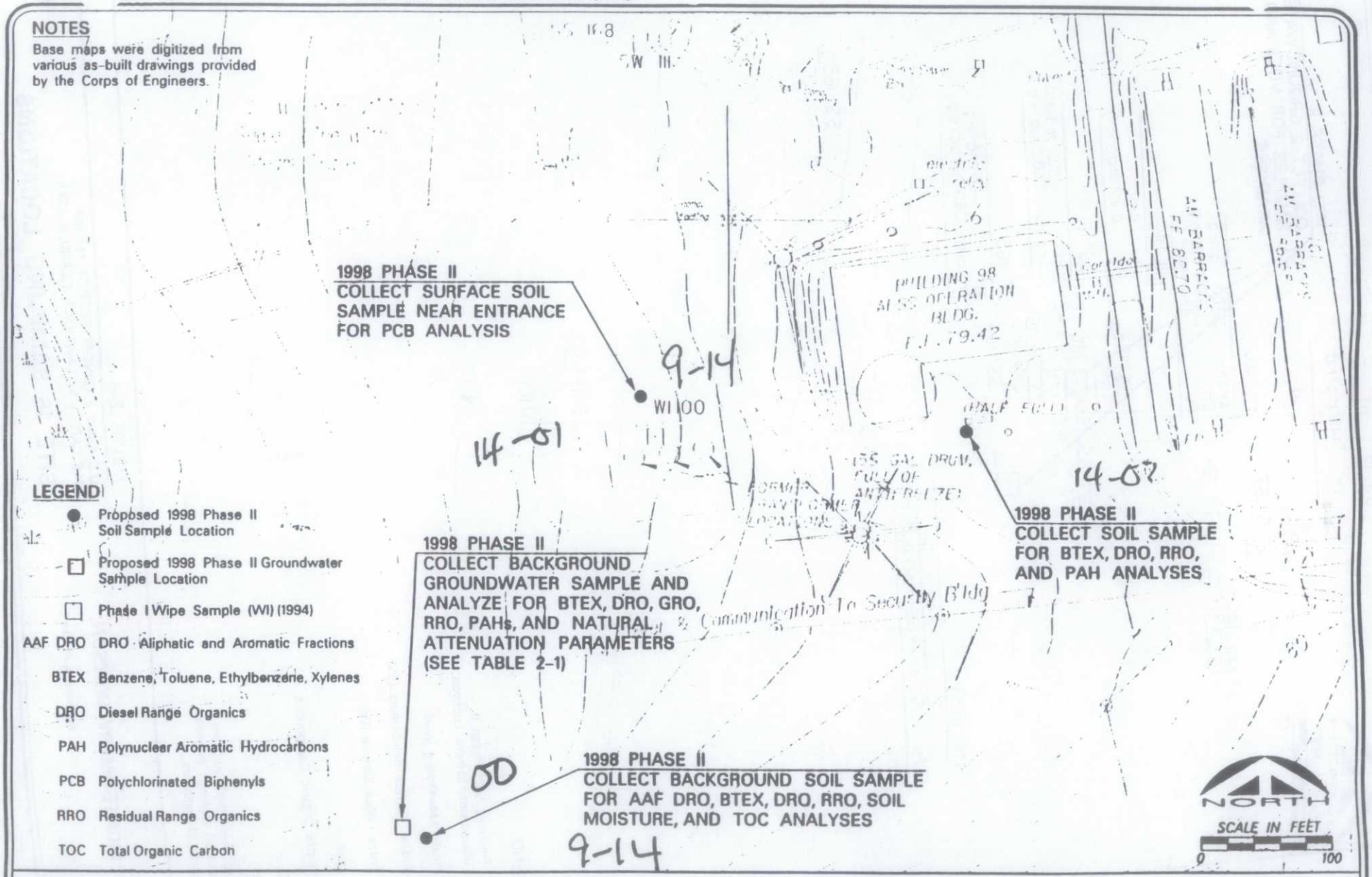
U.S. ARMY ENGINEER DISTRICT, ALASKA
N.E. CAPE – ST. LAWRENCE ISLAND, ALASKA

SITES 10 & 11 SAMPLING LOCATIONS

JOB No. TIME: 24-AUG-1998 08:48 FILE: s:\cod\proj\corps\necape\ph2wkpln\98wp\fg2_7.dgn

NOTES

Base maps were digitized from various as-built drawings provided by the Corps of Engineers.



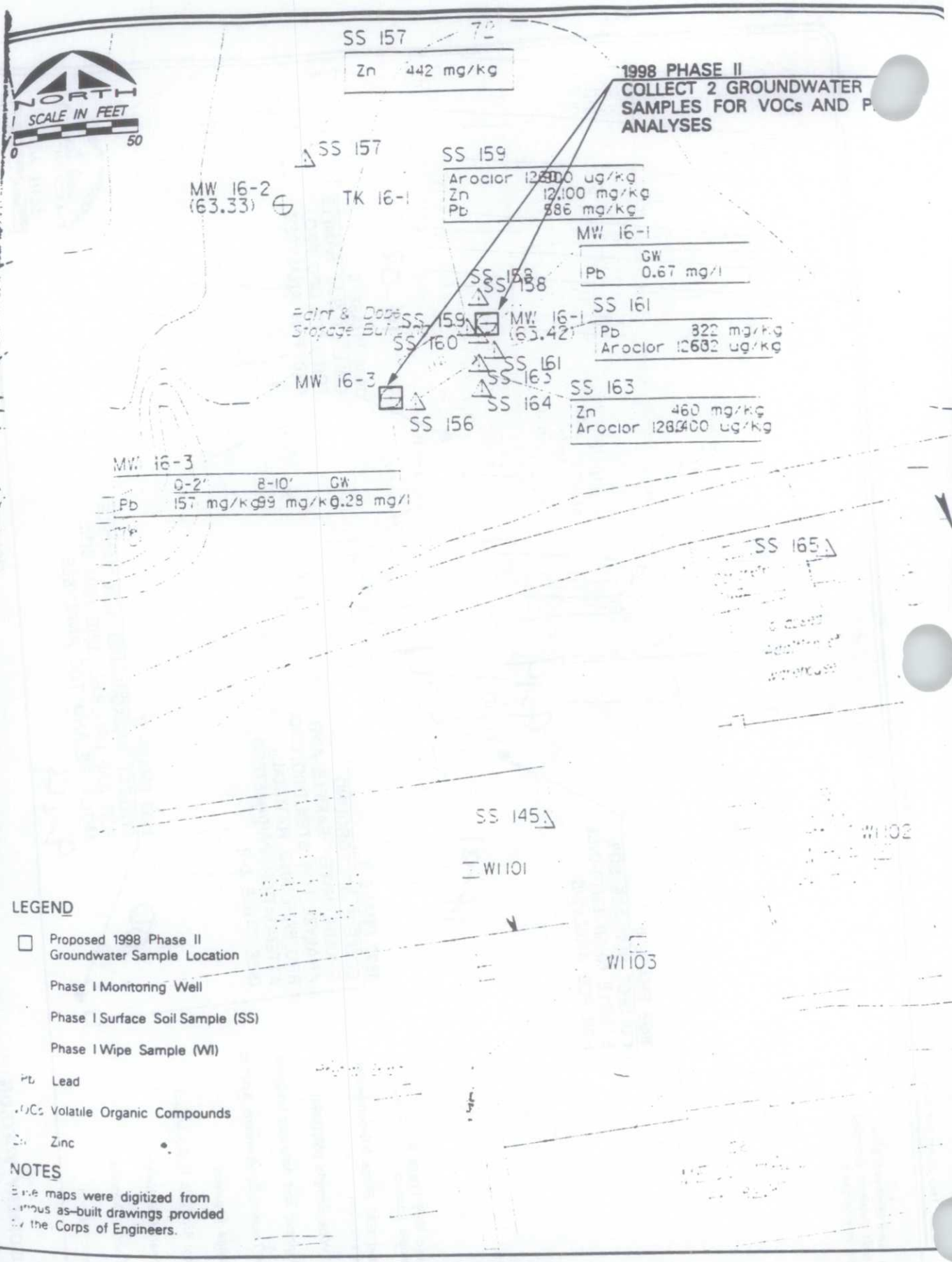
MONTGOMERY WATSON

Anchorage, Alaska

FIGURE 2-7

U.S. ARMY ENGINEER DISTRICT, ALASKA
N.E. CAPE - ST. LAWRENCE ISLAND, ALASKA

SITE 14 SAMPLING LOCATION



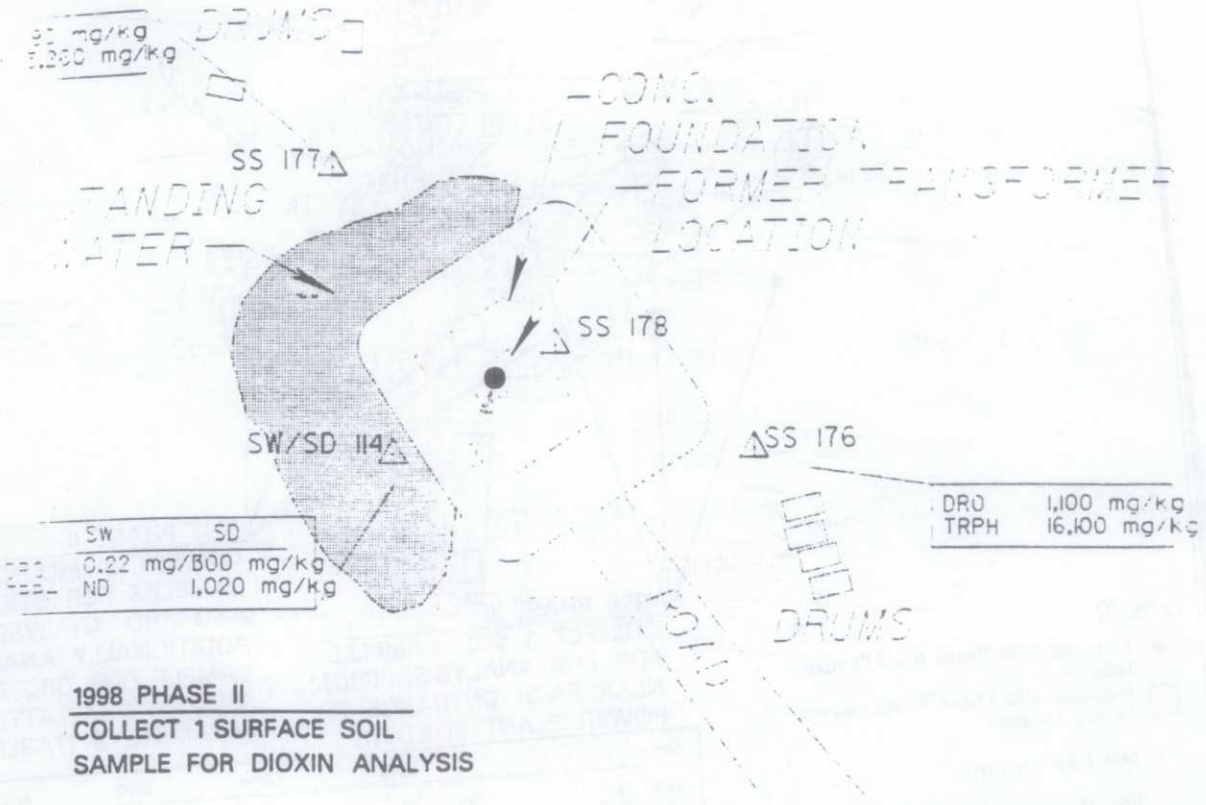
MONTGOMERY WATSON

Anchorage, Alaska

FIGURE 2-8

U.S. ARMY ENGINEER DISTRICT, ALASKA
N.E. CAPE – ST. LAWRENCE ISLAND, ALASKA

SITE 16 SAMPLING LOCATIONS



1998 PHASE II
COLLECT 1 SURFACE SOIL SAMPLE FOR DIOXIN ANALYSIS

LEGEND

- ● Proposed 1998 Phase II Soil Sample Location
- _ Phase I Surface Soil Sample (SS)
- _ Phase I Surface Water/Sediment Sample (SW/SD)

TRPH Total Recoverable Petroleum Hydrocarbons

NOTES

Base maps were digitized from various as-built drawings provided by the Corps of Engineers.

NORTH

SCALE IN FEET

0 50

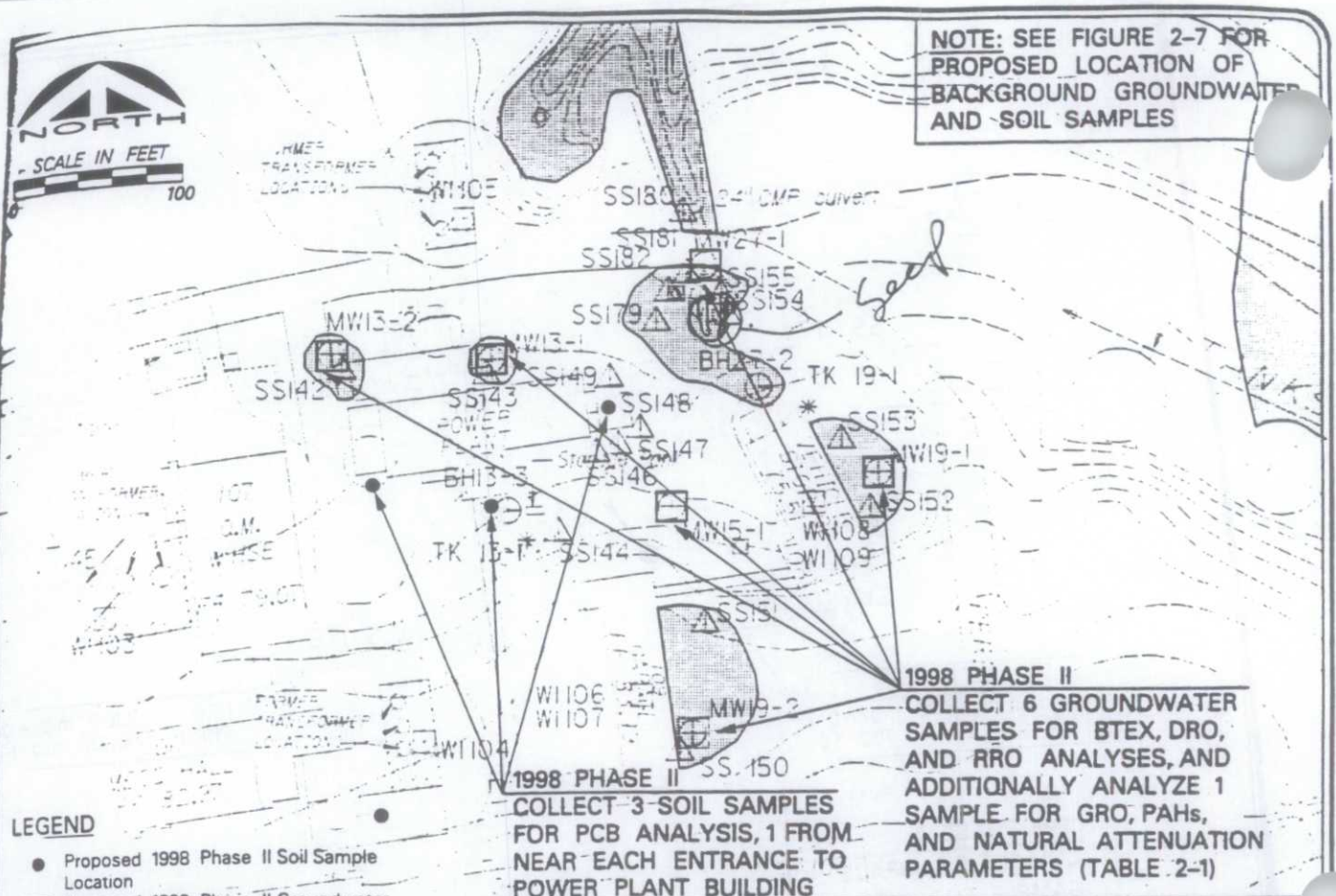
MONTGOMERY WATSON

Anchorage, Alaska

FIGURE 2-9

U.S. ARMY ENGINEER DISTRICT, ALASKA
N.E. CAPE - ST. LAWRENCE ISLAND, ALASKA

SITE 25 SAMPLING LOCATIONS



LEGEND

- Proposed 1998 Phase II Soil Sample Location
- Proposed 1998 Phase II Groundwater Sample Location
- 1994 Borehole (BH)
- 1994 Monitoring Well w/Groundwater Elevation (MW)
- 1994 Surface Soil Sample (SS)
- 1994 Surface Water/Sediment Sample (SW/SD)
- 1994 Surface Water Elevations (ft.,MSL)
- 1994 HAZCAT Sample (TK)
- AST
- Wipe Sample (WI)
- Stained Area
- Potential extent of POL contamination above benchmark criteria >100 mg/kg DRO or 1,000 mg/kg TRPH

BTEX Benzene, Toluene, Ethylbenzene, Xylenes
DRO Diesel Range Organics
GRO Gasoline Range Organics
PCB Polychlorinated Biphenyls
RRO Residual Range Organics
TRPH Total Recoverable Petroleum Hydrocarbons

NOTES

Base maps were digitized from various as-built drawings provided by the Corps of Engineers.

Sample				DRO	TRPH	GRO	Aroclor 1260 (ug/kg)
MW	13-1		GW	23	190	4	
MW	13-2		GW	22	24	3.6	
MW	13-2	4-6'		955	945	7	
BH	13-3	4-6'		546	1150	7.1	
BH	13-3	9.5-11.5'		10800	7880	225	
MW	15-1		GW	93	31		
MW	15-1	9.5-11.5'		2190	535		
MW	19-1		GW	13	9.7	6.1	
MW	19-1	0-2'		110	690		
MW	19-1	4-6'		971	28800	6650	
MW	19-1	9.5-11.5'		13300	16300	461	
MW	19-2		GW	34			
MW	19-2	14.5-16.5'		122	389		
MW	27-1		GW	3.2	2.1	1.4	
MW	27-1	0-2'		5710	18000	886	
MW	27-1	2-4		8470	29300	410	
MW	27-1	4-6'		569	1690	39	
MW	27-1	9.5-11.5'		19	181		
BH	27-2	0-2'		9230	32400	283	
BH	27-2	4-6'		52	535	2.3	
BH	27-2	9.5-11.5'		11	170		
SS	142			2610	2280		
SS	143			398	551		
SS	144			1530	6130		
SS	145						58300
SS	146			4660	20500		
SS	147			2840	12400		
SS	148			4860	24200		
SS	149			6580	36800		
SS	150			868	2000		
SS	151			328	680		
SS	152			1240	3150		
SS	153			43	413		
SS	154			9460	16600	9.1	
SS	155			35700	12800	89	
SS	179			27500	53700	370	
SS	180			37900	44700	7	
SS	181			33600	66400	370	
SS	182			9850	41800		

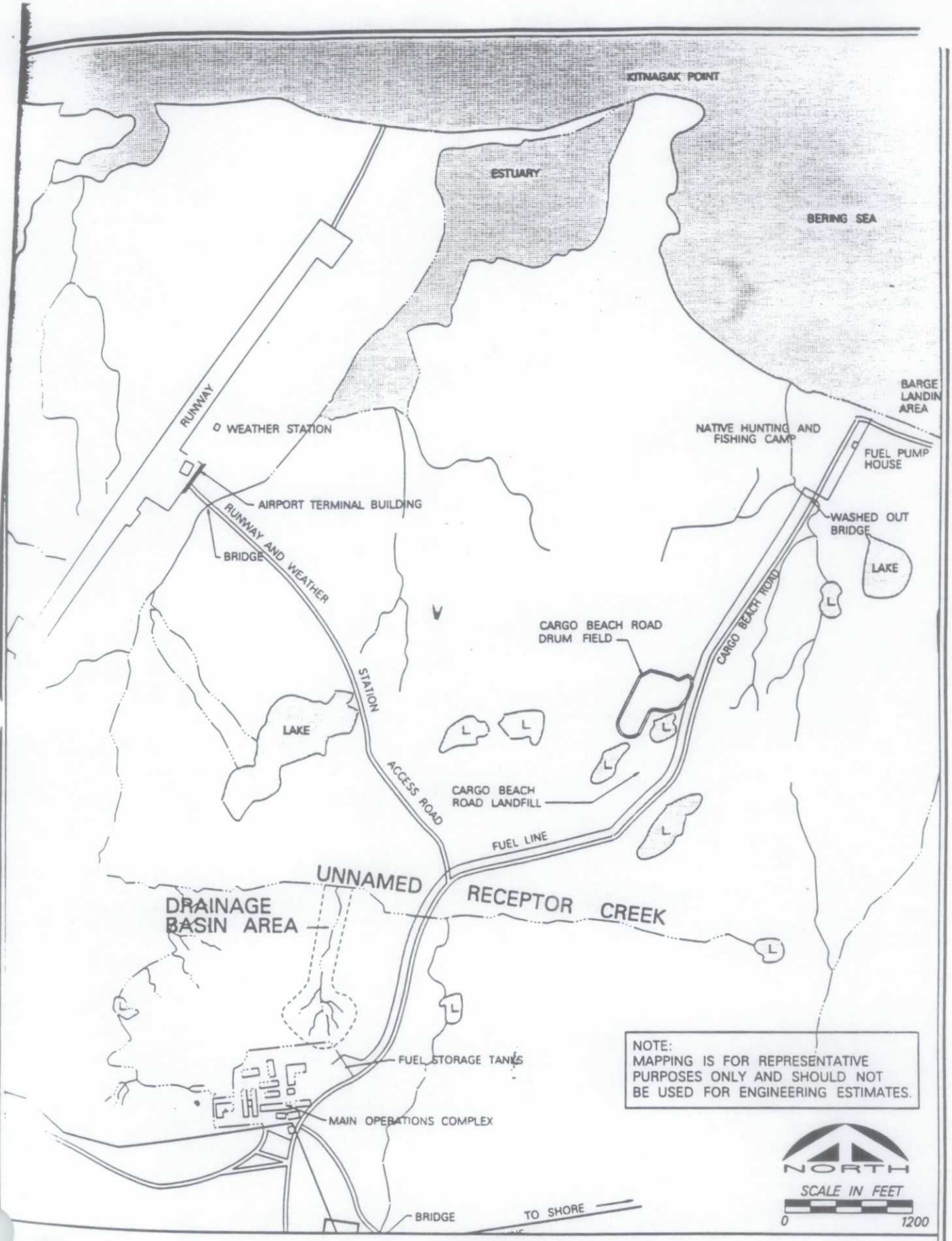
NOTE: Units for (mg/kg) for concentration in soil; (mg/l) for concentration in water
2-4' indicates depth of soil sample
GW indicates groundwater sample

MONTGOMERY WATSON
Anchorage, Alaska

FIGURE 2-10

U.S. ARMY ENGINEER DISTRICT, ALASKA
N.E. CAPE - ST. LAWRENCE ISLAND, ALASKA

SITES 13, 15, 19 & 27 SAMPLING LOCATIONS



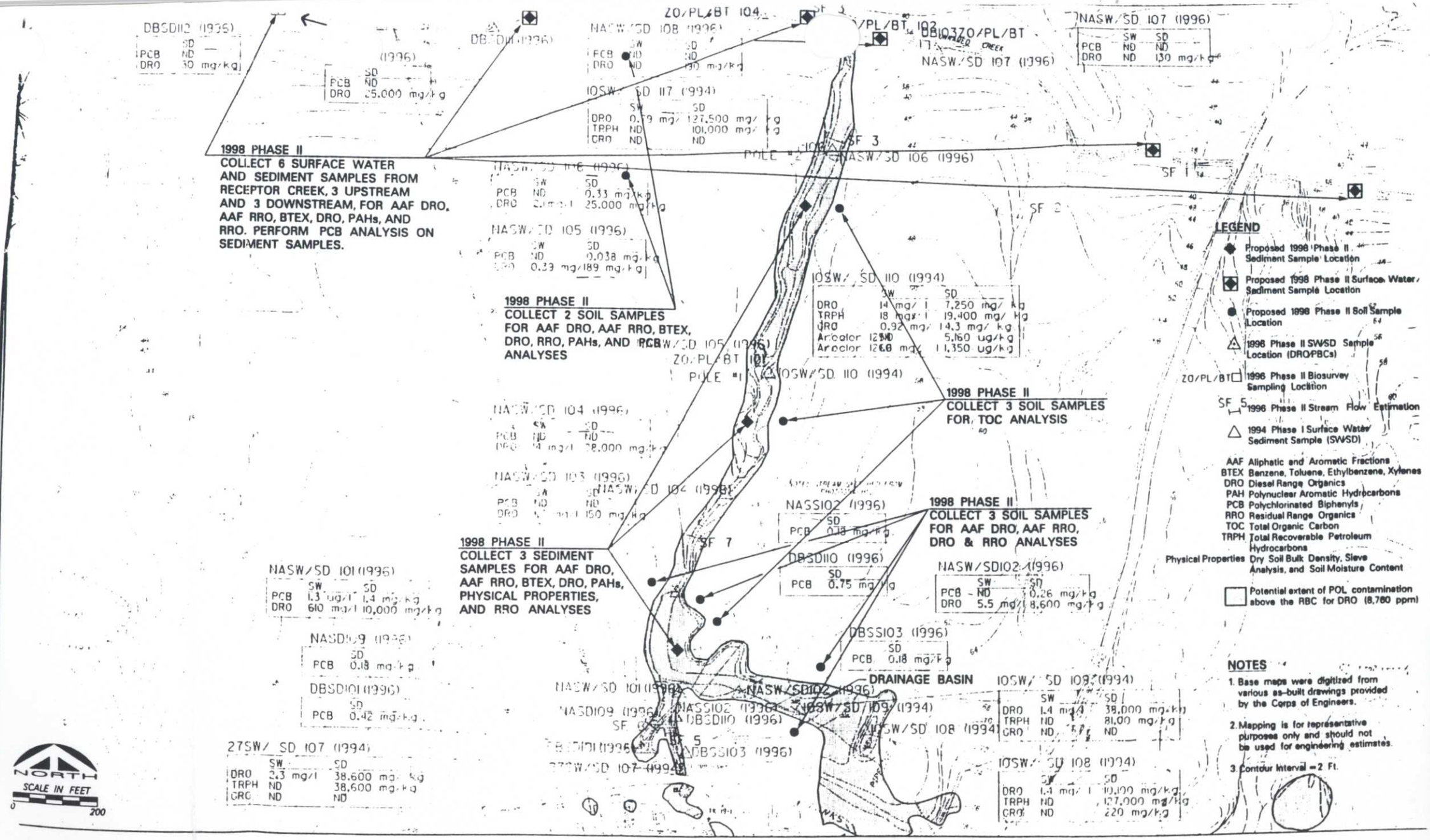
MONTGOMERY WATSON

Anchorage, Alaska

FIGURE 2-11

U.S. ARMY ENGINEER DISTRICT, ALASKA
N.E. CAPE – ST. LAWRENCE ISLAND, ALASKA

DRAINAGE BASIN LOCATION



MONTGOMERY WATSON
Anchorage, Alaska

FIGURE 2-12
U.S. ARMY ENGINEER DISTRICT, ALASKA
N.E. CAPE - ST. LAWRENCE INSLAND, ALASKA
DRAINAGE BASIN AREA SAMPLING LOCATIONS

Army Corps of Engineers

Northeast Cape, Alaska

1998 Miscellaneous
(Summary of DERP-FUDS Eligible Debris and Physical Hazards)

MONTGOMERY WATSON

Table 2

Summary of DERP-FUDS Eligible Debris and Physical Hazards
Northeast Cape, St. Lawrence Island, Alaska

Site Location	Building or Debris	FUDS Categorization/ Eligibility	Evaluation of Physical Hazard	Estimated Quantity	Units	Comments
Site 1 - Burn Site Southeast of Landing Strip						
	No visible sources of BD/DR				N/A	
Site 2 - Airport Terminal and Landing Strip						
	Airport Terminal with Tower	BD/DR	Structural hazard: Unprotected openings > 8" x 8" in roof and tower wall, missing front stairs and railings; Climbing hazard: tower readily climbable from main floor; Other: numerous exposed nails, broken timbers,	1600	square feet	ESTIMATE 25 x 75 + 15'x15' TOWER; *DOWNED RADIO TOWER ADD: roller 4' x 4' CYLINDER, STEEL 8'x15' 2" STEEL DECK/FRAME FOR RUNWAY surface W/ 25' STEEL TOWER GUIDE CABLE - 2 - 3/4" RUBBER + 3/8 WIRE ROPE to MAIN OPS
	Power lines/Poles	BD/DR	Collision and entanglement hazard for snow machine traffic	9	each	1 POLE - 10' long 3' WIDE (PIPE frame) 8' WIDE 10' tall Assembly
	Tractor	BD/DR	Collision hazard for snow machine traffic	1	each	Could be under jurisdiction of SHPO
	Above-ground storage tank; 1,000	CON/HTW	N/A	1	each	
	Drum(s)	CON/HTW	N/A	5	each	Poor condition
	Transformer Shed	CON/HTW	N/A	1	each	
Site 3 - Fuel Line Corridor and Pumphouse						
	Bldg 119 - Fuel Pumphouse	BD/DR	Structural: opening west end > 8" x 8"	448	square feet	Will need to be removed for contaminated soil removal - HAS CONC FOUND & TANK PAD
	Debris; metal	BD/DR	Other: sharp metal edges protruding, Collision hazard from fish camp housing to	5000	pounds	5 END of pumphouse
	Above-ground storage tank; 500	CON/HTW	N/A	2	each	1) D = 3.15' L = 5.9' (CYLINDER), 2) D = 3.8' L = 6'
	Batteries	CON/HTW	N/A	1	N/A	
	Fuel Line	CON/HTW	N/A RUBBER (20' sections)	+3	each	6" DIAMETER
	Paint container	CON/HTW	N/A	1	gallon	
	Piping; 4-inch steel fuel pipeline	CON/HTW	N/A	8000	linear feet	+300' to ADD: 15 RUSTED DRUMS
Site 4 - Native Fishing and Hunting Camp						
	Vehicles; abandoned	BD/DR	Collision and entanglement hazard for snow machine traffic	2	each	Could be under jurisdiction of SHPO - totally RUINED
	Drum(s)	CON/HTW	N/A	250	each	
	Tank; abandoned 10,000 gallon	CON/HTW	N/A STEEL	1	each	D = 10' L = 26.7' STEEL PLATE, EMPTY
	Tank; abandoned 250 gallon	CON/HTW	N/A ALUMINUM (perh water)	1	each	D = 3.5 L = 5.5 (ALUMINUM) - water only
Site 5 - Cargo Beach						
	Bull-dozer parts D-8	BD/DR	Collision hazard for snow machine traffic	1	each	Could be under jurisdiction of SHPO - TOTALLY RUSTED AND DESTROYED
	Cable; 2-inch diameter	BD/DR	Collision and entanglement hazard for snow machine traffic	1000	linear feet	
	Marston mats and aluminum siding	BD/DR	Other: protruding sharp metal edges collision hazard for snow machine	265/1000	each/linear feet	
	Drum(s)	CON/HTW	N/A	275	each	
Site 6 - Cargo Beach Road Drum Field						
	Debris; metal (small mats)	BD/DR	Other: protruding sharp metal edges collision hazard for snow machine	200	cubic yards	ESTIMATED 500 lbs
	Battery	CON/HTW	N/A	1	each	
	Drum(s)	CON/HTW	N/A	1500	each	Estimated quantity
	Tank; 500 gallon NO	CON/HTW	N/A	1	each	Empty tank - ACKNOWLEDGED contained water (TRAILER MOUNTED)
Site 7 - Cargo Beach Road Landfill						
	Boiler	BD/DR	Collision hazard for snow machine traffic	1	each	Located in pond, contains ACM liner
	Cable on spools	BD/DR	Collision hazard for snow machine traffic	3	each	ALSO: TWO ALUM RADIO TOWERS, 1 on NE, SE SIDE
	Caterpillar cab	BD/DR	Collision hazard for snow machine traffic	1	each	
	Batteries	CON/HTW	N/A	7 est.	each	

Table 2
Summary of DERP-FUDS Eligible Debris and Physical Hazards
Northeast Cape, St. Lawrence Island, Alaska

Site Location	Building or Debris	FUDS Categorization/ Eligibility	Evaluation of Physical Hazard	Estimated Quantity	Units	Comments
	Drum(s)	CON/HTW	N/A	2300	each	Estimated quantity ALSO: EST 10,000 lbs MISC metal debris
Site 8 - POL Spill Site						
	No visible sources of BD/DR ✓					Except for POL PIPE
Site 9 - Housing and Operations Landfill						
	Aluminum and truck frame	BD/DR	Other: protruding sharp metal edges collision hazard for snow machine traffic	< 40/ 1	linear feet/ each	
	Cable; steel	BD/DR	Other: collision and entanglement hazard for snow machine traffic	100-500	linear feet	ADD 1 battery
	Containerized chemical; powder 2 quart-size	CON/HTW	N/A	1	each	
	Drum(s); POL	CON/HTW	N/A	50 est.	DRY each	
Site 10 - Buried Drum Field						
	No visible sources of BD/DR ✓					
	Drum(s); surface	CON/HTW	N/A ✓	10	each	OF
Site 11 - Fuel Storage Tank Area						
	No visible sources of BD/DR ✓					misc valves, piping, rails, and 1000 lbs (500)
	Tanks; fuel storage tanks	CON/HTW	N/A ✓	3	each	26' high - get ø from map
Site 12 - Gasoline Tank Area						
	No visible sources of BD/DR ✓					
	Tanks; gasoline fuel storage tanks	CON/HTW	N/A	2	each	1) 38'L x 8' diameter 2) 42'L x 11' diameter + 500 lbs misc valves pipe
Site 13 - Heat and Electrical Power Building						
	Bldg. 110 - Heat and Electrical Power	BD/DR	Structural hazard: unprotected openings > 8" x 8" in roof and tower wall, missing front stairs and railings; Climbing hazard: 2nd floor readily climbable from main floor; Other: numerous exposed nails, broken	7400	square feet	4 CUMMINS DIESEL GENERATORS 3.5 wide x 12' long x 6' high
	Tank; water storage tank	BD/DR	Climbing hazard, tank is >8' from ground, the rack allows the tank readily climbable	1	each	Recycle possibility
	Above-ground storage tank; estimated 1,000 gallon	CON/HTW	N/A	1	each	Recycle possibility
	Tank; pressure tank 500 gallon ~~CON/HTW~~ BD/DR	~~CON/HTW~~ BD/DR	N/A	2	each	AIR - CONDITIONER BD/DR
	UST; estimated 20,000 gallon	CON/HTW	N/A ✓	1	each	Recommend filling in-place
	UST; estimated 5,000 gallon	CON/HTW	N/A ✓	1	each	Recommend filling in-place
Site 14 - Emergency Power Operations Building						
	Bldg. 98 - Emergency Power Operations	BD/DR	Other: roof , floor, and ceilings are collapsing from weathering, Drowning hazard: the basement is full of water > 8'	16250	square feet	mostly blown off Aluminum roofing recycle possibility(?) · Note - thru cold hall ~ 6" down EXT walls AND STEEL GIRDER ROOF STEEL STUD/WIRE MESH/PANEL INTERIOR
	Debris, miscellaneous building	BD/DR	protruding debris	2 est.	cubic yards	SO SIDE: 2 wood shacks w/ cable 3' down
	Power lines/ Power poles	BD/DR	Other: entanglement hazard for ATV and snow machine traffic	9 unknown	ea. N/A	
	Above-ground storage tank; 5,000 gallon fuel storage	CON/HTW	N/A	1	each	14-1 6' diam x 24' long + 200' loose 3-wire cable
	Containers; military grease	CON/HTW	N/A	5	each	
	Drum(s)	CON/HTW	N/A	1	each	Antifreeze drum; outside (SO SIDE)
Site 15 - Buried Fuel Line Spill Area						
	No visible sources of BD/DR ✓					
	UST; 20,000 gallon ✓	CON/HTW	N/A	1	each	Connects storage tanks

Table 2
Summary of DERP-FUDS Eligible Debris and Physical Hazards
Northeast Cape, St. Lawrence Island, Alaska

Site Location	Building or Debris	FUDS Categorization/ Eligibility	Evaluation of Physical Hazard	Estimated Quantity	Units	Comments
Site 16						
	Bldg. 112 - Paint and Dope Building	BD/DR	Climbing hazard: exterior provides easy access to roof > 10' above ground	N/A	N/A	ON SHELF 2 15gal marked 16-5, 16-6 ON PAD 3 Real marked 16-2, 16-3 16-4
	Drum(s); rollers	BD/DR	machine traffic	2	each	3.5' diam x 4' long for compaction
	Solvents, paints, POLs, dielectric fluids, cleaners and other liquids	CON/HTW	N/A	150	gallons	Steel grades 2,000 pounds marshm mat 500 lbs
	Tank, steel	CON/HTW	N/A	1	each	Possibly an oil tank. . Cylindrical steel 4'x8' - probably water tank
Site 17 - General Supply Warehouse and Mess Hall Warehouse						
	Bldg. 111 - General Supply Warehouse	BD/DR	Structural hazard: roof, floor, and ceiling are collapsing from weathering.	9900	square feet	4 crates 2' thick x 4 ft, w/ sealed band 200 lbs gal exhaust inside
	Bldg. 107 - Mess Hall Warehouse Building	BD/DR	Structural hazard: roof, floor, and ceiling are collapsing from weathering.	10200	square feet	
	Containers; miscellaneous liquids, cleaners, solvents, etc.	CON/HTW	N/A	25 est.	each	FREON cylinder - NORTH WEST side BLG 107
	Containers; miscellaneous liquids, cleaners, solvents, etc.	CON/HTW	N/A	20 est.	each	
	Drum(s)	CON/HTW	N/A	8	each	Compressed gas cylinders (BLDG 111)
	Drum(s)	CON/HTW	N/A	1	each	UNKNOWN CONTENTS
Site 18 - Housing Facilities and Squad Headquarters						
	Bldg. 99 - Recreation Building	BD/DR	Structural hazard: roof, floor, and ceilings are collapsing from weathering, numerous openings > 8"x8. Climbing hazard: 2nd floor readily climbable from interior and	72050[a]	square feet (NE 18)	Unpainted steel building; recycle possibility. No roof. Laminated 6-inch hardwood floor.
	Bldg. 100 - NCO Quarters - N&S buildings	BD/DR	Structural hazard: roof, floor, ceilings, and load-bearing walls are collapsing from weathering, numerous openings > 8"x8". Climbing hazard: 2nd floor readily	72050[a]	square feet (NE 18)	Debris near all buildings at Site 18
	Bldg. 101 - Dormitory E&W	BD/DR	Structural hazard: roof , floor, ceilings, and load-bearing walls are collapsing from weathering. Drowning hazard: the basement	72050[a]	square feet (NE 18)	Building lumber; recycle possibility Compressed gas cylinders north west of BUILDING 101 WEST
	Antennas	BD/DR	Other: entanglement hazard for ATV and snow machine traffic	unknown	N/A	
	Bldg. 102 - BOQ	BD/DR	Structural hazard: roof is sagging and floors are collapsing, and weakening load -bearing	72050[a]	square feet (NE 18)	ACM; too dangerous to abate
	Cables, and power lines	BD/DR	Other: entanglement hazard for ATV and snow machine traffic	unknown	N/A	
	Utility Corridor	BD/DR	Cave-in hazard: deteriorating wooden covers and wall linings are producing open	unknown	N/A	Located throughout facility
	Bldg. 104 - Administration	BD/DR	Structural hazard: roof is sagging, floors, ceilings, and weakening load -bearing walls are collapsing from weathering.	72050[a]	square feet (NE 18)	
	Bldg. .05 - Theater	BD/DR	Structural hazard: roof is sagging, floors, ceilings, and weakening load -bearing walls are collapsing from weathering.	72050[a]	square feet (NE 18)	Stainless-steel inside building; recycle possibility
	Bldg. 106 - Mess Hall	BD/DR	structural hazard: roof is sagging, floors, ceilings, and weakening load -bearing walls are collapsing from weathering.	72050[a]	square feet (NE 18)	
	Tanks, water	BD/DR	Climbing hazard: the tank rack allows	2	each	Temporary building - collapsed
	Bldg. 125 - Pre-fab. Building	BD/DR	Collapsed, total ruin.	unknown	N/A	

...ole 2
Summary of DERP-FUDS Eligible Debris and Physical Hazards
Northeast Cape, St. Lawrence Island, Alaska

Site Location	Building or Debris	FUDS Categorization/ Eligibility	Evaluation of Physical Hazard	Estimated Quantity	Units	Comments
	Bldg. 130 - Hobby Shop	BD/DR	Structural hazard: roof is sagging , floors ,ceilings, and weakening load -bearing walls are collapsing from weathering.	unknown	N/A	1 cylinder compressed gas in AMU BARRACKS
	Containers; 5 gallon, DS2	CON/HTW	N/A	5	each	STB/DS2 decontaminant for chemical warfare; explosive hazard in Bldg. 100 west ← update
	Containers; boxes, cans, buckets, STB powder	CON/HTW	N/A	9	each	Estimated quantity
	Containerized fluids or cleaners	CON/HTW	N/A	10	each	Located in Mess Hall
	Incinerator	CON/HTW	N/A	1	each	PCB liquid(?)
	Electrical panels with switches	CON/HTW	N/A	unknown	N/A	in rec. bldg.
Site 19 - Army Maintenance and Storage Facilities						
	Bldg. 109 - Garage	BD/DR	Structural hazard: roof, floor, ceilings, and load-bearing walls are collapsing from weathering, numerous openings > 8"x8". Climbing hazard: 2nd floor readily	unknown	N/A	50 SIDE M 2-STORY
	Bldg. 108 - Vehicle Storage	BD/DR	Structure hazard: roof is sagging and load-bearing walls are strained from weathering	unknown	N/A	STANDING generator 2' WIDE x 4' TALL x 6' long - W FRIDGE 2 FLOOR SAFES, 2½ x 6' cylindrical AIR COMP TANK
	Containers; 5-gallon, foaming liquid type-5	CON/HTW	N/A	39	each	Empty
	Smudge pots	CON/HTW	N/A	24	each	Drain liquid(?) - PROBABLY WATER
	Suspected grease pit drainage area	BD/DR CON/HTW	Falling and Drowning hazard: open work pit > 5 ' deep, accessible to rain and snow melt	unknown	N/A	Unknown if any Hazardous Waste may be involved in work pit. ← corrosive w/ 9% water
	Tank; antifreeze 50 gallon	CON/HTW	N/A	1	each	RUSTED, EMPTY - CONTAINED DEBRIS 19-1 ¼ full
Site 20 - Aircraft Control and Warning Building						
	Bldg. 103 - Aircraft Control and Warning	BD/DR	Structural hazard: walls and ceilings have collapsed, remaining load-bearing walls are sagging are deteriorated due to weathering.	3358	square feet	4x6 6 v. Batteries. 1 compressed gas cylinder from 22" 6 → ~ 25' lead-shielded 1-inch cable
Site 21 - Wastewater Treatment Facility						
	Wastewater Treatment Facility Tanks	BD/DR	Falling and Drowning hazard: open cistern filled with water	2	each	Wastewater treatment facility - 1 large tank w/ smaller 3' x 4' CISTERN
	Piping; influent/effluent (8-inch)	CON/HTW	N/A	~~400~~ 500	linear feet	L (also other piping) same lenght of 1¼ steam piping

Table 2
Summary of DERP-FUDS Eligible Debris and Physical Hazards
Northeast Cape, St. Lawrence Island, Alaska

Site Location	Building or Debris	FUDS Categorization/ Eligibility	Evaluation of Physical Hazard	Estimated Quantity	Units	Comments
Site 22 - Water Wells and Water Supply Building						
	Bldg. 113 - Water Supply Building	BD/DR	Structural hazard: roof and walls collapsing. Falling hazard: subsurface floor is >6 and concrete lined thus resulting in a Drowning	28	feet high	4 EA Collapsed building
	Well #4 pumphouse	BD/DR	Structural hazard: openings > 8"x8", roof sagging, and load-bearing walls deteriorated due to weathering			Abandon well!
	Bldg. 114 - Pump Station	CON/HTW	generator in place	unknown	N/A	Bldg.. will need to be removed.
	Containerized ACM cement	CON/HTW	N/A	150	gallons	
	Containers; pints	CON/HTW	N/A	1	cubic yard	Fire paint containers
Site 23 - Power and Communication Line Corridors						
	Antennas and cables	BD/DR	Other: entanglement hazard for ATV and snow machine traffic	unknown	N/A	
	Drum(s)	CON/HTW	N/A	140	each	Estimate length of 6 cables based on map (linear feet)
Site 24 - Radio Transmitting Area						
	Antennas, poles and cables	BD/DR	Other: entanglement hazard for ATV and snow machine traffic	unknown	N/A	
	Drum(s)	CON/HTW	N/A	1450	each	
Site 25 - Direction Finder Area						
	Antennas, poles and cables	BD/DR	Other: entanglement hazard for ATV and snow machine traffic	unknown	N/A	
	Transformer casing	CON/HTW	N/A	1	each	Not removed (NES, 1994)
Site 26 - Former Construction Camp Area						Disposition of animal carcasses located around the site?
	No visible sources of BD/DR	N/A	N/A	N/A	N/A	
Site 27 - Diesel Fuel Pump Area						
	Building; small	CON/HTW	Needs to be removed to provide access to fuel lines	unknown	N/A	concrete sump 3'x3' w/ piping Building noted during 1995 BD/DR field work.
	Pipeline; buried and fuel pump	CON/HTW	N/A	1	each	

KEY

:

ACM - asbestos-containing material
BD/DR - building demolition/debris removal
CON/HTW - containerized hazardous or toxic waste
DERP - Defense Environmental Restoration Program
FUDS - Formerly Used Defense Site
N/A - not applicable
PCB - polychlorinated biphenyls
NE - Northeast Cape
POL - petroleum hydrocarbons
SHPO - State Historic Preservation Office
TCLP - toxic characteristic leaching procedure
UST - underground storage tank

NOTE:

(a) - Combined estimated quantity of building material at Site NE 18.

Tailgate Safety Meeting Form

Date: 9-11-98 Time: 1110 Job Number: 1189098.050101

Client: USACOE Site Location: Northeast Cape

Scope of Work:

Soil and groundwater sampling, well pt. installation

Safety Topics Presented

Protective Clothing/Equipment: Steel toed boots, ear and eye protection, inter and chemical protective gloves, or leather gloves, Tyvek, rain gear or cold weather gear as needed

Chemical Hazards: Diesel fuels, gasoline, Hexane

Physical Hazards: ATV transportation, tripping, falling, muscle strain, jack hammer up

Special Equipment: generator

Other:

Emergency Procedures: Contact ~~Gambell Health Clinic(near P.O.) at 985-5012~~
Phone - 911
CB ch. 29

Hospital: Norton Sound Regional, Nome Phone: 1-907-443-3311
Air Ambulance Phone: LifeGuard Alaska 1-800-478-LIFE (5433)

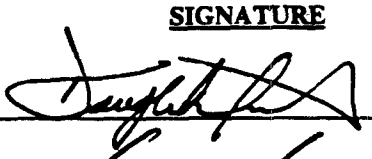
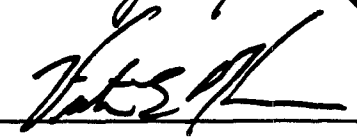
Hospital Address and Route: N/A

Vista E&A

ATTENDEES

USCOE ALASKA

TAILGATE SAFETY MEETING

NAME PRINTED	SIGNATURE
Douglas Quist	
Victor HARRIS	

Meeting Conducted By: _____ _____
Name Printed Signature

Projected Safety Officer: _____ Project Manager: _____

Tailgate Safety Meeting Form

Date: 9-12-98 Time: 1020 Job Number: 1189098.050101

Client: USACOE Site Location: Northeast Cape

Scope of Work:

Soil and groundwater sampling, sediment sampling

Safety Topics Presented

Protective Clothing/Equipment: Steel toed boots, ear and eye protection, inter and chemical protective gloves, or leather gloves, Tyvek, rain gear or cold weather gear as needed, cold weather

Chemical Hazards: Diesel fuels, gasoline, Hexane

Physical Hazards: ATV transportation, tripping, falling, muscle strain, Dalls Board, foxs, bears, tree, wet & cold

Special Equipment:

Other:

Emergency Procedures: Contact ~~Gambell Health Clinic(near P.O.) at 985-5012.~~

Hospital: Norton Sound Regional, Nome Phone: 1-907-443-3311
Air Ambulance Phone: LifeGuard Alaska 1-800-478-LIFE (5433)

Hospital Address and Route: N/A

ATTENDEES

USCOE ALASKA

TAILGATE SAFETY MEETING

NAME PRINTED	SIGNATURE
Victor Harris	
Douglas Quist	
Amanda Dreyer	

Meeting Conducted By: B McLean
Name Printed

Signature

Projected Safety Officer: _____ Project Manager: D. Dreyer

Tailgate Safety Meeting Form

Date: 9-13-98 Time: 1015 Job Number: 1189098.050101

Client: USACOE Site Location: Northeast Cape

Scope of Work:

Soil and groundwater sampling, Sediment Sampling

Safety Topics Presented

Protective Clothing/Equipment: Steel toed boots, ear and eye protection, inter and chemical protective gloves, or leather gloves, Tyvek , rain gear or cold weather gear as needed

Chemical Hazards: Diesel fuels, gasoline, Hexane

Physical Hazards: ATV transportation, tripping, falling, muscle strain, nails, fox, wire

Special Equipment:

Other:

Emergency Procedures: Contact ~~Gambell Health Clinic(near P.O.) at 985-5012~~
Phone: 1.2.3.4 Dial See posted instruction
CB ch. 29 & 19 marine 19
air 122.7

Hospital: Norton Sound Regional, Nome Phone: 1-907-443-3311
Air Ambulance Phone: LifeGuard Alaska 1-800-478-LIFE (5433)

Hospital Address and Route: N/A

ATTENDEES

USCOE ALASKA

TAILGATE SAFETY MEETING

NAME PRINTED	SIGNATURE
Amanda Dreyer	Amanda Dreyer
Victor Harris	
Douglas Quist	

Meeting Conducted By: _____ _____
Name Printed Signature

Projected Safety Officer: _____ Project Manager: _____

Tailgate Safety Meeting Form

Date: 9-14-98 Time: 1000 1030 Job Number: 1189098.050101

Client: USACOE Site Location: Northeast Cape

Scope of Work:

Soil and groundwater sampling.

Safety Topics Presented

Protective Clothing/Equipment: Steel toed boots, ear and eye protection, inter and chemical protective gloves, or leather gloves, Tyvek , rain gear or cold weather gear as needed , hard-hats, helmets

Chemical Hazards: Diesel fuels, gasoline, Hexane

Physical Hazards: ATV transportation, tripping, falling, muscle strain, nails, wire, tcm fox

Special Equipment:

Other:

Emergency Procedures: ~~Contact Gambell Health Clinic(near P.O.) at 985-5012~~

Marine Ch 19

CB ch 29

air 122.7

Hospital: Norton Sound Regional, Nome Phone: 1-907-443-3311

Air Ambulance Phone: LifeGuard Alaska 1-800-478-LIFE (5433)

Hospital Address and Route: N/A

ATTENDEES

USCOE ALASKA

TAILGATE SAFETY MEETING

NAME PRINTED	SIGNATURE
Harold L. Brown	Harold L. Brown
RICHARD G JACKSON	
DEIRDRE M. GINTER	
VICTOR HARRIS	
Amanda Dreyer	

Meeting Conducted By: Buckley
Name Printed

Signature

Projected Safety Officer: _____ Project Manager: _____

Tailgate Safety Meeting Form

Date: 9-15-98 Time: 1105/1300 Job Number: 1189098.050101

Client: USACOE Site Location: Northeast Cape

Scope of Work:

Soil and groundwater sampling, remove & package STB/DS2

Safety Topics Presented

Protective Clothing/Equipment: Steel toed boots, ear and eye protection, inter and chemical protective gloves, or leather gloves, ~~Tyvek~~, rain gear or cold weather gear as needed. Respiration of cl HPAR, organic + dept filter, Sorbent

Chemical Hazards: Diesel fuels, gasoline, Hexane STB, DS2

Physical Hazards: ATV transportation, tripping, falling, muscle strain, nails, boot stain

Special Equipment: Spark less shovel, trailer w/ Hoppin tie downs, Jax

Other:

Emergency Procedures: Contact ~~Gambell Health Clinic(near~~ P.O.) at 985-5012

Hospital: Norton Sound Regional, Nome Phone: 1-907-443-3311
Air Ambulance Phone: LifeGuard Alaska 1-800-478-LIFE (5433)

Hospital Address and Route: N/A

ATTENDEES

USCOE ALASKA

TAILGATE SAFETY MEETING

NAME PRINTED	SIGNATURE
Amanda Krueger	Amanda Krueger
VICTOR HARRIS	Victor Harris
Douglas Point	Douglas Point

Meeting Conducted By: B McLaa — Bruce
Name Printed — Signature

Projected Safety Officer: _____ Project Manager: _____

Tailgate Safety Meeting Form

Date: 9-16-98 Time: 1100 Job Number: 1189098.050101

Client: USACOE Site Location: Northeast Cape

Scope of Work:

~~Soil and groundwater sampling.~~ Seep samples, Mob out

Safety Topics Presented

Protective Clothing/Equipment: Steel toed boots, ear and eye protection, inter and chemical protective gloves, or leather gloves, Tyvek , rain gear or cold weather gear as needed

Chemical Hazards: Diesel fuels, gasoline, Hexane

Physical Hazards: ATV transportation, tripping, falling, muscle strain Flying, nails

Special Equipment:

Other:

Emergency Procedures: ~~Contact Gambell Health Clinic (near P.O.) at 985-5012~~

Report to standby plane

Hospital: Norton Sound Regional, Nome Phone: 1-907-443-3311
Air Ambulance Phone: LifeGuard Alaska 1-800-478-LIFE (5433)

Hospital Address and Route: N/A

ATTENDEES

USCOE ALASKA

TAILGATE SAFETY MEETING

NAME PRINTED	**SIGNATURE**

Meeting Conducted By: B mcbean
Name Printed

B mcbean
Signature

Projected Safety Officer: _____ Project Manager: _____