PUBLIC NOTICE

US Army Corps
of Engineers
New York District
Jacob K. Javits Federal Building
New York, N.Y. 10278-0090
ATTN: Regulatory Branch

In replying refer to:
Public Notice Number: 97-09830-RS
Issue Date: August 19, 1997
Expiration Date: September 19, 1997

To Whom It May Concern:

The New York District, Corps of Engineers has received an application for a Department of the Army permit pursuant to Section 10 of the Rivers and Harbors Act of 1899 (33 USC 403) and Section 404 of the Clean Water Act (33 U.S.C. 1344).

APPLICANT: TOSCO Refining Company
1400 Park Avenue
Linden, NJ 07036-0522

ACTIVITY: Dredge with open water disposal; dredge with upland disposal

WATERWAY: ARTHUR KILL

LOCATION: City of Linden, Union County, New Jersey.

A detailed description and plans of the applicant's activity are enclosed to assist in your review.

The decision whether to issue a permit will be based on an evaluation of the probable impact, including cumulative impacts, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits which reasonably may be expected to accrue from the proposal must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including the cumulative effects thereof; among those are conservation, economics, aesthetics, general environmental concerns, wetlands, historical properties, fish and wildlife values, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership and, in general the needs and welfare of the people.

The Corps of Engineers is soliciting comments from the public; Federal, state, and local agencies and officials; Indian Tribes; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

ALL COMMENTS REGARDING THE PERMIT APPLICATION MUST BE PREPARED IN WRITING AND MAILED TO REACH THIS OFFICE BEFORE THE EXPIRATION DATE OF THIS NOTICE, otherwise, it will be presumed that there are no objections to the activity.

Any person may request, in writing, before this public notice expires, that a public hearing be held to collect information necessary to consider this application. Requests for public hearings shall state, with particularity, the reasons why a public hearing should be held. It should be noted that information submitted by mail is considered just as carefully in the permit decision process and bears the same weight as that furnished at a public hearing.

Our preliminary determination is that the activity for which authorization is sought herein is not likely to affect any Federally endangered or threatened species or their critical habitat. However, pursuant to Section 7 of the Endangered Species Act (16 U.S.C. 1531), the District Engineer is consulting with the appropriate Federal agency to determine the presence of and potential impacts to listed species in the project area or their critical habitat.

Based upon a review of the latest published version of the National Register of Historic Places, there are no known sites eligible for, or included in, the Register within the permit area. Presently unknown archeological, scientific, prehistorical, or historical data may be lost by work accomplished under the required permit.

Reviews of activities pursuant to Section 404 of the Clean Water Act will include application of the guidelines promulgated by the Administrator, U.S. Environmental Protection Agency, under authority of Section 404 (b) of the Clean Water Act and the applicant will obtain a water quality certificate or waiver from the appropriate state agency in accordance with Section 401 of the Clean Water Act prior to a permit decision.

Pursuant to Section 307 (c) of the Coastal Zone Management Act of 1972 as amended [16 U.S.C. 1456 (c)], for activities under consideration that are located within the coastal zone of a state which has a federally approved coastal zone management program, the applicant has certified in the permit application that the activity complies with, and will be conducted in a manner that is consistent with, the approved state coastal zone management program. By this public notice, we are requesting the state's concurrence with, objection to, or waiver of the applicant's certification. No permit decision will be made until one of these actions occur. For activities within the coastal zone of New Jersey the applicant's certification and accompanying information is available from the New Jersey Department of Environmental Protection, Bureau of Coastal Regulation, CN 401, 501 East State Street, Second Floor, Trenton, New Jersey 08625-0401, Telephone Number (609) 633-2289. Comments regarding the applicant's certification should be so addressed.

In addition to any required water quality certificate and coastal zone management program concurrence, the applicant has obtained or requested the following governmental authorization for the activity under consideration:

Waterfront Development Permit from the New Jersey Department of Environmental Protection

It is requested that you communicate the foregoing information concerning the activity to any persons known by you to be interested and who did not receive a copy of this notice. If you have any questions concerning this application, you may contact this office at (212) 264-0184 and ask for Mark Steven Roth. For more information on New York District Corps of Engineers programs, visit our website at http://www.nan.usace.army.mil

FOR Joseph J. Seebode
Chief, Regulatory Branch

Enclosures

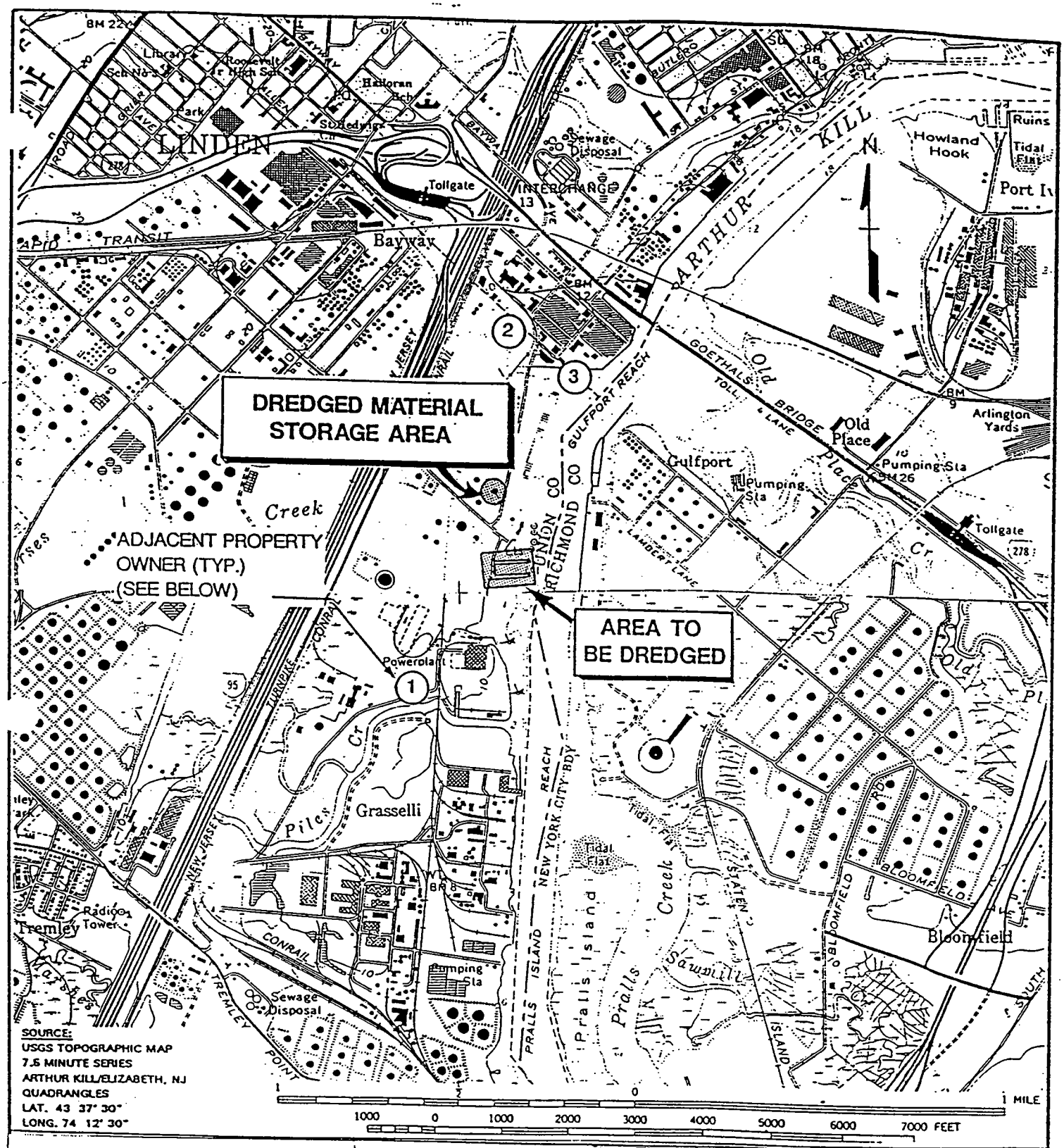
WORK DESCRIPTION

TOSCO Refining Company, has requested Department of the Army authorization to dredge with five years maintenance Barge Piers A and B of their Bayway Refinery in the City of Linden, Union County, New Jersey.

Approximately 14,000 cubic yards of material would be removed initially with an additional 25,000 cubic yards to be dredged over the following five years. Dredging would occur to a depth of -25 feet below the plane of Mean Low Water with a maximum of two feet of allowable overdepth (enough to ensure that the area is dredged to the project depth). Current plans require the drying of all of the material in a state-approved, adjacent upland site previously used by the applicant. The dredged material would be placed in a scow that would be moved to a pier near the upland site. A clamshell would remove the dredged material from the barge and place it in a specially lined truck(s). The trucks would move the dredged material to the specially lined disposal site where the dredged material would be placed inside the site. After the dredged material has been dried out, it will be tested to determine if it is suitable for a beneficial reuse. Barge overflow and return flow are not expected.

Should the proposed dredged material be suitable, and space available, TOSCO proposes to dispose of the material in the subaqueous Newark Bay Confined Disposal Facility, in accordance with the rules and regulations governing its operations.

The stated purpose of this project is to reestablish adequate depths of water for safe navigation.



PURPOSE : MAINTENANCE DREDGING

DATUM: MEAN LOW WATER

ADJACENT PROPERTY OWNERS:
1. PULBIC SERVIC ELECTRIC & GAS
   JOSEPH CORY WAREHOUSE
   PHELPS DODGE

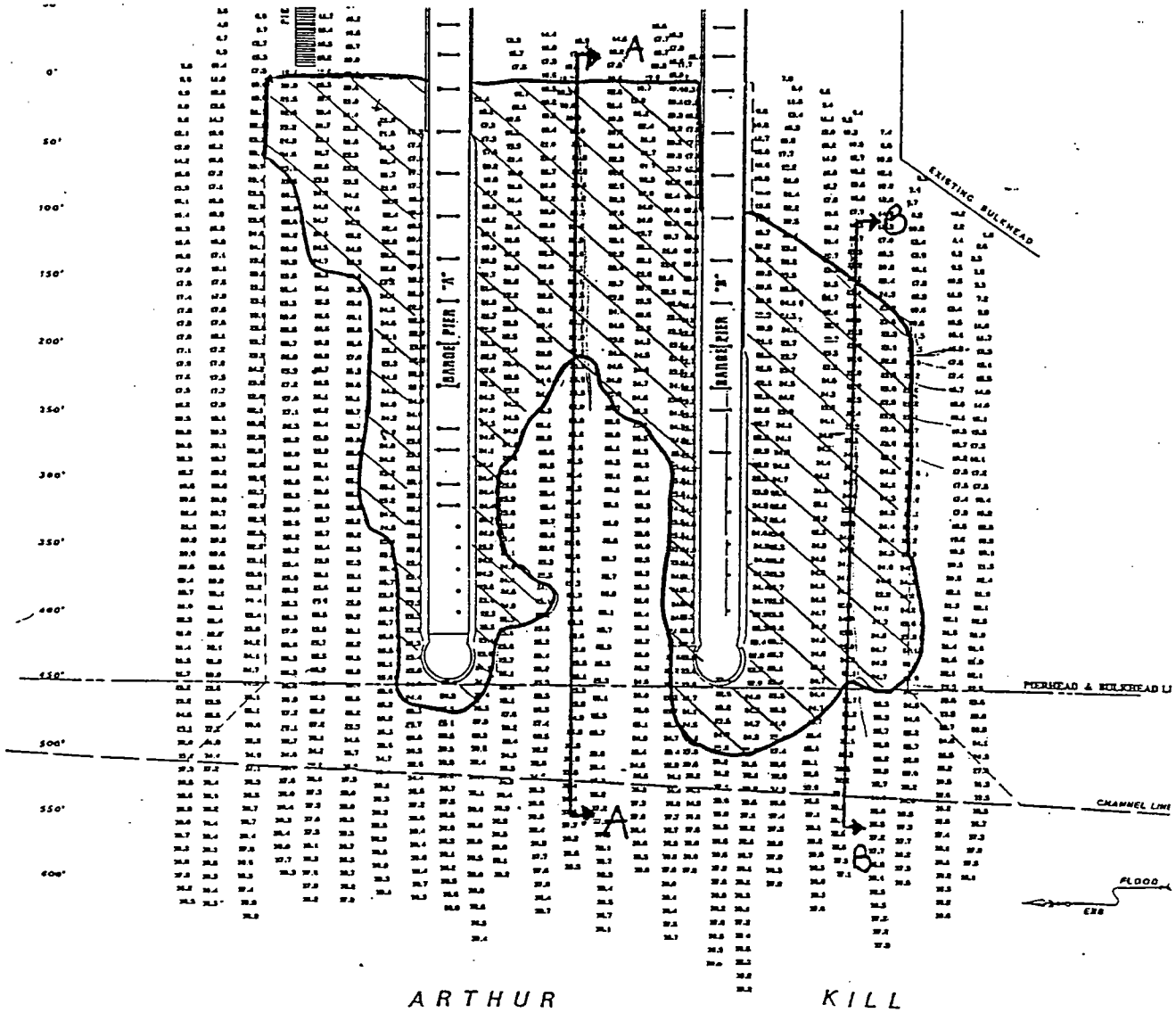
VICINITY MAP

TOSCO REFINING COMPANY
1400 PARK AVENUE
LINDEN, NJ 07036

PROPOSED BAYWAY REFINERY
MARINE PROJECTS

IN: ARTHUR KILL
AT: LINDEN CITY
COUNTY OF: UNION, STATE: NJ

SHEET 1 OF 5 DATE: 4-23-97



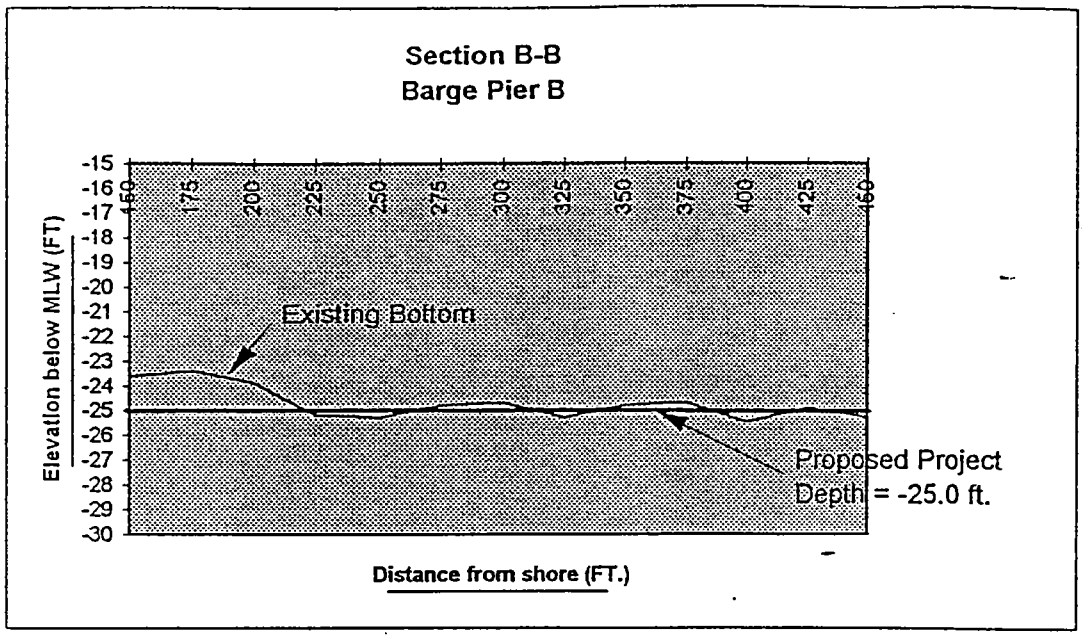
GENERAL NOTES:

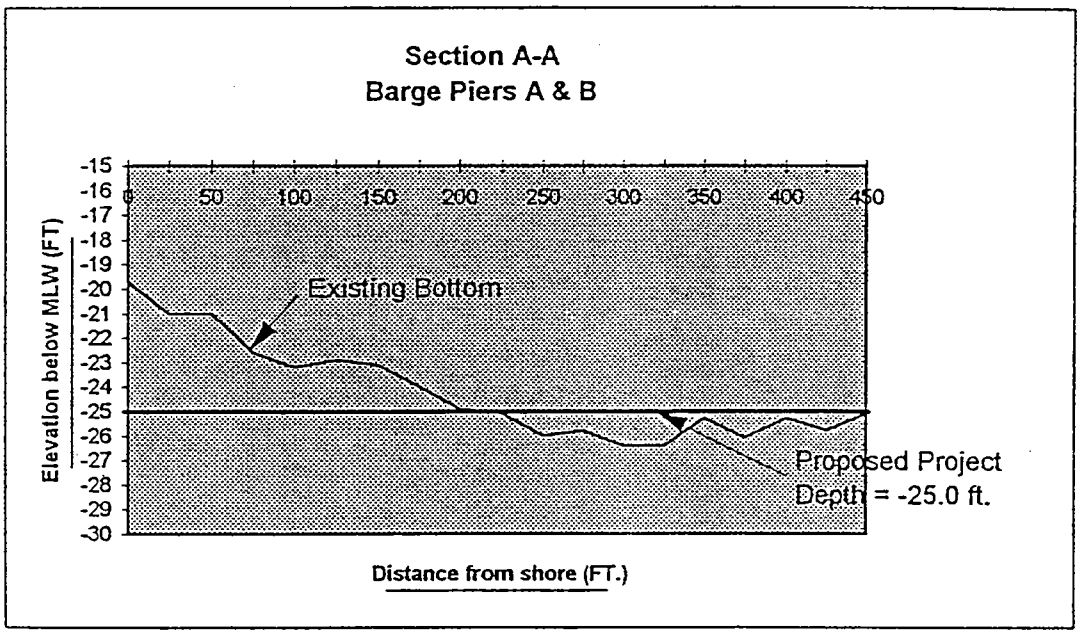
1. All soundings are in feet and tenths and refer to COE Mean Low Water.
2. All soundings are negative unless shown with a plus (+).
3. Innerspace 448 Precision Survey Fathometer used for Soundings.
4. The Starlink DNAV 212G/MBA-2GPS system used for positioning.
5. The Hypack software used for processing.
6. The information depicted on this map represent the results of surveys made on the dates indicated and can only be considered as indicating the general conditions at that time.

BASED ON FEB. 26 & MAR. 3 1997
BATHYMETRIC SURVEY

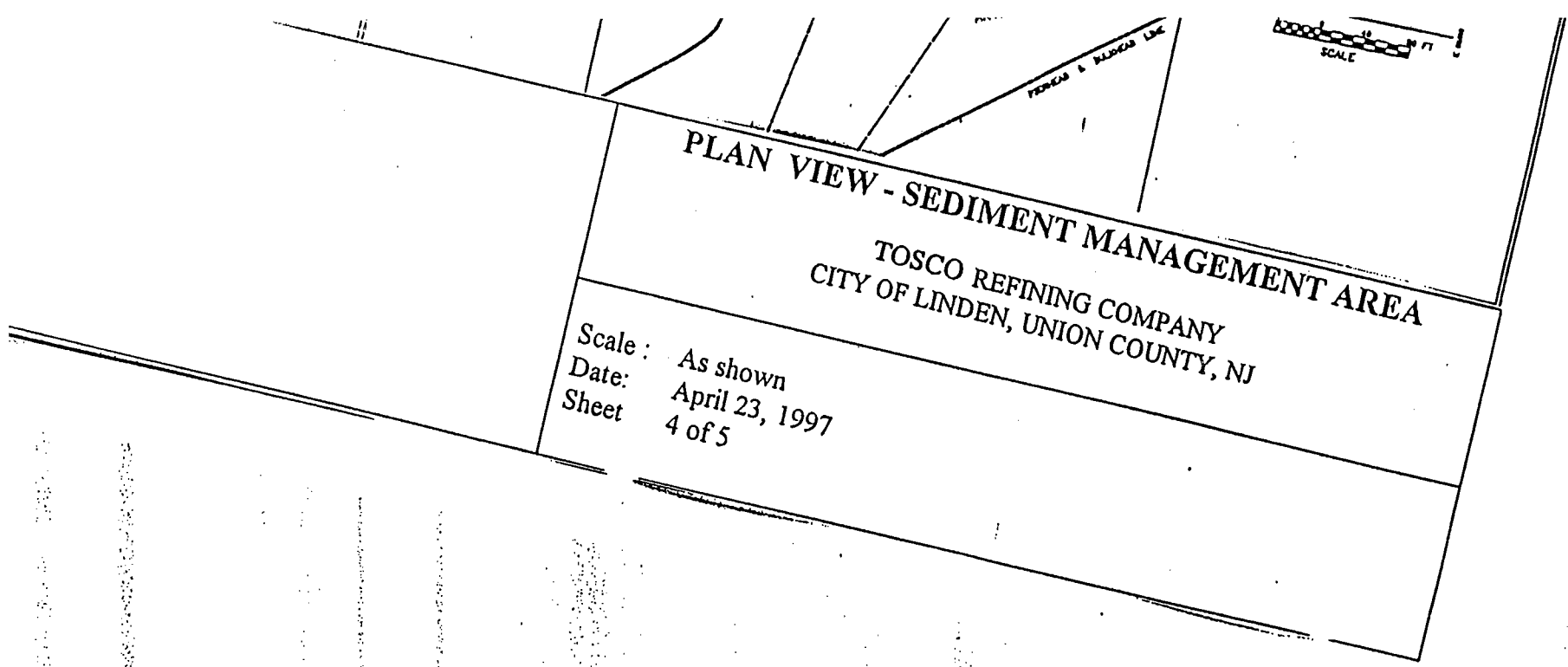
LEGEND: AREAS TO BE DREDGED

PURPOSE : MAINTENANCE DREDGING DATUM: MEAN LOW WATER ADJACENT PROPERTY OWNERS: 1. PULBIC SERVIC ELECTRIC & GAS 2. JOSEPH CORY WAREHOUSE 3. PHELPS DODGE	**BARGE PIERS A & B SOUNDING GRID AND DREDGING AREA DELINEATION** **TOSCO REFINING COMPANY 1400 PARK AVENUE LINDEN, NJ 07036**	PROPOSED BAYWAY REFINERY MARINE PROJECTS IN: ARTHUR KILL AT: LINDEN CITY COUNTY OF: UNION, STATE: NJ SHEET 2 OF 5 DATE: 4-23-97





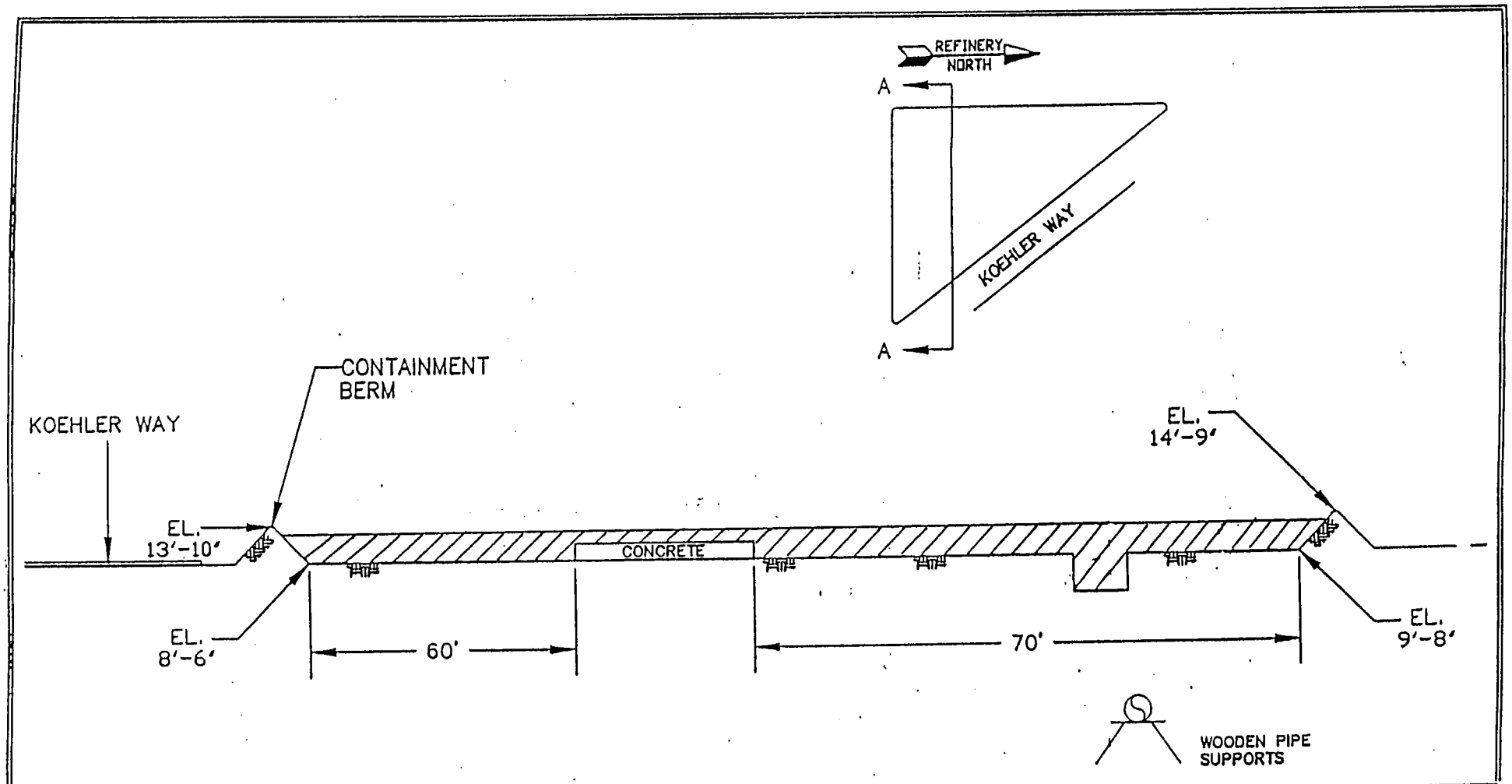
PURPOSE : MAINTENANCE DREDGING DATUM: MEAN LOW WATER	BARGE PIERS A & B SECTIONS TOSCO REFINING COMPANY 1400 PARK AVENUE LINDEN, NJ 07036	PROPOSED BAYWAY REFINERY MARINE PROJECTS IN: ARTHUR KILL AT: LINDEN CITY COUNTY OF: UNION, STATE: NJ SHEET 3 OF 5 DATE: 4-23-97



PLAN VIEW - SEDIMENT MANAGEMENT AREA

TOSCO REFINING COMPANY
CITY OF LINDEN, UNION COUNTY, NJ

Scale : As shown
Date: April 23, 1997
Sheet 4 of 5



CROSS SECTIONAL VIEW - SEDIMENT MANAGEMENT AREA

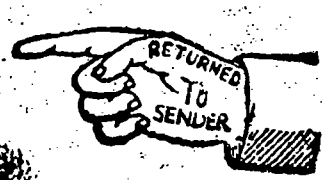
TOSCO REFINING COMPANY
CITY OF LINDEN, UNION COUNTY, NJ

Scale : As shown
Date: April 23, 1997
Sheet 5 of 5

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, NEW YORK
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NEW YORK, N.Y. 10278-0090

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OR GENERAL DELIVERY AND CORRECT ZIP CODE.

BAYWAY REFINERY
DREDGED SEDIMENT SAMPLING COMPARISON

Attached are 2 tables summarizing the sampling of dredge sediments at the Barge Piers in November, 1995, the Barge Piers in October, 1993, and the Steamer Docks in January, 1995. Where analytes were detected, the print has been bolded.

The following briefly describes each sampling event:

Barge Piers, 1995

The Quality Assurance Project Plan was submitted on September 26, 1995, and approved on October 30th with additional guidance given on November 3rd. Sampling was initiated on November 1, and completed on November 3rd. 4 sample cores were taken at the berth South of A Pier using a gravity corer. The 4 samples were composited to produce 1 sample for analysis. One sample was taken from the berth North of B Pier. This sample was analyzed separately. There was no stratification in any of the samples. The samples were analyzed by International Hydronics, Rocky Hill, NJ, NJ certification # 18086. The samples were analyzed as per the Quality Assurance Project Plan.

Barge Piers, 1993

The sampling of the barge piers was initiated on October 28, 1993, and completed on October 29th. Mr. John Boyer, NJDEP-Bureau of State Case Management was present for the October 29 sampling. A sampling and analysis protocol was submitted to the Department on November 5, 1993. A total of 6 sample cores were taken using a gravity corer. Two samples each were taken from the berths North of B Pier and South of A Pier. Two samples were also taken from the 2 berths between the piers. There was no stratification in the samples. The samples were analyzed individually by IT Corporation, Edison, NJ, NJ certification # 12064. The samples were analyzed as per a list of parameters consistent with the Exxon Remedial Investigation Work Plan in effect at that time, a modification of the Target Compound List (TCL) and Target Analyte List (TAL). The other sample events used the TCL and TAL directly. This accounts for the differences in the lists of analytes among the different sampling events.

Dioxin data for this sampling event is not presented. A method detection limit in the low parts per trillion (ppt) range was not specified, therefore the standard dioxin method was used, producing a method detection limit too high to be of value. Earlier core samples from the area, taken in December 1991, showed dioxin levels in the 13 to 30 ppt range.

Steamer Docks, 1995

The Quality Assurance Project Plan was submitted on December 16, 1994 and approved on December 28th. Sampling was initiated on January 5, 1995, and completed on January 9th. A total of 5 samples were taken using a gravity corer, distributed along the length of the Steamer Docks consistent with the distribution of the sediment to be dredged. There was no stratification in the samples. The samples were analyzed individually by International Hydronics, Rocky Hill, NJ, NJ certification # 18086. The samples were analyzed as per the Quality Assurance Project Plan.

BAYWAY REFINERY-DREDGE SEL. .T SAMPLING COMPARISON

	Barge Piers, '95		Barge Piers, '93						Steamer Docks, '95				
	A	B	S1	S3	S4	S6	S8	S9	1	2	3	4	5
rameter													
mpling Date	11/1 & 3/95	11/1/95	10/28/93	10/28/93	10/29/93	10/29/93	10/29/93	10/29/93	1/9/95	1/9/95	1/5/95	1/5/95	1/5/95
epth of sample, ft.	0.5 - 5.5	2.0	5.5	6.0	6.0	3.1 - 4.1	6.0	4.0 - 5.0	6.0	6.0	5.0	5.5	6.0
anide, mg/kg	0.174	0.22	ND	ND	ND	1.4	1.8	1.7	<0.100	<0.100	<0.100	0.100	<0.100
HC, mg/kg	1260	1320	200	260	85	130	170	190	518	471	573	525	695
C, mg/kg	13900	15500	24000	29000	35000	21000	31000	25000					
tal Solids, Wt. %	33.7	33.6	35	36	30	42	34	33	38.9	45.2	31.4	34.2	34.2
EQ's as 2,3,7,8-TCDD, ng/kg	52.4	126.5							246.4	212.9	227.9	155.7	187.1
latile Organics, mg/kg													
loromethane	<0.068	<0.068	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.031	<0.027	<0.038	<0.035	<0.035
omomethane	<0.056	<0.057	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.023	<0.020	<0.029	<0.026	<0.026
nyl Chloride	<0.024	<0.024	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.010	<0.009	<0.013	<0.012	<0.012
loroethane	<0.083	<0.083	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.036	<0.031	<0.045	<0.041	<0.041
ethylene Chloride	**0.130 B**	**0.180 B**	**0.110 J**	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	**0.044 B**	**0.041 B**	**0.042 B**	**0.037 B**	**0.038 B**
cetone	**0.790**	**0.970**	**0.200**	**0.073**	**0.100**	**< 0.024**	**0.097**	**< 0.030**	**0.280**	**0.130**	**0.370**	**0.250**	**0.180**
arbon Disulfide	**0.230**	**0.130**	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	**0.480**	**0.072**	**0.200**	**0.200**	**0.150**
1-Dichloroethene	<0.056	<0.057	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.026	<0.022	<0.032	<0.029	<0.029
1-Dichloroethane	<0.033	<0.033	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.015	<0.013	<0.019	<0.018	<0.018
2-Dichloroethene (total)			< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030					
ans-1,2-Dichloroethene	<0.237	<0.238							<0.010	<0.009	<0.013	<0.012	<0.012
s-1,2-Dichloroethene	<0.006	<0.006							<0.003	<0.002	<0.003	<0.003	<0.003
hloroform	<0.021	<0.021	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.008	<0.007	<0.010	<0.009	<0.009
2-Dichloroethane	<0.030	<0.030	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.013	<0.011	<0.016	<0.015	<0.015
-Butanone	<0.015	<0.015	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.005	<0.004	<0.006	<0.006	<0.006
,1,1-Trichloroethane	<0.033	<0.033	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.015	<0.013	<0.019	<0.018	<0.018
arbon Tetrachloride	<0.027	<0.027	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.010	<0.009	<0.013	<0.012	<0.012
romodichloromethane	<0.033	<0.033	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.015	<0.013	<0.019	<0.018	<0.018
,2-Dichloropropane	<0.033	<0.033	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.013	<0.011	<0.016	<0.015	<0.015
s-1,3-Dichloropropene	<0.042	<0.042	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.018	<0.015	<0.022	<0.020	<0.020
richloroethene	<0.039	<0.039	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.015	<0.013	<0.019	<0.018	<0.018
ibromochloromethane	<0.208	<0.208	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.010	<0.009	<0.013	<0.012	<0.012
,1,2-Trichloroethane	<0.033	<0.033	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.013	<0.011	<0.016	<0.015	<0.015
enzene	<0.030	<0.030	< 0.140	< 0.028	**0.004 J**	< 0.024	**0.004 J**	< 0.030	<0.023	**0.016 J**	<0.029	<0.026	<0.026
ans-1,3-Dichloropropene	<0.027	<0.027	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.013	<0.011	<0.016	<0.015	<0.015
romoform	<0.021	<0.021	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.010	<0.009	<0.013	<0.012	<0.012
-Methyl-2-pentanone	<0.053	<0.054	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.023	<0.020	<0.029	<0.026	<0.026
-Hexanone	<0.077	<0.077	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.033	<0.029	<0.041	<0.038	<0.038
etrachloroethene	<0.021	<0.021	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.010	<0.009	<0.013	<0.012	<0.012
,1,2,2-Tetrachloroethane	<0.083	<0.083	**0.005 J**	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.036	<0.031	<0.045	<0.041	<0.041
oluene	0.047	0.063	< 0.140	**0.004 J**	< 0.033	< 0.024	**0.005 J**	< 0.030	<0.018	<0.015	<0.022	<0.020	<0.020
hlorobenzene	<0.021	<0.021	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.008	<0.007	<0.010	<0.009	<0.009
thylbenzene	<0.068	<0.068	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.031	<0.027	<0.038	<0.035	<0.035

BAYWAY REFINERY-DREDGE SE\ \NT SAMPLING COMPARISON

	Barge Piers, '95		Barge Piers, '93						Steamer Docks, '95				
	A	B	S1	S3	S4	S6	S8	S9	1	2	3	4	5
Styrene	<0.012	<0.012	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	<0.005	<0.004	<0.006	<0.006	<0.006
Xylene (total)	0.071 J	<0.074	< 0.140	< 0.028	< 0.033	< 0.024	< 0.029	< 0.030	0.050 J	0.041 J	0.023 J	<0.058	<0.058
Vinyl Acetate	<0.119	<0.119							<0.051	<0.044	<0.064	<0.058	<0.058
Semivolatile Organics, mg/kg													
Phenol	<0.504	<0.506	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<0.874	<0.752	<1.083	<0.994	<0.994
bis (2-Chloroethyl) Ether	<1.246	<1.250	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<2.185	<1.881	<2.707	<2.485	<2.485
2-Chlorophenol	<1.513	<1.518	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<2.571	<2.212	<3.185	<2.924	<2.924
1,3-Dichlorobenzene	<1.128	<1.131	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.928	<1.659	<2.389	<2.193	<2.193
1,4-Dichlorobenzene	<1.602	<1.607	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<2.828	<2.434	<3.503	<3.216	<3.216
1,2-Dichlorobenzene	<1.602	<1.607	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<2.828	<2.434	<3.503	<3.216	<3.216
2,2'-oxybis (1-Chloropropane)	<1.068	<1.071	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.825	<1.571	<2.261	<2.076	<2.076
4-Methylphenol	<1.573	<1.577	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<2.828	<2.434	<3.503	<3.216	<3.216
2-Methylphenol	<0.950	<0.952							<1.671	<1.438	<2.070	<1.901	<1.901
n-Nitroso-di-n-propylamine	<1.009	<1.012	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.748	<1.504	<2.166	<1.988	<1.988
Hexachloroethane	<1.543	<1.548	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<2.571	<2.212	<3.185	<2.924	<2.924
Nitrobenzene	<0.920	<0.923	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.620	<1.394	<2.006	<1.842	<1.842
Isophorone	<1.012	<1.012	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.748	<1.504	<2.166	<1.988	<1.988
2-Nitrophenol	<1.068	<1.071	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.825	<1.571	<2.261	<2.076	<2.076
2,4-Dimethylphenol	<0.920	<0.923	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.568	<1.350	<1.943	<1.784	<1.784
bis (2-Chloroethoxy) Methane	<0.801	<0.804	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.362	<1.173	<1.688	<1.550	<1.550
2,4-Dichlorophenol	<0.861	<0.863	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.465	<1.261	<1.815	<1.667	<1.667
1,2,4-Trichlorobenzene	<0.890	<0.893	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.542	<1.327	<1.911	<1.754	<1.754
Naphthalene	<0.950	<0.952	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.620	<1.394	<2.006	<1.842	<1.842
4-Chloroaniline	<1.217	<1.220	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<2.082	<1.792	<2.580	<2.368	<2.368
Hexachlorobutadiene	<1.009	<1.012	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.774	<1.527	<2.197	<2.018	<2.018
4-Chloro-3-methylphenol	<0.979	<0.982	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.697	<1.460	<2.102	<1.930	<1.930
2-Methylnaphthalene	<1.246	<1.250	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<2.134	<1.836	<2.643	<2.427	<2.427
Hexachlorocyclopentadiene	<1.691	<1.696	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<2.828	<2.434	<3.503	<3.216	<3.216
2,4,6-Trichlorophenol	<0.831	<0.833	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.440	<1.239	<1.783	<1.637	<1.637
2,4,5-Trichlorophenol	<0.712	<0.714	< 12.0	< 9.90	< 2.80	< 2.00	< 2.40	< 2.50	<1.234	<1.062	<1.529	<1.404	<1.404
2-Chloronaphthalene	<1.039	<1.042	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.799	<1.549	<2.229	<2.047	<2.047
2-Nitroaniline	<0.593	<0.595	< 12.0	< 9.90	< 2.80	< 2.00	< 2.40	< 2.50	<1.003	<0.863	<1.242	<1.140	<1.140
Dimethylphthalate	<1.840	<1.845	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<3.085	<2.655	<3.822	<3.509	<3.509
Acenaphthylene	0.300 J	<1.310	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<2.262	<1.947	<2.803	<2.573	<2.573
2,6-Dinitrotoluene	<0.890	<0.893	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.568	<1.350	<1.943	<1.784	<1.784
3-Nitroaniline	<0.593	<0.595	< 12.0	< 9.90	< 2.80	< 2.00	< 2.40	< 2.50	<1.028	<0.885	<1.274	<1.170	<1.170
Acenaphthene	<1.335	<1.339	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<2.314	<1.991	<2.866	<2.632	<2.632
2,4-Dinitrophenol	<2.047	<2.054	< 12.0	< 9.90	< 2.80	< 2.00	< 2.40	< 2.50	<3.599	<3.097	<4.459	<4.094	<4.094
4-Nitrophenol	<0.950	<0.952	< 12.0	< 9.90	< 2.80	< 2.00	< 2.40	< 2.50	<1.645	<1.416	<2.038	<1.871	<1.871
Dibenzofuran	<1.217	<1.220	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<2.108	<1.814	<2.611	<2.398	<2.398
2,4-Dinitrotoluene	<0.475	<0.476	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<0.823	<0.708	<1.019	<0.936	<0.936
Diethylphthalate	<0.772	<0.774	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.362	<1.173	<1.688	<1.550	<1.550

BAYWAY REFINERY-DREDGE SE. NT SAMPLING COMPARISON

	Barge Piers, '95		Barge Piers, '93						Steamer Docks, '95				
	A	B	S1	S3	S4	S6	S8	S9	1	2	3	4	5
4-Chlorophenyl-phenyl ether	<1.899	<1.905	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<3.342	<2.876	<4.140	<3.801	<3.801
Fluorene	<1.365	<1.369	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<2.365	<2.035	<2.930	<2.690	<2.690
4-Nitroaniline	<0.861	<0.863	< 12.0	< 9.90	< 2.80	< 2.00	< 2.40	< 2.50	<1.517	<1.305	<1.879	<1.725	<1.725
4,6-Dinitro-2-methylphenol	<1.276	<1.280	< 12.0	< 9.90	< 2.80	< 2.00	< 2.40	< 2.50	<2.185	<1.881	<2.707	<2.485	<2.485
n-Nitroso-diphenylamine	<0.415	<0.417	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<0.746	<0.642	<0.924	<0.848	<0.848
4-Bromophenyl-phenyl ether	<1.632	<1.637	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<2.828	<2.434	<3.503	<3.216	<3.216
Hexachlorobenzene	<0.950	<0.952	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.671	<1.438	<2.070	<1.901	<1.901
Pentachlorophenol	<0.979	<0.982	< 12.0	< 9.90	< 2.80	< 2.00	< 2.40	< 2.50	<1.697	<1.460	<2.102	<1.930	<1.930
Phenanthrene	0.840	0.640 J	< 4.70	< 4.00	0.180 J	< 0.079	0.110 J	< 1.01	1.40	0.800 J	0.670 J	0.720 J	1.00 J
Anthracene	0.600 J	0.440 J	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.311	0.510 J	<1.624	<1.491	0.610 J
Carbazole	<0.742	<0.744	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.260	<1.084	<1.561	<1.433	<1.433
Di-n-Butylphthalate	<0.861	<0.863	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	1.00 J	0.760 J	<1.879	<1.725	<1.725
Fluoranthene	1.20	1.30	< 4.70	< 4.00	0.470 J	0.140 J	0.330 J	0.190 J	2.40	1.60	0.900 J	1.50 J	2.20
Pyrene	1.10	1.40	0.490 J	< 4.00	0.560 J	0.160 J	0.380 J	0.200 J	3.50	2.00	1.20 J	1.40	2.80
Butylbenzylphthalate	<0.504	<0.506	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<0.874	<0.752	<1.083	<0.994	<0.994
3,3'-Dichlorobenzidene	<0.831	<0.833	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.440	<1.239	<1.783	<1.637	<1.637
Benzo (a) anthracene	0.500 J	0.660 J	< 4.70	< 4.00	< 1.10	< 0.079	0.220 J	0.120 J	1.70	1.00 J	0.710 J	0.790 J	1.40
Chrysene	0.650 J	0.800	< 4.70	< 4.00	0.320 J	< 0.079	0.220 J	0.120 J	1.70	1.00 J	0.710 J	0.790 J	1.40
bis (2-Ethylhexyl) Phthalate	13.00	16.000	5.9 B	3.20 JB	5	4.00 B	8.00 B	5.10 B	48.0	27.0	29.0	31.0	44.0
Di-n-octyl phthalate	0.490 J	<0.952	< 4.70	< 4.00	0.200 JB	0.140 J	0.170 J	0.140 J	<1.645	<1.416	<2.038	<1.871	0.940 J
Benzo (b) fluoranthene	1.100 J	1.400	< 4.70	< 4.00	0.310 J	< 0.079	< 0.098	< 1.01	2.00 J	1.20 J	0.870 J	1.10 J	1.70 J
Benzo (k) fluoranthene	0.550 J	0.510 J	< 4.70	< 4.00	0.150 J	< 0.079	< 0.098	< 1.01	1.20 J	0.560 J	<2.166	<1.988	0.890 J
Benzo (a) pyrene	0.870	0.980	< 4.70	< 4.00	0.240 J	< 0.079	0.160 J	< 1.01	1.60	0.870 J	0.680 J	0.810 J	1.20 J
Indeno (1,2,3-cd) pyrene	<0.593	0.350 J	< 4.70	< 4.00	0.110 J	< 0.079	< 0.098	< 1.01	<1.054	<0.907	<1.306	<1.199	<1.199
Dibenzo (a,h) anthracene	<14.837	<14.881	< 4.70	< 4.00	< 1.10	< 0.079	< 0.098	< 1.01	<1.568	<1.350	<1.943	<1.784	<1.784
Benzo (g,h,i) perylene	<0.682	0.480 J	< 4.70	< 4.00	0.140 J	< 0.079	< 0.098	< 1.01	<1.208	<1.040	<1.497	<1.374	<1.374
Benzoic Acid	<2.077	<2.083							<3.599	<3.097	<4.459	<4.094	<4.094
Benzyl Alcohol	<0.000	<0.000							<2.571	<2.212	<3.185	<2.924	<2.924
Pesticides/PCB's, mg/kg													
alpha-BHC	<0.0297	<0.0298	< 0.0476	< 0.463	< 0.0553	< 0.0396	< 0.0489	< 0.0504	<0.0103	<0.0088	<0.0042	<0.0039	<0.0039
beta-BHC	<0.0297	<0.0298	< 0.0476	< 0.463	< 0.0553	< 0.0396	< 0.0489	< 0.0504	<0.0103	<0.0088	<0.0042	<0.0039	<0.0039
delta-BHC	<0.0297	<0.0298	< 0.0476	< 0.463	< 0.0553	< 0.0396	< 0.0489	< 0.0504	<0.0103	<0.0088	<0.0042	<0.0039	<0.0039
gamma-BHC (Lindane)	<0.0297	<0.0298	< 0.0476	< 0.463	< 0.0553	< 0.0396	< 0.0489	< 0.0504	<0.0103	<0.0088	<0.0042	<0.0039	<0.0039
Heptachlor	<0.0297	<0.0298	< 0.0476	< 0.463	< 0.0553	< 0.0396	< 0.0489	< 0.0504	<0.0103	<0.0088	<0.0042	<0.0039	<0.0039
Aldrin	<0.0297	<0.0298	< 0.0476	< 0.463	< 0.0553	< 0.0396	< 0.0489	< 0.0504	<0.0103	<0.0088	<0.0042	<0.0039	<0.0039
Heptachlor epoxide	<0.0297	<0.0298	< 0.0476	< 0.463	< 0.0553	< 0.0396	< 0.0489	< 0.0504	<0.0103	<0.0088	<0.0042	<0.0039	<0.0039
Endosulfan I	<0.1187	<0.1190	< 0.0476	< 0.463	< 0.0553	< 0.0396	< 0.0489	< 0.0504	<0.0206	<0.0177	<0.0085	<0.0078	<0.0078
Dieldrin	<0.0297	<0.0298	< 0.0476	< 0.463	< 0.111	< 0.0792	< 0.0979	< 0.101	<0.0206	<0.0177	<0.0085	<0.0078	<0.0078
4,4'-DDE	<0.1187	<0.1190	0.103	1.08	< 0.111	< 0.0792	< 0.0979	< 0.101	0.1247	0.3749	0.1284	0.1426	0.1476
Endrin	<0.0297	<0.0298	< 0.0952	< 0.925	< 0.111	< 0.0792	< 0.0979	< 0.101	<0.0206	<0.0177	<0.0085	<0.0078	<0.0078
Endosulfan II	<0.1187	<0.1190	< 0.0952	< 0.925	< 0.111	< 0.0792	< 0.0979	< 0.101	<0.0206	<0.0177	<0.0085	<0.0078	<0.0078
4,4'-DDD	0.4957	0.5987	0.253	1.01	< 0.111	< 0.0792	0.12	0.162	0.1330	2.3923	0.2309	0.3126	0.3161

BAYWAY REFINERY-DREDGE SEL IT SAMPLING COMPARISON

	Barge Piers, '95		Barge Piers, '93						Steamer Docks, '95				
	A	B	S1	S3	S4	S6	S8	S9	1	2	3	4	5
ndosulfan sulfate	<0.1187	<0.1190	< 0.0952	< 0.925	< 0.111	< 0.0792	< 0.0979	< 0.101	<0.0617	<0.0531	<0.0255	<0.0234	<0.0234
,4'-DDT	1.1384	0.7708	3.00	1.47	0.269	0.956	0.37	1.3	<0.0617	1.6890	0.4590	0.9599	1.1045
Methoxychlor	<0.2967	<0.2976	< 0.476	< 4.63	< 0.553	< 0.396	< 0.489	< 0.504	<0.1028	<0.0885	<0.0425	<0.0390	<0.0390
ndrin ketone	<0.1187	<0.1190	< 0.0952	< 0.925	< 0.111	< 0.0792	< 0.0979	< 0.101	<0.0617	<0.0531	<0.0255	<0.0234	<0.0234
ndrin aldehyde	<0.1187	<0.1190	< 0.0952	< 0.925	< 0.111	< 0.0792	< 0.0979	< 0.101	<0.0617	<0.0531	<0.0255	<0.0234	<0.0234
hlordane	<0.0593	<0.0595	< 0.0476	< 0.463	< 0.0553	< 0.0396	< 0.0489	< 0.0504	<0.2057	<0.1770	<0.0849	<0.0780	<0.0780
oxaphene	<0.7982	<0.8006	< 4.76	< 46.3	< 1.110	< 3.96	< 4.89	< 5.04	<1.0283	<0.8850	<0.4246	<0.3899	<0.3899
rochlor-1016	<0.5935	<0.5952	< 0.952	< 9.25	< 2.220	< 0.792	< 0.979	< 1.01					
rochlor-1221	<0.5935	<0.5952	< 1.90	< 18.5	< 1.110	< 1.58	< 1.96	< 2.02					
rochlor-1232	<0.5935	<0.5952	< 0.952	< 9.25	< 1.110	< 0.792	< 0.979	< 1.01					
rochlor-1242	<0.5935	<0.5952	< 0.952	< 9.25	< 1.110	< 0.792	< 0.979	< 1.01					
rochlor-1248	<0.5935	<0.5952	< 0.952	< 9.25	< 1.110	< 0.792	< 0.979	< 1.01					
rochlor-1254	<0.5935	<0.5952	< 0.952	< 9.25	< 1.110	< 0.792	< 0.979	< 1.01					
rochlor-1260	<0.5935	<0.5952	< 0.952	< 9.25	< 1.110	< 0.792	< 0.979	< 1.01					
otal PCB's	<0.5935	<0.5952	N/A	N/A	N/A	N/A	N/A	N/A	<0.5141	<0.4425	<0.2123	<0.1949	<0.1949
Metals, mg/kg													
Aluminum	19318	19018	13200	12300	15200	10100	11700	13800	4300	4410	4210	5820	5830
Antimony	<0.742	<0.744	9.2	10.8	12.6	12.2	10.1	14.3	<0.200	<0.200	<0.200	<0.200	<0.200
Arsenic	41.5	36.9	26.5	92.9	28.9	34.1	34.9	72.6	7.00	8.00	8.00	8.00	10.0
Barium	246	238	300	359	383	249	347	314	<50.0	<50.0	78.5	99.0	123
Beryllium	<0.742	<0.744	0.57	0.55	0.66	0.48	0.58	0.61	<5.00	<5.00	<5.00	<5.00	<5.00
Cadmium	5.93	10.09	5.8	8.5	12.7	7.3	9.6	11.1	1.20	1.40	2.00	2.30	2.60
Calcium	1009	866	5920	6030	7570	6110	6270	20400	992	769	387	246	209
Chromium	224	294	185	228	258	186	241	220	53.5	61.8	69.0	63.8	73.4
Cobalt	22.8	24.3	12.5	10.9	15.3	9	11.1	12.9	<5.00	<5.00	<5.00	<5.00	<5.00
Copper	549	649	383	479	520	396	517	445	129	163	172	164	187
Iron	38279	40774	34200	31500	38500	26800	32600	35000	12500	14100	11300	15300	16900
Lead	312	384	271	311	354	257	332	295	103	128	104	96.3	116
Magnesium	8012	7619	8380	7640	9480	6450	8390	8710	1640	1140	2400	1850	2050
Manganese	501	497	402	366	557	300	375	480	163	145	112	118	137
Mercury	5.64	4.91	5.8	12.9	11.8	12	11	8.9	0.96	1.00	2.25	1.95	2.07
Nickel	66.5	69.9	43.9	47.1	68.2	36.6	43.1	52.7	15.7	18.7	18.8	17.4	19.2
Potassium	4392	4107	3150	2730	3320	1910	2640	3040	1160	1160	1140	1230	1340
Selenium	<2.97	<2.98	2.3	3.9	3.7	2.1	3.3	2.2	<5.00	<5.00	<5.00	<5.00	<5.00
Silver	2.94	3.21	7.6	7.9	8.8	7.3	8.2	8.7	<2.00	<2.40	<2.00	<2.30	<2.60
Sodium	14837	17202	14300	12300	14100	11600	13900	13600	3650	4320	4930	4140	4100
Thallium	<1.78	<1.79	1.1	1.1	1.3	9.6	1.2	1.2	<0.800	<0.800	<0.800	<0.800	<0.800
Vanadium	97.3	90.2	45.3	48.4	63.7	39.2	49.3	53.7	32.4	39.6	28.8	29.2	34.0
Zinc	579	723	409	491	653	398	528	547	168	193	211	196	226

NOTES:
Sample A = Composite of samples A1, A3, A4, & A5 from berth South of A Pier.
Sample B = Sample B4 from berth North of B Pier
All results reported on a dry weight basis.

QUALIFIERS:
J - Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria for the method. The concentration listed is an estimated value which is less than the specified minimum detection limit but is greater than zero.

B - This flag is used when the analyte is found in the blanks as well as the sample. It indicates possible contamination and warns the data user to use caution when when applying the results of this analyte.

< - The analyte was not detected at the detection limit indicated.

BAYWAY REFINERY - DREDGE SEDIMENT SAMPLING COMPARISON

Barge Piers, 10/28/93 & 10/29/93			
Grainsize Analysis			
Sample	% Sand	% Silt	% Clay
	(>0.0625mm	(0.0625-	(<0.0039mm)
		0.0039mm)	
S 1	2	55.6	42.4
S 3	18	41.3✓	40.7✓
S 4	12 √	40.7 ✓	47.2 ✓
S 6	7.6	60.2 ✓	32.2 ✓
S 8	8.1	53.2 ✓	38.7 ✓
S 9	20	35.7	44.3
Average	11.3	47.8	40.9

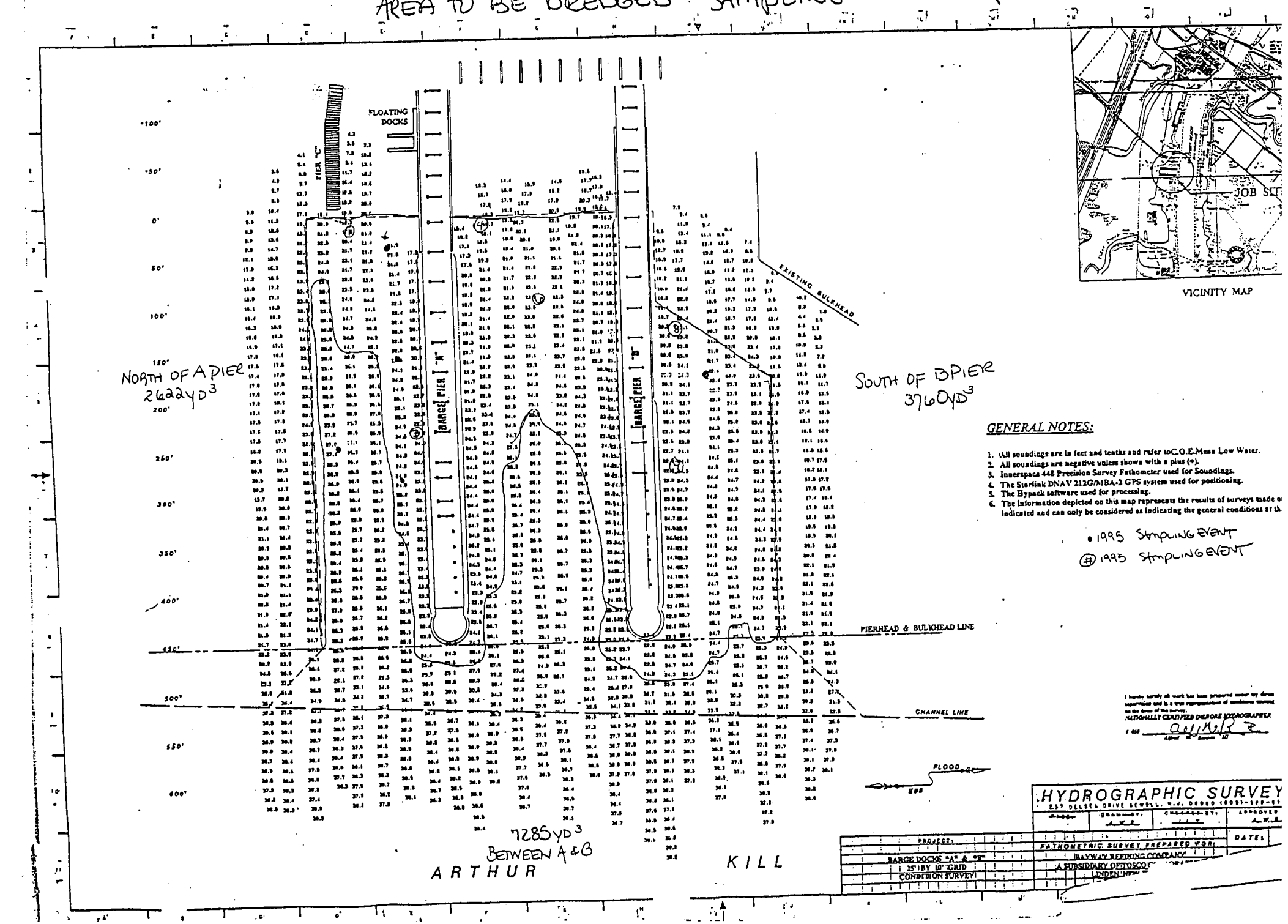
Steamer Docks 1/4/95 and 1/9/95			
Grainsize Analysis			
Sample No.	% Sand	% Silt	% Clay
	(>0.0625mm	(0.0625-	(<0.0039mm)
		0.0039mm)	
1	8.0	74.0	18.0
2	16.0	62.4	21.6
3	11.3	73.7	14.0
4	4.8	81.0	14.0
5	5.7	79.0	15.3
Average	9.2	74.0	16.6

Barge Piers, 11/1/95 & 11/3/95			
Grain Size Analysis			
Sample	% Sand	% Silt	% Clay
	(>0.0724mm	(0.0724-	(<0.0039mm)
		0.0039mm)	
A	19.8	40.89	39.33
B	10.84	44.16	45.00
Average	15.3	42.5	42.2

ATTACHMENT "C" [illegible]

AREA TO BE DREDGED & SAMPLING LOCATIONS

5/11



VICINITY MAP

GENERAL NOTES:

1. All soundings are in feet and tenths and refer to C.O.E. Mean Low Water.
2. All soundings are negative unless shown with a plus (+).
3. Innerspace 448 Precision Survey Fathometer used for Soundings.
4. The Starlink DNAV 212G/MBA-2 GPS system used for positioning.
5. The Hypack software used for processing.
6. The information depicted on this map represents the results of surveys made o
indicated and can only be considered as indicating the general conditions at th

• 1995 SAMPLING EVENT

1995 SAMPLING EVENT

I hereby certify all work has been prepared under my direct supervision and is a true representation of conditions existing on the date of this survey.
NATIONALLY CERTIFIED PHOTOGRAPHER

HYDROGRAPHIC SURVEY

237 DELSEA DRIVE SEWELL, N.J. 08080 (609)-589-6

Design	Drawn BY: A.W.B.	Checked BY:	Approved A.W.B.

PROJECT: BARGE DOCKS "A" & "B" 25' IBY 10' GRID CONDITION SURVEY

FATHOMETRIC SURVEY PREPARED FOR: BAYWAY REFINING COMPANY A SUBSIDIARY OF TOSCO LINDEN, NJ

DATE: