STATUS REPORT

FORMER TEXACO SERVICE STATION

SPRINGTOWN BOULEVARD AND LASSEN ROAD

LIVERMORE, CALIFORNIA

March 23, 1987

INTRODUCTION

This report presents a summary of our findings and activities at the Springtown Boulevard and Lassen Road Texaco site in Livermore, California between April 1986 and February, 1987. In October of 1986, we received approval from Texaco to install two additional monitoring wells down gradient of the area of known contamination at the site. Data from that investigation are included in this report.

BACKGROUND

SITE SETTING

The site is located in the north central portion of the Livermore Valley. The elevation at the site is approximately 520 feet above sea level on the edge of a valley which slopes at an approximate 0.5% gradient toward the northwest. Due to a 100-foot high hill located directly west of the site, the topography at the site slopes approximately northward, at a 4% gradient (See Site Location Map, Figure 1).

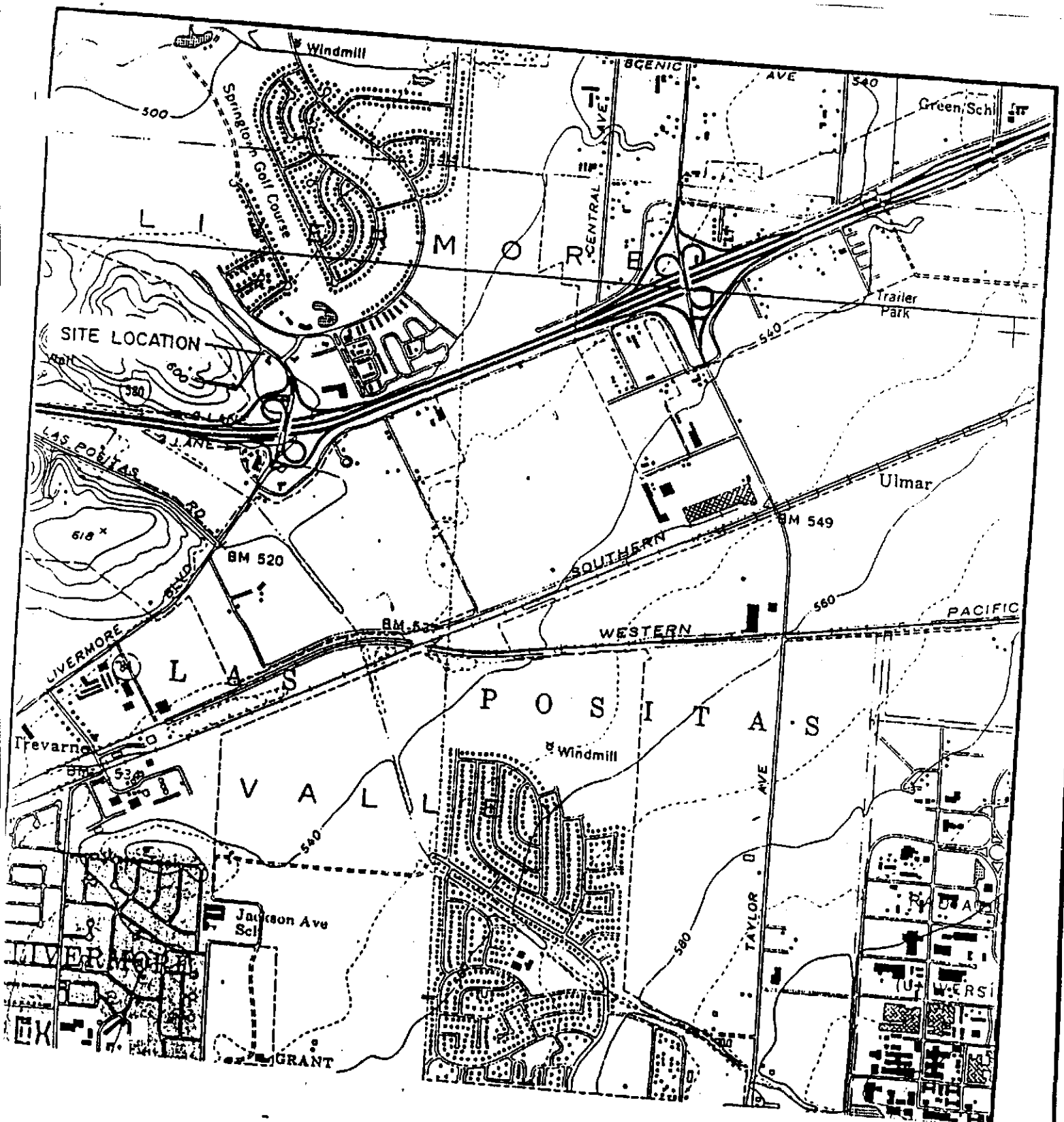

FIGURE 1

SITE LOCATION MAP

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SITE HISTORY

Texaco Refining and Marketing Inc. contacted our firm in May of 1985 to determine the extent of contamination previously detected at the Springtown Boulevard and Lassen Road site in Livermore, California. The contamination, in the form of approximately one inch of free-floating product, was discovered adjacent to the underground tank pit area during an initial investigation conducted by Kleinfelder and Associates for Southland Corporation in September of 1984. The underground storage tanks and product lines were removed from the site in the summer of 1985, concurrent with the construction of a 7-Eleven store on the property. Field inspection of the tanks, and the elatively low levels of hydrocarbons detected in the tank pit area indicated a line, rather than a tank leak.

The investigation consisted of the installation of four additional monitoring wells to determine the extent of contamination. A groundwater gradient direction was established and the installation of one to two additional monitoring wells was recommended to monitor the groundwater contamination northwest of the site. Since September of 1985, no measurable free product has been observed in any of the site monitoring wells.

SCOPE OF WORK

During the period of this report, the following services have been completed:

- Installed two monitoring wells, noting the subsurface soil conditions during drilling and collecting soil samples for analysis of benzene, toluene, xylene (BTX) and total hydrocarbons (THC).

- Collected a complete round of water samples from the site wells for analysis of BTX and THC.

- Monitored the groundwater elevations at the site monthly.

- Surveyed the wellheads to obtain groundwater elevation data.

MONITORING WELLS

On November 10, 1986, two additional monitoring wells (Nos. 5 and 6) were installed to monitor the concentration of contamination northwest of the underground tank area and well A (See Figure 2). The borings were drilled to depths of 25 and 30 feet below grade using a hollow-stem auger drilling rig. The drilling was performed under the direction of a geologist who maintained a continuous log of the materials encountered (See Appendix I-Drilling Logs).

Monitoring wells were then constructed with two-inch diameter PVC well screen and casing. Twenty-five feet of 0.020-inch slotted well screen was installed from the bottom of boring 5 to five feet below the ground surface. Twenty feet of 0.020 slot screen was installed from the bottom of boring 6 to five

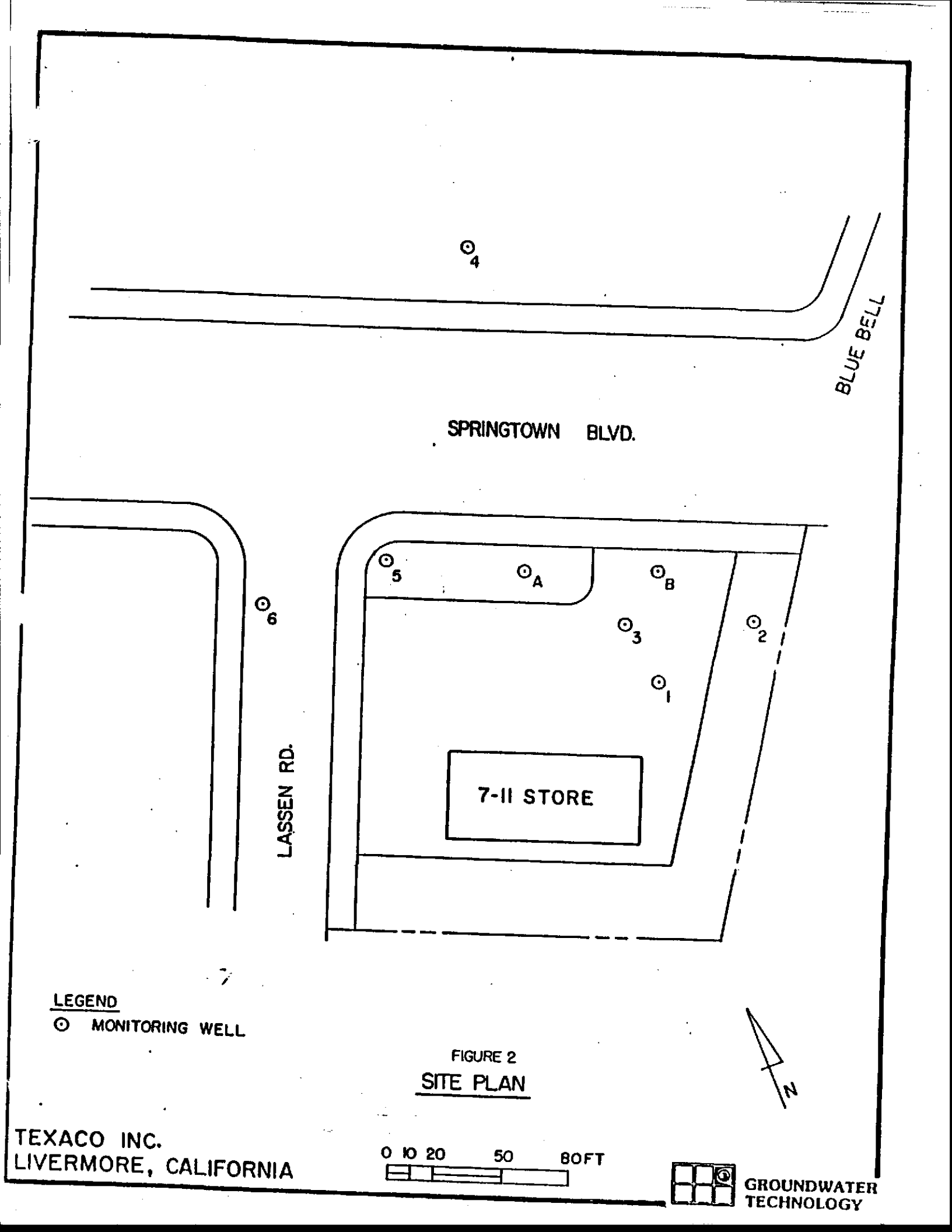

FIGURE 2

SITE PLAN

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feet below grade. Blank casing was then installed to the surface in both borings and a sand pack was placed in the annular space between the bore walls and the well casing from the bottom of the boring to approximately four feet below grade. The wells were completed with a bentonite and cement surface seal and a traffic rated street box to protect the wellhead.

SOIL SAMPLING

Soil samples were collected during drilling using a 2.5-inch O.D. (outside diameter) split spoon sampler lined with 3, 2-inch by 6-inch brass sample tubes. The samples were collected at 5 foot intervals from 3.5 and 5 feet below ground surface in orings 5 and 6, respectively, to the bottom of the boring. The collected samples were sealed, capped, and packed on ice in an insulated cooler for delivery to a laboratory for analysis. Each sample was labeled with the boring number, sample number, date and requested analysis. A Chain-of-Custody manifest accompanied the samples at all times.

The sample collected closest to water table from each boring was selected for analysis. The samples were analyzed for benzene, toluene, xylenes and total hydrocarbon concentrations by WESCO Laboratories of Novato, California using EPA Methods 5020/8015/8020.

GROUNDWATER SAMPLING

Following the development and stabilization of new wells 5 and 6, groundwater samples were collected from all the site monitoring wells on November 17, 1986. Five to ten well volumes of water were bailed from each well prior to sampling with a Teflon surface sampler. The samples were collected in 40 ml glass vials with teflon septum caps, labeled, and transported on ice to Sequoia Analytical Laboratory in Redwood City, California. There the samples were analyzed for BTX and THC concentrations as per EPA method 602. Chain-of- Custody manifests were completed and enclosed as required (see Appendix II).

GROUNDWATER MONITORING

The site was monitored monthly during this period using an ORS Interface Probe™. A clear acrylic bailor was used to visually inspect the water for traces of free product. The monitoring data is presented in Appendix III. The new monitoring wells were surveyed with relation to the existing wells on January 28, 1987. The surface elevation data was used in conjunction with groundwater monitoring data from February 23, 1987 to tabulate groundwater elevations at each well from which a Groundwater Gradient Map was constructed (See Figure 3).

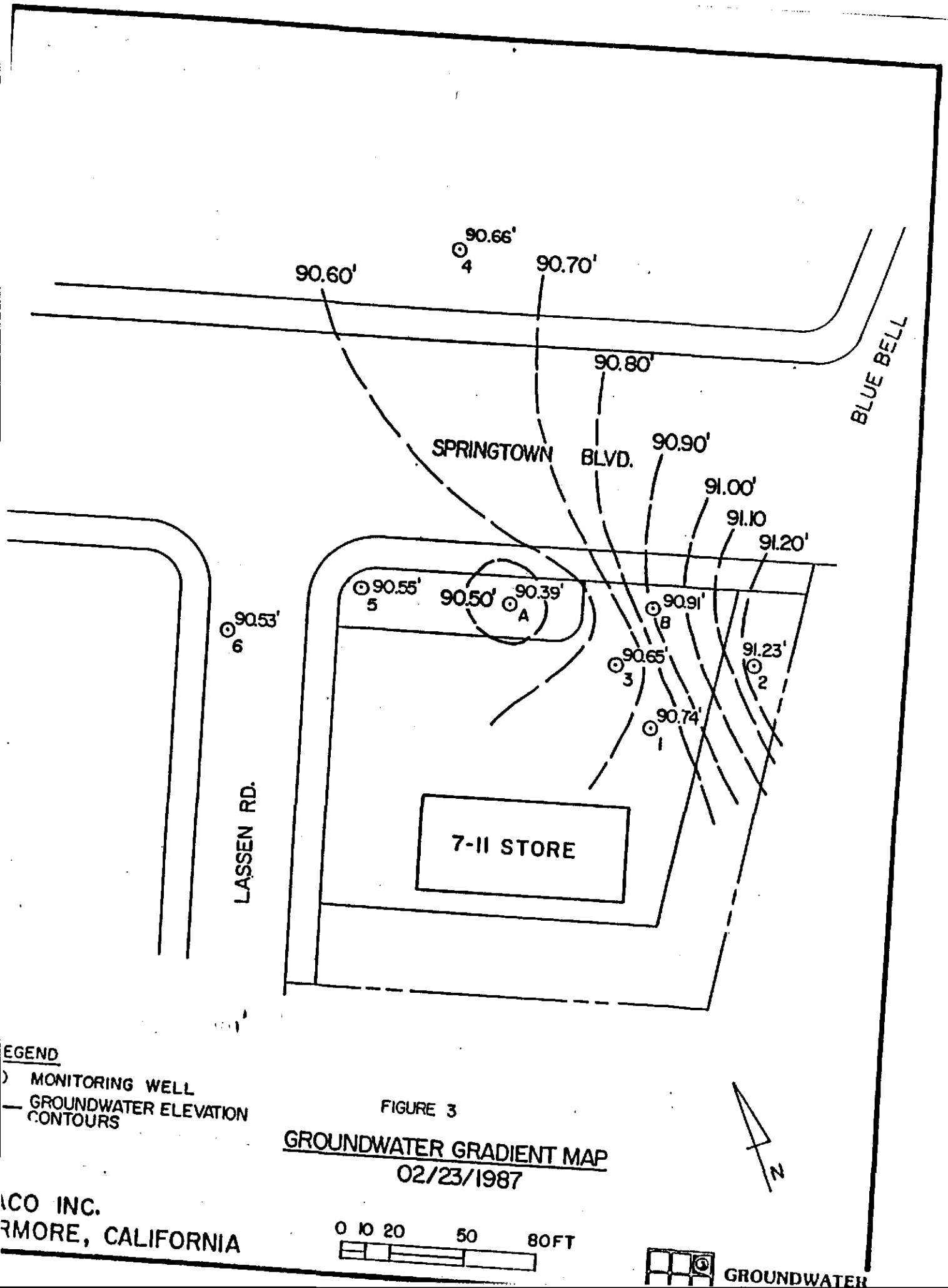

FIGURE 3

GROUNDWATER GRADIENT MAP
02/23/1987

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SITE CONDITIONS

HYDROGEOLOGY

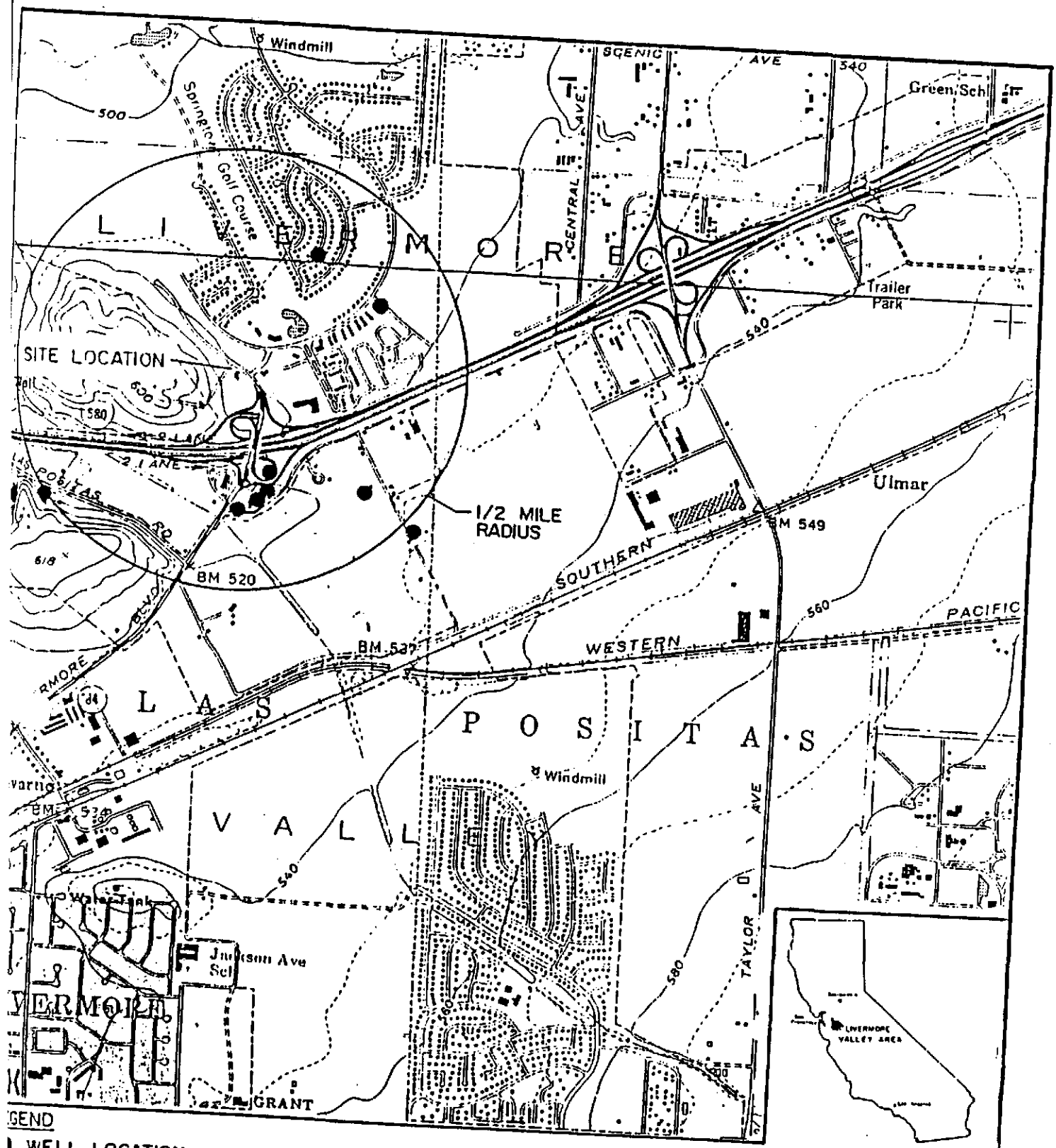
Poor quality groundwater, principally sodium bicarbonate in composition, occurs within the alluvium in the vicinity of the site. Ten wells, located within an approximate half-mile radius of the site (See Figure 4) tap confined aquifers, however, which are considerably deeper than the unconfined alluvial aquifer monitored at the site. Underlying the permeable alluvial sediments are the finer-grained sediments of the Tassajara Formation. Groundwater yields are relatively low from these units and usually sufficient only for domestic or livestock purposes.

Groundwater is present below the site at depths of 10 to 14 feet below grade (See Monitoring Data, Appendix III). A slight gradient, apparently varying from 1% to 4% of has been measured across the site.

SUBSURFACE CONTAMINATION

Moderate to slight product odors were detected in the soils from 15 to 30 feet below grade during the drilling of monitoring well 5. No product odor was detected in the soils from boring 6 during drilling.

The results of laboratory analyses verified that the total hydrocarbon and BTX concentrations were low in the soil sample from boring 5 and negligible in the sample from boring 6 (See Analytical Results, Appendix IV).



LEGEND

WELL LOCATION

FIGURE 4

WELL LOCATION MAP

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Analysis of groundwater samples from the site monitoring wells indicated that the greatest concentrations of dissolved hydrocarbons were present around wells A, B, and 5.

Comparison of the analytical results of the November 17, 1986, sampling with those from April 25, 1986, indicates a slight migration of the dissolved hydrocarbon plume and an apparent natural degradation of the hydrocarbon compounds across the site. A decrease in the total dissolved hydrocarbon concentrations (from 45 ppb to non-detectable levels and from 598 ppb to 340 ppb) was noted in wells 1 and 3, respectively. Well 3, however, simultaneously demonstrated an increase in benzene concentrations from 11 ppb to 77 ppb. Over the same period, increases in total dissolved hydrocarbon concentrations from 6 ppb to 64 ppb in monitoring well 2 and from 2 ppb to 110 ppb in well 4, were noted. Of greatest significance, however, was a decrease in total dissolved hydrocarbon concentration from 389,000 ppb to 55,000 ppb in well A over the period.

A Dissolved Hydrocarbon Map was drafted to illustrate the approximate configuration of the contaminant plume at the site on November 17, 1986 (See Figure 5). Comparison of this map with the dissolved hydrocarbon map from April 25, 1986 (Figure 6) demonstrates a significant decrease in hydrocarbon concentrations at the center of the plume, with slight increases in concentrations around the perimeter, indicating spreading. The area within the 1,000 ppb contour, however, has decreased considerably during this period.

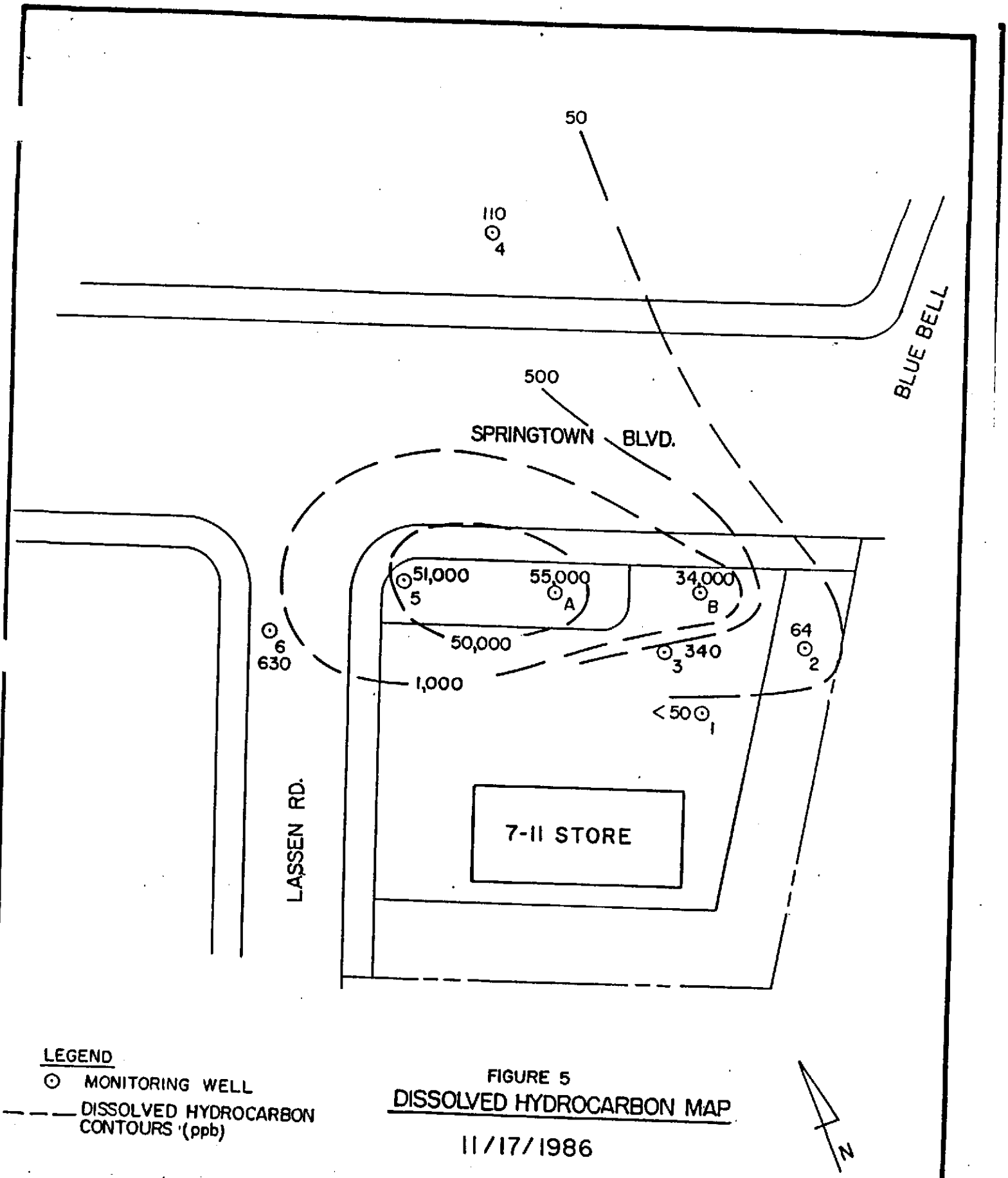

FIGURE 5

DISSOLVED HYDROCARBON MAP

11/17/1986

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0 10 20 50 80FT

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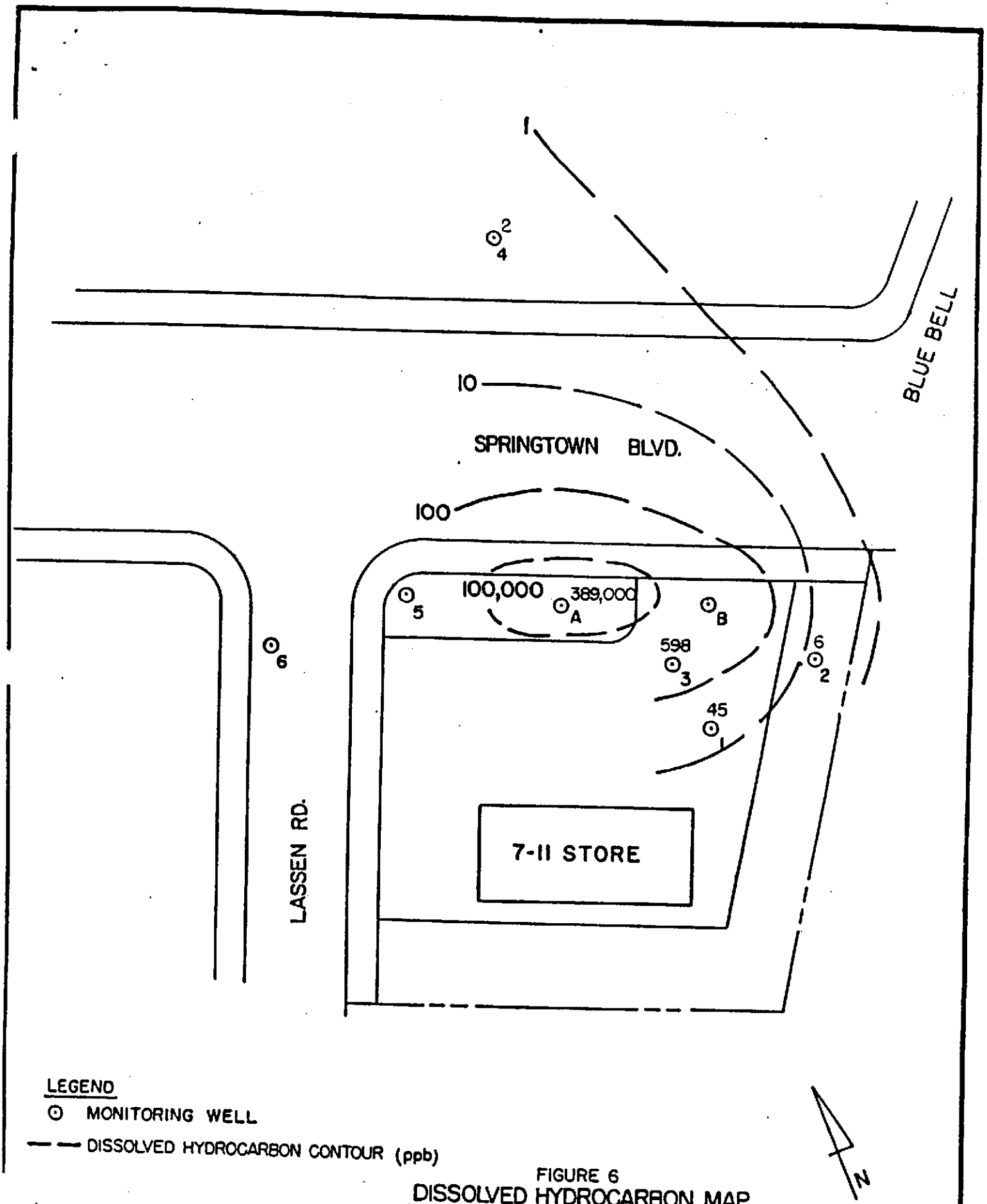

FIGURE 6

DISSOLVED HYDROCARBON MAP

04/25/86

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CONCLUSIONS

As determined by recent monitoring and sampling data of the subsurface, the groundwater contamination is greatest in the northern portion of the site. The concentrations of dissolved hydrocarbons at the center of the contaminant plume have decreased considerably during this reporting period, indicating that the contaminants are rapidly degrading by natural processes. During the same period, dissolved hydrocarbon concentrations measured in the peripheral wells increased slightly, suggesting contaminant spreading. Contaminant levels are low in the peripheral wells, however, suggesting that the plume is of limited extent.

Research concerning the hydrogeology in the vicinity of the site indicates that the shallow groundwater is naturally of low quality and not locally utilized for domestic purposes. Most of the wells located within a half-mile radius of the site pump from a deep, confined aquifer and are not likely to be affected by the water quality of the shallow alluvial aquifer.

CLOSURE

Groundwater Technology, Inc. is pleased to provide Texaco Refining and Marketing Inc. with this report. Should you have any questions or require additional information with respect to this site, please feel free to contact us.