University of Hawaii at Manoa

Hawaii Natural Energy Institute
Holmes Hall 246 • 2540 Dole Street • Honolulu, Hawaii 96822

FAX TRANSMITTAL

To: _____Manabu Tagomori_____

_____DLNR_____

FAX: _____Hand Delivered_____

From:_____Harry J Olson_____

Date:_____22 April 1994_____

Pages:___6__to follow this cover sheet.

Attached is a DRAFT copy of a proposed plan to Plug and Abandon the Scientific Observation Holes (SOH) in the event that the transfer of the SOHs from the University of Hawaii and DBEDT to DLNR is not concluded. This plan is for your information and does not require action at this time. However, I would appreciate it if you would have your staff review the document and pass on to me any editorial suggestions and comments.

Sincerely,

Harry J Olson

Look Laboratory, 811 Olomehani Street, Honolulu, Hawaii 96813
Phone: 808-522-5620, FAX: 808-522-5618

c/soh/FSOHP&A

University of Hawaii at Manoa

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22 April 1994

Mr. Keith W. Ahue, Chairperson
Department of Land and Natural Resources
P.O. Box 621
Honolulu, Hawaii 96809

DRAFT

Subject: Proposed Plan to Plug and Abandon SOH-1, SOH-2, and SOH-4

Pursuant to Title 13, DLNR; Subtitle 7, Water and Land Development; Chapter 183, Rules on Leasing and Drilling of Geothermal Resources; Subchapter 11, Sections 13-183-81 through 83; the Hawaii Natural Energy Institute (HNEI) of the University of Hawaii at Manoa hereby submits plans to abandon Scientific Observation Holes 1, 2, and 4 (SOH-1, SOH-2, and SOH-4).

A check in the amount of $100.00, as required for the filing fee, is attached.

If your staff has any questions or would require additional information, please have them contact me at my office at Look Laboratory or by phone at 522-5620.

Sincerely,

Harry J Olson
Scientific Observation Hole Project
Principal Investigator

cc: J. Lewin (DOH)
M. Tagomori, (DLNR)
P. Takahashi (HNEI)
D. Nakano (DBEDT)

SOH Plug and Abandonment Program

April 20, 1994

1. Mobilize, move in, and rig up a suitable workover drilling rig.

2. Install and test BOPE above the SOH master valve.

   A. Notify DLNR of time of BOPE test so that test can be witnessed.

3. Run in hole with BQ or other slim tubing and clean out hole to bottom.

4. Cement hole with a high temperature resistant admix of silica flour and retarders that is approved by DLNR to at least 100 feet above the top of the perforated section of the NQ tubing. NQ tubing is perforated to bottom of surface casing or intermediate casing in all SOHs.

   A. Tag cement after it sets. DLNR will be notified prior to any cementing or plugging activity so that the activity can be witnessed by DLNR.

5. Cut and pull remaining NQ tubing and uncemented intermediate casing out of the hole.

6. Fill the hole with good quality, heavy drilling fluid that is approved by DLNR to at least 50 feet below the surface casing.

7. Insert plug at least 50 feet below the surface casing, and cement hole with a high temperature resistant admix of silica flour and retarders, or by a mixture of neat cement, if applicable that is approved by DLNR, to at least 50 feet above the bottom of the surface casing.

8. Tag cement after it sets.

9. Fill hole with good quality, heavy drilling fluid to the surface.

10. Insert plug at least 56 feet below the surface, and cement hole to within 6 feet of the surface, filling all open annuli solid with cement to the surface with neat cement or ready mix concrete.

11. Rig down, and move to the next SOH. Rig down and demobilize rig at the completion of the third SOH.

12. Cut off casing at a depth of six feet below surface and weld a plate on top of the casing.

13. Remove concrete drilling pad and restore surface location as near as practicable, to its original contour.

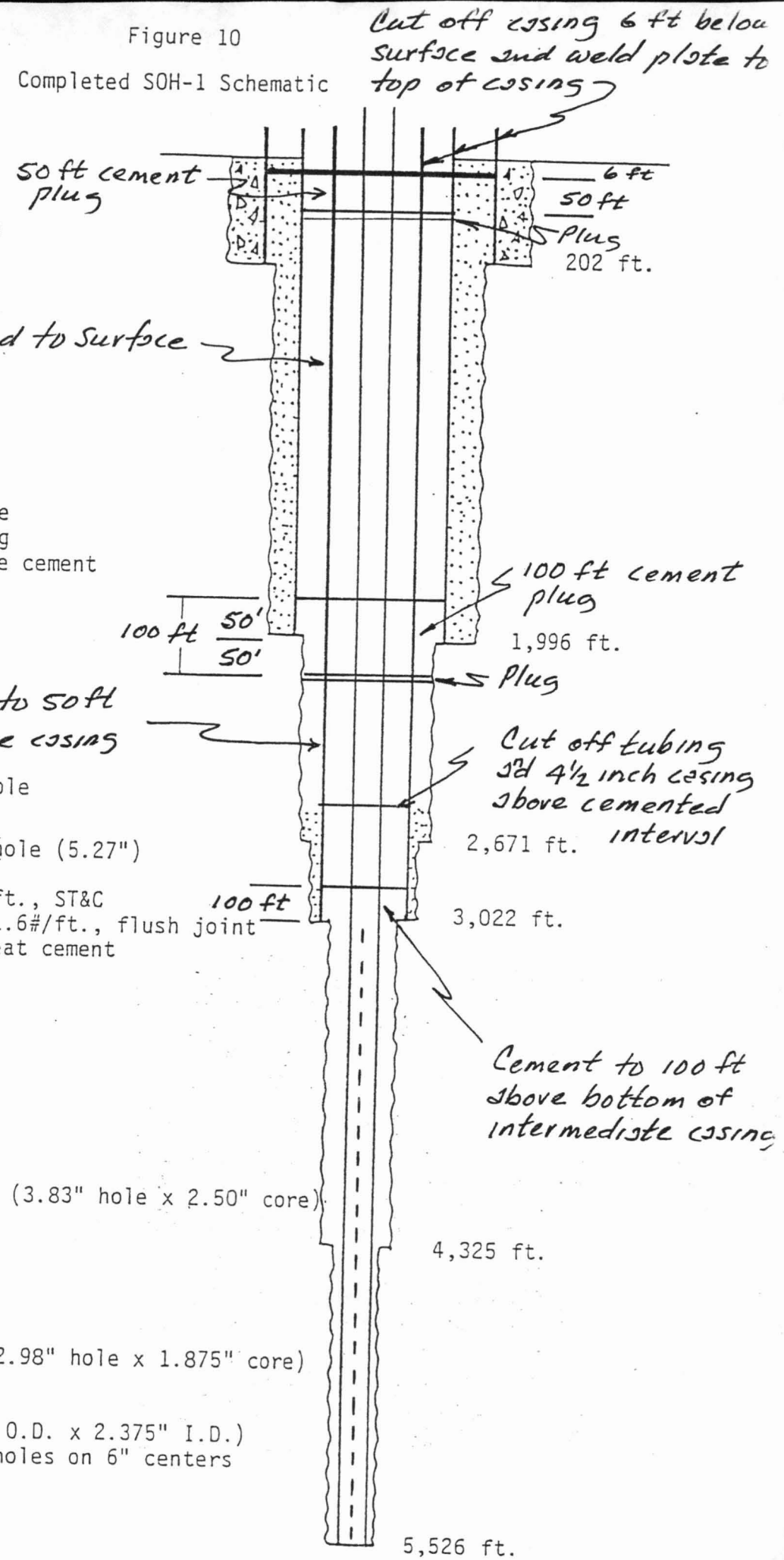
Completion hole schematics for the SOHs, illustrating the plugging and abandonment program are attached.

m/P&A

P & A Program
SOH-1

Figure 10

Completed SOH-1 Schematic



0 - 202 ft. - 12-1/4" hole
9-5/8" K-55, 40#/ft. casing
Cemented w/ redimix concrete

202 - 1,996 ft. - 8-1/2" hole
7" L-80, K-55, 35#/ft. casing
Cemented w/ silica/spherelite cement

1,996 - 2,671 ft. - 5-7/8" hole

2,671 - 3,022 ft. - CHD-134 hole (5.27")
4-1/2" casing 0-3,022 ft.
0-2,005 ft. J-55, 10.5 #/ft., ST&C
2,005 - 3,022 ft. J-55, 11.6#/ft., flush joint
Bottom 200 ft. cemented w/ neat cement

3,022 - 4,325 ft. - HQWL hole (3.83" hole x 2.50" core)

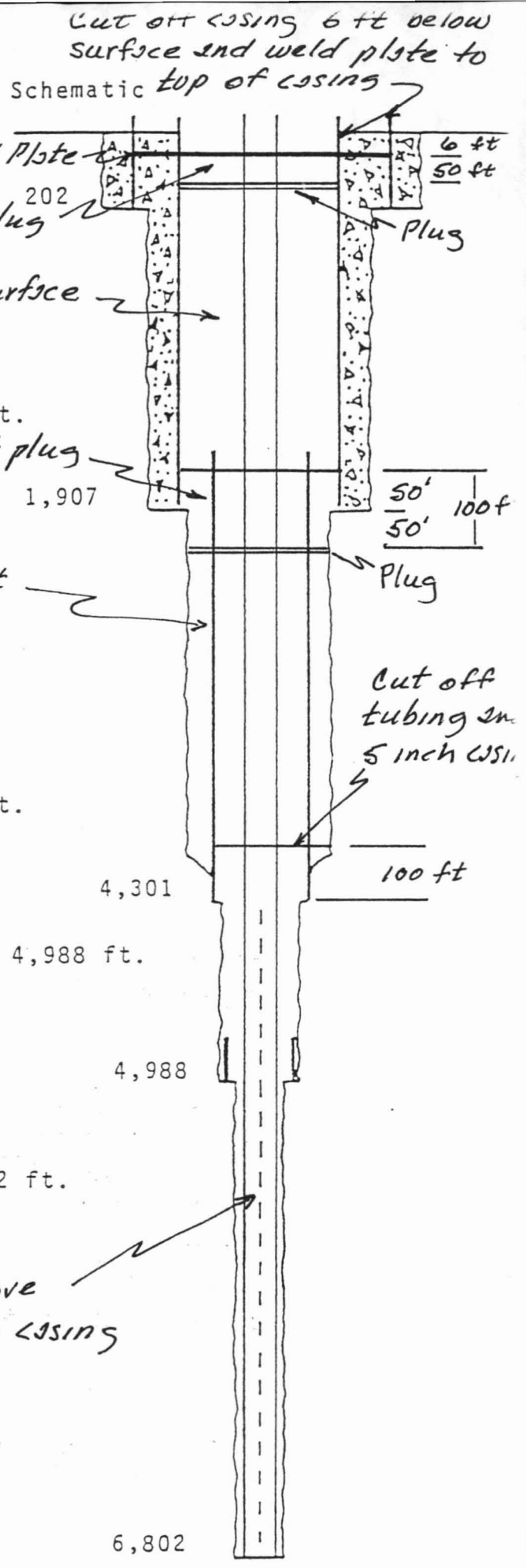
4,325 - 5,526 ft. - NQ hole (2.98" hole x 1.875" core)

Completion tubing - NQ (2.75" O.D. x 2.375" I.D.)
5.2#/ft., perforated w/ 1/2" holes on 6" centers

Not to scale

P&A Program
SOH-2

Figure 12
SOH-2 Completion Hole Schematic



0 - 202 Ft. 12-1/4" hole w/ 9-5/8" K-55, 40 lb/ft casing

202 - 1,907 Ft. 8-1/2" hole w/
7" J-55, 23 lb/ft casing set to 1,896 ft.
DV tool @ 1,580 ft.
Two cement baskets @ 1,596 ft.
Float collar @ 1,855 ft.

1,907 - 4,103 Ft. 5-7/8" hole w/
noncemented mixed casing string.
5" K-55, 23 lb/ft 3,721 - 4,103 ft.
4-1/2" J-55, 10.5 lb/ft 1,794 - 3,721 ft.

4,103 - 4,988 Ft. HQ (3.83") hole w/
noncemented HMQ (3-1/2") casing 4,762 - 4,988 ft.

4,988 - 6,802 Ft. NQ (2.98") hole

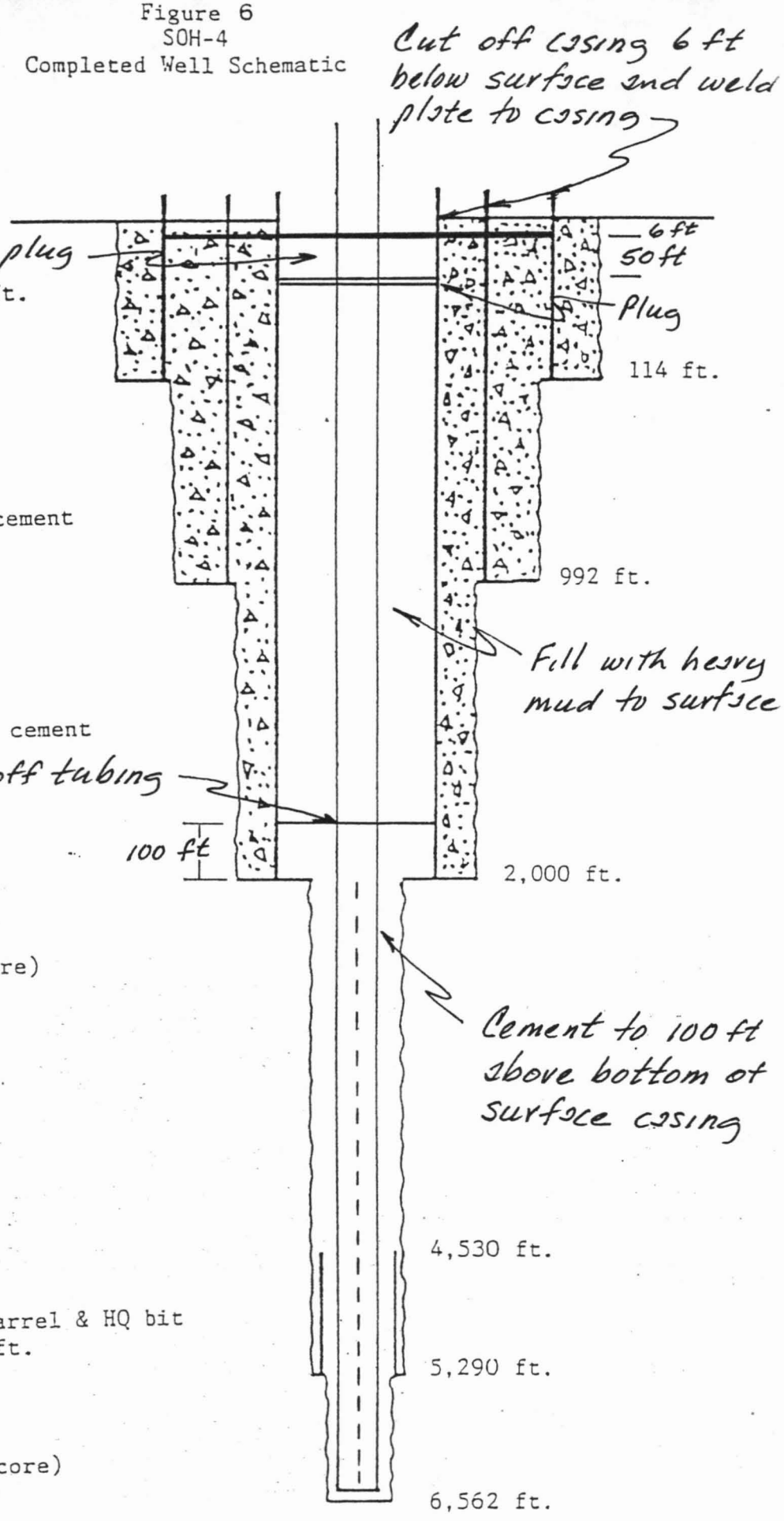
Completion Tubing: NQ (2-3/4") 0 - 6,802 ft.
Perforated w/ 3/16" x 2-3/4" slots from
4,127 - 6,800 ft.

Cement to 100 ft above bottom of intermediate casing

Not to scale

P&A Program
SOH-4

Figure 6
SOH-4
Completed Well Schematic



17.5" hole from surface - 114 ft.
13.375" K-55, 61#/ft casing
Cemented w/ redimix

12.25" hole from 114 - 992 ft.
9.625" K-55, 40#/ft casing
Cemented w/Class G high temp. cement

8.5" hole from 992 - 2,000 ft.
7" L-80, 35#/ft casing
Cemented w/ Class G high temp. cement

HQ hole (3.78" hole x 2.50" core)
2,000 - 5,290 ft.

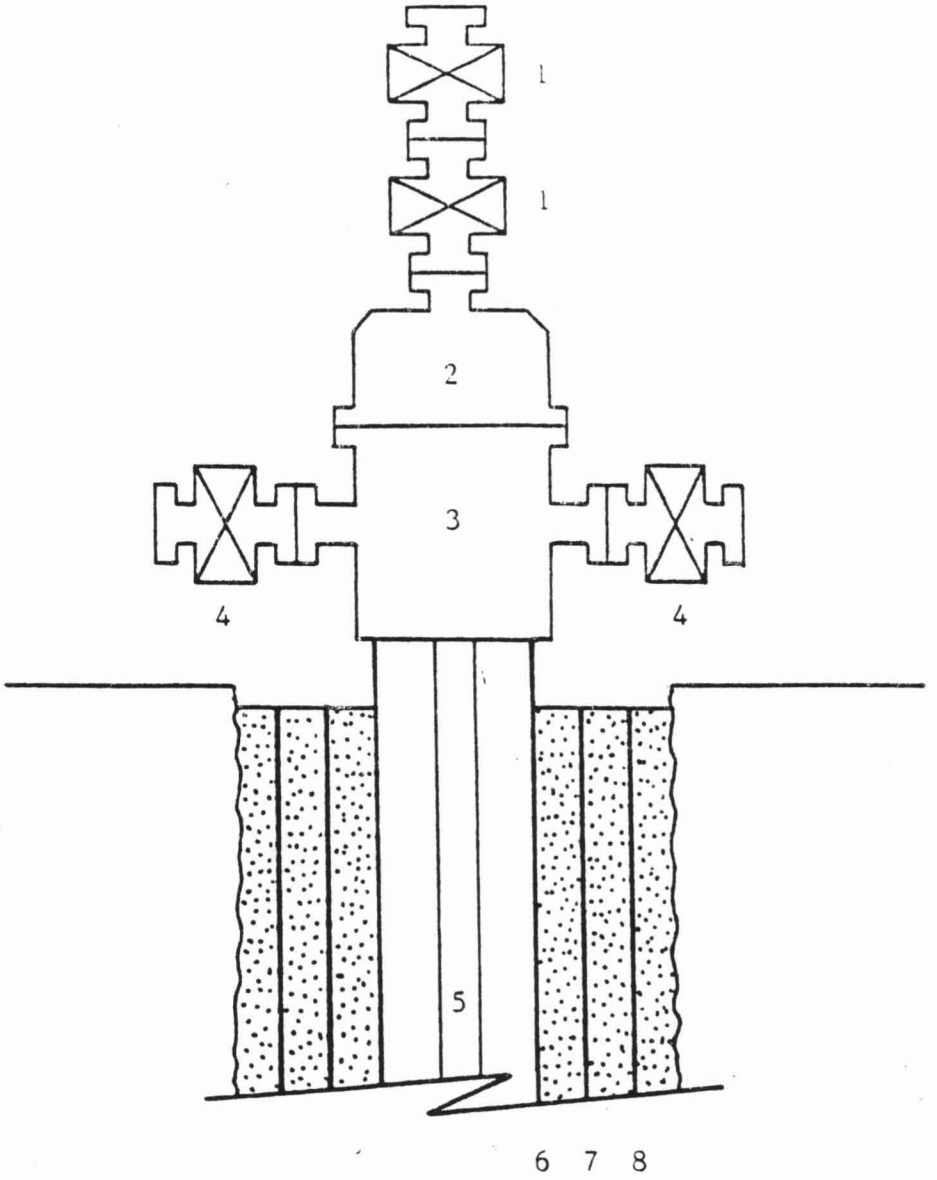
750 ft. HQ core rods, outer barrel & HQ bit left in hole. 4,530 - 5,290 ft.

NQ hole (2.98" hole x 1.875" core)
5,290 - 6,562 ft.

Not to scale

Figure 4

Completion wellhead



1. 3M 3 inch gate valves
2. Series 900 tubing head
3. Series 900 6.625 inch wellhead w/ 2 inch flanged outlets
4. 3M 2 inch gate valves
5. 2.75 inch completion tubing
6. 6.625 inch L-80 casing
7. 9.625 inch K-55 casing
8. 13.375 inch K-55 casing