

5030
Ser 1142E/Alameda/NAS

4 APR 1986

California Regional Water Quality Control Board
San Francisco Bay Region
Attn: Ron Clawson
1111 Jackson Street, Room 5040
Oakland, CA 94607

Gentlemen:

Enclosed for your review is our work plan, enclosure (1), for accomplishing the characterization step of our Heavy Assessment and Control of Installation Pollutants (HACIP) Confirmation Study. Enclosure (1) is based upon our previous investigation, the verification study, which you were given an opportunity to review last year. It describes further investigation proposed to be accomplished in the characterization step to quantitatively assess the source, extent, and migration potential of contaminants and to develop design parameters for alternative remedial measures, if necessary.

Enclosure (2) is an amendment to enclosure (1) which specifies in greater detail our work plan for the West Beach Landfill, one of the sites to be investigated in the characterization step. Enclosures (1) and (2) have also been provided to Ms. Gloria Fulton of your staff who is interested specifically in the West Beach Landfill.

Enclosure (3) shows the results of additional testing performed on a groundwater sample from the CANS C-2 Area and a soil sample from the buildings 301/389 area. Based on the results of this and previous testing, we believe that no further investigation need be conducted at these two sites in the characterization step.

It is requested that written comments on the enclosed documents be provided to this Command as soon as possible. We are anxious to work with you to finalize our work plan and to get our characterization study under way. Following the receipt of your comments we would like to meet with your staff to discuss your concerns regarding our work plan.

Questions regarding this matter may be directed to Louise T. Lew at (415) 877-7497.

Sincerely,

ALEX E. DONG
HEAD, WEST CENTRAL ENVIRONMENTAL SECTION

SFRD
Ser 1142E/Alameda/MAS

4 APR 1986

Encl:

- (1) Draft Confirmation Study (Characterization Step)
Work Plan for Naval Air Station, Alameda,
California, February 1986
- (2) Dealer Associates Inc of March 27, 1986
- (3) Additional Test Results, Confirmation Study,
February 1986

Copy to: (w/o encls)
California Department of Health Services
MAS Alameda
Ralph Alameda
HEEBA

Blind copy to: (w/o encls)
1142E
09ADA.13

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N00236.000123
ALAMEDA POINT
SSIC NO. 5090.3

ENCLOSURE 1

DRAFT CONFIRMATION STUDY
CHARACTERIZATION STEP WORK PLAN

DATED 1 FEBRUARY 1986

IS ENTERED IN THE DATABASE AND FILED AT
ADMINISTRATIVE RECORD NO. **N00236.000196**

ENCLOSURE 2

UPDATE
DRAFT CONFIRMATION STUDY
CHARACTERIZATION STEP WORK PLAN

DATED 12 FEBRUARY 1986

IS ENTERED IN THE DATABASE AND FILED AT
ADMINISTRATIVE RECORD NO. **N00236.000136**



Geotechnical and Water Resources Engineering

March 27, 1986
Project NAV-112B

Mr. Alex Dong,
Head, West Central Environmental Section
Western Division
Naval Facilities Engineering Command
P.O. Box 727
San Bruno, California 94066

Attention: Ms. Louise Lew

Dear Mr. Dong and Ms. Lew:

Thank you for your letter of March 18, 1986, enclosing Regional Water Quality Control Board's letter of March 4, 1986 and the original order No. 82-35 (dated September 21, 1983) specifying Closure Requirements for the West Beach landfill.

After extensive discussion with Ms. Lew concerning available "as-built" drawings and the nature of the construction observation for implementation of an interim closure plan (designed and prepared by other consultants concurrent to Wahler Associates' Verification Step Study), we are able to provide preliminary qualified information, in response to items 1 and 2 of your letter. The response is based upon an additional site survey performed for you by a Wahler Associates' hydrogeologist and Ms. Louise Lew. At this time, however, we cannot address all of the Board's concerns as expressed in their closure order No. 83-35, since that document has addressed issues of closure beyond the scope of our Confirmation Study Verification Step or Work Plan preparation for Confirmation Study Characterization Step. In the following, we have explained why our present recommendations are contingent upon further site verification. We believe, however, that our recommendations will provide a sound basis for discussion with the RWQCB and

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enable the Navy to proceed to the next step, which would involve a more specified work plan for the West Beach landfill, in view of the recent information and developments.

Two issues are discussed below: the basis for assessment of adequacy of the 2-foot wide slurry wall on the west side of the landfill, and the number of water quality monitoring wells to be installed at other locations around the landfill.

The substrata at the Alameda West Beach Landfill site are heterogeneous and unisotropic. To assess the efficiency of the slurry wall in impeding contaminated ground water flow into the bay, it is essential to assess the horizontal and vertical permeabilities of all the landfill substrata adjacent to the slurry wall. Examination of records do not show that permeability tests (in-situ or otherwise) have been performed on any one of the site's strata or the slurry wall material whose permeability would vary according to the bentonite-clay mix design. It should be noted that a 10,000-fold variation in permeability magnitude is possible between the debris stratum and the Bay Mud stratum. Transmissivities and average permeabilities can be determined from slug tests and pumping tests in appropriately designed wells. Permeability tests can also be performed for soil samples during construction of new wells or piezometers.

The slurry wall was apparently designed to penetrate the full depth of the garbage-debris and underlying hydraulic sandfill (see sheet C7 Alameda Project P183). The slurry wall was also designed to penetrate the Bay Mud by 2 feet and thus be keyed into the Bay Mud. The job specification documents projected that the slurry wall depth would vary between 29 feet at Station 0+00 to 19 feet at Station 8+25. The variation in depth is probably not linear (see Section BB on sheet C2 and C7 of P183 which is the nearest available section giving, approximately, the substrata along the wall).

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Given in the absence of "as-built" drawings giving details of the monitoring well installations, in order to make use of these existing wells adjacent to the slurry wall and along the western and southern border of the landfill, the following steps will have to be taken:

1. Locate each well.
2. Measure existing water depth and well depth.
3. Develop and clean each well.
4. Measure well depth again.
5. Find screened section within well using downhole techniques.
6. Through logging or other techniques, reconstruct soil substrata delineating at least depth of garbage and penetration of the well into Bay Mud, if any.
7. Perform pumping tests or slug tests to determine transmissivities for appropriately designed wells, if any.
8. For the purpose of potentiometric surface measurement, install piezometer bundles in existing 3-inch wells.
9. For the purpose of water quality measurements, position the screened section of wells within the garbage and debris substrata.

Note: It is possible that a more economical investigation will result by installing new monitoring wells and piezometers altogether.

Because of the lack of construction observation records, it is not possible to specify the work plan in more detail prior to further site investigation; however, the following design criteria can be given.

1. The piezometric surfaces in each stratum will be determined on the landfill and the Bay side of the slurry wall. Piezometer depths are anticipated to be at 10, 15, 20, 25, 30-foot depths on the landfill side and 10, 15, 20, 30-foot depths on the Bay side. Piezometers will

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be placed 5 to 10 feet away from the wall. Piezometer nests (bundles) will be placed at 100-foot intervals, commencing at Station 00+00 and up to Station 8+00. Thus, at least 16 piezometer bundles will be installed.

2. It is hoped that existing 3-inch monitoring wells will be adequate for pumping tests and slug tests. If not, at least 6 wells will be installed according to the stratigraphy encountered during the piezometer installations. Existing or additional wells will be used for water quality monitoring.

MONITORING WELLS

Of the twelve 2-inch diameter wells proposed in Wahler's work plan, all wells will be drilled to be keyed in to the Bay mud stratum at a depth of 25 to 30 feet, depending on the location. Seals will be placed to the top of the Bay mud. Screen will be placed in the upper hydraulic sand stratum or debris stratum, depending on the site conditions encountered. The well locations will be similar to the existing 3 wells shown on the P183 drawing, Figure 4, in the Confirmation Study Work Plan for the eight wells on the western and southern sides of the landfill. For each location, if the existing well can be made functional (please note previous preparation procedures), a new well will not be required.

We understand that the Board will designate the compliance points, should these be at the interior of the landfill, along the line indicated in the attached Figure 4; in addition, five 2-inch ϕ monitoring wells will be installed at the locations adjacent to the compliance points as shown. The depth and screen design for these wells will also follow the design criteria stated above.

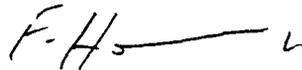
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The sampling parameters required for analysis (item L, page 5, Wahler's Confirmation Study Work Plan) will be expanded to include the Board's usual parameters required in landfill closures, including chloride, color, conductivity, total organic carbon total dissolved solids, nitrate nitrogen, Kjedadahl nitrogen, and pH.

If you have any questions, please contact us.

Sincerely,

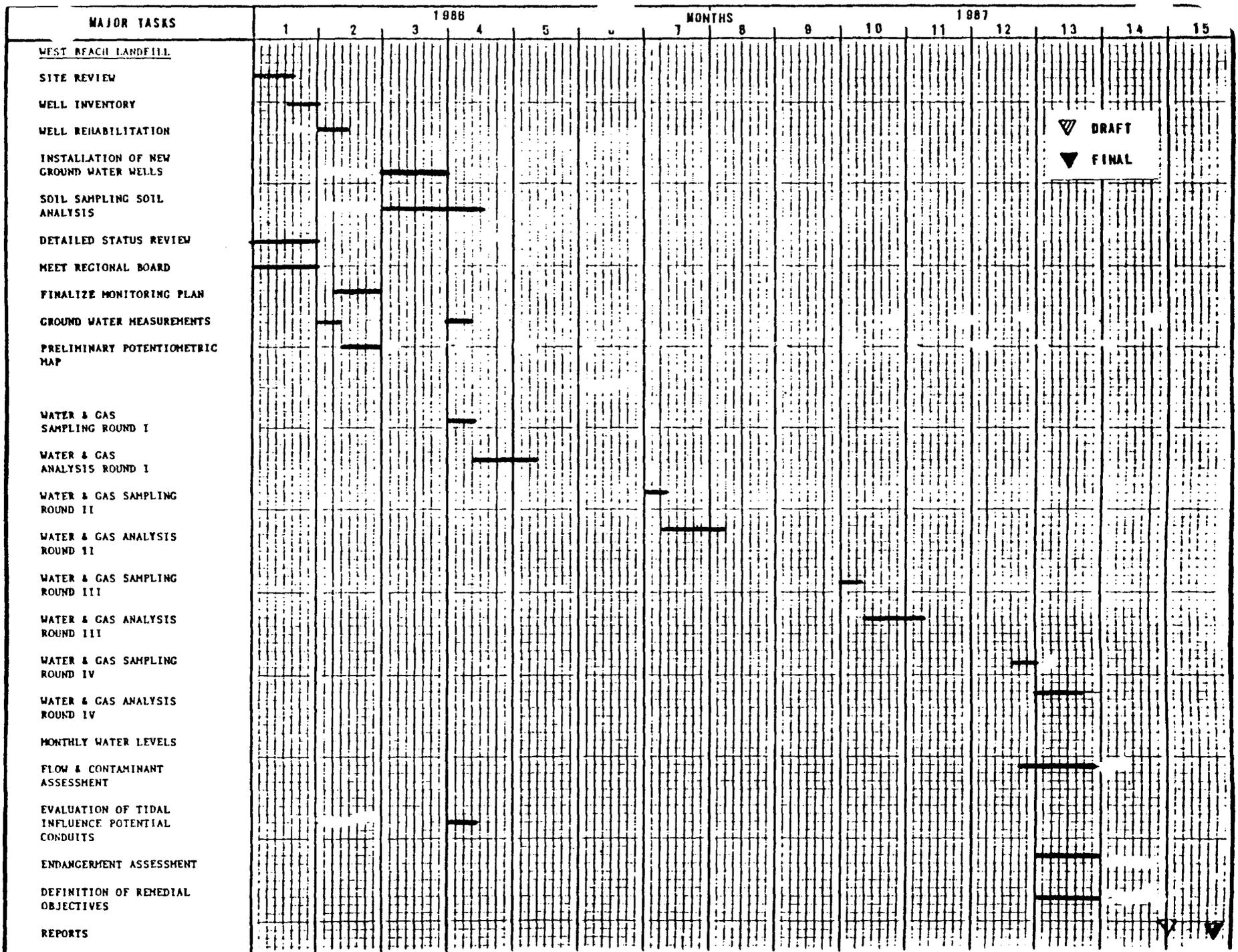
WAHLER ASSOCIATES



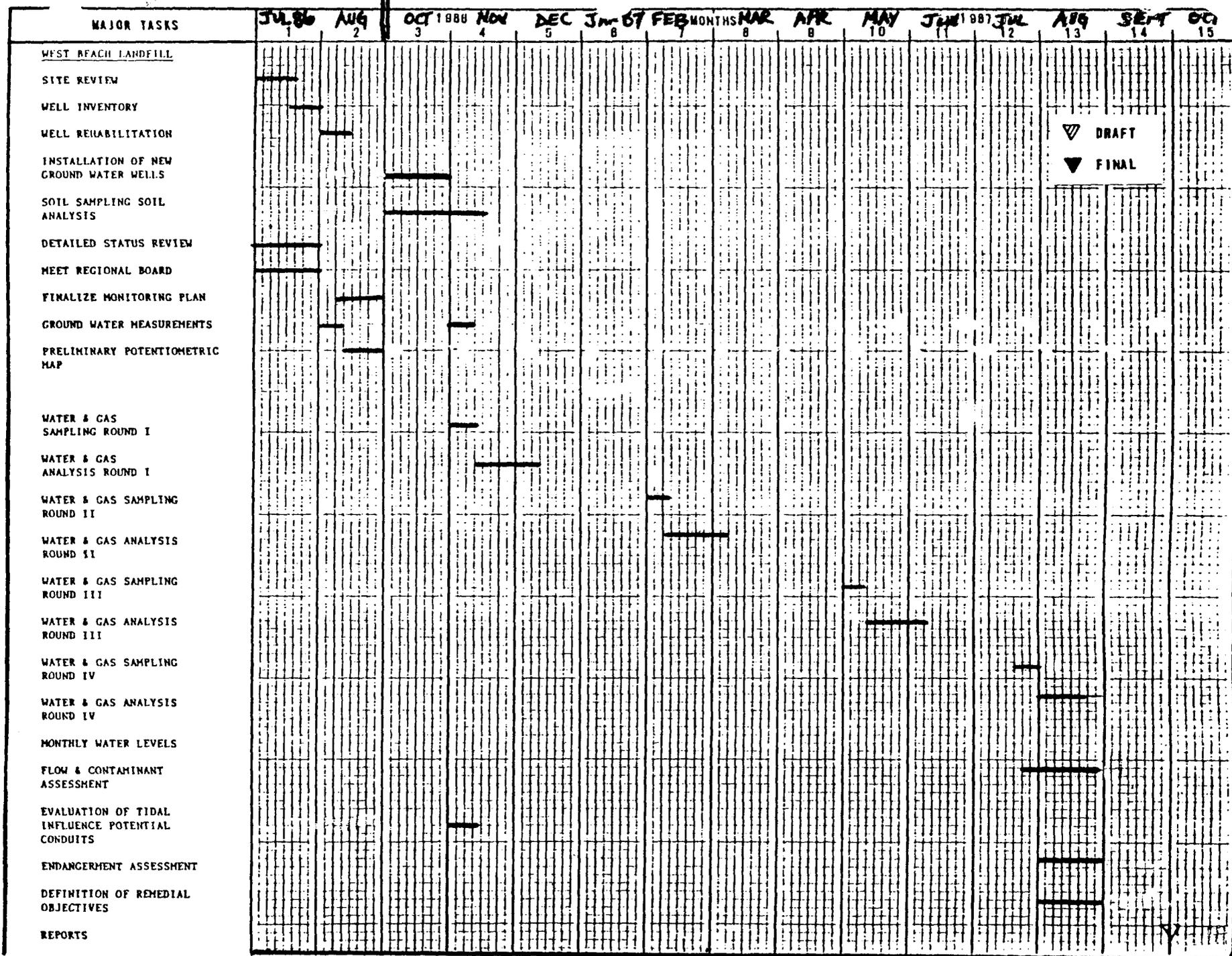
F. Homayounfar, Ph.D.
Principal Engineer

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