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October 16, 1992

Mr. Andy Piszkin
Southwest Naval Facilities Engineering Command
1220 Pacific Highway
San Diego, CA 92132-5190

Subject: Recommended Depth of Multipoint Monitoring Well No. 10

Dear Mr. Piszkin:

This letter provides recommendations of the Orange County Water District (OCWD) regarding the depth and screened intervals of the Navy's proposed multipoint monitoring well No. 10 near the intersection of Hearthstone and Irvine Center Drive (see attached map). The need to install one or more multi-depth wells downgradient of the TCE plume was discussed by OCWD and The Irvine Company in their responses to the Draft RI/FS Work Plan in November 1990. OCWD's understanding of the objectives of constructing well No. 10 are as follows:

1. Delineate the downgradient extent of the TCE plume.
2. Evaluate the potential for lateral and vertical migration of TCE west of Culver Drive.
3. Monitor the effectiveness of the Irvine Desalter Project in containing the TCE plume.

To fully achieve these objectives, OCWD believes the well should be constructed based on the following considerations:

1. The bottom of the aquifer system deepens from 500 feet at well ET-1 to over 1,000 feet at well TIC 113 on Culver Drive. Wells TIC 78 and TIC 113, showing increasing TCE concentrations of 0.6 to 1.3 ug/L, produce from aquifers at depths of approximately 300 to 1,100 feet below ground surface as shown on the attached geologic cross section.

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2. Wells along Culver Drive that pump from aquifers as deep as 1,100 feet bgs create the potential of drawing TCE-bearing groundwater further downward (below the deepest delineated TCE occurrence of 500 feet bgs at well MCAS-7). Therefore, presuming 500 feet is the maximum depth of TCE occurrence along Culver Drive is premature without supporting piezometric and water quality data which encompass the complete depth interval of concern.
3. Well MCAS-7, the most downgradient multi-depth monitoring well, is over one mile upgradient from the furthest known extent of the TCE plume. Hence, the vertical distribution of TCE within the aquifers near Culver Drive is unknown at present.
4. The Westbay monitoring equipment cables purchased by the Navy reportedly have a maximum depth capability of 1,000 feet.

Based on the above considerations, OCWD recommends the pilot borehole for well No. 10 be drilled to a target depth of 1,000 feet bgs. If, at a depth of 1,000 feet, the borehole log indicates a coarse-grained formation (aquifer), then the boring should be continued or terminated so as to construct a multipoint well capable of monitoring that bottommost aquifer zone. Otherwise, the well casing should be installed to screen the deepest "significant" aquifer, as determined from the borehole and geophysical logs. A well design with five to seven screened intervals would likely be sufficient to collect the depth-specific piezometric and water quality data needed to address the above objectives.

OCWD regrets that the specific objectives and construction design of this important well are being presented at such a late date. However, we believe constructing well No. 10 to approximately 1,000 feet (rather than the 500-foot deep well originally budgeted by the Navy) will meet the objectives outlined above and will avoid the cost of drilling another, deeper well at the same location in a second phase of the RI.

We appreciate the opportunity to present this recommendation and urge you to authorize the additional expenditures, which are well-justified in our opinion, to complete the well as described herein. Please call me at (714) 378-3260 if you have any questions.

Sincerely,

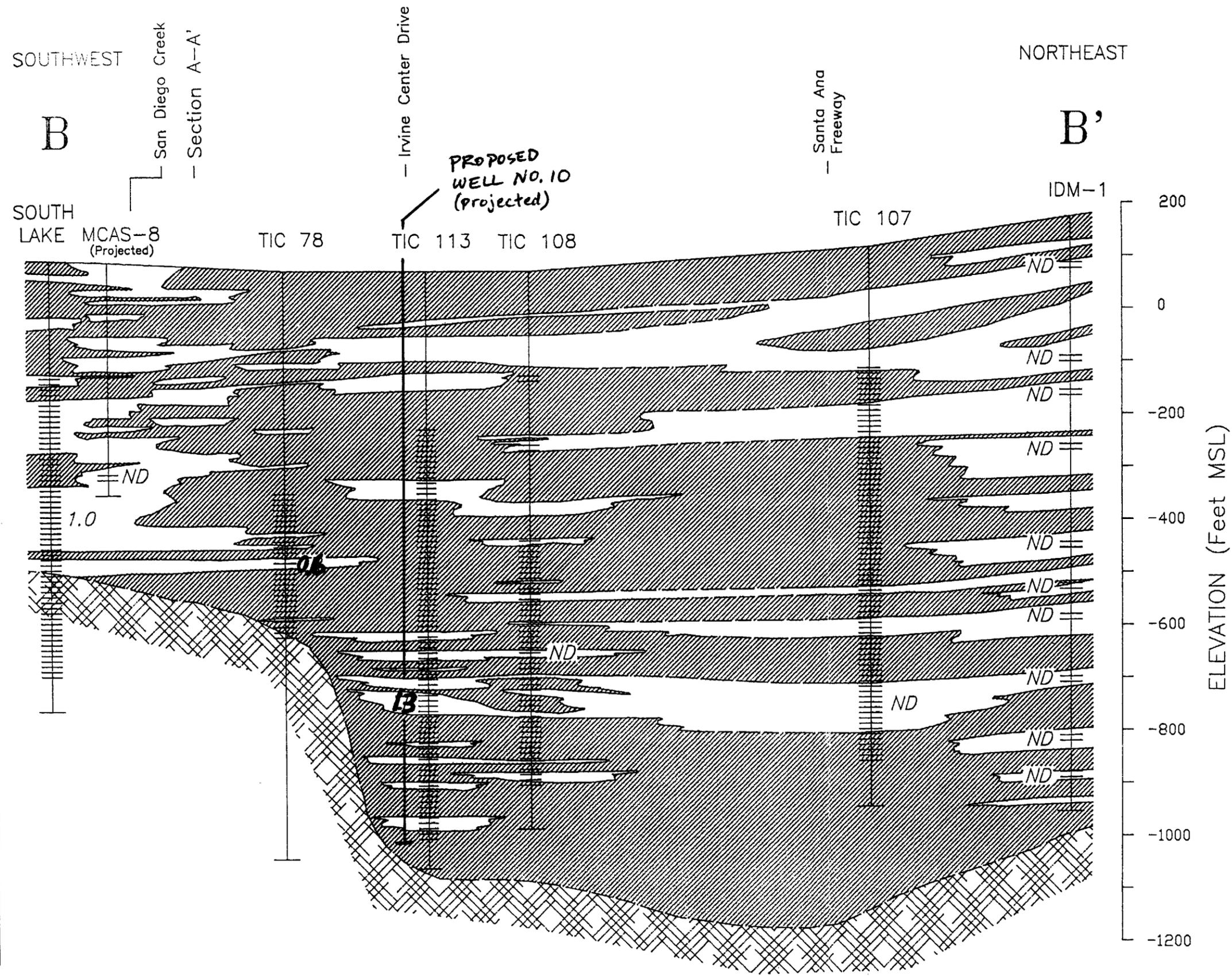


Roy L. Herndon
Project Hydrogeologist

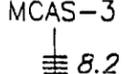
Attachments (2)

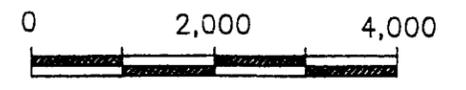
FIGURE 8

GEOLOGIC
CROSS SECTION B-B'



EXPLANATION

-  Unconsolidated High-Permeability Sediments
-  Unconsolidated Low-Permeability Sediments
-  Semiconsolidated Low-Permeability Sediments
-  Well with Screened Interval and TCE Concentration (µg/l)
- ND = Not Detected
- TR = Trace (< 0.5 µg/l)



Horizontal Scale (Feet)

CROSS SECTION INDEX MAP

