NPAEN-G-M

Toxic & Hazardous Materials (THM) Summary for Ugadaga Bay; DERA 5500

NPAEN-PM-C (DERA)

NPAEN-G

28 Jan 87
WAckerlund/jah/x-295
CONCUR: Pekar

1. References:

a. Verbal request, NPAEN-PM-C(DERA) dated 15 Aug 86 by Mr. Colt Denfield, subject: Sampling of Ugadaga Bay DERA 5400.

b. Verbal request NPAEN-PM-C(DERA) dated 13 Nov 86 by Mr. Colt Denfield, subject: Analytical Results for DERA Sites.

c. Verbal request, NPAEN-PM-C(DERA) dated 20 Apr 86 by Mr. Colt Denfield, subject: Summary of Analytical Results for IPR Report.

2. Per reference 1a, Ugadaga Bay samples were obtained on 6 Sep 86. The samples were promptly shipped via one-day service on 7 Sep 86, from Dutch Harbor directly to the appropriate laboratory approved by the Corps for DERA (Defence Environmental Restoration Account) work.

3. For an explanation of the sample identification number, refer to enclosure 1.

4. Per reference 1b, the following information is enclosed: a list of samples collected (enclosure 3), site maps (enclosure 4, 2 pages), and chemical analysis data. Chemical tests performed on the above mentioned sites include the following general categories: EP toxicity metals (enclosure 5), polychlorinated biphenyls (PCB's) (enclosure 6), halogenated volatile organics (enclosure 7, 2 pages), polynuclear aromatic hydrocarbons (PNA'S) (enclosure 8, 2 pages) volatile organics (enclosure 9, 2 pages), and petroleum oil and lubricant identification (POL ID) (enclosure 10). The tests are performed to identify Recource Conservation and Recovery Act (RCRA) and Toxic Substances Control Act (TOSCA) priority pollutants. For an explanation of each of the tests and how the tests relate to RCRA regulations, refer to enclosure 2, "Explanation and Use of Tests."

5. Data for the Ugadaga Bay site is summarized as follows:

a. Toxic and hazardous material (THM) contamination at Ugadaga Bay is limited to two small groups of POL barrels. Other barrels are scattered throughout the site with the total number of barrels estimated at 25. More than half of the barrels are empty. Observable soil contamination is limited to the vicinity of the two barrel piles. Sample 01SM was collected from the POL stained soils. Sample 02DR was collected from a full barrel of POL products.

b. Compounds identified in sample 02DR include many of the volatile organics such as benzene, ethylbenzene, toluene, xylene, and PNA's such as napthalene, fluorene, anthracene, etc. All compounds identified are common POL derivatives. The POL ID test identifies the POL to be a diesel fuel or No. 2 fuel oil.

c. Identified in soil sample 01SM are many of the same PNA compounds which were detected in sample 02DR. The concentrations of the PNA's identified warrants the extracation of visibl contaminated soils along with the POL fluids.

d. The intention in sampling the above site was to collect samples from the most severely contaminated areas. With composite samples, there is a chance that actual pollutant concentrations are below the levels reported (see compositing footnote at the end of enclosure 2). However, data presented herein should represent a worse case scenario.

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SUBJECT: Toxic and Hazardous Materials (THM) Summary for Ugadaga Bay; DERA 5500

e. The data listed herein has passed quality assurance criteria as established by the EPA. Chain of Custodies and all information pertinent to quality assurance/quality control are on file with NPAEN-G-M and are available upon request.

6. Per reference 1c, the following Summary and Recommendations is provided:

Chemical Concerns for
DERA Project No. 5500
UGADAGA BAY, ALASKA

THM concerns at Ugadaga Bay includes a rough estimate of 500 gallons of diesel fuel presently contained in barrels, and approximately 200 square feet of soil contaminated by polynuclear aromatic hydrocarbons (PNA's) and volatile organics from the fuel.

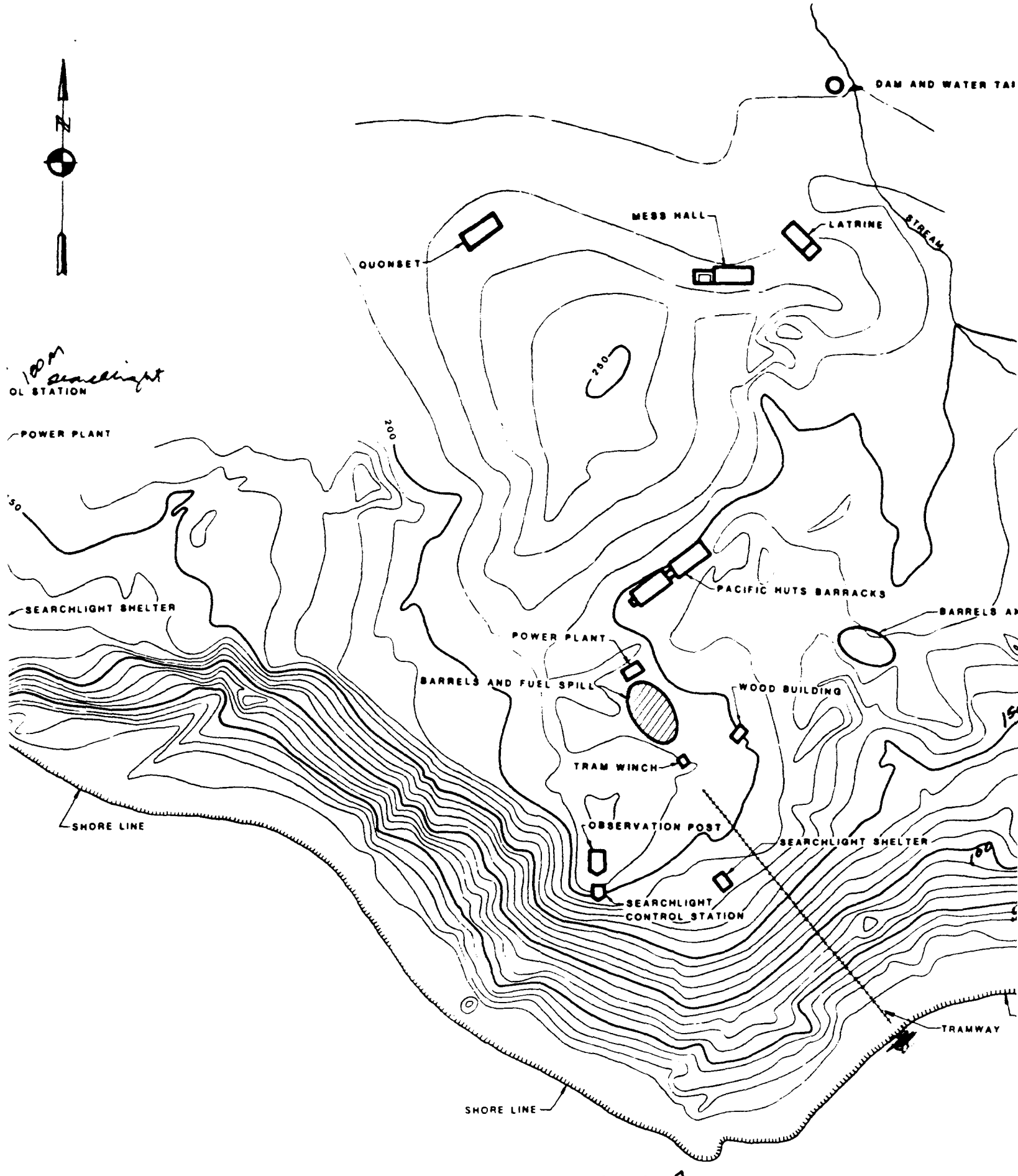
The barrels should be cleaned up while the contents are contained in barrels and easily removed from the pristine environment of the area. Any delay in time will only allow for further degradation of the barrels, causing their contents to leak and contaminate the environment with a variety of priority pollutants including benzene, ethylbenzene, toluene, xylene, napthalene, fluorene, anthracene, etc. Not only will this pose a health risk to wildlife, it will increase the cost and complexity of any future clean-up efforts. Clean up of all THM should be designed to first maximize recycling, second to complete destroy or neutralize the wastes, and finaly to minimize the amount of material to be removed to an out of state EPA approved THM disposal site. The 1986 amendments to CERCLA (Superfund) mandate that all organic wastes be treated prior to disposal. Non-toxic debris should be disposed of in a State of Alaska permitted disposal area, in consulatation with the appropriate federal, state and local authorities and with the landowner/ manager.

7. If you have further questions regarding these results, contact the laboratory, NPAEN-G-M at 753-2694.

DT 4 Feb 87
DELWYN F. THOMAS
Chief, Geotechnical Branch

encl

CF: NPAEN-PL-ER


N
DAM AND WATER TA
MESS HALL
LATRINE
STREAM
QUONSET
250
200
POWER PLANT
SEARCHLIGHT SHELTER
PACIFIC HUTS BARRACKS
POWER PLANT
BARRELS AND FUEL SPILL
WOOD BUILDING
TRAM WINCH
SHORE LINE
OBSERVATION POST
SEARCHLIGHT SHELTER
SEARCHLIGHT
CONTROL STATION
TRAMWAY
SHORE LINE

The property is owned by the Akutan Native Corporation. It strongly appears as if the Navy utilized existing whaling station facilities to fuel the Russian ships stopping here. Much of the whaling station debris would be of extreme historical interest if located in an area more accessible to human visitation. On the site are numerous old boilers, steam engines, and steam driven winches.

This site is in a protected harbor with the remains of a dock and a good beach. Access will not be a problem.

Ugadaga Bay:

This fire control and searchlight station is located on an isolated promontory overlooking Beaver Inlet. This station evidently was installed to protect the southeasterly approaches to the Dutch Harbor complex. This location has the typical remains of one of these stations, including two elephant steel searchlight shelters (both standing), two elephant steel generator buildings (standing), two searchlight control stations (wood-collapsed), and two concrete observation posts. Other facilities include a tramway and winch system, three Pacific hut barracks buildings (collapsed and windblown), mess hall, latrine, water tank and wooden dam (all collapsed and scattered by the wind).

Scattered near the tram terminal and one generator building are approximately 30 rusting fuel barrels; some are full, others have leaked or been punctured. Soil has been contaminated by P.O.L.s in an approximate 1,000 square foot area among the barrels.

The Ugadaga Bay site is very isolated, and will be difficult to reach from the sea with equipment capable of a full cleanup of this site.

Explanation of the Corps Sample Numbering System

1. The Alaska District Corps of Engineers uses a 10 digit sample number system fashioned after EPA sample documentation criteria. As such, the 10 digit sample number includes: sampling year, sampling week, location site number or letter designation, sample number, and a two letter sample description.

2. An example of the Corps sample numbering system is provided below along with keys which explain letter designations.

X----------10 DIGIT----------X

86	32	48	01	SD
YEAR	WEEK	DERA # or 2-LETTER SITE DESIGN. *	SAMPLE NUMBER	SAMPLE DESCRIPTION (2-LETTER) **

* For sampling projects other than DERA sites, the following key is provided:

EL = Elmendorf AFB
WA = Fort Wainwright
RI = Fort Richardson
EI = Eielson AFB

Additional 2-letter site codes will be added as needed.

** Sample Description Key:

SD = Sediment
SM = Soil Matrix
DR = Drum
WA = Water
TR = Transformer
TK = Tank
SL = Soil
MI = Miscellaneous (i.e. building materials)

Note: DERA project #'s are consecutive beginning with the first site sampled in 1985. For reporting purposes, each site number is followed by two zeros (Example: DERA-4800 designates the 48th site sampled). Samples are consecutively numbered for each site sampled.

Encl. 1

EXPLANATION AND USE OF TESTS

EP TOXICITY METALS

The EP Toxicity test is an EPA promulgated method which tests for the presence of 8 priority pollutant metals. The method dictates an extraction procedure to be used in extracting the trace metals from the sample followed by spectrophotometric analysis. A table of the regulated concentration for each metal, as stipulated by the Resource Conservation and Recovery Act (RCRA), is included with the results. Materials with metal concentrations which exceed these limits are defined as hazardous by RCRA. Trace metals are most commonly a problem with waste oils which can contain elevated levels of lead (Pb) and to a lesser degree arsenic (As).

POLYCHLORINATED BIPHENYLS (PCB's) and PESTICIDES

PCB's and pesticides are analyzed simultaneously by gas chromatography, EPA method 8080. PCB's were once commonly used in transformer oil. Its use is now regulated by the Toxic Substances and Control Act (TSCA). General guidelines promoted by the EPA for cleanup of PCB's are that transformer oils containing greater than 50ppm PCB and soils containing greater than 10ppm PCB's are considered hazardous wastes. However these levels have been successfully challenged in cases where environmental circumstances warrant more stringent control of toxic materials. The concentration at which pesticides must be removed from the environment is not stipulated under RCRA due to the wide variety of environmental considerations which must be accounted for on a site specific basis; however other restrictions may apply.

POLYNUCLEAR AROMATIC HYDROCARBONS (PNA's)

PNA's are analyzed by gas chromatography, EPA method 8100. PNA's are a group of aromatic organics which are common in petroleum, oil and lubricants (POL's). The discharge of PNA's into the environment is regulated by RCRA. However the presence of PNA's in fuels does not, in itself, make the fuel a hazardous material. Specific concentrations at which PNA's must be removed from the environment are not stipulated due to the wide variety of environmental considerations which must be accounted for on a site specific basis. Because these chemicals are both volatile and toxic their presence can be a health hazard to those working in the area.

VOLATILE ORGANICS

Volatile organics are analyzed by gas chromatography, EPA method 8020. This test includes a short list of some of the most commonly found priority pollutant compounds in POL's. Because these compounds are volatile their presence can be considered a health hazard to people in the area. Also, since the volatile compounds in an old POL spill are likely to have evaporated, a POL spill which contains volatile organics can be considered relatively fresh. The release of volatile organics into the environment is regulated by RCRA, however the presence of volatile organics in POL's does not in itself constitute a POL as

being hazardous. Specific concentrations at which volatile organics must be removed from the environment are not stipulated due to the wide variety of environmental considerations which must be accounted for on a site specific basis.

HALOGENATED ORGANICS

Halogenated organics are analyzed by gas chromatography, EPA method 8010. The compounds identified by this test include many common solvents. These compounds are regulated by RCRA and their discharge into the environment is not permitted. Specific concentrations at which halogenated organics must be removed from the environment are not stipulated due to the wide variety of environmental considerations which must be accounted for on a site specific basis. In addition, waste materials with greater than 1000ppm halogenated organics are considered hazardous.

PETROLEUM OIL AND LUBRICANT IDENTIFICATION (POL ID)

POL ID analyses are performed by Missouri River Division (MRD) laboratories. The method utilizes infrared spectroanalysis to fingerprint the sample. A data bank of infrared tests run on known samples is compared to and matched with the unknown sample in order to identify the POL.

*Compositing: Two methods are used in collecting a sample. A grab sample is used to collect information from a single point in the sample population. A composite sample is used to collect information from multiple points in the sample population. A composite sample can be created at the time of sample collection by collecting the sample from multiple locations or in the laboratory by taking aliquots from multiple samples and mixing them together. The advantage to compositing is that it saves money and provides an average number if that is all that is needed. Compositing has the disadvantage of potentially diluting a sample when an area of high contamination is included in a sample from many relatively clean areas. This may cause the concentration of the compound in question to fall below the detection limit of the analytical method used. Because of the inherent disadvantages in compositing, only those samples which appear to be of similar composition are included in a composite.

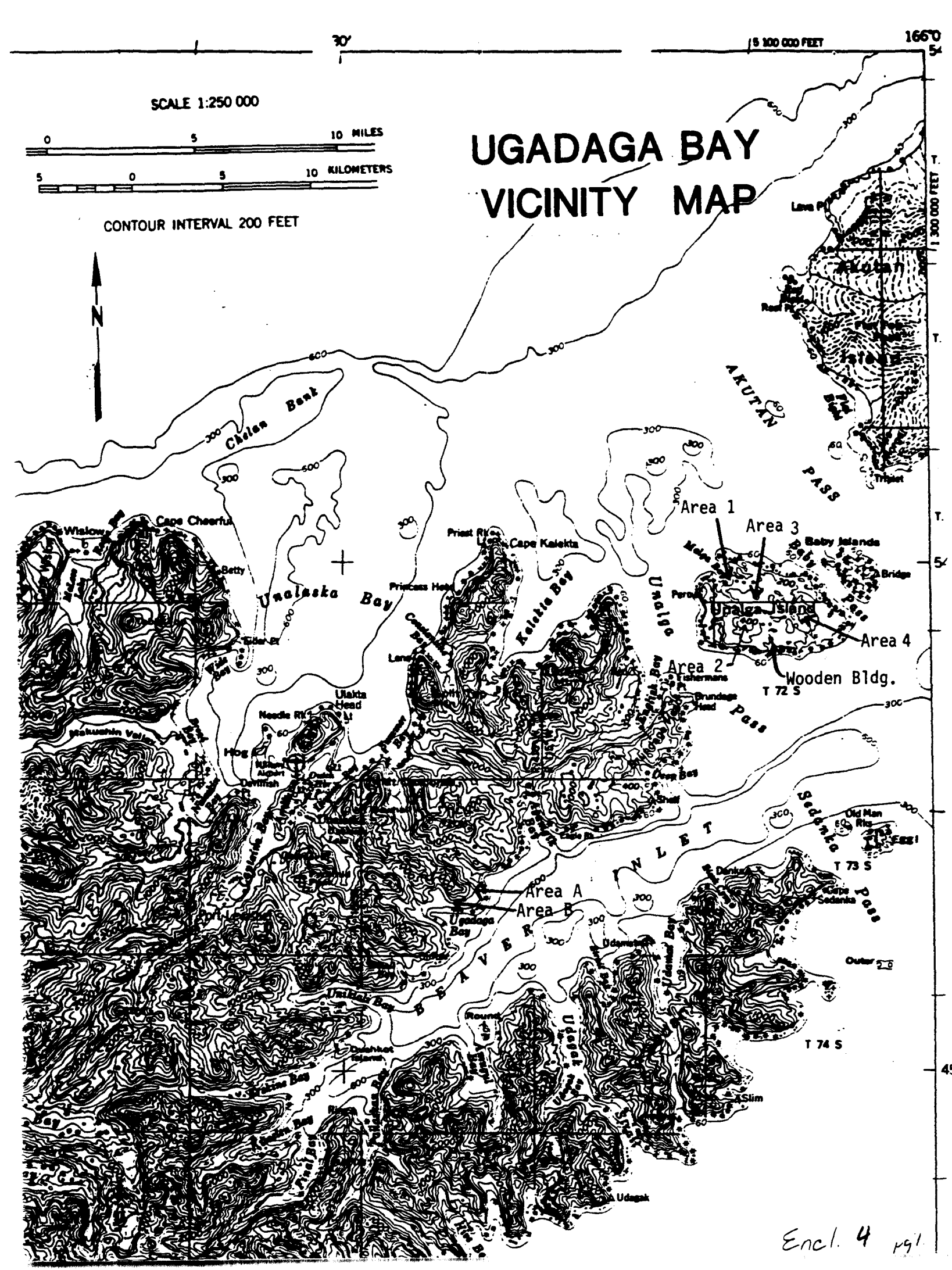
This enclosure summarizes information contained in; Test Methods for Evaluating Solid Waste - Physical/Chemical Methods, SW-846, Second Edition Revised, U.S. EPA, 1984.

SAMPLE COLLECTION AT

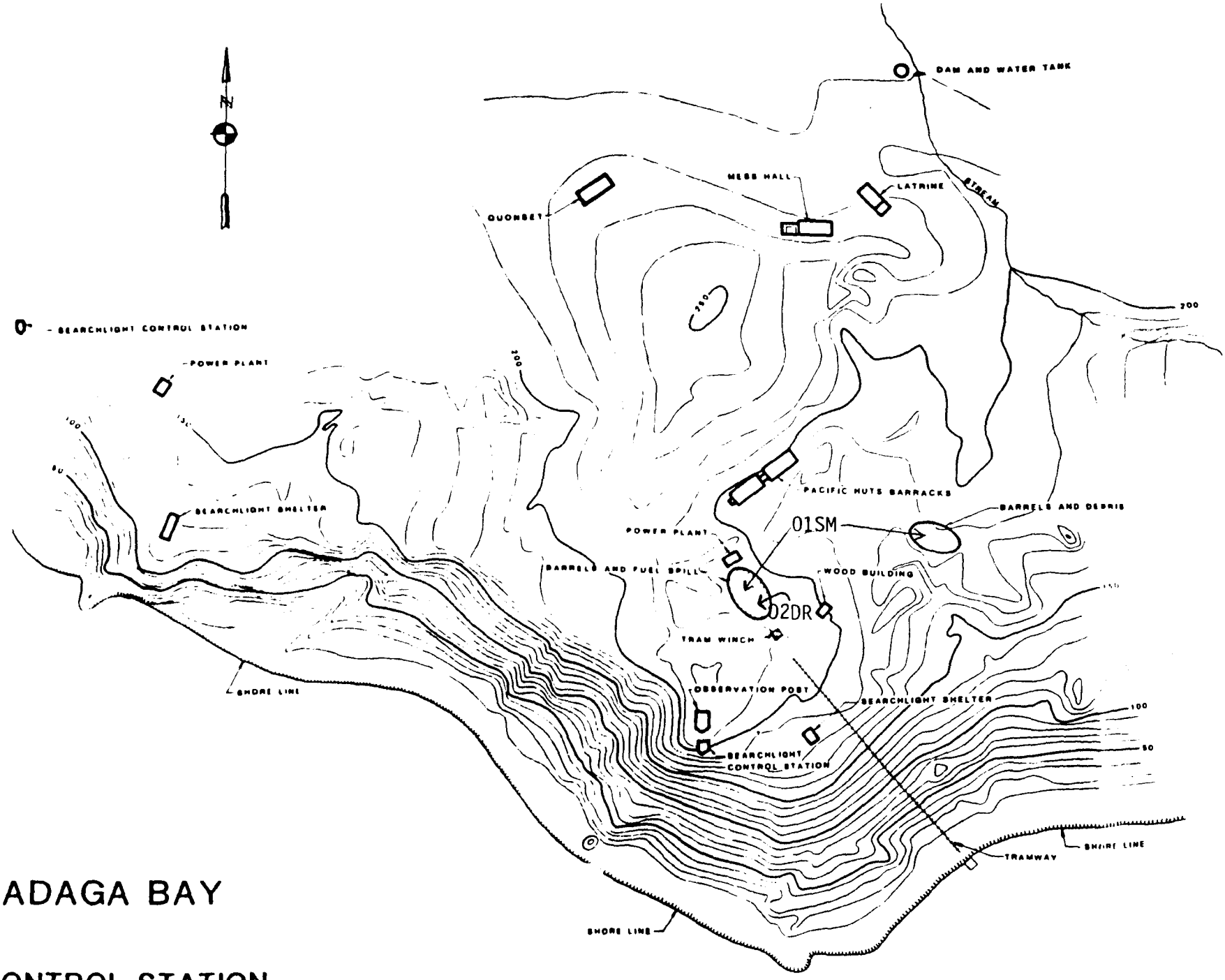
UGADAGA BAY

Sample No.	Location	EP Toxicity	Volatile Org. (Method 8020)	PAH's (Method 8100)	Hal. Org (Method 8010)	POL I.D.	PCB's (Method 8080)
01SM	Both Barrel Piles	X	X	X	X		X
02DR	Barrels North of Winch	X	X	X	X	X	

SM= Soil Matrix (Composite) Sample
DR= Drum Sample


UGADAGA BAY
VICINITY MAP
SCALE 1:250 000
0 5 10 MILES
5 0 5 10 KILOMETERS
CONTOUR INTERVAL 200 FEET
N
Area 1
Area 2
Area 3
Area 4
Area A
Area B
Wooden Bldg.
Ugadaga Island
Unalaska Bay
Kalekta Bay
Chelen Boat
AKUTAN PASS
Akutan
Cape Cheerful
Cape Kalekta
Priest Rock
Princess Hotel
Ulakta Head
Needle Rk
Hog Pt
Makushin Valley
Devilfish
Ugadaga Bay
Unalga Pass
Fishermans Pt
Brundage Head
Deep Bay
Shell
Sedanka
Old Man Rks
Sedanka Pass
Udamahat Bay
Outer
Round
Udagak
Slim
T 72 S
T 73 S
T 74 S
BEAVER INLET

Encl. 4 pg1



UGADAGA BAY

FIRE CONTROL STATION

NPDEN-G-L (86-HM-105)

UNADAGA BAY
DERA Site No. 5500
EP Toxicity Analyses
SW-846 Method 1310

Project Samples

	Concentration, mg/L (ppm)							
	As	Ba	Cd	Cr	Pb	Hg	Se	Ag
Maximum *	5.0	100.0	1.0	5.0	5.0	0.2	1.0	5.0
Det. Limit	0.1	1.0	0.1	0.1	1.0	0.01	0.1	0.1
Sample No. 863555								
01SM	<0.1	<1.0	<0.1	<0.1	<1.0	<0.01	<0.1	<0.1
02DR**	<0.1	<1.0	<0.1	<0.1	<1.0	<0.01	<0.1	1.5

* "Table 1, Maximum Concentration of Contaminants for Characteristic of EP Toxicity," Method 1310, SW-846, Test Methods for Evaluating Solid Waste, Second Edition, U.S. Environmental Protection Agency, 1982.

** Sample contained less than 0.5 percent solids, and was analyzed without dilution.

Received: 8 Aug 86

Enclosure

Encl 5

WCAS
WEST COAST
ANALYTICAL
SERVICE, INC.
ANALYTICAL CHEMISTS

Department of the Army
North Pacific Division Materials Laboratory
Corps of Engineers
1491 N.W. Graham Ave.
Troutdale, OR 97060-9503

ATTN: James Paxton

Job Number: 4005

September 30, 1986

LABORATORY REPORT

Samples: One (1) soil sample
Date Received: 9-10-86
Purchase Order No.: DACW-57-86-A-0163

The sample was analyzed for polychlorinated biphenyls (PCB) using a Varian 6500 gas chromatograph equipped with an electron capture detector. The result is reported below.

	PCB1254 (parts per million)
86355501SM	ND<0.3

ND - not detected

UGADAGA
DERA NO. 5500

Mary C. Stordal
Chemist

D. J. Northington, Ph.D.
Technical Director

End. 6

PHONE (209) 527-4050

Purveyor: US Corp. of Engineers Alaska Procurement and Supply	Lab I.D. P-32248
Street: P. O. Box 898	Purchase Order
City: Anchorage, Alaska Zip 99506	Referring Lab
Sample I.D. 8635550LSM - Barrel piles	Date Collected 9/6/86
Collected by: Kelly House	

HALOGENATED VOLATILE ORGANICS: SOLID MATRICES (METHOD 8010)

COMPOUND	RESULTS ug/kg	DETECTION LIMIT ug/kg	COMPOUND	RESULTS ug/kg	DETECTION LIMIT ug/kg
CHLOROMETHANE	ND	0.5	1,2-DICHLOROPROPANE	ND	0.5
DICHLORODIFLUOROMETHANE	ND	10.0	TRANS-1,3-DICHLOROPROPENE	ND	2.0
BROMOMETHANE	ND	6.5	TRICHLOROETHYLENE	ND	1.0
VINYL CHLORIDE	ND	1.0	DIBROMOCHLOROMETHANE	ND	0.5
CHLORETHANE	ND	3.0	CIS-1,3-DICHLOROPROPENE	ND	1.0
METHYLENE CHLORIDE	ND	1.5	1,1,2-TRICHLOROETHANE	ND	0.5
TRICHLOROFLUOROMETHANE	ND	1.0	BROMOFORM	ND	1.0
1,1-DICHLOROETHENE	ND	1.0	1,1,2,2-TETRACHLOROETHANE	ND	0.5
1,1-DICHLOROETHANE	ND	0.5	TETRACHLOROETHENE	ND	0.5
TRANS-1,2-DICHLOROETHENE	ND	0.5	CHLOROBENZENE	ND	1.0
CHLOROFORM	ND	0.5	1,2-DICHLOROBENZENE	ND	2.0
1,2-DICHLOROETHANE	ND	0.5	1,3-DICHLOROBENZENE	ND	2.0
1,1,1-TRICHLOROETHANE	ND	0.5	1,4-DICHLOROBENZENE	ND	2.0
CARBON TETRACHLORIDE	ND	1.0			
BROMODICHLOROMETHANE	ND	0.5			
2-CHLOROETHYLVINYL ETHER	ND	1.0			

(Sample prepared using Method 5030 for purge and trap.)

Date Received 9/9/86
Date Started 9/18/86
Date Completed 9/19/86

By:

DERA: 6500-UGADNA B

California Water Labs Inc.

P. O. BOX 4249
1430 CARPENTER LANE — SUITE G
MODESTO, CA 95352
PHONE (209) 527-4050

1

US Corp. of Engineers Alaska
Purveyor Procurement and Supply
Street P. O. Box 898
City Anchorage, Alaska Zip 99506
Sample I.D. 86355502DR - hill top N. or Winch
Collected by: Kelly House

Lab I.D. P-32249
Purchase Order
Referring Lab
Date Collected 9/6/86

HALOGENATED VOLATILE ORGANICS: SOLID MATRICES (METHOD 8010)

COMPOUND	RESULTS ug/g	DETECTION LIMIT ug/g	COMPOUND	RESULTS ug/g	DETECTION LIMIT ug/g
CHLOROMETHANE	ND	5.0	1,2-DICHLOROPROPANE	ND	5.0
DICHLORODIFLUOROMETHANE	ND	100.0	TRANS-1,3-DICHLOROPROPENE	ND	20.0
BROMOMETHANE	ND	65.0	TRICHLOROETHYLENE	ND	10.0
VINYL CHLORIDE	ND	10.0	DIBROMOCHLOROMETHANE	ND	5.0
CHLORETHANE	ND	30.0	CIS-1,3-DICHLOROPROPENE	ND	10.0
METHYLENE CHLORIDE	ND	15.0	1,1,2-TRICHLOROETHANE	ND	5.0
TRICHLOROFLUOROMETHANE	ND	10.0	BROMOFORM	ND	10.0
1,1-DICHLOROETHENE	ND	10.0	1,1,2,2-TETRACHLOROETHANE	ND	5.0
1,1-DICHLOROETHANE	ND	5.0	TETRACHLOROETHENE	ND	5.0
TRANS-1,2-DICHLOROETHENE	ND	5.0	CHLOROBENZENE	ND	10.0
CHLOROFORM	ND	5.0	1,2-DICHLOROBENZENE	ND	20.0
1,2-DICHLOROETHANE	ND	5.0	1,3-DICHLOROBENZENE	ND	20.0
1,1,1-TRICHLOROETHANE	ND	5.0	1,4-DICHLOROBENZENE	ND	20.0
CARBON TETRACHLORIDE	ND	10.0			
BROMODICHLOROMETHANE	ND	5.0			
2-CHLOROETHYLVINYL ETHER	ND	10.0			

(Sample prepared using Method 5030 for purge and trap.)

Date Received 9/9/86
Date Started 9/9/86
Date Completed 9/19/86

By:

Encl 7 pg 2

Testing Laboratories, Inc.
940 South Harney St., Seattle, Washington 98108 (206)767-5060
Chemistry, Microbiology, and Technical Services

Certificate

U.S. Army Corps of Engineers

LABORATORY NO. 98715-a

Samples were analyzed via method 8100 for PNAs, with results as shown below:

parts per billion (ug/kg), dry basis

	86355501SM 1	Lab Blank
Naphthalene	L/5000.	L/500.
Acenaphthylene	35,300.	L/500.
Acenaphthene	9940.	L/500.
Fluorene	34,700.	L/500.
Phenanthrene	L/10,000.	L/500.
Pyrene	L/10,000.	L/1000.
Chrysene	L/10,000.	L/1000.
Benzo(a)Anthracene	L/10,000.	L/1000.
Benzo(k)Fluoranthene	L/10,000.	L/1500.
Benzo(b)Fluoranthene	L/10,000.	L/1500.
Benzo(a)Pyrene	L/10,000.	L/1500.
Indeno(1,2,3-cd)Pyrene	L/5000.	L/1500.
Dibenzo(ah)Anthracene	L/5000.	L/1500.
Benzo(g,h,i)Perylene	L/5000.	L/1500.
2-Methylnaphthalene	L/5000.	L/500.
Anthracene	10,200.	L/500.
Fluoranthene	L/10,000.	L/1000.

Laucks
Testing Laboratories, Inc.
940 South Harney St., Seattle, Washington 98108 (206)767-5060

Chemistry, Microbiology, and Technical Services

Certificate

U.S. Army Corps of Engineers

LABORATORY NO. 98715-a

parts per million (mg/kg), as-received

	86355502DR 2
Naphthalene	1520.
Acenaphthylene	920.
Acenaphthene	380.
Fluorene	250.
Phenanthrene	420.
Pyrene	L/100.
Chrysene	L/100.
Benzo(a)Anthracene	L/100.
Benzo(k)Fluoranthene	L/100.
Benzo(b)Fluoranthene	L/100.
Benzo(a)Pyrene	L/100.
Indeno(1,2,3-cd)Pyrene	L/150.
Dibenzo(ah)Anthracene	L/150.
Benzo(g,h,i)Perylene	L/150.
2-Methylnaphthalene	4880.
Anthracene	240.
Fluoranthene	L/100.

Key

L/ = less than

Respectfully submitted,

Laucks Testing Laboratories, Inc.

J. M. Owens

JMO:veg

Encl. 8 pg 2

Testing Laboratories, Inc.
940 South Harney St., Seattle, Washington 98108 (206)767-5060

Certificate

Chemistry, Microbiology, and Technical Services

CLIENT: Director, NPD Materials Laboratory
Corps of Engineers
1491 N.W. Graham Avenue
Troutdale, OR 97060-9503

LABORATORY NO. 98715-a

DATE Dec. 16, 1986

PO #DACW57-87-A-0075

REPORT ON: SOIL & WATER

SAMPLE IDENTIFICATION: Submitted 9/9/86 and identified as shown:

1) DERA Ugadaga Bay 86355501SM 9/6 Barrel Piles
2) DERA Ugadaga Bay 86355502DR 9/6 Hilltop - N. or Winch

Samples were analyzed using method 8020, with the following results:

	parts per billion (ug/kg)	
	1	Lab Blank
Benzene	L/20.	L/20.
Chlorobenzene	L/20.	L/20.
1,2-Dichlorobenzene	L/20.	L/40.
1,3-Dichlorobenzene	L/20.	L/40.
1,4-Dichlorobenzene	L/20.	L/40.
Ethylbenzene	L/20.	L/20.
Toluene	L/20.	L/20.
m & p-Xylene	L/20.	L/20.
o-Xylene	L/20.	L/20.

Laucks
Testing Laboratories, Inc.
940 South Harney St. Seattle, Washington 98108 (206)767-5060

Certificate

Chemistry, Microbiology, and Technical Services

U.S. Army Corps of Engineers

LABORATORY NO. 98715-a

	parts per million (mg/L)
	86355501DR 2
Benzene	880.
Chlorobenzene	L/40.
1,2-Dichlorobenzene	L/40.
1,3-Dichlorobenzene	L/40.
1,4-Dichlorobenzene	L/40.
Ethylbenzene	970.
Toluene	1100.
m & p-Xylene	2550.
o-Xylene	1150.

Encl. 9

DEPARTMENT OF THE ARMY
M souri River Division, Corps of gineers
Division Laboratory
Omaha, Nebraska

TABLE 1

Project: Ugadaga Bay,
Date Samples Received: 15 September 1986 MRD Lab No. 86/414
Material description: Oils Test Procedure: POL

Client Sample I.D.	MRD QA No.	Sample Description	Fluorescence Results
86355502 DR	2470	Dark yellow translucent organic liquid	No. 2 fuel oil or diesel fuel

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