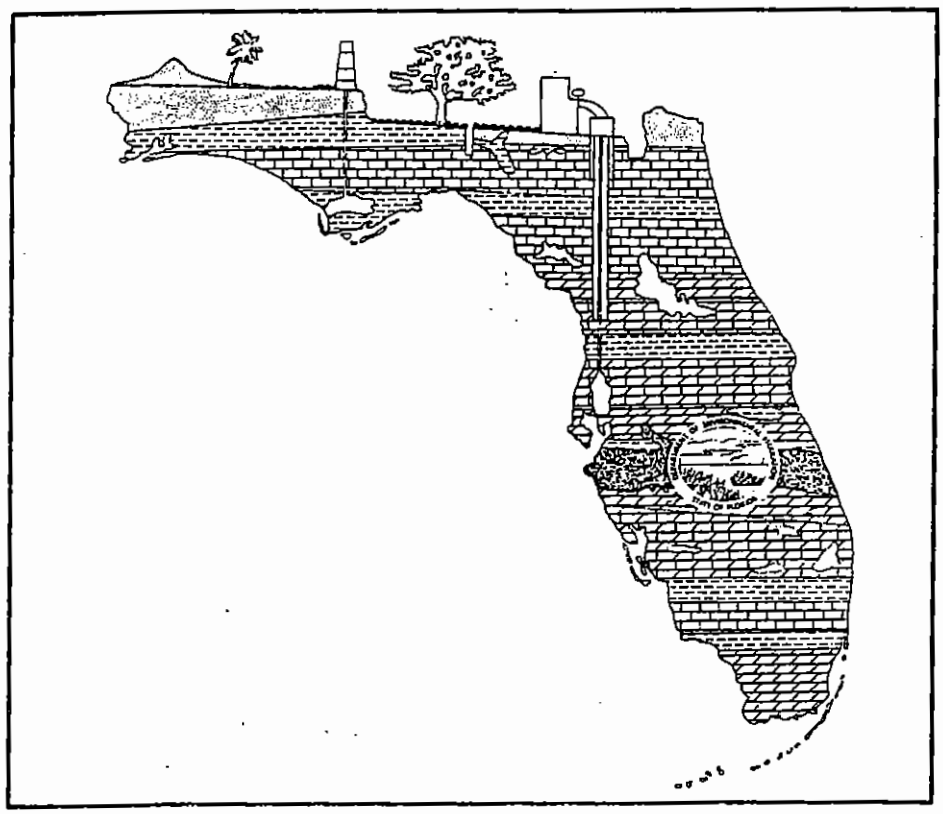
Q. O. Chemicals

Class I Injection Facility No. 34



Florida

Class I & Major Class V

Injection Well Data Sheets

Prepared by the Groundwater Section
Florida Department of Environmental Regulation

May 1985

Well Type: Class I Industrial
GMS ID #: 5050P06111
Last Update: 4/85

FACILITY NAME: Q.O. Chemicals

SITE LOCATION: Belle Glade, Palm Beach County
Sugar House Road, West

OWNER: Q.O. Chemicals

TYPE OF WASTE INJECTED: Furfural Plant Effluent. The waste injected into the sys is acidic & highly organic. The chemical oxygen demand (COD) normally ranges fron approx. 10,000 mg/l to 30,000 mg/l. The total organic carbon (TOC) level is typic slightly below this level. This similarity between the COD & TOC values indicates the waste is biologically degradable. The most prominent identifiable constituent acetic acid. The concentration of this component is normally 1-2 percent by volur

INJECTION WELLS NUMBER OF WELLS: 4, IW 1&2 plugged and abandoned

	WELL # IW-1	WELL # IW-2	WELL # IW-3	WELL # IW-DMW-1
LAT/LONG:	80°39'16"W	26°42'25"N	same as IW-1	same as IW
BEGUN OPERATION:	1966-1978	1966-1978	1977	1977
CONSTRUCTION COMPLETE:	plugged and abandoned	plugged and abandoned	1977	1978
NOMINAL CAPACITY:	approx. 1 mgd standby orig.		2.4 mgd	2.4 mgd
MAX. INJ. PRESSURE:	abandoned	abandoned	40 psi	?
CASING (DIA/DEPTH):	20" - 228' 16" - 684' 12" - 1496'	20" - 240' 16" - 848' 12" - 1490'	42" - 235' 32" - 790' 24" - 1613' 16" - 2910'	40" - 298 30" - 114 24" - 167 16" - 260

FACILITY NAME: QO Chemicals
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INJECTION WELLS

	WELL # IW-1	WELL # IW-2	WELL # IW-3	WELL # IW-4 = DMW -1
TUBING:	8" - 1915'	8" - 1494'	10 3/4" - 2890'	8 5/8" - 2995'
HOLE DEPTH TO:				
INJECTION INTERVAL:	1915-1945'	1494-1969'	2890-3156'	2995-3200'
INJECTION ZONE:	Floridan Aquifer	Floridan Aquifer	Boulder Zone	Boulder Zone
FORMATION(S):	Avon Park ?	Avon Park?	Oldsmar LS	Oldsmar LS
TDS mg/l (INITIAL):			34,000-38,000	34,000-38,000

FACILITY NAME: QO Chemicals
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MONITORING WELLS: NUMBER OF WELLS: 2 - 1 multihorizon, 1 on-site shallow

	WELL # DMW #1	WELL # DMW #1	WELL # DMW #1	WELL # SMW #
LAT/LONG:				
TYPE:	multihorizon (shallow)	multihorizon (intermediate)	multihorizon (deep)	satellite
DEPTH MONITORED:	1145-1480'	2240-2281'	2995-3200'	1136-1388'
AQUIFER MONITORED:	upper Floridan	lower Floridan	Boulder Zone Floridan	upper Floridan
TDS mg/l (INITIAL):				
PARAMETERS:	*	*	*	*

*Flow, pressure, acetate ion, Cr, SO_4^{2-}, COD, TOC, pH.

AREA OF REVIEW:
NOTES: DMW #1 and IW-4 are the same well. Injection on an emergency basis is per through the deep monitor well with DER approval.

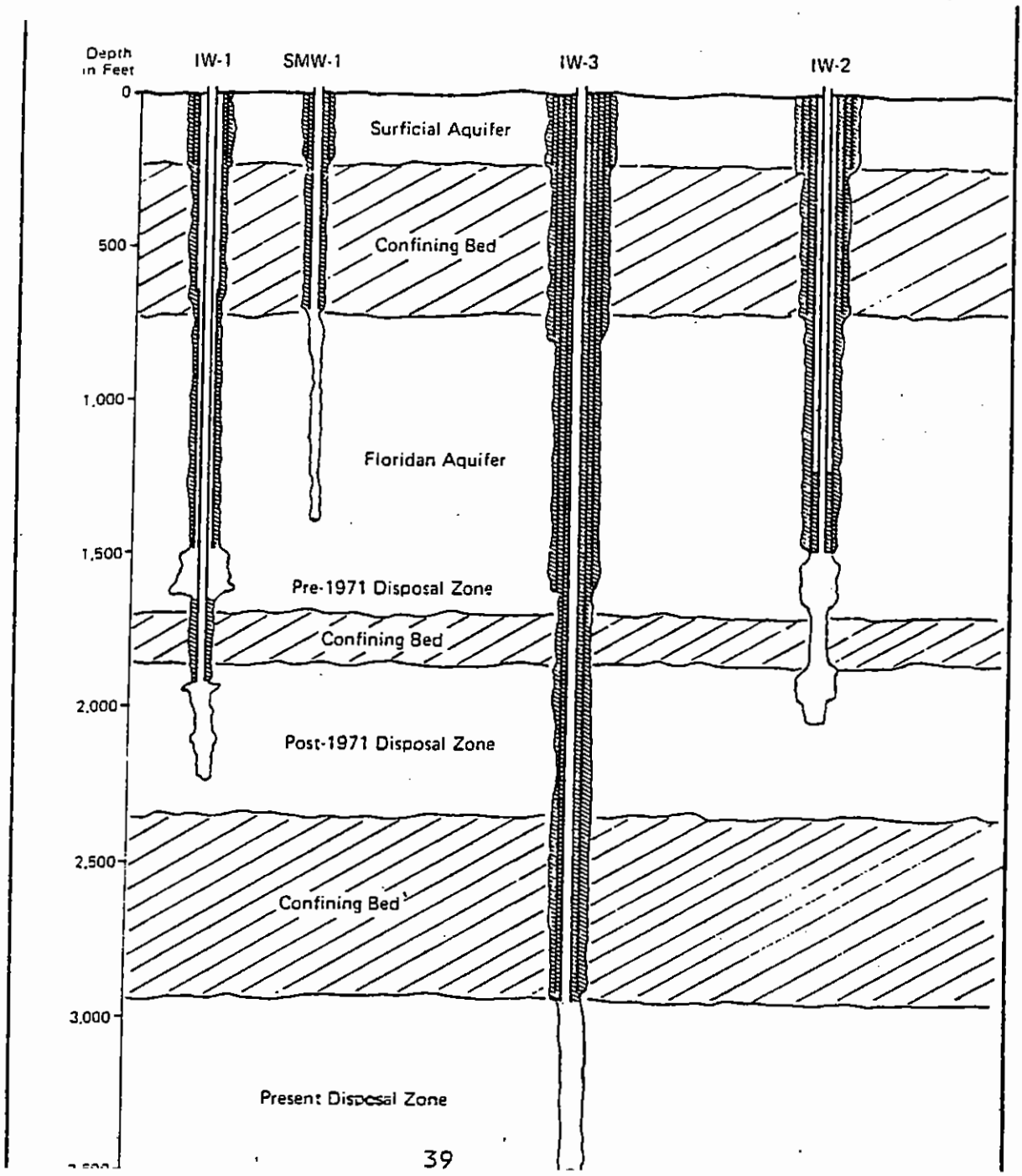
TAC MEMBER: Rich Deuerling
CONSULTANT: CH_2M Hill

Permit #IO50-76412
Exp. 3/28/89

Summary of Problems:

The system operated without serious problems until January 1971, when evidence of waste was discovered in SMW-1. To ensure that continued injection would not result in further upward migration, IW-1 was deepened to about 2,200. The liner was extended to 1,936 feet and cemented from that depth to approximately 1,600 feet. During this deepening operation the drilling contractor lost control of the well. The fluid discharged during this blowout was observed to contain a substantial amount of flammable gas containing significant amount of H_2S. Because of unexpected delays in completing the modification of IW-1, it was necessary to use IW-2 for waste disposal, therby eliminating IW-2 as an effective monitor well.

In 1974, the liner in IW-1 was discovered to be damaged and required replacement. During this replacement operation, waste was again diverted to IW-2. After completion of the repairs to IW-1, it was discovered that IW-2 was also damaged. The liner in IW-2 was replaced and cemented up to approximately 1,300 feet. Shortly after IW-1 was returned to service, its liner again collapsed, making it necessary to again use IW-2 for injection. The liner in IW-2 is no partially collapsed. These problems led to the construct of a new disposal system and abandonment of the original injection wells. The present construction of wells IW-1, IW-2, and SMW-1 is shown on the figure below.



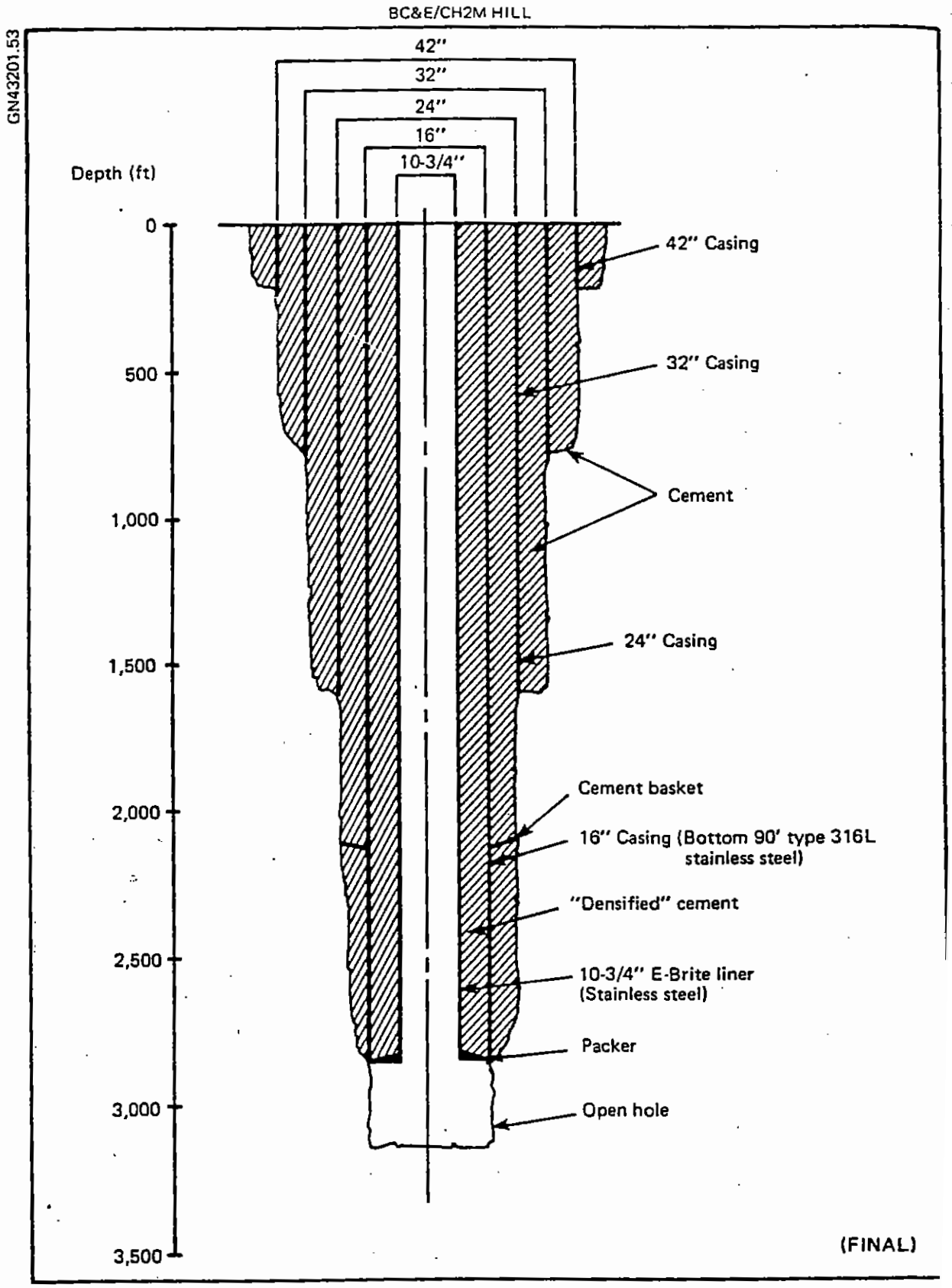


FIGURE 1. Injection well No. 3.

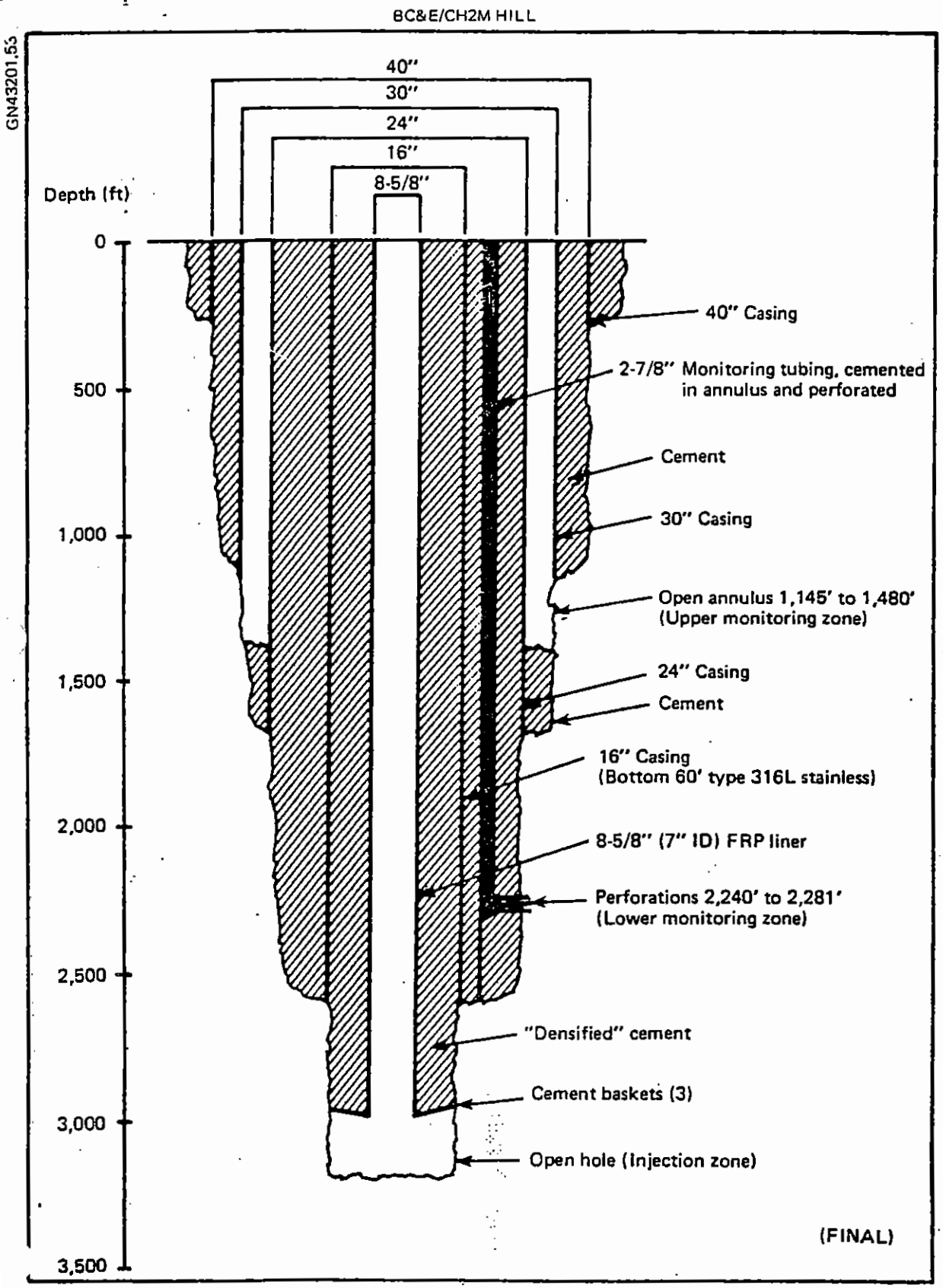


FIGURE 2. Injection well No. 4/deep monitoring well No. 1.

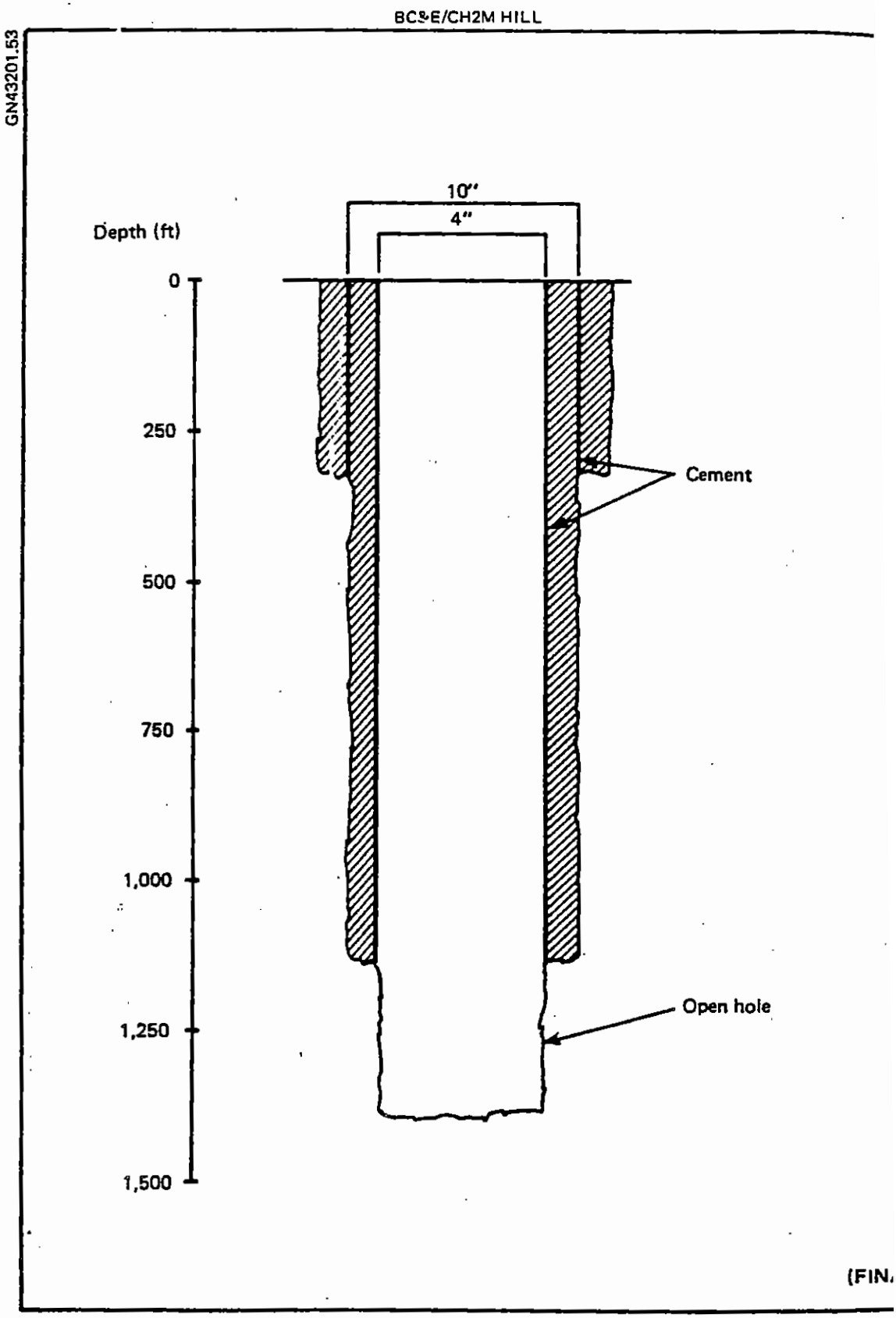


FIGURE 3. Shallow monitoring well No. 2.