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Ser 1811WW/L2242
21 APR 1992

Ms. Virginia Lasky
Department of Toxic Substances Control
700 Heinz Ave., Suite 200
Berkeley, CA 94710

Subj: WELL DECOMMISSIONING REPORT, NAVAL AIR STATION ALAMEDA

Dear Ms. Lasky:

In response to your letter of March 16, 1992, we are forwarding enclosure (1) for your records and information. The addendum to the Well Decommissioning Report provides our assessment of the impacts of unlocated groundwater monitoring wells in the West Beach Landfill.

If you have any further questions regarding this matter, the point of contact is Mr. Wing Wong, Code 1811WW, (415) 244-2537.

Sincerely,

Original signed by:

LOUISE T. LEW
Head, Installation Restoration Section

Encl:
(1) Addendum 1, Well Decommissioning Report

Copy to:
California Regional Water Quality Control Board (Attn: Janette Baxter)
US Environmental Protection Agency (Attn: Julie Anderson)
Alameda County Flood Control and Water Conservation District (Attn: Craig Mayfield)
San Francisco County Bureau of Environmental Health Services (Attn: Melvin Seid)
NAS Alameda (Attn: Randy Cate)
Planning Research Corporation (Attn: Steve MacNeill) w/o encl.
James M. Montgomery Consulting Engineers (Attn: Steve Newton) w/o encl.

Blind copy to:
1811, 1811WW, 1811EC, Admin Record (3 copies)
WRITER: W. Wong/1181WW/X2537
TYPIST; M. Marshall, 17 Apr 92, ltr-dtsc/L2242
FILE: Alameda/NAS

599

WELL DECOMMISSIONING REPORT 1943-1956 DISPOSAL AREA AND WEST BEACH LANDFILL

DATED 23 JANUARY 1992

IS ENTERED IN THE DATABASE AND FILED AT ADMINISTRATIVE RECORD NO. **N00236.000582**

ADDENDUM 1

WELL DECOMMISSIONING REPORT
1943 TO 1956 DISPOSAL AREA AND WEST BEACH LANDFILL

This addendum addresses concerns expressed by the California Department of Toxic Substances Control (DTSC) regarding the impacts of unlocated monitoring wells remaining in the West Beach Landfill on the "lower water-bearing zone" at Naval Air Station Alameda, Alameda, California (NAS Alameda). Table 1 presents a summary of the status of monitoring wells located at the West Beach Landfill and at the 1943 to 1956 Disposal Area.

Potential Impacts of Unlocated Monitoring Wells. The impacts of remaining unlocated monitoring wells on the lower water-bearing zone depend upon well construction details (well depth, screen length, and filter pack interval), and the stratigraphy penetrated by each well.

Complete well construction details are not available for the wells that could not be located. Based on available information, total depths of borings drilled in the West Beach Landfill by Harding Lawson Associates (HLA) range from 11 to 68 feet below ground surface. Due to the inability to link borehole and monitoring well numbers, it is not possible to identify available well completion data from HLA. No information (location, construction details) is available regarding the four remaining wells installed by an unspecified contractor.

The stratigraphy underlying the West Beach Landfill, as currently understood, consists of an upper water-bearing zone (fill and upper Bay Mud sand); the Bay Mud aquitard; and the lower water-bearing zone (the Merritt Sand is physically continuous with both the upper and lower Bay Mud sand). Figures 2, 4 and 5 from the Well Decommissioning Plan (attached) present the current interpretation of the site stratigraphy. The upper water-bearing zone or aquifer is made up of the landfill materials and upper Bay Mud sand which range in thickness from approximately 25 to 40 feet. The lower water-bearing unit or aquifer is made up of the lower Bay Mud sands which are physically continuous with the Merritt Sand (approximately 35 to 65 feet in thickness).

A discontinuous clay aquitard, the Bay Mud aquitard (0 to 50 feet in thickness), separates the upper and lower water-bearing zones in the western end of the landfill. The Bay Mud aquitard is deposited in a channel incised through the Merritt Sand. The underlying lower Bay Mud sands are physically continuous with the Merritt Sand. The Bay Mud sands overlying the Bay Mud aquitard lap onto the Merritt Sand where the Bay Mud aquitard is absent. The upper Bay Mud aquitard is interpreted to

TABLE 1
STATUS OF MONITORING WELLS AT
WEST BEACH LANDFILL AND
1943-1956 DISPOSAL AREA
(Sheet 1 of 2)

1943 - 1956 Disposal Area

Monitoring Well No.	Date Installed	Firm	Total Well Depth (ft)	Complete Well Construction Details Available Yes/No	Located By PRC In 1991 Yes/No	Abandoned By PRC In 1991 Yes/No	Potential That Well Still Remains Yes/No
WA-1	10/84	Wahler and Associates	25	YES	YES	YES	NO
WA-2	10/84	Wahler and Associates	18	YES	YES	YES	NO
WA-3	10/84	Wahler and Associates	21	YES	YES	YES	NO
WA-4	10/84	Wahler and Associates	29	YES	YES	YES	NO
WA-5	10/84	Wahler and Associates	24	YES	YES	YES	NO

West Beach Landfill

Monitoring Well No.	Date Installed	Firm	Total Well Depth (ft)	Complete Well Construction Details Available Yes/No	Located By PRC In 1991 Yes/No	Abandoned By PRC In 1991 Yes/No	Potential That Well Still Remains Yes/No
20GW	10/77	Harding Lawson	11	YES	YES	YES	NO
26	NA	Not Available	15	NO	YES	YES	NO
27	NA	Not Available	10	NO	YES	YES	NO
28	NA	Not Available	7	NO	YES	YES	NO
29	NA	Not Available	9	NO	YES	YES	NO
30	NA	Not Available	8	NO	YES	YES	NO
31	NA	Not Available	8	NO	YES	YES	NO
33	NA	Not Available	10	NO	YES	YES	NO
34	NA	Not Available	15	NO	YES	YES	NO
35	NA	Not Available	15	NO	YES	YES	NO
36	NA	Not Available	10	NO	YES	YES	NO
37	NA	Not Available	14	NO	YES	YES	NO
39	NA	Not Available	18	NO	YES	YES	NO
1GW	10/76	Harding Lawson	25	NO	NO	NO	YES
2GW	10/76	Harding Lawson	47	NO	NO	NO	YES
3GW	10/76	Harding Lawson	37	NO	NO	NO	YES
4GW	10/76	Harding Lawson	29	NO	NO	NO	YES
5GW	10/76	Harding Lawson	29	NO	NO	NO	YES

TABLE 1
STATUS OF MONITORING WELLS AT
WEST BEACH LANDFILL AND
1943-1956 DISPOSAL AREA
(Sheet 2 of 2)

Monitoring Well No.	Date Installed	Firm	Total Well Depth (ft)	Complete Well Construction Details Available Yes/No	Located By PRC In 1991 Yes/No	Abandoned By PRC In 1991 Yes/No	Potential That Well Still Remains Yes/No
6GW	10/76	Harding Lawson	68	NO	NO	NO	YES
7GW	10/76	Harding Lawson	27	NO	NO	NO	YES
8GW	10/76	Harding Lawson	25	NO	NO	NO	YES
9GW	10/76	Harding Lawson	25	NO	NO	NO	YES
10GW	10/76	Harding Lawson	26	NO	NO	NO	YES
11GW	10/76	Harding Lawson	24	NO	NO	NO	YES
12GW	10/76	Harding Lawson	25	NO	NO	NO	YES
13GW	11/76	Harding Lawson	11	NO	NO	NO	YES
17GW	3/77	Harding Lawson	30	NO	NO	NO	YES
18GW	3/77	Harding Lawson	28	NO	NO	NO	YES
19GW	3/77	Harding Lawson	25	NO	NO	NO	YES
20GW	7/83	Harding Lawson	32	NO	NO	NO	YES
21GW	7/83	Harding Lawson	31	NO	NO	NO	YES
22GW	7/83	Harding Lawson	42	NO	NO	NO	YES
23GW	7/83	Harding Lawson	37	NO	NO	NO	YES
24GW	7/83	Harding Lawson	42	NO	NO	NO	YES
25GW	7/83	Harding Lawson	35	NO	NO	NO	YES
(4) OTHER WELLS	NA	Not Available	NA	NO	NO	NO	YES

Notes:

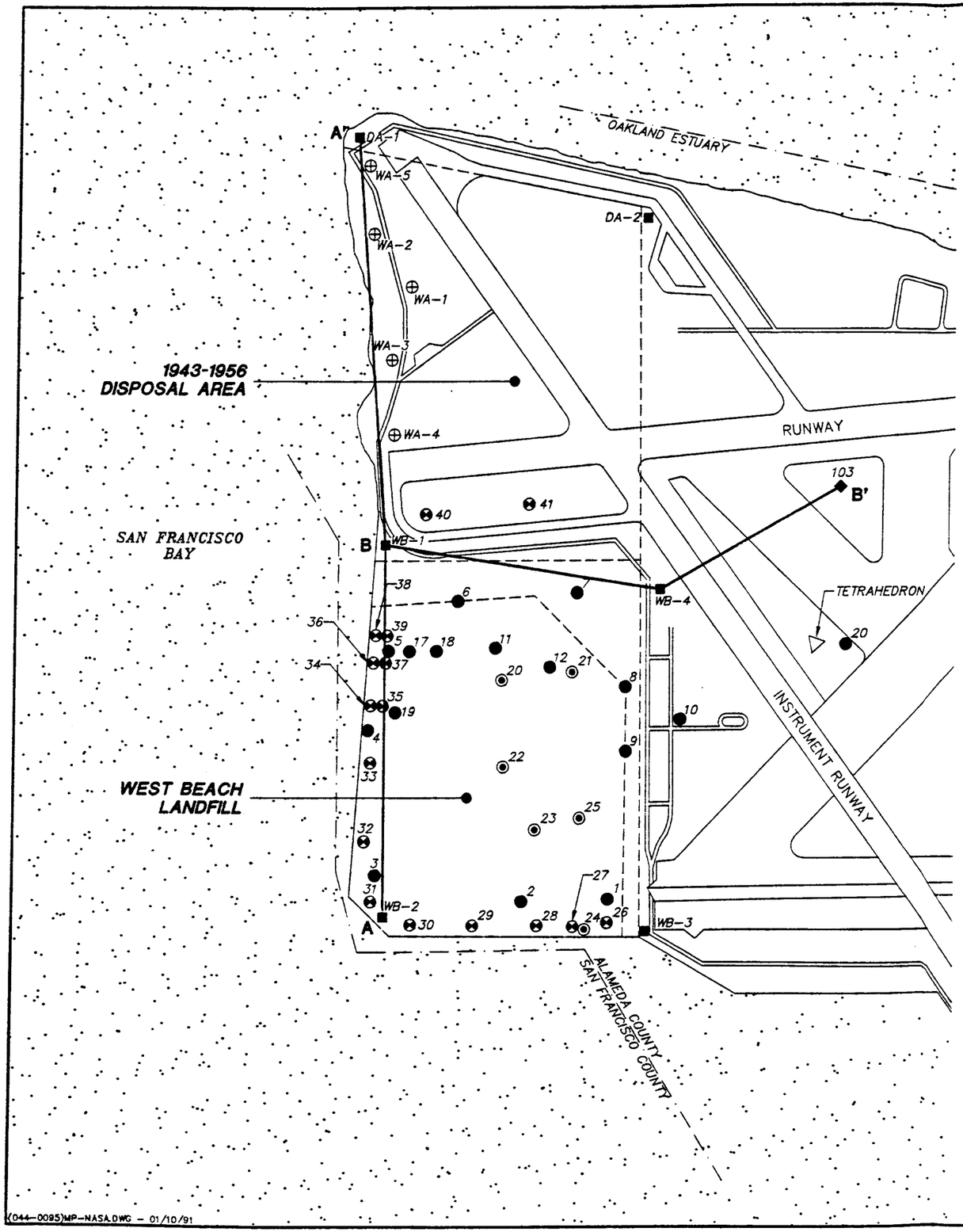
NA = Not Available

be missing under the east half of the landfill area. The Bay Mud aquitard is up to 50 feet thick along the west edge of the landfill.

In the east half of the landfill, wells could not perforate the aquitard since the aquitard is not present in this area (Figure 5). The maximum depth reported for a boring advanced by HLA is 68 feet and it would not have penetrated the full depth of the upper Bay Mud sand aquitard in the western portion of the landfill. Therefore, a well completed in this borehole would not penetrate the aquitard (Figure 4). Wells, if completed in the deeper HLA borings, may penetrate the Bay Mud aquitard and provide a conduit for contaminant migration if the borings are located in the central portion of the landfill. However, this impact is not expected to be significant compared to known vertical migration of contaminants within the landfill as determind by on-going work.

Potential contaminants migrating along wells that may extend through the Bay Mud aquitard beneath the landfill are likely to be detected by monitoring wells installed as part of the solid waste assessment test (SWAT) currently in progress at the landfill. Wells have been installed in the fill, in the Bay Mud sand above the Bay Mud aquitard, and beneath the Bay Mud aquitard in both the Merritt Sand and the physically continuous (with the Merritt Sand) upper and lower Bay Mud sand as part of the SWAT.

Conclusion. Up to 26 monitoring wells, of unknown condition, may still remain in the West Beach Landfill. Construction details necessary to fully assess potential impacts of the wells are not available. However, the current interpretation of the stratigraphy beneath the West Beach Landfill indicates only a slight chance that the wells may be facilitating contaminant migration. Contaminants migrating into the lower water-bearing zone (Merritt Sand physically continuous with Bay Mud sand below the Bay Mud aquitard) will likely be detected by the extensive monitoring network installed as part of the SWAT.



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LEGEND

⊕ INSTALLED BY WAHLER ASSOCIATES, 1985

● INSTALLED BY HARDING LAWSON, 1976, 1977

◉ INSTALLED BY HARDING LAWSON, 1983

⊖ NO INFORMATION AVAILABLE

BORINGS DRILLED FOR SWAT, 1989

■ DRILLED BY CANONIE ENVIRONMENTAL

◆ DRILLED BY J.M. MONTGOMERY

A-A' GEOLOGIC CROSS SECTION (SEE FIGURES 4 AND 5)

0 850' 1700' 2550' 3400'

APPROXIMATE SCALE

FIGURE 2

**MONITORING WELL LOCATIONS
1943-1956 DISPOSAL AREA AND
WEST BEACH LANDFILL
NAVAL AIR STATION
ALAMEDA, CALIFORNIA**

(044-0095)MP-NASA.DWG - 01/10/91

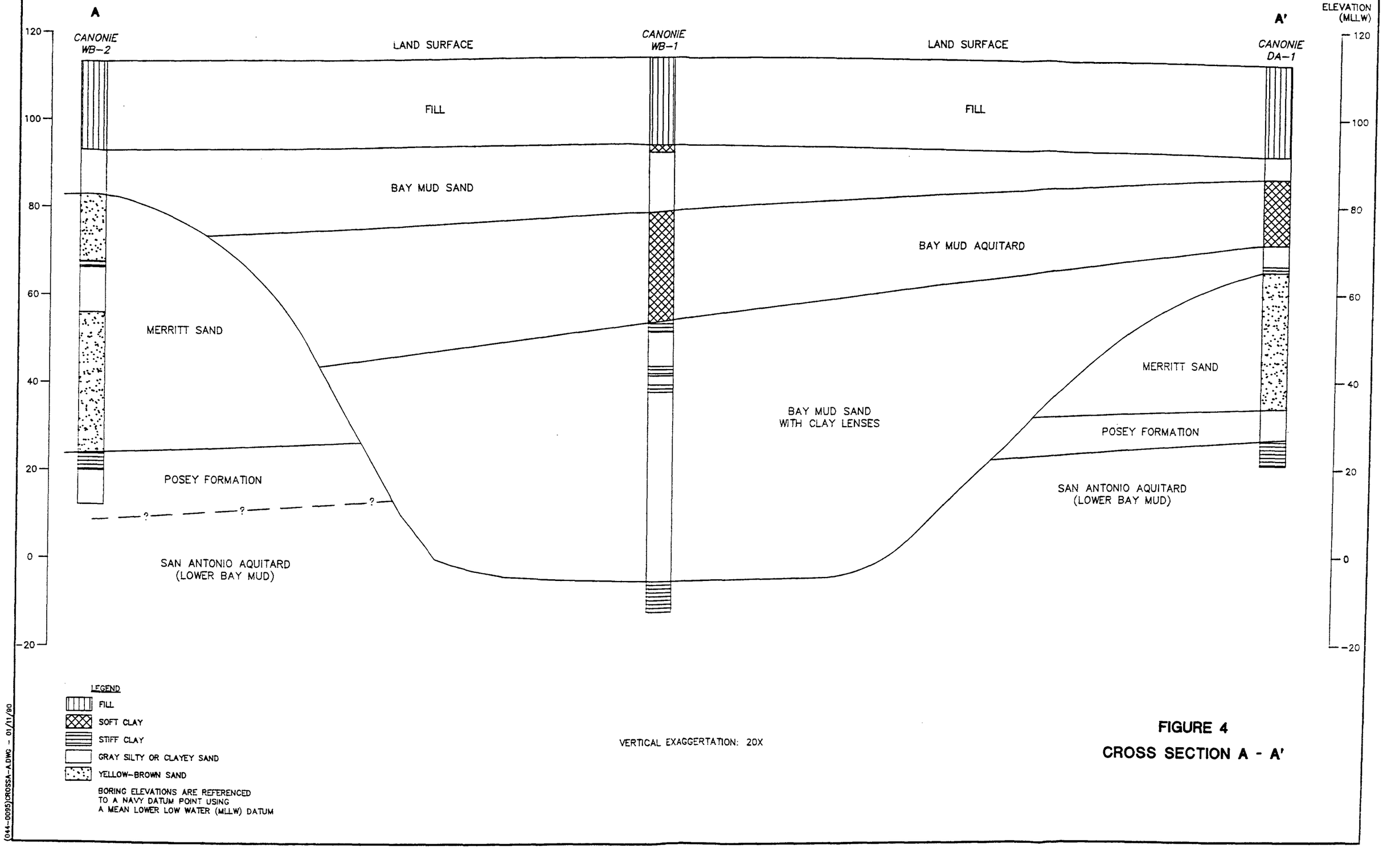

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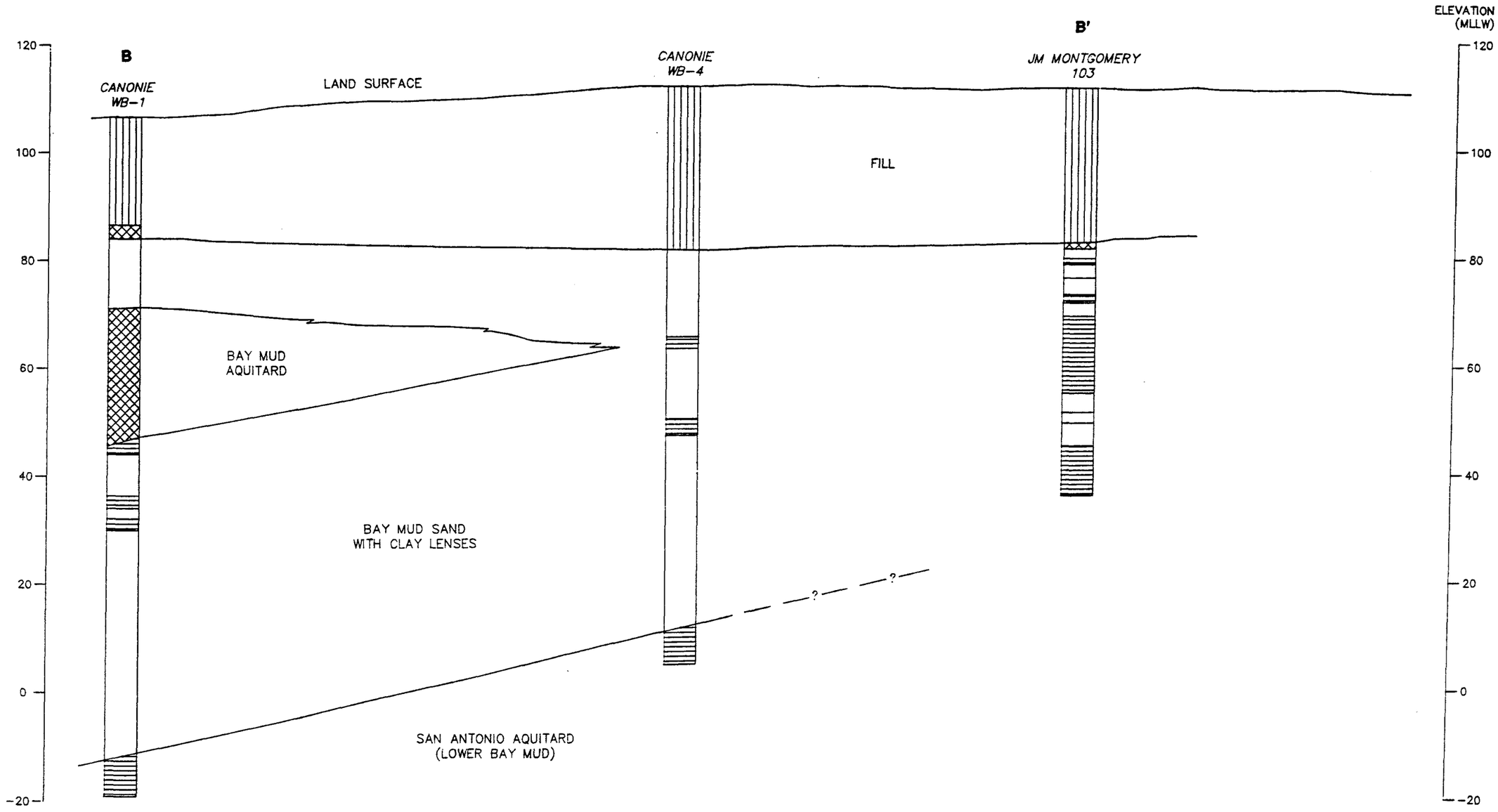
FIGURE 4

CROSS SECTION A - A'



LEGEND

- FILL
- SOFT CLAY
- STIFF CLAY
- GRAY SILTY OR CLAYEY SAND

BORING ELEVATIONS ARE REFERENCED TO A NAVY DATUM POINT USING A MEAN LOWER LOW WATER (MLLW) DATUM (ELEVATION FOR 103 WAS ASSUMED)

VERTICAL EXAGGERTATION: 20X

FIGURE 5

CROSS SECTION B - B'

(044-0095)CROSSB-B.DWG - 01/11/00