McLaren Hart

MINUTES OF MEETING

SUBJECT: Technical Review Committee (TRC) Meeting
Portsmouth Naval Shipyard (PNS)
RCRA Facility Investigation/Corrective Measures Program

PURPOSE: The TRC meeting was called by the Navy to update the TRC members on the first two phases of field work that were completed as well as an interim risk assessment at quarters S, N and 68.

LOCATION: Admiralty Village Conference Room
Portsmouth Naval Shipyard
Kittery, Maine

DATE: May 14, 1991

PREPARED BY: Stephen J. Myers, Managing Principal
McLaren/Hart Environmental Engineering Corporation
28 Madison Avenue Extension
Albany, New York 12203
(518) 869-6192
May 22, 1991

PO RF126
05/14/91
TRC MEETING TO DISCUSS PH

ATTENDEES:

Community Representatives

Philip O. McCarthy
Chris Mitchell

USEPA - Region I

Ernest Waterman, Project Manager

Maine DEP

Pamela Parker, Environmental Specialist

U.S. Navy - PNS

Capt. Thomas Hagge, Public Works Officer, Portsmouth Naval Shipyard
Paul L. Clark, Portsmouth Naval Shipyard
Kenneth Plaisted, Portsmouth Naval Shipyard
Jim Tayon, Portsmouth Naval Shipyard
Mike Pedersen, Portsmouth Naval Shipyard

U.S. Navy - Northern Division, Philadelphia

Jim Szykman, Northern Division, Chemical Engineer
Kristen Wall, Northern Division

McLaren/Hart Environmental Engineering Corp.

Stephen J. Myers, Project Director, Albany, New York
Stephen Urschel, Project Manager, Albany, New York
Eileen Mahoney, Ph. D., Supervising Toxicologist, Philadelphia, Pennsylvania

cc: Linda Resta

BACKGROUND

The subject TRC meeting was held at the Admiralty Village Conference Room in Kittery, Maine, to update the TRC members on the first two completed phases of field work and the results of an interim risk assessment performed by McLaren/Hart at the crew's quarters S, N and 68 at PNS.

The subject information was provided by McLaren/Hart, consultants to the U.S. Navy, in accordance with the attached agenda. Following an introduction by Jim Szykman of Northern Division, Stephen Urschel and Eileen Mahoney of McLaren/Hart presented the material utilizing a slide presentation. Dr. Mahoney presented the interim risk assessment information.

All attendees were provided with a handbook summarizing the information presented.

Since the handbook provided adequate detail of each agenda item presented, these minutes will not repeat the information presented. The following information represents questions raised during the presentation and other information provided during discussions at the meeting.

JILF

- Pam Parker asked date of the photos of the JILF filling operation.

  Response - early 1970's.

- Steve Urschel indicated that heavy metal contamination in soil existed at the landfill. Pam Parker asked what metals in particular.

  Response - lead, copper, beryllium, arsenic, as examples.

- Ernest Waterman asked if shallow overburden wells meant only the shallow overburden.

  Response - yes, we do not have the data on the deep overburden yet.

DRMO

- Pam Parker asked if we could give exact concentrations of PCBs in the soils.

  Response - Jim Szykman requested that we defer discussion of any exact values until a later date.

- Pam Parker asked if the source of PCBs was known and would it have been transformers.

  Response - Jim Szykman stated that the exact source was not known at this time. Captain Hagge added that since the early 1980's all transformers have been shipped off the base for proper decommissioning and not sent to the DRMO.

Interim Risk Assessment

- Jim Tayon asked if the acceptable risk range applied to both adsorption and ingestion.

  Response - yes.

- Chris Mitchell asked if background levels were total or extractable.

  Response - total.

- Captain Hagge asked what one might expect as a reasonable background level for lead in soil.

  Response - a project in Pennsylvania showed 200 ppm lead as background.

- Jim Tayon asked why reference is made to New Jersey ECRA Guidance Values for a project in Maine.

  Response - New Jersey is one of the few states with guidance values for evaluation of contamination. These values are quite conservative and act as a "flag" when reviewing data. Actual levels for clean-up for this project will be generated at a later date.

- Ernest Waterman indicated that EPA could discuss their comments on the interim risk assessment. Jim Szykman suggested that the comments be deferred until after the meeting.

Tank SWMUs

- Jim Tayon stated that discharges were to the sanitary sewer system.

Off-Shore Investigation

- Pam Parker asked if the referral to "Guidance Values" was ECRA.

  Response - yes.

- Paul Clarke asked if the reference to industrial outfalls was only storm drains.

  Response - no, process discharges that have since been capped.

Question, Answer and Comment Period

- Jim Szykman indicated that the tentative date for the next TRC meeting is July 16, 1991. Jim also indicated that the Navy would accept questions after the meeting and provide a response. All questions should be sent to the attention of Jim Tayon at PNS.

- Chris Mitchell asked about the public meeting schedule and agenda (would it include new data).

  Response - meeting tentatively scheduled for end of June/early July and subjects would be an overview of RCRA program, review of the approved RFI Workplan and an overview of completed and interpreted field work.

- Chris Mitchell indicated that the public is concerned that "things should be happening" at the site. He also felt the presentation was good and the level of detail acceptable.

- Ernest Waterman provided the following information:

  - EPA is also willing to respond to any questions the public may have.

  - The interim RA indicated the Navy's resolve to taken action when a potential problem is identified.

- EPA comments on the RA would not be in the form of a formal review, but there will be guidance from Jeri Weiss to be factored into the final PHERE. EPA will not expect the present RA to be revised.

- EPA headquarters has recently issued a new RA directive which will be provided to the Navy. Will take precedence over Regional EPA guidance.

- Contaminants noted in Phases I and II are "expected". Additional information should be provided by Appendix IX analysis in subsequent phases.

- Requested a copy of ECRA Guidance.

  (Pam Parker interjected that Maine does not have a comparable standard to ECRA but utilizes Maximum Contaminant Levels (MCL's) and Maximum Exposure Guidance (MEG's) to establish clean-up levels).

- Was pleased that the Navy was being proactive with remedial technologies at this stage of the project.

- Indicated that the old storm drain channel on the 1952 aerial of the tidal flats under the JILF could be a conduit for contaminants through foundational material to support the drain pipe if coarser sands were used.

  (Ken Plaisted interjected that the drain was probably a combined sewer from the hospital).

- Pam Parker asked the following questions and/or provided the following information:

  - Asked if additional migration pathways besides normal surface runoff were being considered.

    Response - no, that the migration pathways are fairly well known.

  - Asked if based on the soil gas results if other techniques were being considered such as active soil gas.

    Response - Navy is considering several methods including intrusive methods.

    Pam also indicated that SVE has worked well at other projects.

- Asked if semi-volatiles were sampled at the DRMO.

  Response - will be done in subsequent phases.

- Asked what the plan is to involve corrective measure ideas with the additional investigation.

  Jim Szykman responded several areas will be evaluated for interim corrective measures and that they will be included in the Phase IV scope of work which hasn't been finalized.

  Pam indicated that it would be difficult for her to provide input to Phase IV without Phase III results.

  (Ernest Waterman interjected that Phase IV must attack the bedrock issue and well placement as well as background and any other commitments in the approved RFIP).

- Chris Mitchell asked the following questions and/or provided the following information:

  - Asked when the new RA guidance would be available.

    Ernest Waterman responded "soon".

    Chris was concerned that the new guidance could "add on" to the requirements causing problems for the consultant.

  - Asked for the areas of "largest concern".

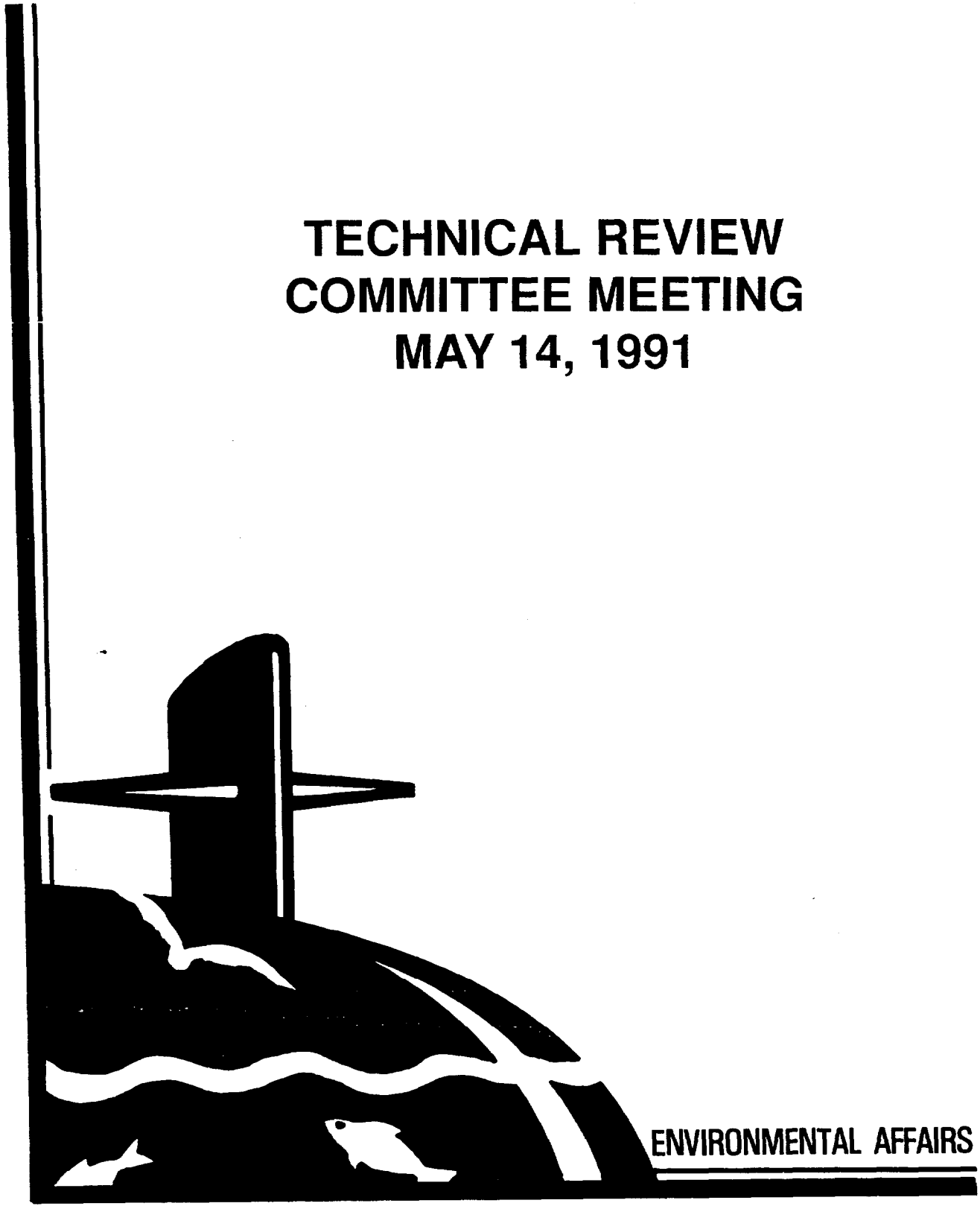
    Jim Szykman confirmed that is was the JILF and the DRMO.

  - Asked how are the clean-up goals going to be established.

    Both Ernest Waterman and Pam Parker confirmed that risk-based goals would be established in concert with compliance levels in the permit that could be monitored. Ernest Waterman also indicated that determining the Navy's extent of responsibility for sediment in the river is a large concern. He suggested that the burden lies on the Navy to shed light on this issue to avoid arbitrary decisions by EPA. Ernest Waterman also recognized that if conditions exist which make it impracticable for the Navy to clean up all the contamination, alternative proposals should be considered. He suggested that <u>in situ</u> stabilization is often the best solution because it is fairly maintenance-free.

  - Requested that when the next meeting is held, that there is an understanding of the hydrogeology in bedrock. This is a concern of the public.

TECHNICAL REVIEW COMMITTEE MEETING MAY 14, 1991



PORTSMOUTH NAVAL SHIPYARD

AGENDA FOR TRC MEETING

- Introduction/Historical Perspective
- SWMU Identification/Locations
- SWMU Discussions (Purpose/Approach/Findings)
  1. JILF
  2. Mercury Burial
  3. DRMO (incl. Interim Risk Assess)
  4. Fuel Oil Pipeline
  5. Tank SWMUs
  6. Off-Shore
- Data Gaps Identified/Additional Work Needed
- Potential Corrective Measures

TRC MEETING SLIDES

1. Introductory Slide
2. Historical Perspective/SWMU Identification
3. JILF and Mercury Burial Sites (Text)
4. Tidal Flat Map
5-9. JILF Filling Operation
10. Map of JILF
11. Generalized JILF Cross-section
12. Areas of Interest Within JILF
13. JILF and Mercury Burial Sites Findings (Text)
14. DRMO (Text)
15. Map of DRMO
16. Generalized DRMO Cross-section
17. DRMO Findings (Text)
18. Outline of Interim Risk Assessment
19. RA Introduction
20. RA Objectives
21. RA Procedures/Methodology
22. RA Pathways
23. RA Risks Calculated
24. RA Background Soil Data
25. RA Summary of Potential Risks
26. RA Conclusions
27. Fuel Oil Pipeline (Text)
28. Map of Test Pit Locations
29. Fuel Oil Pipeline Findings (Text)
30. Tank SWMUs (Text)
31. Off-Shore (Text)
32. Map of Back Channel and River Samples
33. Back Channel and River Findings (Text)
34. Map of Sampling Grid in Clark's Island Embayment
35. Clark's Island Embayment Findings (Text
36. May of Sediment Samples Near Berths
37. Near Berth Findings (Text)
38. Additional Data Needs
39. Potential Corrective Measures

ACRONYMS/ABBREVIATIONS

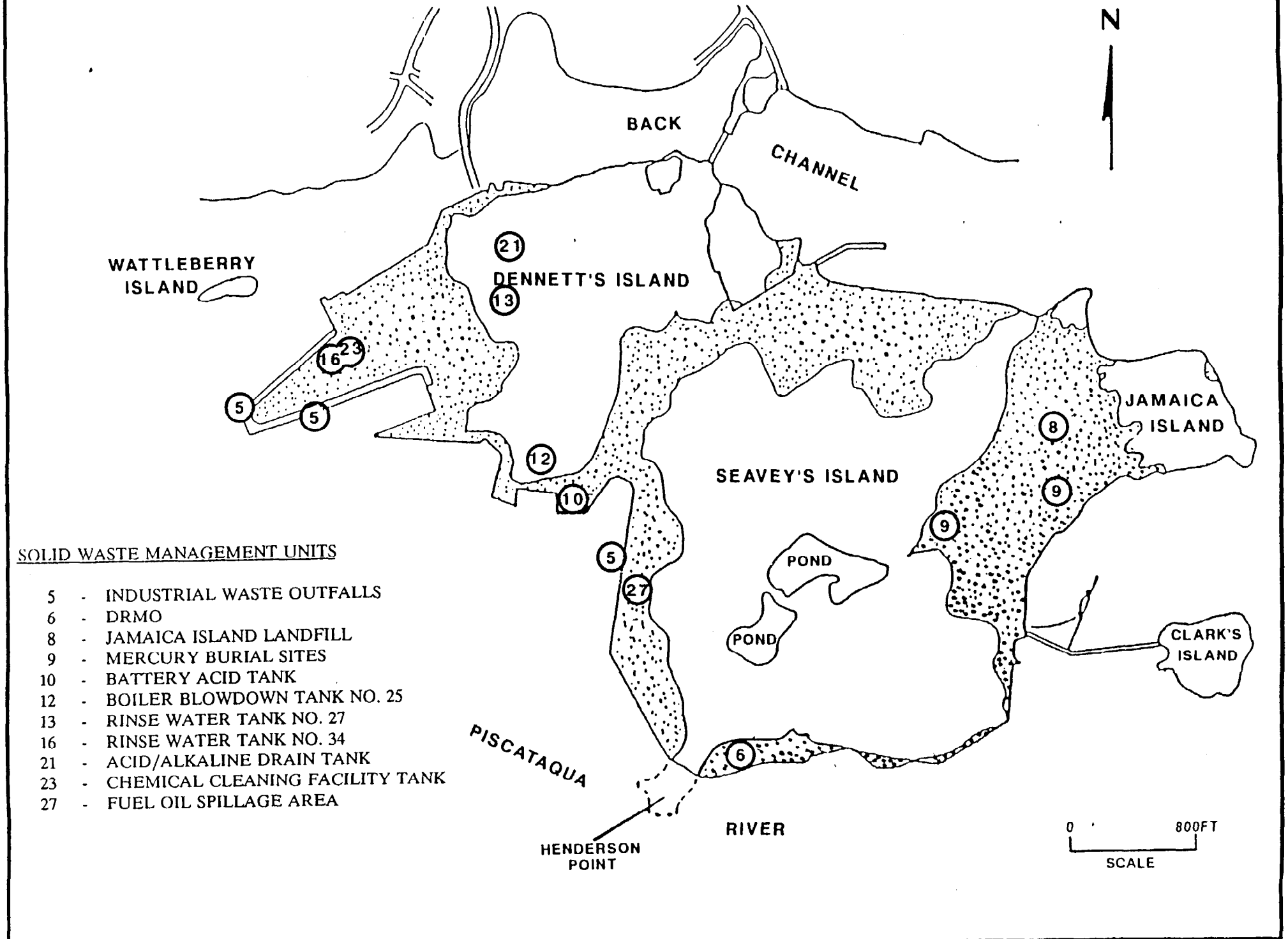
As	Arsenic	Alloying Additive for Metals, Especially Lead and Copper (Battery Grids, Cable Sheaths, Boiler Tubes ; Paint Pigments; Herbicides; and Rodenticide; Wood Preservative)
Be	Beryllium	Moderator and Reflector in Nuclear Reactors; in Gyroscopes, Computer Parts, Inertial Guidence Systems; Spot-welding Electrodes
Cr	Chromium	Constituent of Inorganic Paint Pigments; Stainless Steel; Alloying and Plating Element on Metal
Pb	Lead	Storage Batteries, Tetraethyl Lead (Gasoline Additive); Radiation Shielding Corrosion Inhibiting Pigments
Hg	Mercury	Anti-fouling Paints; Thermometers; Barometers; Mercury Vapor Lamps
TCE	Trichloroethylene	Metal Degreaser; Dry Cleaning; Dilutent in Paints; Cleaning and Drying of Electronic Parts

ACRONYMS/ABBREVIATIONS

TPH	Total Petroleum Hydrocarbons	The Sum of All Hydrocarbons That Are Derived From Petroleum Products
Aromatic	Hydrocarbons	A Major Group of Compounds Containing One or More Benzene Rings in Them. The Name Is Due to the Strong and Not Unpleasant Odor Characteristic of These Compounds
Heavy Metals		A Metal of Atomic Weight Greater Than Sodium (22.9) That Forms Soaps on Reaction With Fatty Acids (e.g., Chromium, Cadmium, Lead)

ACRONYMS/ABBREVIATIONS

PCE (Perc)	Tetrachloroethylene (Perchloroethylene)	Dry Cleaning Solvent; Vapor Degreasing Solvent
MEK	Methyl Ethyl Ketone (2-Butanone)	Solvent in Nitrocellulose and Vinyl Coatings; Paint Removers and Thinners
Methylene Chloride	(Dichloromethane)	Paint Removers; Solvent Degreasing; Propellant for Aerosol Sprays; Laboratory Extraction Solvent
Toluene		Solvent for Paints; Component of Gasoline (higher Levels in Super Grades of Unleaded Gas)
BTEX	Benzene-Toluene-Ethyl Benzene-Xylene	Major Aromatic Constituents of Gasoline
VOC's	Volatile Organic Compounds	Class of Compounds Which Tend to Easily (i.e., at Ambient Temperatures) Go Into the Vapor State



SOLID WASTE MANAGEMENT UNITS

- 5 - INDUSTRIAL WASTE OUTFALLS
- 6 - DRMO
- 8 - JAMAICA ISLAND LANDFILL
- 9 - MERCURY BURIAL SITES
- 10 - BATTERY ACID TANK
- 12 - BOILER BLOWDOWN TANK NO. 25
- 13 - RINSE WATER TANK NO. 27
- 16 - RINSE WATER TANK NO. 34
- 21 - ACID/ALKALINE DRAIN TANK
- 23 - CHEMICAL CLEANING FACILITY TANK
- 27 - FUEL OIL SPILLAGE AREA

JAMAICA ISLAND LANDFILL AND MERCURY BURIAL SITES

- Total area 25 acres
- Landfilling between 1945 and 1978
- Wide variability in subsurface materials causing varied permeability
- Unknown quantities of contaminated sediments
- Contaminants of concern:

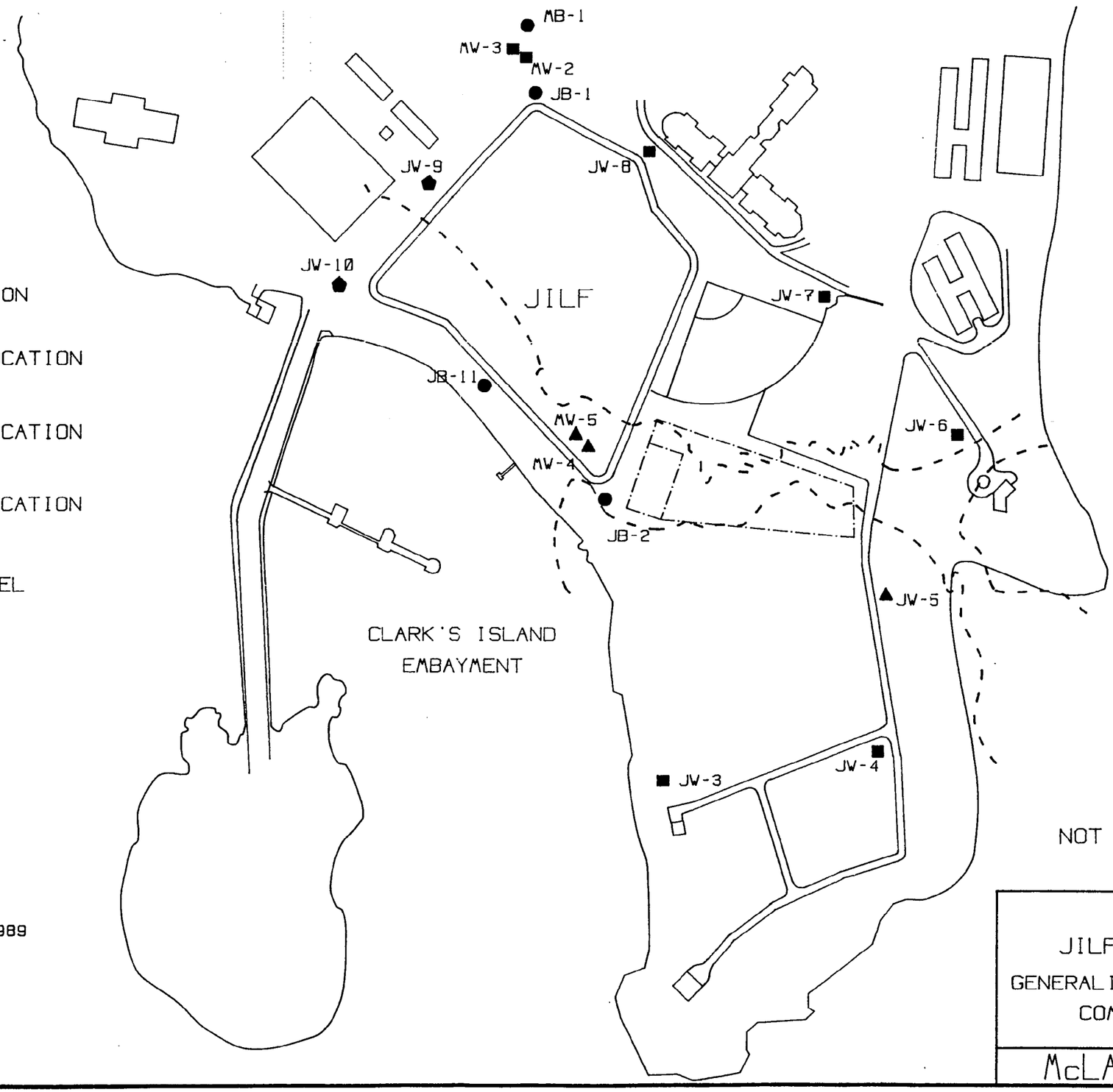
JILF -	Plating sludges (Cr, Pb, Cd) Asbestos Insulation Volatile Organic Compounds (TCE, MEK, Toluene, Methylene Chloride) Acetylene and Chlorine gas cylinders Dredge spoils (Cr, Pb) Waste paints and solvents Spent sandblast grit
MERCURY BURIAL SITES -	Mercury contaminated waste encapsulated in four (4) foot diameter concrete pipe sections. Six vaults in each of two areas

- Potential Migration Pathways:
  - Air emissions
  - Surface run-off
  - Groundwater

N

LEGEND:

- ● TEST BORING LOCATION
- ■ MONITORING WELL LOCATION (FRESH WATER)
- ▲ MONITORING WELL LOCATION (BRACKISH WATER)
- ⬟ MONITORING WELL LOCATION (SEA WATER)
- FORMER TIDAL CHANNEL



NOT TO SCALE

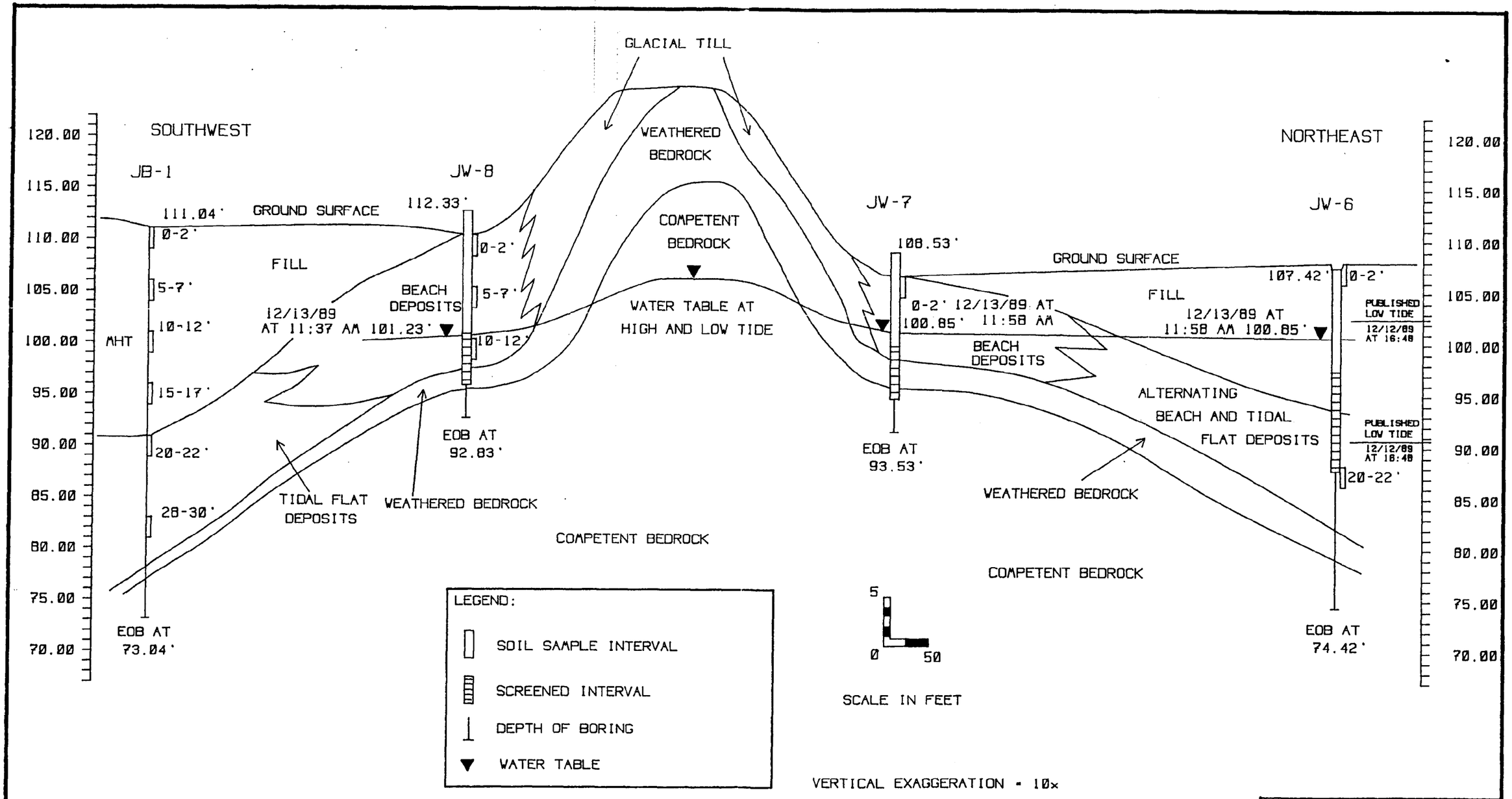
MODIFIED FROM:

U.S. NAVAL ACTIVITIES
SEAVEY ISLAND, KITTERY, MAINE.
EXISTING CONDITIONS MAP SEPT. 1989
CODE IDENT. NO. 80091

U.S. NAVAL BASE
PORTSMOUTH, NEW HAMPSHIRE
ACTIVITY CODE 1860-650
MANAGEMENT BUREAU-CNO
REAL ESTATE SUMMARY MAP

JILF (SWMU #8)
GENERALIZED SUBSURFACE COMPOSITION

McLAREN/HART

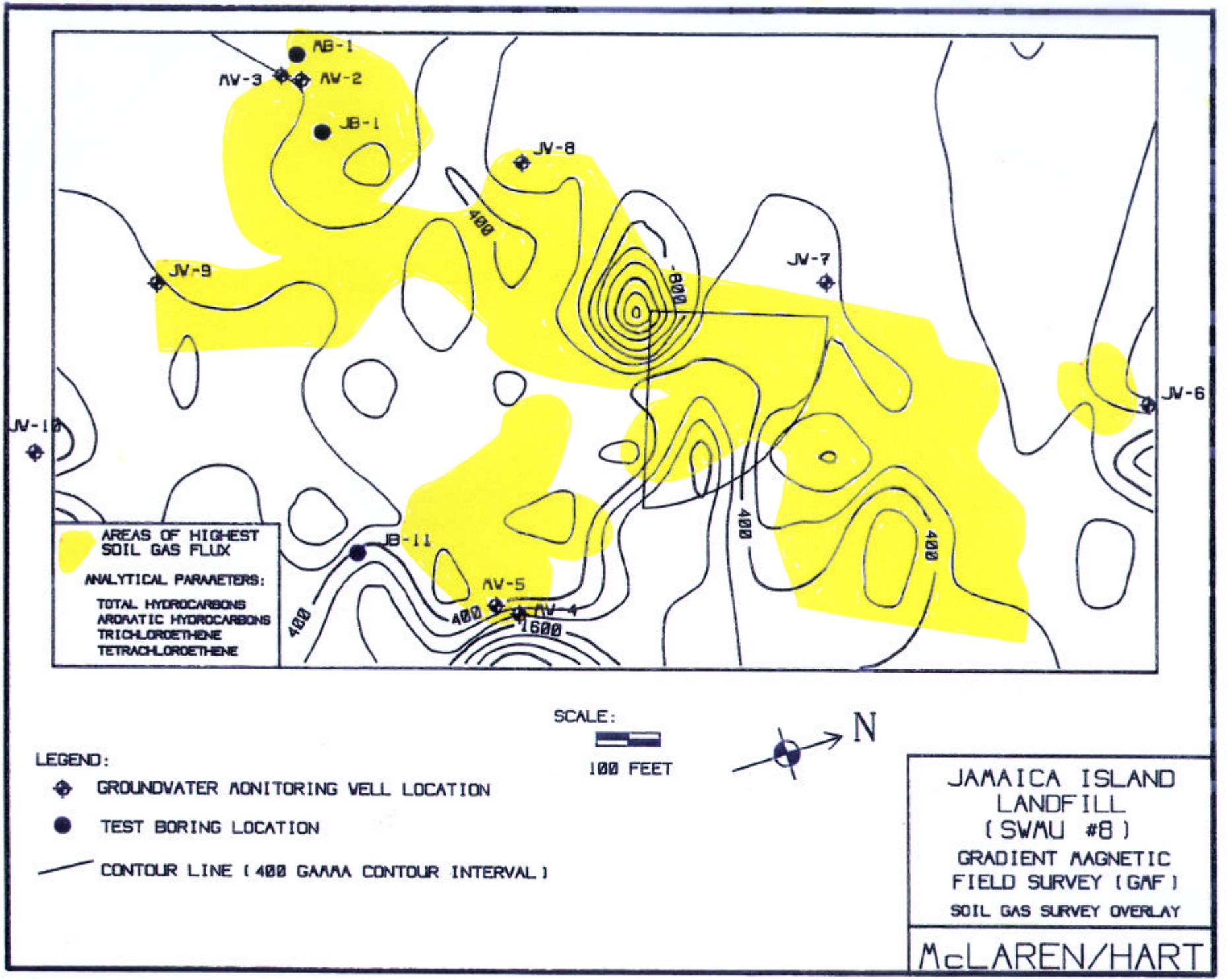


NOTE: ELEVATION 100.00' MEAN HIGH TIDE, PORTSMOUTH NAVAL SHIPYARD SYSTEM IS EQUAL TO 3.804' USGS SYSTEM

JILF (SWMU #8)

GEOLOGIC CROSS SECTION A-A'

McLAREN/HART

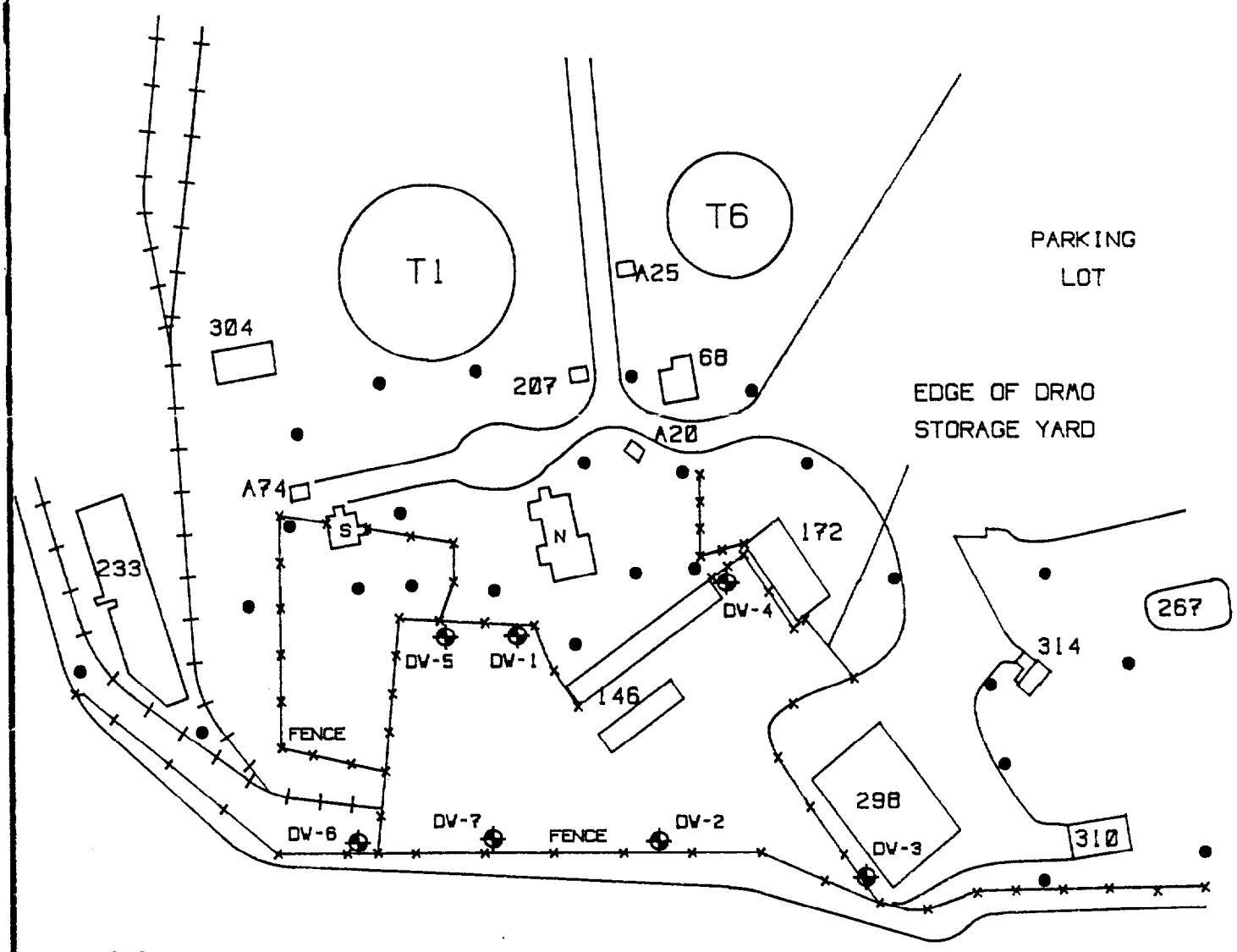

MB-1
MV-3
MV-2
JB-1
JV-8
400
800
JV-9
JV-7
JV-6
JV-10
JB-11
MV-5
MV-4
400
400
400
1600
AREAS OF HIGHEST SOIL GAS FLUX
ANALYTICAL PARAMETERS:
TOTAL HYDROCARBONS
AROMATIC HYDROCARBONS
TRICHLOROETHENE
TETRACHLOROETHENE
SCALE:
100 FEET
N
LEGEND:
GROUNDWATER MONITORING WELL LOCATION
TEST BORING LOCATION
CONTOUR LINE (400 GAMMA CONTOUR INTERVAL)
JAMAICA ISLAND LANDFILL (SWMU #8)
GRADIENT MAGNETIC FIELD SURVEY (GMF)
SOIL GAS SURVEY OVERLAY
McLAREN/HART

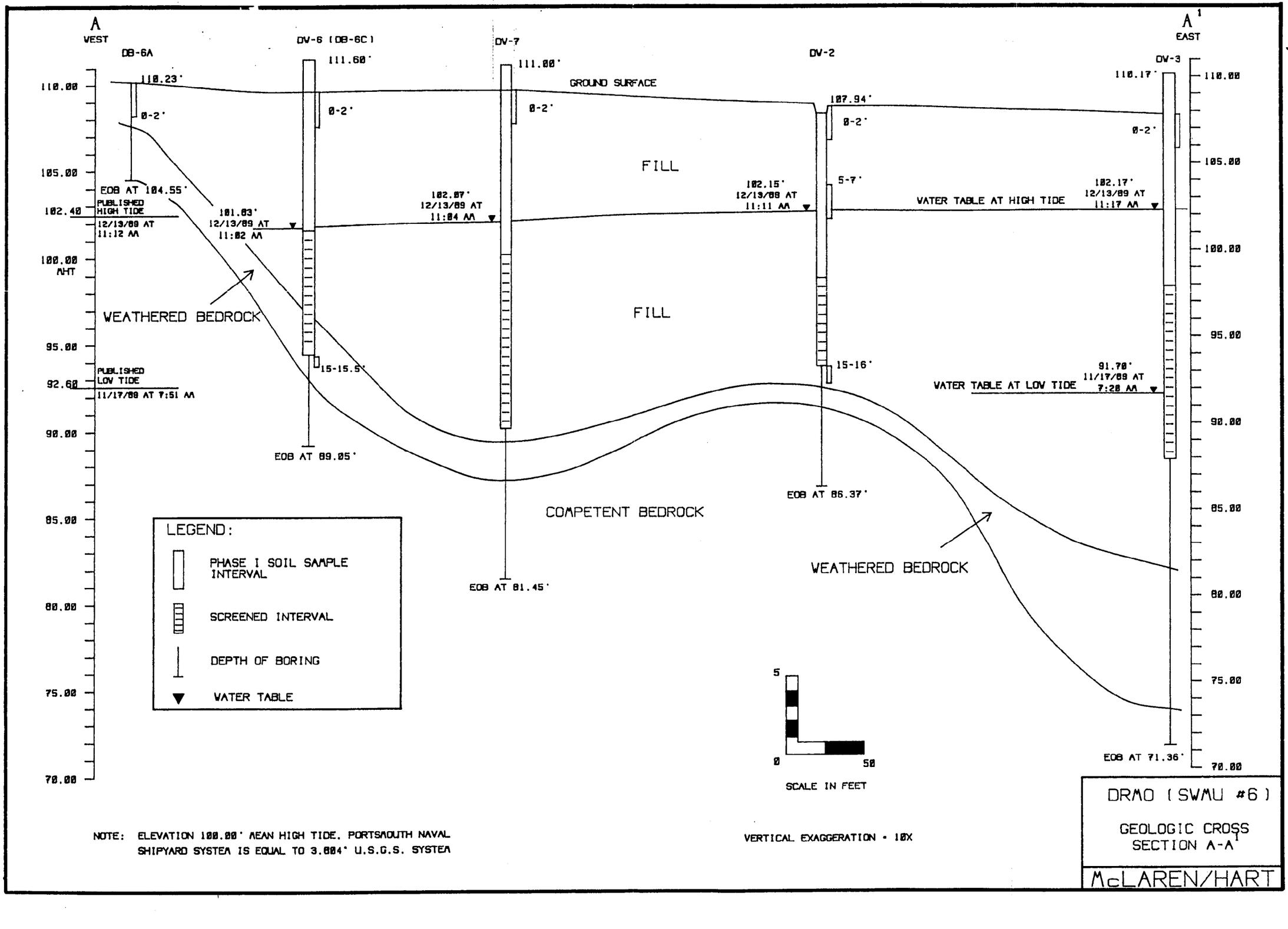
JAMAICA ISLAND LANDFILL AND MERCURY BURIAL SITE FINDINGS

- Heavy metals contamination in soil is localized and moderate on margins of landfill
- Anomalously high flux of volatile compounds in interior of landfill
- Monitoring wells nearest estuary are in hydraulic communication with surface water
- Groundwater not significantly impacted in shallow overburden wells with exception of MW-3
- Likely to be a number of preferential pathways for groundwater movement within landfill
- Clark's Island Embayment may be impacted by landfill leachate
- Variable grain size and permeability in subsurface material
- Subsurface soil and groundwater contamination near Western Mercury Burial Site, possibly due to former gasoline filling station

DRMO

- Total area four (4) acres
- Operated for more than thirty years
- Temporary storage of scrap prior to off-site recycling
- Contaminants of Concern:
  - Heavy metals (As, Be, Cr, Pb, Cd, Ni) in soil
  - Petroleum products in soil
  - PCBs/Pesticides in soils
- Potential Migration Pathways:
  - Airborne particles
  - Surface run-off
  - Groundwater


T1
T6
A25
PARKING
LOT
304
207
68
EDGE OF DRMO
STORAGE YARD
A20
A74
S
N
172
233
DV-4
267
DV-5
DV-1
314
146
FENCE
298
DV-6
DV-7
FENCE
DV-2
DV-3
310
N
PISCATAQUA RIVER
NOT TO SCALE
LEGEND:
SURFACE SOIL SAMPLING
LOCATIONS (PHASE I AND PHASE II)
GROUNDWATER MONITORING WELL
DRMO (SWMU #6)
SURFACE SOIL SAMPLING
AND GROUNDWATER
MONITORING WELL
LOCATIONS
McLAREN/HART



NOTE: ELEVATION 100.00' MEAN HIGH TIDE, PORTSMOUTH NAVAL SHIPYARD SYSTEM IS EQUAL TO 3.004' U.S.C.S. SYSTEM

VERTICAL EXAGGERATION = 10X

DRMO (SWMU #6)

GEOLOGIC CROSS SECTION A-A'

McLAREN/HART

DRMO FINDINGS

- Heavy metals contamination in surface and subsurface soils and groundwater
- Petroleum hydrocarbons, PCBs, and limited pesticide contamination in surface and subsurface soils
- Monitoring wells in hydraulic communication with estuary
- Coarse subsurface soils with high permeability

INTERIM HUMAN HEALTH RISK ASSESSMENT FOR QUARTERS S, N & 68; PORTMOUTH NAVAL SHIPYARD

TRC Meeting 5/14/91

I. Introduction

II. Objectives

III. Procedures/Methodology

IV. Pathways Evaluated

V. Risks Calculated

VI. Conclusions

VII. Future Studies

I. Introduction

- Final PHERE due ~6/92
- Interim, not final
- Report submitted to USEPA Region I for review

II. Objectives

- Project Health and Safety of persons residing at Quarters S, N, and 68
- Determine whether Interim Corrective Measures are needed to protect health

III. Procedures/Methodology

- EPA - derived Methods for Human Health Risk Assessments

  Risk Assessment Guidance for Superfund
  USEPA, 1989

  Supplemental Risk Assessment Guidance for the Superfund Program
  USEPA Region I

- Map of Sampling Locations

IV. Pathways Evaluated

Soil Ingestion

- Children ages 1-6 years; residential exposure
- Adults; 30 year residential exposure

Dermal Absorption

- Children ages 1-6 years; residential exposure
- Adults as gardeners; 30 year residential exposure

These are worst case exposure pathways

RISKS CALCULATED

Soil Ingestion

	Ages 1-6	Adults
Arsenic	1.7×10^{-5}	6.6×10^{-6}
Beryllium	1.4×10^{-6}	--

Dermal Absorption

Not Significant

EPA Guidelines for acceptable risks

Acceptable risk range = 1.0×10^{-4} to 1.0×10^{-6}

Risk Goal 1×10^{-6}

BACKGROUND SOIL VALUES

	Average measured value (ppm)	Background range in soils (ppm)
As	22	1-50 (USGS; EPA)
Be	0.62	1-1.5 (USGS) 1-40 (EPA)

SUMMARY OF POTENTIAL RISKS POSED BY LEAD EXPOSURES AS CALCULATED USING USEPA's LEAD UPTAKE/BIOKINETIC MODEL VERSION 4, AND PRESENTED AS PREDICTED BLOOD LEAD LEVELS FOR CHILDREN, AGES 0-6 YEARS UNDER CURRENT RESIDENTIAL EXPOSURE CONDITIONS AROUND RESIDENTS S, N, AND 68

Air Lead Concentration ug/m^3 (1)	Groundwater Lead Concentration ppb (2)	Soil Lead Concentration ppm (3)	Indoor Dust Lead Concentration ppm	G.I. Absorption % Model	% of Children with Predicted Blood Lead Below 10 ug/dL (4)	Geometric Mean Blood Lead Predicted for Children ug/dL (5)
0.2	4.0	331	Multiple Source Analysis (6)	30/Non-linear (7)	99.94	3.23
0.2	4.0	331	31.1 (8)	30/Non-linear (7)	99.98	2.87
0.2	4.0	331	311 (9)	30/Non-linear (7)	99.41	4.18

Footnotes:

1. Air concentration is based on default value in version 4.0 of lead model
2. Water lead concentration value represents the default value in Version 4.0 lead model
3. Soil lead concentration value used represents the average of measured values for soil samples around Quarters S & N and 68

VI. Conclusions Calculated

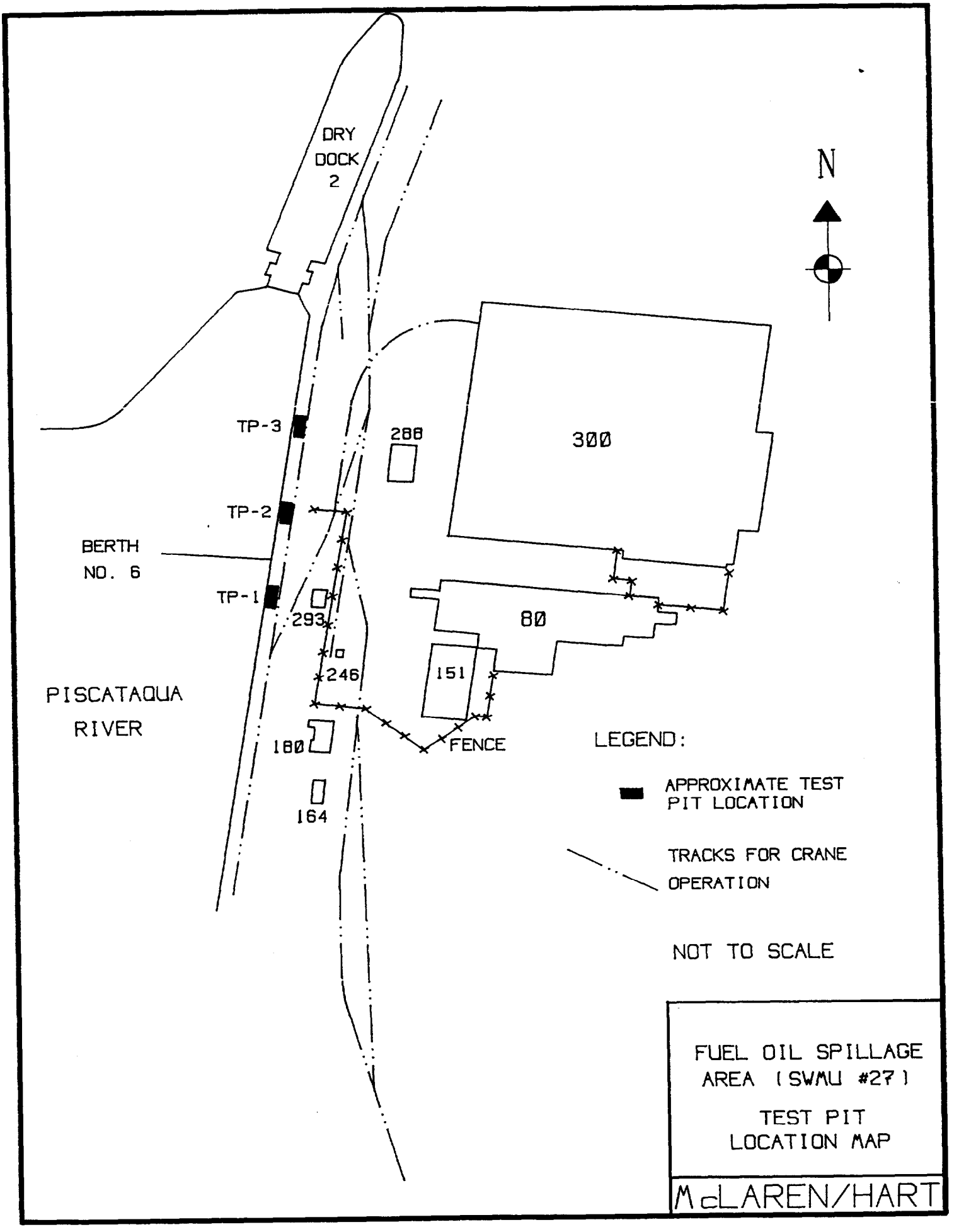
- Levels of Arsenic and beryllium in soils are probably within normal background soil ranges
- There does not appear to be any immediate concern for the health of those residing at Quarters S, N & 68

VII. Additional Testing

- Soil
  PAHs, Volatile (TPH)
- Air pathway assessment
  Air sampling or modeling

FUEL OIL PIPELINE

- No. 6 fuel oil line along Berth 6
- Line ruptured releasing 3,000 gallons of oil which was remediated
- Fill material in subsurface may be coarse and permeable



FUEL OIL SPILLAGE
AREA (SWMU #27)

TEST PIT
LOCATION MAP

McLAREN/HART

FUEL OIL PIPELINE FINDINGS

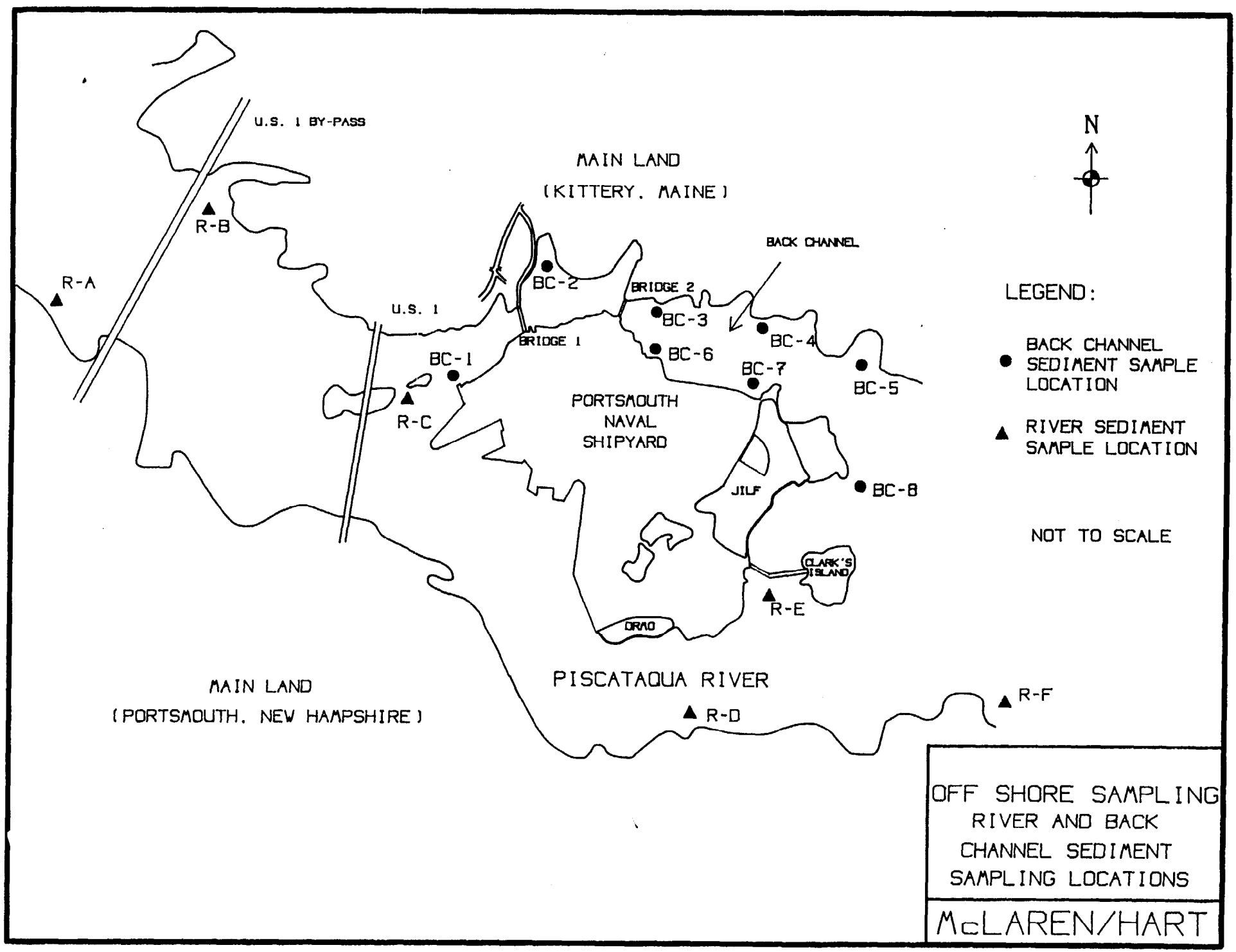
- Coarse fill material in subsurface
- Odor and visual contamination found in test pits
- Analytical results indicate petroleum contamination in soils
- Source and extent not defined

TANK RELATED SWMUs

- SWMU 10 - Battery Acid Tank No. 24
  Concern: Spent Battery Acid
  Interim Corrective Measure: Tanks pulled, soil excavated
- SWMU 11 - Waste Oil Tanks (Nos. 6, 7)
  Concern: Used lubricating Oils and Degreasers
  Interim Corrective Measure: Tanks pulled, soil excavated
- SWMU 12 - Boiler Blowdown Tank No. 25
  Concern: Heated Water
- SWMU 13 - Rinse Water Tank No. 27
  Concern: Rinse Water
- SWMU 16 - Rinse Water Tank No. 34
  Concern: Rinse Water
- SWMU 21 - Acid/Alkaline Drain Tank
  Concern: Spent Cleaning Solutions
- SWMU 23 - Chemical Cleaning Tank
  Concern: Spent Cleaning Solutions
- SWMU 26 - Portable Oil/Water Tanks
  Concern: Waste Oil

OFF-SHORE INVESTIGATIONS

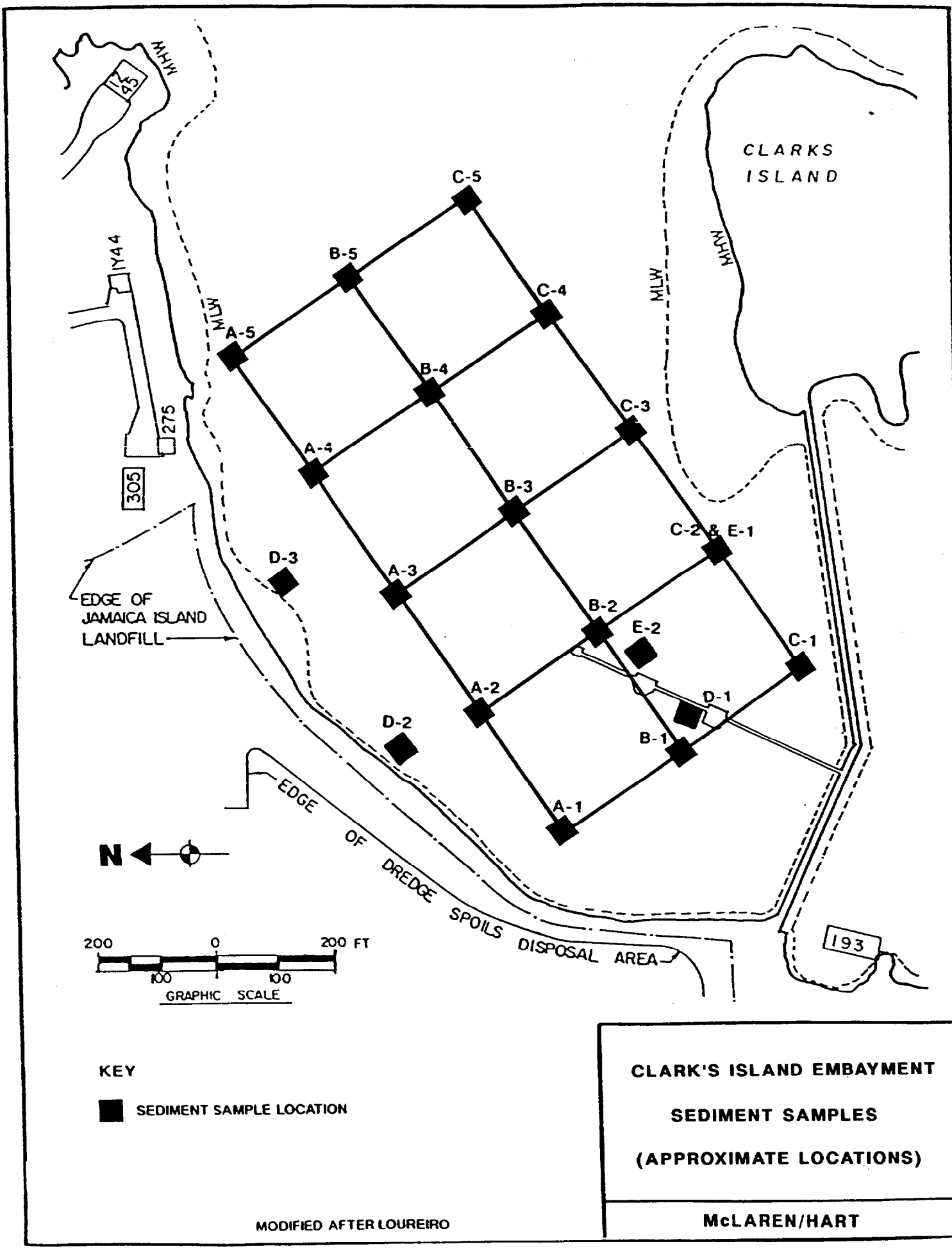
- River: Main Channel and Backchannel
- Clark's Island Embayment
- Shipyard Berths
  - Industrial Waste Outfalls
  - Fuel Oil Pipeline
  - Battery Acid Tank
- Contaminants of Concern:
  - Heavy metals
  - Petroleum hydrocarbons
  - PCBs/Pesticides


U.S. 1 BY-PASS
MAIN LAND
(KITTERY, MAINE)
N
R-B
R-A
BACK CHANNEL
BC-2
BRIDGE 2
U.S. 1
BC-3
BC-4
BRIDGE 1
BC-6
BC-1
BC-7
BC-5
R-C
PORTSMOUTH
NAVAL
SHIPYARD
JILF
BC-8
CLARK'S
ISLAND
R-E
DRAD
PISCATAQUA RIVER
MAIN LAND
(PORTSMOUTH, NEW HAMPSHIRE)
R-D
R-F
LEGEND:
BACK CHANNEL
SEDIMENT SAMPLE
LOCATION
RIVER SEDIMENT
SAMPLE LOCATION
NOT TO SCALE
OFF SHORE SAMPLING
RIVER AND BACK
CHANNEL SEDIMENT
SAMPLING LOCATIONS
McLAREN/HART

OFF-SHORE INVESTIGATIONS FINDINGS

RIVER & BACKCHANNEL

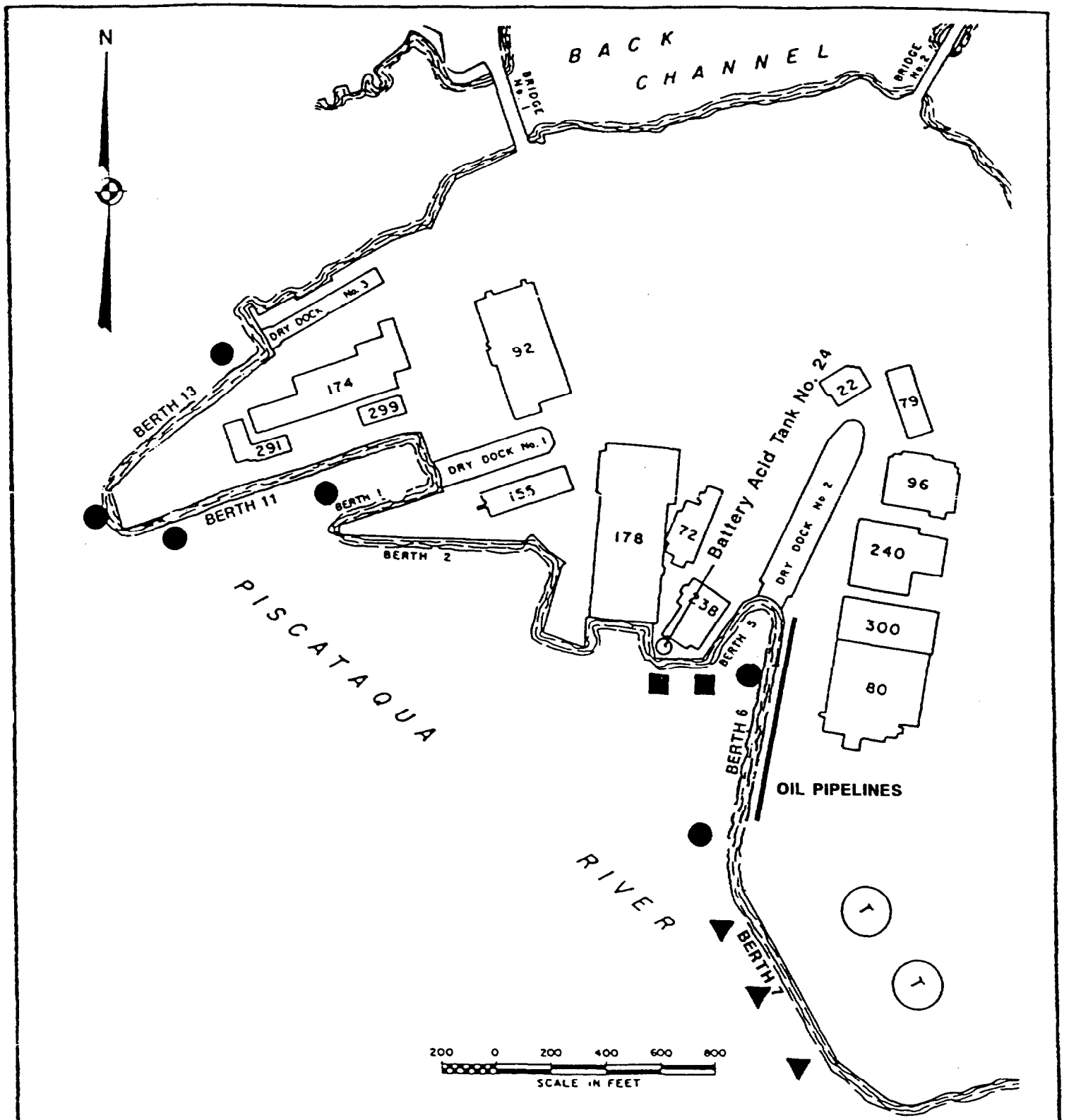
- Five (5) backchannel samples and one (1) main channel sample show moderate petroleum hydrocarbon contamination
- Heavy metals (Be, Cr, Hg) found to slightly exceed guidance values
- No volatile compounds detected above guidance or action levels


MHW
MLW
CLARKS
ISLAND
C-5
B-5
C-4
A-5
B-4
C-3
A-4
B-3
C-2 & E-1
D-3
A-3
B-2
E-2
C-1
A-2
D-1
D-2
B-1
A-1
1Y44
275
305
EDGE OF
JAMAICA ISLAND
LANDFILL
EDGE OF DREDGE SPOILS DISPOSAL AREA
193
N
200 0 200 FT
100 100
GRAPHIC SCALE
KEY
SEDIMENT SAMPLE LOCATION
CLARK'S ISLAND EMBAYMENT
SEDIMENT SAMPLES
(APPROXIMATE LOCATIONS)
MODIFIED AFTER LOUREIRO
McLAREN/HART

OFF-SHORE INVESTIGATIONS FINDINGS

CLARK'S ISLAND EMBAYMENT

- One sample slightly exceeded the regulatory guidance value for total volatile concentrations
- All surface sediment samples show moderate total petroleum hydrocarbon contamination
- Twenty (20) samples had concentrations of chromium (Cr) which exceeded the regulatory guidance value
- Two samples had concentrations of arsenic (As) which exceeded the regulatory guidance value
- No Pesticides or PCBs were detected



KEY

- ● SWMU 5 (INDUSTRIAL WASTE OUTFALLS)
- ▲ SWMU 27 (FUEL OIL SPILL AREA - BERTH 7)
- ■ SWMU 10 (BATTERY ACID TANK # 24)

SWMUs 5, 10, & 27

OFF-SHORE SEDIMENT SAMPLES

McLAREN/HART

OFF-SHORE INVESTIGATIONS FINDINGS

INDUSTRIAL WASTE OUTFALLS -- FUEL OIL LINE -- BATTERY ACID TANK

- No evidence of contamination due to battery acid tank
- TPH found in sediments in area of fuel oil pipeline (Berth 6) and industrial waste outfalls

ADDITIONAL DATA NEEDS

- Air
- Soil
- Groundwater
- Sediment
- Hydraulic Conductivity
- Water Levels

REMEDIAL TECHNOLOGIES CONSIDERED MOST FEASIBLE FOR USE AT THE PORTSMOUTH NAVAL SHIPYARD SWMU'S

- Soil Vapor Extraction (SVE) system for VOC treatment of contaminated soil (using vacuum/air injection wells and VOC vapor treatment)
- Air Stripping System for removal of organics from contaminated groundwater (using packed tower and VOC vapor control)
- Bioremediation for petroleum HCS and other biodegradable compounds in soils
- Excavation of Affected Area(s) and disposal in RCRA-approved off-site landfill or incineration
- Soil Cover Installation using uncontaminated soil, crushed stone, clay or asphalt to prevent direct contact with contaminated areas
- Surface Water Control Measures to prevent migration of contamination in affected soils
- Groundwater Monitoring Wells

ABSTRACT

An interim human health risk assessment was performed for Quarters S, N and 68 which are adjacent to the DRMO Storage Yard (SWMU #6) at the portsmouth Naval Shipyard. The purpose was to determine whether current conditions pose any significant human health risks to persons residing at these quarters, and to use the risk assessment as a basis for determining whether interim corrective measures are needed to be protective of human health. Data from soil samples collected during Phase II of the Field Investigation were used to calculate potential risks via the soil ingestion and dermal absorption pathways, fro children (ages 1-6 years) and adults, assuming a residential exposure scenario.

Results presented indicate that under current use conditions, the potential carcinogenic risk calculated for arsenic deviated from EPA's designated point of departure (1.0×10^{-6}) for children ages 1-6 years (1.7×10^{-5}) and for adults (6.6×10^{-6}); and for beryllium for children ages 1-6 years (1.4×10^{-6}). It is important to note that measured soil values for arsenic and beryllium may fall within background ranges for the area. Furthermore, at present there are no children between the ages of 1 and 6 years residing in Quarters S, N or 68

Based on these results, there does not appear to be any immediate concern for the public health of those residing in Quarters S, N and 68.

Air sampling and additional soil sampling are planned in order to assess potential risks via the inhalation pathway, and to determine the chemical identities of chemical compounds which make up the TPH (Total Petroleum Hydrocarbons) found in soil samples.