RCRA FACILITY INVESTIGATION (RFI)
PHASE II WORK PLAN
SAFETY-KLEEN (WICHITA) FACILITY
WICHITA, KANSAS

Prepared by:
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June 12, 2001

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RCRA
518616

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Memorandum

To: Phil Cavendor, Chris Jump, Bill Lowe, Jeff Nuttal

CC: John Arbuthnot

From: Kay Tauscher

Date: 11/7/01

Re: Modifications to the Phase II RFI Work Plan, SK Wichita, Kansas

Modifications to the Phase II RFI Work Plan

This memo is to confirm modifications to the work plan made to address KDHE concerns voiced in the field on November 7, 2001. The following will be changed in accordance with KDHE requests made during the field work:

1. Because fill in the eastern portion of the site was found to be great than 3 feet in areas, the samples identified as 3-5 feet will be collected at the uppermost depth of naturally-occurring soils below the fill. This includes the following borings, unless the listed boring was drilled prior to agreement to the change in scope: B-54, 55, 61, 62, 70, 77, 80, 59, 60 and 69.

2. Similar to No. 1, if native soils are not encountered in the 3-5 foot range, then the uppermost native soil will be sampled in the following borings in the southwestern portion of the site: B-56, 57, 58 and 76.

3. A sample for inorganic analysis should be added at the 0-6 inch range at B-70.

4. The remaining borings that are slated for soil sampling and analysis at 3-5 feet bgs will be sampled as outlined in the work plan, unless an anomalous (unusually high) OVM measurement is collected at a different depth, or field observations suggest that a different depth is obviously more impacted than the slated depth for sampling. In this case, the 3-5 foot sample will be

replaced by a sample collected from the anomalous depth detected. The samples slated for inorganic analysis within the uppermost 1 foot bgs will remain unchanged from the work plan. Similarly, those samples to be collected from just above the water table will remain the same.

If you have any questions on these modifications, please call me right away at 303.938.5535 or (cell) 303.817.0803.

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1. INTRODUCTION

This Phase II Work Plan presents the recommended scope of work for a field investigation to be implemented as part of the RCRA Facility Investigation (RFI) at the Safety-Kleen Wichita, Kansas facility (SKW) (Figure 1). The Work Plan provides a brief description of previous work performed as part of the RFI and identifies additional tasks to be conducted. The primary objectives of the Phase II program are to assess the extent of soil impacts onsite and groundwater impacts offsite. The investigation of potential surface water impacts is also discussed.

The Phase II program is a follow-up to work initiated with the revised Phase I RFI Work Plan dated October 14, 1999 and two supplemental stages of work. The Phase I Work Plan provides a complete description of investigation methodologies, standard operating procedures and a quality assurance plan for the overall RFI. The Phase I Work Plan proposed a direct-push (or GeoProbe®) program of soil and groundwater sampling that was implemented at the site in fall 1999. An initial addendum to the RFI Work Plan, dated April 4, 2000, presented a brief review of the subsurface findings of the Phase I work and presented a plan for installing a groundwater monitoring well network at the facility. The well installation and sampling was completed in October 2000. These initial field investigations have indicated impacts to soil and groundwater at the site of volatile organic compounds (VOCs) and limited amounts of inorganic constituents.

A second addendum to the Phase I work, comprised of letters dated February 16 and March 30, 2001, proposed an additional round of samples to be collected from onsite and upgradient monitoring wells and surface water sampling in the East Fork of Chisholm Creek. This work was completed in April 2001, with the exception of the installation of the off-site, upgradient monitoring wells that have been delayed due to access negotiations with Union Pacific Railroad. The analytical results were submitted to the Kansas Department of Health and Environment (KDHE) and the U.S. Environmental Protection Agency (USEPA) in a May 24, 2001 letter. Safety-Kleen is still working on obtaining access to UPRR's property for installation of the upgradient wells. The locations of the 4 proposed upgradient wells were identified in e-mail correspondence with the agencies on April 24, 2001 and are described in this Work Plan.

Site features and the locations of ten monitoring wells installed as part of the Phase I work in October 2000 are shown on Figure 2. Well construction information is provided in Table 1.

2. SOIL INVESTIGATION

2.1. EXISTING DATA REVIEW

As part of the initial field investigation identified in the Phase I RFI Work Plan, 44 soil borings were advanced with a Geoprobe® (i.e. direct-push method), logged and sampled at the SKW facility in November 1999. The borings were placed according to the locations of SWMUs and AOCs on the site, and other areas identified as potential areas for impacts based on historical information available for the site. The scope of this investigation is described in the Phase I Work Plan and shown on Figure 3. Soil samples from each boring were analyzed to assess whether historical activities impacted the site subsurface media.

The primary areas of concern based on the soil analytical results are identified as five potential chlorinated hydrocarbon source areas. These areas are: (1) south of building C near the loading ramp; (2) south of the processing area; (3) south of the former paint can burial pit; (4) east of buildings J and K; and, (5) between buildings I and J along the rail spur (Figure 3). Each of these areas had levels of VOC impacts that warrant further delineation. Inorganic values were generally low with the exception of arsenic and lead levels along the tracks and chromium and lead levels in the northeast corner of the facility. Table 2 lists all of the organic and inorganic concentrations for constituents detected from each of the 44 soil boring locations.

2.2. SCOPE OF WORK

Based on the findings of previous site work, SKC proposes to log and sample 23 additional direct-push (GeoProbe®) borings to assess the extent of soil impacts at each of the five potential chlorinated hydrocarbon source areas and inorganic areas of concern described above. The proposed boring locations are shown on Figure 3. Three borings (B-45, B-46, and B-47) are proposed around the loading ramp south of building C, where PCE was detected at 800 μg/kg at a depth of three feet in B-13 in the fall of 1999. Three borings (B-48, B-49 and B-50) are proposed around the processing area, where tetrachloroethylene (PCE) was detected at concentrations of 480 and 6,800 μg/kg in B-20 and B-21 at a depth of 3 feet. PCE was also detected in B-21 at at depth of 16 feet. Vinyl chloride (VC) was detected at 34 μg/kg in B-19 at a depth of three feet. Two borings (B-51 and B-52) are proposed

around the former paint can burial pit where 1,2,4-trimethylbenzene was detected in B-4 at 55,000 μg/kg at a depth of 16 feet. Two borings (B-59 and B-60) are proposed between buildings I and J along the rail spur near the location of B31 where several VOCs were detected. Three borings (B-53, B-54, and B-55) are proposed around the area east of buildings J and K where 1,1,1-trichloroethane was detected in B-42 at 18 μg/kg at a depth of four inches.

Each of the proposed borings intended to delineate the extent of the potential chlorinated hydrocarbon source areas will be cored continuously to the depth of the water table, unless field observations indicate that drilling will enhance the possibility of vertical contaminant migration. Analytical samples will be collected at several different depths to determine vertical extent. One sample will be collected just above the water table and another at the depth of the highest measured organic vapor meter (OVM) level. If the OVM readings do not indicate organic impact, an analytical sample will be collected within the default sampling range of three to five feet.

In addition to the borings described above, three additional soil borings (B-56, B-57, and B-58) are proposed in the southwest corner of the SKW facility. Soil borings were previously advanced and sampled in this area during the Phase I investigation to a depth of about 3 feet (Figure 3). However, it was later determined that the southwest portion of the SKW facility had been excavated and backfilled to a depth of approximately three feet, according to site personnel and historical documents. Therefore, the previous soil borings in the area were not completed to depths sufficient to penetrate the backfill. The different locations of the proposed borings compared to the previous borings are not considered important because all of the sampling locations in this area are randomly located. The proposed borings will each be advanced to the water table, thereby penetrating the fill and extending into the native soil. Analytical samples will be collected at several different depths to determine vertical extent. One sample will be collected just above the water table and another at the depth of the highest measured OVM level. If the OVM readings do not indicate organic impact, an analytical sample will be collected within the default sampling range of three to five feet.

Several soil borings will be drilled and sampled around the areas where inorganic constituents were detected in the soil. Three borings (B-61, B-62 and B-63) are proposed in the northeast corner of the facility surrounding B-40, which showed levels of lead at 7800 mg/kg and chromium at 91.7 mg/kg at a depth of 4 inches. Continuous soil cores will be collected from the three borings to the depth of the water table. Samples will be collected for inorganic analysis at the surface and just above the water table. Also, four borings (B-64 through B-67) are proposed along the rail spur on the north side of the site to determine if inorganic soil impacts are present and associated with proximity to the railroad tracks. Two of these borings will be drilled next to the tracks, completed to the depth of the water table, and sampled for inorganic analysis at the surface, at a depth of three to four feet, and just above the water table at a minimum. The other two borings will be set back from the tracks to determine lateral extent and will be completed to a depth of three to four feet. These borings will be sampled for

inorganic analysis at the surface and at a depth of three to four feet. As described above, Boring B-60 is also proposed along the railroad tracks and will be sampled for both VOC and inorganic analysis.

Table 3 lists each of the proposed boring locations along with their proposed analytical sampling sampling depths and analyses. All soil boring and sampling procedures will follow those described in Section 5 and Appendix G of the SKW Phase I RFI Work Plan dated October 19, 1999.

3. SURFACE WATER INVESTIGATION

3.1. EXISTING DATA REVIEW

Five surface water samples were collected from the East Fork of Chisholm Creek in April 2001. Chisholm Creek flows from north to south and is located just east of the facility (Figure 4). The five surface water samples were collected to determine if groundwater impacts at the SKW facility affect surface water quality in Chisholm Creek.

The East Fork of Chisholm Creek is concrete lined in places, but the length of creek that was sampled near the facility was unlined. The five samples collected from the surface water each contained varying levels of VOCs, mainly trichloroethylene (TCE). The sample that was taken furthest upstream of SKW facility and hydraulically upgradient with respect to the direction of groundwater flow (SK-SW-5), showed the highest level of dissolved TCE at 4.7 μg/L. Each of the subsequent downstream samples showed levels of TCE between 3.8 and 4.0 μg/L.

The constituent cis-1,2-dichloroethelyene (cis-1,2-DCE) was also detected at SK-SW-5 at a concentration of 1.0 μg/L. At the surface water sampling locations nearest to the site (SK-SW-3 and SK-SW-4) cis-1,2-DCE was not detected. However, at the two furthest downstream samples (SK-SW-2 and SK-SW-1), cis-1,2-DCE occurred at 3.8 μg/L and 3.3 μg/L, respectively. SK-SW-1, the furthest downstream sample, had detectable levels of benzene and naphthalene, two contaminants that occur in the shallow groundwater at the Coastal Refinery site.

The occurrence of TCE upstream of the SKW site and pattern of decreasing TCE concentrations in a downstream direction indicate that it is unlikely that SKW contributes to the impacts observed in the creek for this constituent. The analytical results for cis 1,2 DCE also suggest that it is unlikely that the SKW site contributes to impacts observed in the creek. This constituent does not occur at the sample

points closest to the site. Although, cis 1,2 DCE concentrations increase slightly further downstream at SK-SW-2 and SK-SW-1, the increase is minor and may not be significant at these low levels. Also, the cis 1,2 DCE concentrations at these locations could reflect the degradation of the TCE in the surface water. Lastly, these locations appear to be downgradient of the Coastal Refinery re-injection system (see Section 4).

3.2. Scope of Work

The pattern of VOC concentrations does not reflect a contribution from the SKW site to impacts in Chisholm Creek. For this reason, no additional surface water sampling is proposed.

4. GROUNDWATER INVESTIGATION

4.1. Existing Data Review

4.1.1. Site Geology And Groundwater Flow

A total of twelve monitoring wells are located at the SKW facility. Geologic information collected during the installation of the wells indicates that the site is underlain by 10 to 17 feet of gravelly clay, underlain by 8 to 18 feet of sand. Below the sand lies a clay layer, approximately 2 to 6 feet thick, which pinches out in the southwestern corner of the site. The clay is generally underlain by another 8 to 9 feet of sand, and 1 to 9 feet of weathered bedrock. In the southwestern corner of the site where the clay lens is not present, the gravelly clay extends to approximately 6 feet bgs, and the underlying sand unit is approximately 19 feet thick. Bedrock beneath the site is the Wellington Shale, which is encountered at depths ranging from 35 to 43 feet below ground surface (bgs). The water table occurs at about 13 to 17 feet below ground surface.

Of the 12 on-site monitoring wells, six are shallow wells (SK-1S through SK-6S) screened across the water table and extending into approximately the upper 7-feet of the aquifer. Wells HRI-03 and RSCI-1 are fully penetrating wells that pre-date the RFI. The four deep wells SK-1D, SK-2D, SK-3D, and SK-5D are screened over approximately the lower 5-feet of the unconsolidated aquifer. The well pairs SK-3S/D and SK-5S/D were positioned in locations near or downgradient of areas believed to be

potential source areas of historic groundwater impacts. In addition, the SK-3S/D well pair replaced an older well, HRI-02, which was abandoned due to the nature of its construction. The well pairs SK-1S/D and SK-2S/D and a single shallow well (SK-4S) were installed in downgradient locations to monitor the groundwater quality migrating off-site. The shallow well (SK-6S) was positioned to help evaluate potential impacts from historical site activities in the northeastern portion of the site. Survey coordinates and elevations for the existing wells are listed on Table 1. Well logs are included in Appendix A.

Water levels were measured in the ten new on-site wells within a 24-hour period in October 2000 and April 2001. During the April 2001 gauging, water levels were also measured in the older on-site wells HRI-03 and RSCI-1, and in four upgradient wells on the Union Pacific Railroad property north of the facility (MW-10, MW-11, MW-14, and WND-32). The water level data were used to produce the contoured groundwater elevation maps for the shallow wells presented on Figures 5 and 6. Groundwater elevations for the deeper zone were not contoured because there are fewer wells and the data are generally similar to that for the shallow zone. The groundwater flow direction across the site is to the southeast with a gradient of about 0.003 ft/ft. The groundwater elevation, flow direction and gradient are consistent with the more regional potentiometric surface map (Appendix B) produced by Camp Dresser & McKee (CDM) in March 2001 (CDM 2001) as part of the North Industrial Corridor (NIC) investigation. A portion of this potentiometric surface data is shown for the SKW site and area to the south in Figure 7.

4.1.2. Site Groundwater Quality Conditions

Groundwater samples were collected and analyzed from the on-site monitoring wells and selected upgradient wells in October 2000 and April 2001. Analytical data from these sampling events are presented in Tables 4 through 7. VOC data from the recent, April 2001 sampling event is also summarized on Figure 8.

The available data indicate that both shallow and deep groundwater beneath the SKW site are impacted by VOCs. The constituents in the shallow zone appear to reflect impacts to groundwater associated with releases from the SKW site, as identified in the soil quality results. However, the nature of the impacts in the deeper groundwater are distinct from those in the shallow zone, and consist solely of TCE and cis 1,2 DCE in the ratio of about 7:1. The absence of the same suite of VOCs in the deep zone as those detected in shallow wells suggests that constituent migration is absent or limited through the clayey zone at the site. Moreover, the occurrence of TCE and cis 1,2 DCE in monitoring wells upgradient of the site (CDM, 2000) suggests an upgradient source as the explanation for these constituents in the deep wells at the site.

A more complete evaluation of these data is pending the collection and analysis of groundwater samples from monitoring wells proposed on Union Pacific Railroad property immediately north of the site and will be presented in the RFI report. (As previously described, the installation of these wells has been delayed due to property access negotiations.)

4.1.3. Groundwater Flow Conditions Downgradient of the SKW Facility

Immediately to the south and downgradient of the SKW site, petrochemical manufacturing, production and refining activities have been conducted at the Coastal Refinery (Figures 1 and 7) since 1920 (CDM, 2000). Free-phase petroleum hydrocarbons are present at the facility. The operation of recovery wells and a re-injection system affect the natural groundwater flow system in this area.

The recovery and re-injection system was designed in 1994 and operations were phased in over a period of time beginning in 1995. Petroleum is recovered from up to 25 wells located 1,000 to 3,000 feet south of the SKW facility corresponding to the areas of separate phase hydrocarbons. The petroleum is separated from co-produced water, and stored. The water is re-injected through a series of 40 injection wells located at the north end of the facility, approximately 300-feet south of the SKW property. A portion of this line of injection wells (wells labeled with an "I" prefix) is shown on Figure 7. At the northeastern margin of the Coastal property, well RW-20 is operated as a groundwater recovery well, pumping at a rate of about 10 gallons per minute (gpm). This well is used to achieve hydraulic control and pumps only groundwater (there are no separate hydrocarbons at the northern end of the Coastal property).

While the regional-scale direction of groundwater flow is to the south and southeast as shown on the March 2001 potentiometric map (Figure 7 and Appendix B), the pumping and re-injection wells will locally modify flow direction and gradient. A groundwater model simulation prepared by Coastal during design (Appendix C) (Groundwater Consultants 1994) shows predicted effects. Groundwater flow immediately south of the SKW site, but north of the injection system, is deflected to the east. Groundwater recovery at a location in the northeastern corner of the refinery property (RW-20) was incorporated into the model specifically to prevent eastward diversion of groundwater offsite and into Chisholm Creek in this area (Groundwater Consultants 1994b). Pumping at well RW-20 began in February 1997 (Groundwater Consultants 1998).

Actual water level measurements taken by Coastal appear to show similar effects, although the network of wells gauged is not dense enough to reveal the detailed flow pattern. The measurements do not extend to wells at the SKW site. A 1993 potentiometric surface map that depicts conditions prior to the recovery and re-injection operations (Appendix D) shows the natural southerly and southeasterly groundwater flow direction in the area south of the SKW site (Groundwater Consultants 1994a). A

potentiometric surface map for 1998, after recovery and re-injection was initiated (Appendix D) shows the diversion of groundwater flow to the east and west at the north end of the refinery near the re-injection wells (Groundwater Consultants 1998). These maps also show the drawdown at the individual recovery wells including RW-20 in the northeastern corner of the site.

4.1.4. Groundwater Quality Conditions Downgradient of the SKW Facility

Groundwater quality data for VOCs is available for a number of monitoring wells and Geoprobe samples on the Coastal Refinery property in the area just south of the SKW site but upgradient of the re-injection wells. Groundwater quality in this area is of interest in assessing the extent of migration from the SKW site. Monitoring wells for which VOC data is available are MW-1, MW-3, and MW-380. The groundwater recovery well RW-20 has also been sampled for VOCs by the Coastal Refinery. Geoprobe water samples in this area, collected recently on the Coastal property as part of the NIC investigation, include GP10F-02 through GP10F-05. Results from these wells and Geoprobe locations are summarized in Table 8 and Figure 9. SKC split samples from the Geoprobe locations GP10F-04 and GP10F-05 during sampling in March 2000. Both the SKC results and those from CDM are listed in Table 8.

Of the wells listed, only MW-3 and RW-20 are directly downgradient of SKW. MW-3 shows cis 1,2 DCE at 14 ug/L, which is a constituent observed in the shallow zone in SKW monitoring wells. The well sample also contained 2,2 dichloropropane, which has not been detected at SKW. Groundwater recovery well RW-20 has low levels of PCE, TCE, and cis 1,2 DCE.

Of the Geoprobe samples, only GP10F-04 and GP10F-05 are directly downgradient of SKW. The samples show a number of both petroleum hydrocarbon and chlorinated constituents. Concentrations generally decrease in the deeper samples. One exception is the concentrations of TCE and cis 1,2 DCE in GP10F-05, which are highest in the deepest sample. As described above, these two VOCs were the only constituents noted in deep wells on the SKW site based on the April 2001 sampling. Other chlorinated compounds detected at GP10F-04 and GP10F-05 have been observed in wells at SKW. However, the occurrence of a number of petroleum hydrocarbons suggests that the groundwater quality at these locations may be affected by the discharge from the re-injection wells.

4.2. Scope of Work

4.2.1. Downgradient Well Installation

To assess the extent of groundwater impacts associated with the SKW site, the installation and sampling of two downgradient wells are proposed offsite to the southeast of the facility (Figure 10). In addition, the coordinated collection of water level measurements over a short time period (1 to 5 days) from both SKW monitoring wells and wells on the northern portion of the Coastal property is proposed.

The proposed monitoring wells are located downgradient of the eastern portion of the SKW facility in areas intended to be unaffected by the Coastal Refinery re-injection system. The well locations were chosen for several reasons. The Coastal Refinery injection well system has impacted the natural groundwater flow system in the shallow aquifer and is likely to divert groundwater flow along a more easterly path north of the re-injection wells and south of SKW. With respect to both access and concerns over the effects of the re-injection system, the proposed well locations to the southeast of SKW along the western side of the East Fork of Chisholm Creek are considered the most practicable to assess the downgradient extent of a potential dissolved plume. The installation of the wells is contingent on identifying the property owner (assumed to be on City of Wichita) and obtaining access. The accurate delineation of a plume at locations further south is precluded by the operation of the re-injection system and no additional wells are proposed in this area.

The two proposed downgradient monitoring wells will be completed as shallow wells. Well screens will be 10 to15 feet in length, installed from about 5-feet above the water table and extending slightly into the clay lens (if present) that separates the shallow and deep alluvium. It is anticipated that the total depth of these wells will be about 25 feet. If deemed necessary, deeper downgradient monitoring wells may be proposed during a later stage of the RFI process following an evaluation of the upgradient groundwater quality in the deep zone after the installation of wells on the Union Pacific Railroad property.

The monitoring well construction, well development, ground water sampling and analysis will otherwise follow the description in the Phase I Work Plan, including the standard operating procedures (SOP) outlined in Appendix G.

4.2.2. Upgradient Well Installation

The proposed upgradient well locations are shown on Figures 6 and 10 and are located on Union Pacific Railroad property. SKC proposes to install three additional deep upgradient wells (SK-7D, SK-

8D, and SK-9D) and one additional shallow upgradient well (SK-8S) to monitor groundwater before it reaches the SKW facility. The installation of the wells is contingent on completion of an access agreement with UPRR, which is under negotiation.

The locations of these wells were chosen to create nested well pairs with the existing UPRR shallow upgradient monitoring wells. The wells will be installed, developed, purged and sampled according to the protocols described in the Phase I RFI Work Plan dated October 1999, including the standard operating procedures (SOP) outlined in Appendix G.

5. SCHEDULE AND REPORTING

The field investigation activities described herein will be implemented within 4 to 6 weeks following agency approval of the Work Plan assuming access is granted to the UPRR, coastal refinery and City of Wichita property for well installation and/or gauging. The soil boring and sampling, and the monitoring well installation and sampling are anticipated to take two weeks to complete. A letter providing the laboratory analytical results will be submitted to the agencies within eight weeks following data collection.

As discussed in the Phase I RFI Work Plan submitted in October 1999, this RFI is being conducted in stages to assess the extent of impacts to soil and groundwater in an efficient and rational manner. The scope of work for each subsequent stage of the investigation relies on prior data obtained from earlier investigations. If the data obtained from this stage of the RFI is found to be insufficient for delineating the extent of impacts of the soil or groundwater, subsequent sampling events may be necessary. If additional sampling is warranted, an addendum to this Phase II RFI Work Plan will be completed and submitted for agency approval. However, regardless of additional data needed, a draft RFI report will be submitted to agencies by December 20, 2001.

6. REFERENCES

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TABLES

Table 1
Fluid Levels
RCRA Facility Investigation
Safety-Kleen (Wichita) Facility

Well ID	Date of Installation	Survey Coordinates		TOC Elevation	Rim Elevation (ft-msl)	Casing Diameter (inches)	Screened Interval (ft below TOC)	Oct-00		Apr-01	
		Northing	Easting					DTW (ft)	GW Elevation (ft-msl)	DTW (ft)	GW Elevation (ft-msl)
SK-1D	10/23/00	1701433.03	1654158.09	1315.61	1315.87	2.00	33.5-38.5	15.65	1299.96	16.09	1299.52
SK-1S	10/23/00	1701435.13	1654150.42	1315.43	1315.66	2.00	11.5-26.58	16.49	1298.94	16.44	1298.99
SK-2D	10/23/00	1701352.84	1653651.39	1313.47	1313.75	2.00	32.75-37.75	14.62	1298.85	14.16	1299.31
SK-2S	10/24/00	1701352.32	1653643.20	1313.51	1313.81	2.00	10.75-25.75	14.71	1298.80	14.25	1299.26
SK-3D	10/24/00	1701358.20	1653459.78	1313.37	1313.67	2.00	32.7-39.7	13.25	1300.12	13.85	1299.52
SK-3S	10/23/00	1701358.64	1653453.58	1313.33	1313.67	2.00	9.5-24.5	13.56	1299.77	13.65	1299.68
SK-4S	10/23/00	1701330.43	1653252.27	1312.80	1313.03	2.00	6.75-21.75	12.12	1300.68	12.87	1299.93
SK-5D	10/24/00	1701423.85	1653532.62	1313.65	1313.96	2.00	32.25-37.25	14.21	1299.44	13.98	1299.67
SK-5S	10/24/00	1701423.92	1653527.32	1313.49	1314.03	2.00	8.5-23.5	13.78	1299.71	13.83	1299.66
SK-6S	10/23/00	1701608.68	1654227.91	1316.98	1317.25	2.00	11.75-26.75	17.87	1299.11	17.55	1299.43
RSCI-1	NA	1701409.55	1653990.47	1315.49	1315.87	4.00	NA	NM	NM	16.11	1299.38
HRI-03	NA	1701323.78	1653072.28	1312.46	1312.53	2.00	NA	NM	NM	12.56	1299.90
WND-32	7/31/91	1701737.09	1653110.92	1318.20	1318.75	4.00	14.00-24.00	NM	NM	17.50	1300.70
MW-10	5/19/94	1701907.56	1653522.30	1318.11	1318.64	2.00	13.50-23.50	NM	NM	17.21	1300.90
MW-11	5/19/94	1701719.78	1653520.73	1316.57	1316.89	2.00	14.00-24.00	NM	NM	16.33	1300.24
MW-14	10/5/94	1701812.20	1653352.03	1317.74	1317.90	2.00	14.60-24.60	NM	NM	17.11	1300.63

DTW = Depth to Water
NA - Not Available
NM - Not Measured
ft-msl = elevation in feet above mean sea level
TOC = Top of Casing
Survey in State Plane Coordinate System

Table 2
Soil Analytical Results
November 1999
Safety-Kleen (Wichita) Facility

				B-1		B-2	B-3		B-4			B-5	B-6	B-7	B-8	B-9	B-10	B-11	B-12
				4"	16'	4"	3'	16'	4"	16'†	16' Dup†	4"	4"	4"	4"	4"	4"	4"	3'
Parameters		Practical Quantitation Limit	Test Method																
Percent Moisture	%	0.5	D 2216-90	22.1	3.5	18.7	21	18.2	15.5	8.4	7.2	20.1	17.6	20.6	24	16.5	18.2	29.6	20.9
Corrosivity	No Units	1	9040B	7.2	--	6.8	6.8	--	6.8	7.6	7.6	6.6	5.9	6.2	6.3	6.5	6.4	6.1	6.8
RCRA Metals																			
Arsenic	mg/kg	30	6010B	--	NA	--	--	NA	--	--	--	--	--	--	--	--	--	--	--
Barium	mg/kg	20	6010B	221	NA	198	207	NA	171	--	--	180	155	158	238	192	223	189	234
Cadmium	mg/kg	0.5	6010B	--	NA	--	--	NA	0.63	--	--	--	--	--	--	--	--	--	--
Chromium	mg/kg	1	6010B	25.7	NA	19.8	20.2	NA	24.9	2.3	2.4	21.2	21.7	22.8	24.9	22.4	19.6	20.7	25.1
Lead	mg/kg	10	6010B	17.1	NA	15.7	12.3	NA	101	--	--	15.1	13.9	10	31	25.1	13.7	66.9	12.8
Mercury	mg/kg	0.1	7471A	--	NA	--	--	NA	--	--	--	--	--	--	--	--	--	--	--
Silver	mg/kg	1	6010B	--	NA	--	--	NA	--	--	--	--	--	--	1	--	--	--	--
Organic Constituents																			
VOCs																			
1,1,1-Trichloroethane	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trimethylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	55,000**	14,000	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	15,000	3,600	--	--	--	--	--	--	--	--
Chlorobenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichlorethene	ug/kg	2.5	8260B	--	--	--	--	--	43	--	--	--	--	--	--	--	--	--	--
Ethylbenzene	ug/kg	25	8260B	--	--	--	--	--	--	3,100	800	--	--	--	--	--	--	--	--
Isopropylbenzene	ug/kg	1000	8260B	--	--	--	--	--	--	1,000	--	--	--	--	--	--	--	--	--
Methylene chloride	ug/kg	5	8260B	--	--	--	--	5.4	5	--	--	--	--	--	--	--	--	--	--
m-Xylene & p-Xylene	ug/kg	5	8260B	--	--	--	--	--	--	16,000	3,900	--	--	--	--	--	--	--	--
n-Butylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	4600'@	1200'@	--	--	--	--	--	--	--	--
n-Propylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	5,900	1,400	--	--	--	--	--	--	--	--
o-Xylene	ug/kg	2.5	8260B	--	--	--	--	--	--	6,600	1,500	--	--	--	--	--	--	--	--
p-Isopropyltoluene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	ug/kg	5	8260B	--	--	6.2	--	8.1	--	--	--	--	12	--	51	11	31	72	--
Toluene	ug/kg	25	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	ug/kg	2.5	8260B	--	--	--	--	--	4.4	--	--	--	--	--	--	--	--	--	--
Trichloroethene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/kg	10	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	ug/kg	5	8260B	--	NA	NA	NA	NA	NA	12,000	4,800	--	--	--	--	--	--	--	--
SVOCs																			
bis(2-Ethylhexyl) phthalate	ug/kg	330	8270C	--	NA	NA	NA	NA	NA	NA	NA	--	1,100	--	--	--	--	--	NA
Dimethyl phthalate	ug/kg	3300	8270C	--	NA	NA	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	NA
Pesticides																			
4,4'-DDE	ug/kg	17	8081A	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--
Diesel																			
Diesel Range Organics	ug/kg	1700	8015B	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

† Elevated detection limits due to dilution of sa -- Not detected

* - Laboratory Data Qualifier B = Analyte also NA = Not Analyzed

** - Laboratory Data Qualifier = Sample was diluted due to elevated concentration levels.

@ = Biased high due to a coeluting isomer.

N/A = None Available

Table 2
Soil Analytical Results
November 1999
Safety-Kleen (Wichita) Facility

				B-13		B-14	B-15	B-16	B-17	B-18		B-19		B-20			B-21		B-22		
				3'†	12'	4"	3'	3'	3'†	3'	3' Dup	3'†	13'	3'	3' Dup†	16'	3'†	12'†	3'	3' Dup	16'
Parameters		Practical Quantitation Limit	Test Method																		
Percent Moisture	%	0.5	D 2216-90	18.8	13.5	14.3	18.9	24	21	18.9	15.9	8.4	20.4	20.4	21.2	19	9.5	17.6	19.8	21.1	21.9
Corrosivity	No Units	1	9040B	5.5	--	6.3	6.1	6.2	6.1	5.8	6.6	7.6	--	6.6	6.4	--	7.7	--	7.4	7.1	--
RCRA Metals																					
Arsenic	mg/kg	30	6010B	--	NA	--	--	--	--	--	--	--	NA	--	--	--	--	NA	--	--	NA
Barium	mg/kg	20	6010B	181	NA	143	115	166	95	181	166	219	NA	148	152	NA	154	NA	184	157	NA
Cadmium	mg/kg	0.5	6010B	--	NA	--	--	--	--	--	--	--	NA	--	--	NA	--	NA	--	--	NA
Chromium	mg/kg	1	6010B	19	NA	23.3	20.4	20.1	20.3	21	18.8	20.8	NA	18.7	18.9	NA	15.1	NA	21.8	20.1	NA
Lead	mg/kg	10	6010B	15.5	NA	11.6	11.5	1,560	146	12.1	10.5	68.4	NA	13.6	10.7	NA	12.9	NA	10.2	26.2	NA
Mercury	mg/kg	0.1	7471A	--	NA	--	--	--	--	--	--	--	NA	--	--	NA	--	NA	--	--	NA
Silver	mg/kg	1	6010B	--	NA	--	--	--	2.4	--	--	--	NA	--	--	NA	--	NA	--	--	NA
Organic Constituents																					
VOCs																					
1,1,1-Trichloroethane	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/kg	5	8260B	--	--	--	--	--	--	--	--	67	--	--	31	--	--	--	--	--	--
1,2,4-Trimethylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichlorobenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chlorobenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichlorethene	ug/kg	2.5	8260B	--	--	--	--	--	--	--	--	--	--	10	120	--	--	28	26	18	21
Ethylbenzene	ug/kg	25	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene	ug/kg	1000	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	ug/kg	5	8260B	28*	--	5*	--	--	--	--	5.2*	--	5.1*	--	--	--	--	26*	5.5	--	--
m-Xylene & p-Xylene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Butylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
o-Xylene	ug/kg	2.5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
p-Isopropyltoluene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	ug/kg	5	8260B	800	35	--	--	--	--	--	--	--	24	24	480	12	6,800	490	95	48	40
Toluene	ug/kg	25	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	ug/kg	2.5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	ug/kg	5	8260B	--	--	--	--	52	--	--	--	--	--	5.7	120	--	--	85	72	44	19
Vinyl Chloride	ug/kg	10	8260B	--	--	--	--	--	--	--	--	34	--	--	--	--	--	--	--	--	--
Naphthalene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SVOCs																					
bis(2-Ethylhexyl) phthalate	ug/kg	330	8270C	NA	NA	NA	NA	NA	--	--	1000	9400	NA	--	--	NA	24,000	NA	NA	NA	NA
Dimethyl phthalate	ug/kg	3300	8270C	NA	NA	NA	NA	NA	--	--	--	8400	NA	--	--	NA	--	NA	NA	NA	NA
Pesticides																					
4,4'-DDE	ug/kg	17	8081A	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	NA	NA	NA	NA	NA	NA
Diesel																					
Diesel Range Organics	ug/kg	1700	8015B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	NA	NA	NA	NA	NA	NA

Notes:
† Elevated detection limits due to dilution of sa
* - Laboratory Data Qualifier B = Analyte also
** - Laboratory Data Qualifier = Sample was di
@ = Biased high due to a coeluting isomer.
N/A = None Available

Table 2
Soil Analytical Results
November 1999
Safety-Kleen (Wichita) Facility

				B-23			B-24		B-25		B-26	B-27		B-28	B-29		B-30		B-31
				3'	8'	8' Dup	0-3"†	6'	11'	15'	10'	3'	15'	4"	4"	13'	4"	16'	5'
Parameters		Practical Quantitation Limit	Test Method																
Percent Moisture	%	0.5	D 2216-90	21.9	17	22.3	10.8	14.5	19.1	12.6	18.5	18.3	7.2	26.7	5.6	10.4	5.5	16	18.6
Corrosivity	No Units	1	9040B	6.7	--	--	7.4	7.7	7.3	--	7.6	6.4	--	7.1	8.5	--	7.4	--	7.3
RCRA Metals																			
Arsenic	mg/kg	30	6010B	--	NA	NA	49.2	--	--	NA	--	--	NA	--	--	NA	--	--	--
Barium	mg/kg	20	6010B	202	NA	NA	44.1	150	63.9	NA	103	314	NA	232	134	NA	110	NA	305
Cadmium	mg/kg	0.5	6010B	--	NA	NA	46.8	--	--	NA	--	--	NA	--	--	NA	37.3	NA	--
Chromium	mg/kg	1	6010B	21.3	NA	NA	33.7	15	8.1	NA	11.7	22.8	NA	25.9	14.5	NA	39.7	NA	17.4
Lead	mg/kg	10	6010B	46.6	NA	NA	392	--	--	NA	--	12.6	NA	13.8	10.1	NA	319	NA	20.9
Mercury	mg/kg	0.1	7471A	--	NA	NA	0.27	--	--	NA	--	--	NA	--	0.77	NA	0.11	NA	--
Silver	mg/kg	1	6010B	--	NA	NA	--	--	--	NA	--	1.4	NA	--	--	NA	--	NA	1.1
Organic Constituents																			
VOCs																			
1,1,1-Trichloroethane	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethane	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,2,4-Trimethylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	93
1,2-Dichlorobenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	21
1,3,5-Trimethylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	35
Chlorobenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichlorethene	ug/kg	2.5	8260B	78	--	7.3	--	--	--	--	--	--	--	--	--	--	11	18	--
Ethylbenzene	ug/kg	25	8260B	--	--	--	440	--	--	6.5	--	--	--	--	--	--	--	--	8.5
Isopropylbenzene	ug/kg	1000	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5	--
m-Xylene & p-Xylene	ug/kg	5	8260B	--	--	--	700	23	--	32	--	--	14	--	--	--	--	--	50
n-Butylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	25@
n-Propylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7
o-Xylene	ug/kg	2.5	8260B	--	--	--	560	7.3	--	12	--	--	8.3	--	--	--	--	--	24
p-Isopropyltoluene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	7.6
sec-Butylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	5
Tetrachloroethene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	35	7.6	--	--	--	38	27	110
Toluene	ug/kg	25	8260B	--	--	--	56	--	--	--	--	--	--	--	--	--	--	--	--
trans-1,2-Dichloroethene	ug/kg	2.5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	28	--
Vinyl Chloride	ug/kg	10	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	37
SVOCs																			
bis(2-Ethylhexyl) phthalate	ug/kg	330	8270C	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	ug/kg	3300	8270C	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides																			
4,4'-DDE	ug/kg	17	8081A	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	17	NA	NA
Diesel																			
Diesel Range Organics	ug/kg	1700	8015B	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
† Elevated detection limits due to dilution of sa
* - Laboratory Data Qualifier B = Analyte also
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Table 2
Soil Analytical Results
November 1999
Safety-Kleen (Wichita) Facility

				B-32	B-33		B-34	B-35		B-36	B-37	B-38	B-39	B-40		B-41	B-42	B-43	B-44	
				0-3"	0-3'	15'	0-3'	6'†	13'	3'	3'	3'	4"	4"†	16'	4"	4"	4"	11'	15'
Parameters		Practical Quantitation Limit	Test Method																	
Percent Moisture	%	0.5	D 2216-90	22.3	20.7	8.4	22.8	13.2	20.3	24.2	21.7	23.2	11.1	14.6	7.8	13.9	18.4	23.4	11.9	3.4
Corrosivity	No Units	1	9040B	7	6.8	--	6.7	7.1	--	7.4	6.5	7.8	7.8	7.2	--	6.9	7.4	6.4	6.9	--
RCRA Metals																				
Arsenic	mg/kg	30	6010B	--	--	NA	--	--	NA	--	--	--	--	--	NA	--	--	--	--	NA
Barium	mg/kg	20	6010B	189	319	NA	191	67.9	NA	163	172	98.4	86.5	344	NA	369	185	202	38.4	NA
Cadmium	mg/kg	0.5	6010B	--	--	NA	--	--	NA	--	--	--	0.69	3.3	NA	1.6	--	--	--	NA
Chromium	mg/kg	1	6010B	21.1	21.4	NA	21.6	11.8	NA	18.7	22.8	10.3	17	91.7	NA	60.4	19.7	24.5	12	NA
Lead	mg/kg	10	6010B	15	20.3	NA	12.2	296	NA	--	15.6	25.8	19.8	7800	NA	320	16.6	15	--	NA
Mercury	mg/kg	0.1	7471A	--	--	NA	--	--	NA	--	--	--	--	0.23	NA	0.16	--	--	0.4	NA
Silver	mg/kg	1	6010B	1	1.1	NA	--	--	NA	--	--	--	--	3	NA	1.4	--	1	--	NA
Organic Constituents																				
VOCs																				
1,1,1-Trichloroethane	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	18	--	--	--
1,1-Dichloroethane	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	5	--	--	--	--	--	--	--
1,2,4-Trimethylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	5.9	--	--	--
1,2-Dichlorobenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,3,5-Trimethylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	25	--	--	--
Chlorobenzene	ug/kg	5	8260B	--	--	--	--	1,200**	5.6	--	--	--	--	--	--	--	--	--	--	--
cis-1,2-Dichlorethene	ug/kg	2.5	8260B	4.6	3	--	3	--	--	3	12	--	8.4	--	--	--	--	--	--	--
Ethylbenzene	ug/kg	25	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	8.7	--	--	--
Isopropylbenzene	ug/kg	1000	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Methylene chloride	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	5.7*	--	--	--	--	--	--
m-Xylene & p-Xylene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	18	--	--	--
n-Butylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
n-Propylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
o-Xylene	ug/kg	2.5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	80	--	--	--
p-Isopropyltoluene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
sec-Butylbenzene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tetrachloroethene	ug/kg	5	8260B	16	110	--	9.4	--	--	--	--	--	--	9.7	9.2	25	13	--	--	--
Toluene	ug/kg	25	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	7.6	--	--	--
trans-1,2-Dichloroethene	ug/kg	2.5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	ug/kg	5	8260B	6.6	29	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Vinyl Chloride	ug/kg	10	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Naphthalene	ug/kg	5	8260B	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
SVOCs																				
bis(2-Ethylhexyl) phthalate	ug/kg	330	8270C	--	NA	NA	NA	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Dimethyl phthalate	ug/kg	3300	8270C	--	NA	NA	NA	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	--	NA	NA
Pesticides																				
4,4'-DDE	ug/kg	17	8081A	--	--	NA	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Diesel																				
Diesel Range Organics	ug/kg	1700	8015B	--	NA	NA	NA	NA	NA	2100	--	--	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
† Elevated detection limits due to dilution of sa
* - Laboratory Data Qualifier B = Analyte also
** - Laboratory Data Qualifier = Sample was di
@ = Biased high due to a coeluting isomer.
N/A = None Available

Table 3
Proposed Soil Sampling Depths and Analyses
RCRA Facility Investigation
Safety-Kleen (Wichita) Facility

Boring ID	Location Description or Associated Potential Source Area	Proposed Sampling Depths			Proposed Soil Sample Analyses	
		Ground Surface (0-6 inches)	3 to 5 feet Default	Just Above Water Table	VOCs	Inorganics
B-45	Building C Loading Ramp		X	X	X	
B-46	Building C Loading Ramp		X	X	X	
B-47	Building C Loading Ramp		X	X	X	
B-48	South of Processing Area		X	X	X	
B-49	South of Processing Area		X	X	X	
B-50	South of Processing Area		X	X	X	
B-51	Former Paint Can Burial Pit		X	X	X	
B-52	Former Paint Can Burial Pit		X	X	X	
B-53	East of Buildings J and K		X	X	X	
B-54	East of Buildings J and K		X	X	X	
B-55	East of Buildings J and K		X	X	X	
B-56	Southwest Backfilled Area		X	X	X	
B-57	Southwest Backfilled Area		X	X	X	
B-58	Southwest Backfilled Area		X	X	X	
B-59	Spur Between Bldgs. I & J		X	X	X	
B-60	Spur Between Bldgs. I & J	X	X	X	X	X
B-61	Far Northeast Corner of Facility	X	X	X		X
B-62	Far Northeast Corner of Facility	X	X	X		X
B-63	Far Northeast Corner of Facility	X	X	X		X
B-64	Rail Spur Along North Property Boundary	X	X	X		X
B-65	Rail Spur Along North Property Boundary	X	X	X		X
B-66	Rail Spur Along North Property Boundary	X	X	X		X
B-67	Rail Spur Along North Property Boundary	X	X	X		X

Table 4
Groundwater Analytical Results for Detected Volatile Organic Compounds
October 2000
Safety-Kleen (Wichita) Facility

Parameter Name	Units	Practical Quantitation Limit	SK-1S	SK-1D	SK-2S	SK-2D	SK-2D (DUP)	SK-3S	SK-3D	SK-4S	SK-5S	SK-5D	SK-6S
Dilution Factor			1	1	1	10	10	1	2	10	4	3.3	1
Volatile Organic Compounds													
1,1,1-Trichloroethane	ug/L	< 1.0	-	-	6.3	-	-	1.7	7.0	15.0	-	-	-
1,1-Dichloroethane	ug/L	< 1.0	-	-	2.3	-	-	-	-	-	-	-	1.7
1,1-Dichloroethene	ug/L	< 1.0	-	-	1.2	-	-	-	-	-	-	-	-
1,2,4-Trimethylbenzene	ug/L	< 1.0	-	-	-	-	-	-	-	-	120.0	270.0	-
1,3,5-Trimethylbenzene	ug/L	< 1.0	-	-	-	-	-	-	-	-	42.0	86.0	-
Bromodichloromethane	ug/L	< 1.0	-	-	-	-	-	-	2.2	-	-	-	-
Carbon tetrachloride	ug/L	< 1.0	-	-	-	-	-	-	-	-	6.3	-	-
Chlorodibromomethane	ug/L	< 1.0	-	-	-	-	-	-	2.7	-	-	-	-
Chloroform	ug/L	< 1.0	-	-	-	-	-	-	2.5	-	20.0	-	-
cis-1,2-Dichloroethene	ug/L	< 1.0	-	2.2	38.0	58.0	53.0	13.0	18.0	23.0	8.2	10.0	-
Ethylbenzene	ug/L	< 1.0	-	-	-	-	-	-	-	-	33.0	33.0	-
Isopropylbenzene	ug/L	< 1.0	-	-	-	-	-	-	-	-	-	9.2	-
m-Xylene & p-Xylene	ug/L	< 2.0	-	-	-	-	-	-	-	-	120.0	90.0	-
Naphthalene	ug/L	< 1.0	-	-	-	-	-	-	-	-	15.0	26.0	-
n-Butylbenzene	ug/L	< 1.0	-	-	-	-	-	-	-	-	-	14.0	-
n-Propylbenzene	ug/L	< 1.0	-	-	-	-	-	-	-	-	12.0	40.0	-
o-Xylene	ug/L	< 1.0	-	-	-	-	-	-	-	-	41.0	23.0	-
p-Isopropyltoluene	ug/L	< 1.0	-	-	-	-	-	-	-	-	-	6.4	-
Tetrachloroethene	ug/L	< 1.0	1.4	3.2	31.0	20.0	13.0	17.0	66.0	160.0	6.0	-	-
Toluene	ug/L	< 1.0	-	-	-	-	-	-	-	-	54.0	9.9	-
Trichloroethene	ug/L	< 1.0	-	-	19.0	240.0	290.0	7.4	42.0	33.0	63.0	74.0	-

Notes:
NA = Not available
"-" = Results were below reporting limits
Analysis by USEPA SW-846 Method 8260B

Table 5
Groundwater Analytical Results for Detected Volatile Organic Compounds
April 2001
Safety-Kleen (Wichita) Facility

Parameter Name	Units	Practical Quantitation Limit	SK-1S	SK-1S NP	SK-1S AP	SK-1D	SK-2S	SK-2D	SK-3S	SK-3D	SK-3Z (DUP - 3D)	SK-4S	SK-4Z (DUP - 4S)
Sample Date			Apr-01	Apr-01	Apr-01	Apr-01	Apr-01	Apr-01	Apr-01	Apr-01	Apr-01	Apr-01	Apr-01
Dilution Factor			1			1							
Volatile Organic Compounds													
1,1,1-Trichloroethane	ug/L	< 1.0	-	-	-	-	150.0	-	-	-	-	24.0	24.0
1,1-Dichloroethane	ug/L	< 1.0	-	-	-	-	35.0	-	-	-	-	5.9	-
1,1-Dichloroethene	ug/L	< 1.0	-	-	-	-	-	-	-	-	-	5.9	5.6
1,2,3-Trichlorobenzene	ug/L	< 1.0	-	-	-	-	26.0	-	-	-	-	-	-
1,2,4-Trichlorobenzene	ug/L	< 1.0	-	-	-	-	22.0	-	-	-	-	-	-
1,2,4-Trimethylbenzene	ug/L	< 1.0	-	-	-	-	-	-	130.0	-	-	-	-
1,3,5-Trimethylbenzene	ug/L	< 1.0	-	-	-	-	-	-	35.0	-	-	-	-
1,3-Dichlorobenzene	ug/L	< 1.0	-	-	-	-	23.0	-	-	-	-	-	-
Benzene	ug/L	< 1.0	-	-	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	ug/L	< 1.0	-	-	-	-	-	-	-	-	-	-	-
Chloroform	ug/L	< 1.0	-	-	-	-	-	-	-	-	-	-	-
cis-1,2-Dichloroethene	ug/L	< 1.0	1.2	1.8	-	-	730.0	42.0	-	12.0	13.0	17.0	-
Ethylbenzene	ug/L	< 1.0	-	-	-	-	-	-	67.0	-	-	-	-
Methylene chloride	ug/L	< 1.0	-	-	-	-	-	-	-	-	-	-	-
m-Xylene & p-Xylene	ug/L	< 2.0	-	-	-	-	-	-	230.0	-	-	-	-
Naphthalene	ug/L	< 1.0	-	-	-	-	29.0	-	-	-	-	-	-
n-Propylbenzene	ug/L	< 1.0	-	-	-	-	-	-	20.0	-	-	-	-
o-Xylene	ug/L	< 1.0	-	-	-	-	-	-	88.0	-	-	-	-
Tetrachloroethene	ug/L	< 1.0	3.4	9.9	3.4		600.0	-	11.0	-	2.0	110.0	98.0
Toluene	ug/L	< 1.0	-	-	-	-	-	-	200.0	-	-	-	-
Trichloroethene	ug/L	< 1.0	-	1.0	-	-	390.0	270.0	46.0	90.0	94.0	18.0	17.0
Vinyl chloride	ug/L	< 1.0	1.8	-	-	-	-	-	-	-	-	-	-

Notes:
NA = Not available
"-" = Results were below reporting limits
Analysis by USEPA SW-846 Method 8260B

Table 5
Groundwater Analytical Results for Detected Volatile Organic Compounds
April 2001
Safety-Kleen (Wichita) Facility

Parameter Name	Units	Practical Quantitation Limit	SK-5S	SK-5D	SK-6S	SK-SW-1	SK-SW-2	SK-SW-3	SK-SW-5	RSCI-1	HRI-03	UPMW-10	UPMW-11	UPMW-14	WND-32
Sample Date			Apr-01	Apr-01	Apr-01	Apr-01	Apr-01	Apr-01	Apr-01	Apr-01	Apr-01	Apr-01	Apr-01	Apr-01	Apr-01
Dilution Factor					1										
Volatile Organic Compounds															
1,1,1-Trichloroethane	ug/L	< 1.0	5.9	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	ug/L	< 1.0	2.4	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	ug/L	< 1.0	1.2	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	ug/L	< 1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	ug/L	< 1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4-Trimethylbenzene	ug/L	< 1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene	ug/L	< 1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	ug/L	< 1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	ug/L	< 1.0	-	-	-	1.4	-	-	-	-	4.3	-	-	-	-
Carbon tetrachloride	ug/L	< 1.0	-	-	-	-	-	-	-	-	7.0	-	-	-	17.0
Chloroform	ug/L	< 1.0	-	-	-	-	-	-	-	-	2.6	-	-	-	44.0
cis-1,2-Dichloroethene	ug/L	< 1.0	37.0	25.0	-	3.3	3.4	-	1.0	-	13.0	-	-	-	1.3
Ethylbenzene	ug/L	< 1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Methylene chloride	ug/L	< 1.0	-	-	-	-	-	-	-	-	-	-	-	-	1.2
m-Xylene & p-Xylene	ug/L	< 2.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene	ug/L	< 1.0	-	-	-	1.0	-	-	-	-	-	140.0	-	-	-
n-Propylbenzene	ug/L	< 1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	ug/L	< 1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	ug/L	< 1.0	46.0	-	-	-	-	-	-	-	11.0	-	-	-	-
Toluene	ug/L	< 1.0	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	ug/L	< 1.0	22.0	180.0	-	3.9	3.8	3.8	4.7	3.1	95.0	-	-	11.0	13.0
Vinyl chloride	ug/L	< 1.0	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:
NA = Not available
"-" = Results were below reporting limits
Analysis by USEPA SW-846 Method 8260B

Table 6
Groundwater Analytical Results for Detected Inorganic Parameters
October 2000
Safety-Kleen (Wichita) Facility

Parameter Name	Units	Method	SK-1S	SK-1D	SK-2S	SK-2D	SK-2D (DUP)	SK-3S	SK-3D	SK-4S	SK-5S	SK-5D	SK-6S
Inorganics													
Alkalinity, Bicarbonate	mg/L	310.1	252.0	238.0	445.0	325.0	NR	353.0	75.0	360.0	274.0	178.0	396.0
Alkalinity, Carbonate	mg/L	310.1	-	-	-	-	-	-	27.9	-	-	-	-
Alkalinity, Total	mg/L	310.1	252.0	238.0	445.0	325.0	NR	353.0	103.0	360.0	274.0	178.0	396.0
Calcium (Dissolved)	mg/L	6010B	116.0	108.0	135.0	141.0	h	128.0	65.5	128.0	102.0	70.1	110.0
Chloride	mg/L	325.2	58.8	84.5	122.0	65.8	NR	98.0	111.0	48.4	50.5	78.7	117.0
Iron (Dissolved)	mg/L	6010B	-	-	-	-	-	-	-	2.2	-	-	-
Iron (Total)	mg/L	6010B	88.2 J	1.5 J	22.7 J	0.84 J	0.84 J	10.1 J	0.60 J	212 J	123 J	2.1 J	121 J
Magnesium (Dissolved)	mg/L	6010B	42.2	42.8	36.9	54.5	55.3	34.2	15.9	38.3	37.0	25.0	41.7
Manganese	mg/L	6010B	1.1	0.6	3.5	1.5	1.5	2.7	0.025 J	6.0	2.1	0.7	5.2
Manganese (Dissolved)	mg/L	6010B	0.1	0.6	3.1	1.6	1.6	2.0	0.11 J	3.2	1.0	0.6	2.8
Methane	ug/L	SOP-175	0.6	2.3	340.0	7.9	4.7	41.0	4.2	200.0	5.0	3.3	180.0
Nitrogen, Nitrate	mg/L	353.2	2.0	2.7	-	3.3	NR	0.8	2.0	0.8	6.3	7.0	-
Potassium (Dissolved)	mg/L	6010B	-	10.1	4.0	4.4	4.5	6.4	7.6	3.3	3.4	5.5	3.4
Sulfate	mg/L	375.4	244.0	296.0	76.0	268.0	NR	163.0	142.0	143.0	153.0	121.0	105.0
Total Dissolved Solids	mg/L	160.1	934.0	906.0	878.0	927.0	NR	810.0	510.0	540.0	796.0	586.0	850.0
Total Organic Carbon	mg/L	415.1	1.2	2.2	3.1	2.2	NR	2.5	3.6	4.2	2.3	2.5	3.3

Notes:
N/A = None available
J = Value estimated due to quality control issues (see Data Validation discussion).
NR=Not Requested

Table 7
Groundwater Analytical Results for Detected Inorganic Parameters
April 2001
Safety-Kleen (Wichita) Facility

Parameter Name	Units	Method	SK-1S	SK-1D	SK-2S	SK-2D	SK-3S	SK-3D	SK-3Z (DUP - 3D)	SK-4S	SK-4Z (DUP - 4S)
Inorganics			**Apr-01**	**Apr-01**	**Apr-01**	**Apr-01**	**Apr-01**	**Apr-01**	**Apr-01**	**Apr-01**	**Apr-01**
Alkalinity, Bicarbonate	mg/L	310.1	289.0	274.0	428.0	321.0	308.0	265.0	275.0	39.0	386.0
Alkalinity, Total	mg/L	310.1	289.0	274.0	428.0	321.0	308.0	265.0	275.0	383.0	386.0
Ammonia as N	mg/L	350.1	-	-	0.1	-	0.1	-	-	-	0.1
Calcium (Dissolved)	mg/L	6010B	116.0	160.0	145.0	146.0	110.0	109.0	103.0	144.0	143.0
Chloride	mg/L	325.2	69.0	53.3	109.0	65.0	61.5	53.0	53.4	32.0	32.3
Ethane	ug/L	SOP-175	-	-	-	-	-	-	-	-	-
Iron (Dissolved)	mg/L	6010B	-	-	-	-	1.4	-	-	-	-
Iron (Total)	mg/L	6010B	81.4	0.6	216.0	4.7	181.0	8.7	7.1	435.0	495.0
Magnesium (Dissolved)	mg/L	6010B	45.5	62.8	36.9	58.3	39.3	41.2	39.0	37.5	39.2
Manganese	mg/L	6010B	1.7	0.1	7.3	0.8	2.5	0.5	0.5	5.9	6.9
Manganese (Dissolved)	mg/L	6010B	0.9	0.1	3.0	0.7	1.0	0.4	0.3	1.9	1.9
Methane	ug/L	SOP-175	50.0	0.7	200 E	9.9	11.0	0.7	0.6	3.3	3.4
Methane D	ug/L	SOP-175	-	-	160 D	-	-	-	-	-	-
Nitrogen, Nitrate	mg/L	353.2	1.2	2.0	-	3.2	4.8	6.7	6.6	2.4	2.1
Potassium (Dissolved)	mg/L	6010B	-	3.1	3.5	-	3.9	-	-	-	-
Sulfate	mg/L	375.4	261.0	391.0	138.0	316.0	183.0	195.0	174.0	172.0	200.0
Total Dissolved Solids	mg/L	160.1	1230.0	944.0	1090.0	972.0	829.0	736.0	738.0	1040.0	970.0
Total Organic Carbon	mg/L	415.1	1.8	1.2	3.3	1.1	3.9	1.3	1.4	5.9	4.0

Notes:
N/A = None available
J = Value estimated due to quality control issues (see Data Validation discussion).
NR=Not Requested

Table 7
Groundwater Analytical Results for Detected Inorganic Parameters
April 2001
Safety-Kleen (Wichita) Facility

Parameter Name	Units	Method	SK-5S	SK-5D	SK-6S	RSCI-1	HRI-03	UPMW-10	UPMW-11	UPMW-14	WND-32
Inorganics			**Apr-01**	**Apr-01**	**Apr-01**	**Apr-01**	**Apr-01**	**Apr-01**	**Apr-01**	**Apr-01**	**Apr-01**
Alkalinity, Bicarbonate	mg/L	310.1	500.0	299.0	445.0	328.0	298.0	450.0	116.0	459.0	321.0
Alkalinity, Total	mg/L	310.1	500.0	299.0	445.0	328.0	298.0	450.0	116.0	459.0	321.0
Ammonia as N	mg/L	350.1	0.2	-	-	-	-	0.3	0.1	0.4	0.2
Calcium (Dissolved)	mg/L	6010B	136.0	122.0	118.0	135.0	123.0	98.8	287.0	119.0	124.0
Chloride	mg/L	325.2	136.0	54.8	77.4	77.9	60.7	53.3	6.7	51.1	108.0
Ethane	ug/L	SOP-175	-	-	-	-	-	0.8	-	-	-
Iron (Dissolved)	mg/L	6010B	1.2	-	-	-	0.3	1.2	-	6.8	-
Iron (Total)	mg/L	6010B	48.9	1.3	123.0	12.8	4.6	188.0	152.0	285.0	51.8
Magnesium (Dissolved)	mg/L	6010B	37.4	49.1	43.9	53.2	45.4	27.1	19.1	31.1	31.8
Manganese	mg/L	6010B	3.9	0.5	6.2	0.9	1.0	3.8	1.4	5.7	4.9
Manganese (Dissolved)	mg/L	6010B	2.7	0.6	3.0	0.2	0.0	1.1	-	2.8	2.0
Methane	ug/L	SOP-175	210 E	1.2	9.8	0.9	0.8	520 E	1.4	420 E	3.0
Methane D	ug/L	SOP-175	170 D	-	-	-	-	1300 D	-	850 D	-
Nitrogen, Nitrate	mg/L	353.2	-	4.6	1.4	3.4	2.6	-	2.4	-	6.7
Potassium (Dissolved)	mg/L	6010B	4.2	-	3.1	3.5	-	-	3.0	-	5.1
Sulfate	mg/L	375.4	33.5	228.0	107.0	228.0	229.0	10.3	741.0	29.0	164.0
Total Dissolved Solids	mg/L	160.1	928.0	878.0	1020.0	862.0	781.0	592.0	313.0	488.0	693.0
Total Organic Carbon	mg/L	415.1	2.9	1.4	2.7	2.0	3.9	14.6	10.9	12.9	7.4

Notes:
N/A = None available
J = Value estimated due to quality control issues (see
NR=Not Requested

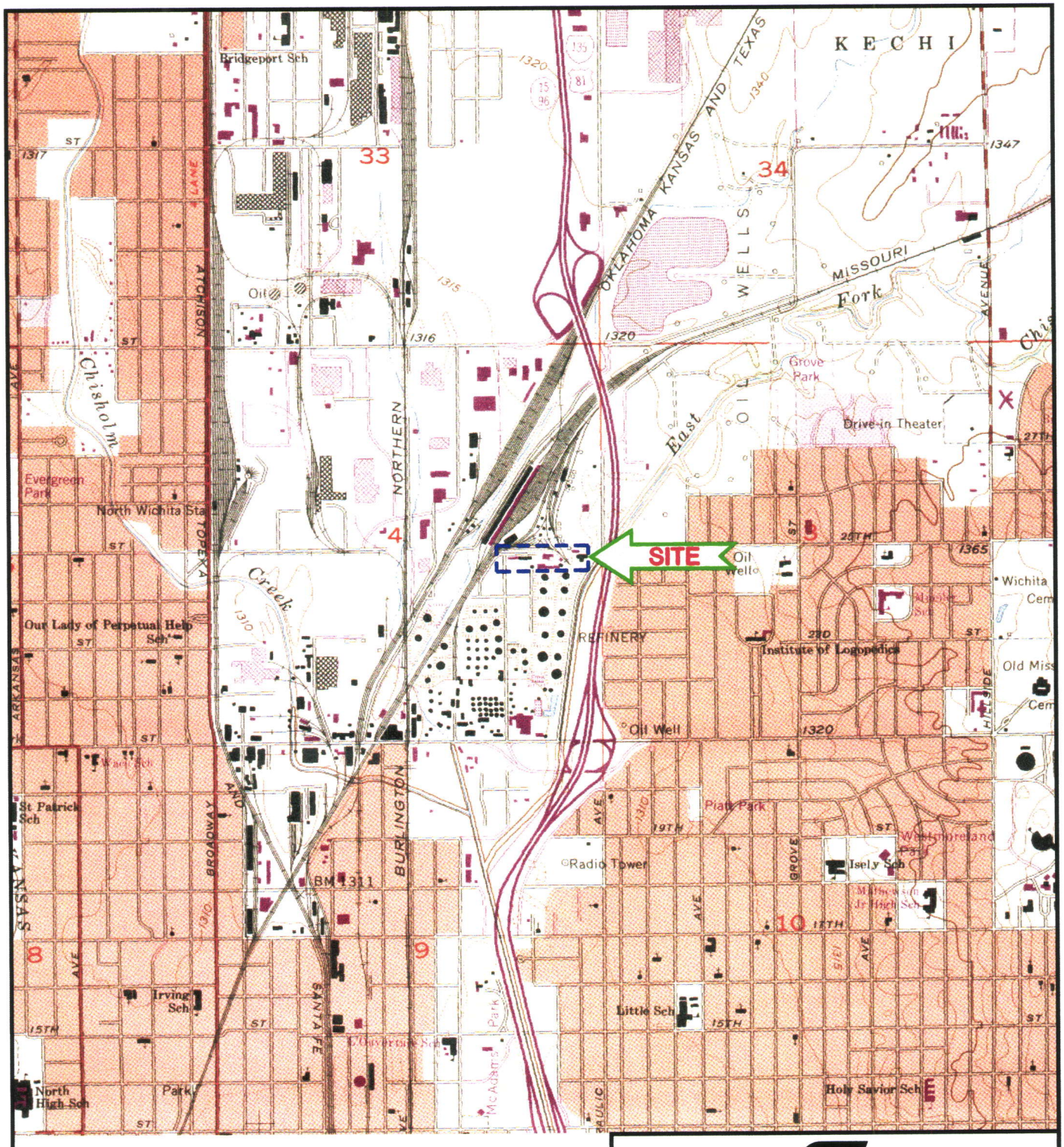
Table 8
Groundwater Analytical Results for Selected Offsite Wells and Geoprobe Locations
Safety-Kleen (Wichita) Facility

Parameter	Units	GP10F-02 March 10, 2000 (CDM) 24-26'	(CDM) 26-35'	GP10F-03 March 9, 2000 (CDM) 15-17'	(CDM) 24-26'	(CDM) 26-36'	GP10F-04 March 9, 2000 (SKC) 18-20'	(CDM) 18-20'	(SKC) 24-26'	(CDM) 24-26'	(SKC) 33-35'	(CDM) 33-35'
1,1,1-Trichloroethane	ug/L	-	-	2.7	-	-	-	-	-	-	-	-
1,1,2-Trichloroethane	ug/L	-	-	2	-	-	-	-	-	-	-	-
1,1-Dichloroethane	ug/L	-	-	1.7	-	-	-	1.1	-	5.1	-	2.8
1,1-Dichloroethene	ug/L	-	-	-	-	-	-	-	-	2.8	-	-
1,2-Dichloroethane	ug/L	-	-	1.4	-	-	-	-	-	2.2	-	-
2,2-Dichloropropane	ug/L	-	-	-	-	-	-	-	-	-	-	-
Benzene	ug/L	-	-	32	26	1.3	410	310	-	24	-	3.1
Carbon tetrachloride	ug/L	-	-	20	15	2.2	-	-	-	-	-	-
Chloroethane	ug/L	-	-	-	-	-	-	-	-	1.2	-	-
Chloroform	ug/L	-	-	28	15	2	-	-	-	-	-	-
cis-1,2-Dichloroethene	ug/L	1.5	29	26	16	21	-	4.6	36	36	60	54
Ethylbenzene	ug/L	-	-	-	-	-	670	380	-	23	-	1.5
Methylene chloride	ug/L	-	-	1.5	-	-	-	-	-	-	-	-
m-Xylene & p-Xylene	ug/L	-	-	-	-	-	110	63	-	4.3	-	-
Naphthalene	ug/L	-	-	-	-	-	170	-	-	-	-	-
n-Propylbenzene	ug/L	-	-	-	-	-	100	-	-	-	-	-
o-Xylene	ug/L	-	-	-	-	-	-	6.1	-	-	-	-
Tetrachloroethene	ug/L	-	1.8	52	7.1	1.7	-	-	76	70	-	1.6
Toluene	ug/L	-	-	-	-	-	-	28	-	1.8	-	-
trans-1,2-Dichloroethene	ug/L	-	3.2	1.3	-	2.2	-	-	-	2.6	-	2
Trichloroethene	ug/L	-	130	70	68	70	-	-	-	37	-	8.3
Vinyl chloride	ug/L	-	-	1.6	-	-	-	1.7	-	6.7	-	13

Table 8
Groundwater Analytical Results for Selected Offsite Wells and Geoprobe Locations
Safety-Kleen (Wichita) Facility

Parameter	GP10F-05 March 9, 2000 (SKC) 15-17'	(CDM) 15-17'	(SKC) 21-24'	(CDM) 21-24'	(SKC) 32-35'	(CDM) 32-35'	MW-1 July 6, 2000	MW-3 July 6, 2000	MW-380 July 6, 2000	RW-20 July, 2000
1,1,1-Trichloroethane	-	-	-	11	-	-	-	-	-	-
1,1,2-Trichloroethane	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	-	5.3	-	8.6	-	-	-	-	2.9	-
1,1-Dichloroethene	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	-	45	-	-	-	-	-	-	-	-
2,2-Dichloropropane	-	-	-	-	-	-	-	2.7	-	-
Benzene	2700	1500	38	40	-	2	-	-	-	-
Carbon tetrachloride	-	-	-	-	-	-	-	-	-	-
Chloroethane	-	-	-	-	-	-	-	-	-	-
Chloroform	-	-	-	1.6	-	-	-	-	-	-
cis-1,2-Dichloroethene	-	-	-	2.4	44	42	-	14	4.5	2.2
Ethylbenzene	330	250	59	4.6	-	-	-	-	-	-
Methylene chloride	-	-	-	-	-	-	-	-	-	-
m-Xylene & p-Xylene	230	210	-	-	-	-	-	-	-	-
Naphthalene	190	-	-	-	-	-	-	-	-	-
n-Propylbenzene	100	-	-	-	-	-	-	-	-	-
o-Xylene	-	18	-	-	-	-	-	-	-	-
Tetrachloroethene	-	-	-	-	-	3.5	-	-	4.2	1.2
Toluene	120	85	-	2.5	-	-	-	-	-	-
trans-1,2-Dichloroethene	-	-	-	-	-	4.5	-	-	-	-
Trichloroethene	-	-	-	3.9	310	260	-	-	1.3	3.6
Vinyl chloride	-	-	-	3.1	-	-	-	-	-	-

FIGURES



MAP ADAPTED FROM U.S.G.S 7.5' SERIES
QUADRANGLE WICHITA EAST, KANSAS

QUADRANGLE LOCATION

North

0 2000
FEET

963231-LOCMAP

safety-kleen consulting

WICHITA, KANSAS

FIGURE 1
SITE LOCATION MAP

SCALE: 1" = 2000'

DATE: 6-11-01

UNION PACIFIC RAILROAD

BUILDING C
FORMER WARMING ROOM
LOADING RAMP
DRUM DOCK
GATE
AREA SOUTH OF BUILDING C
FORMER DRY SOLIDS GONDOLA
FIRE LANE
HRI-03
OPEN AREA ALONG SOUTHWESTERN CORNER OF SITE
SK-4S
FORMER ABOVE GROUND FUEL TANKS
PROCESSING AREA
ELEVATED TANK STORAGE AREA
REGULATED WASTE STORAGE AREA
BUILDING D
FORMER SOLIDS DRYER
HOT ROOMS
CYCLONE
PROCESSING AREA TRUCK BAY
SPARGING AREA
SK-5S
SK-5D
BUILDING H
FORMER BURIED PAINT CAN PIT
CORROSIVE WASTE STORAGE
BUILDING B
SK-3D
SK-3S
FIRE LANE
SK-2D
SK-2S
GATE
LABORATORY SAMPLE STORAGE
BUILDING A
PARKING
BUILDING E
PARKING
PARKING
25th STREET
CONCRETE VAULT
AREA NORTH OF BUILDING I
GATE
FORMER OLD STILL AREA
BUILDING I
AREA EAST OF BUILDING I
BUILDING K
SK-6S
GATE
BUILDING J
RAMP
LOADING DOCK
GATE
SK-1S
SK-1D
NEW YORK ST.
COASTAL REFINERY
(FORMER DERBY REFINERY)

LEGEND

: SWMU Locations

: AOC Locations

MONITORING WELL LOCATIONS

NOTE: SURVEYED TO STATE PLANE COORDINATE SYSTEM
CONTOURS BASED ON SHALLOW GROUNDWATER MEASUREMENTS

North

0 100
FEET

	BY	DATE
DRAWN	CJJ	6-11-01
CHECKED		
APPROVED		
APPROVED		
APPROVED		

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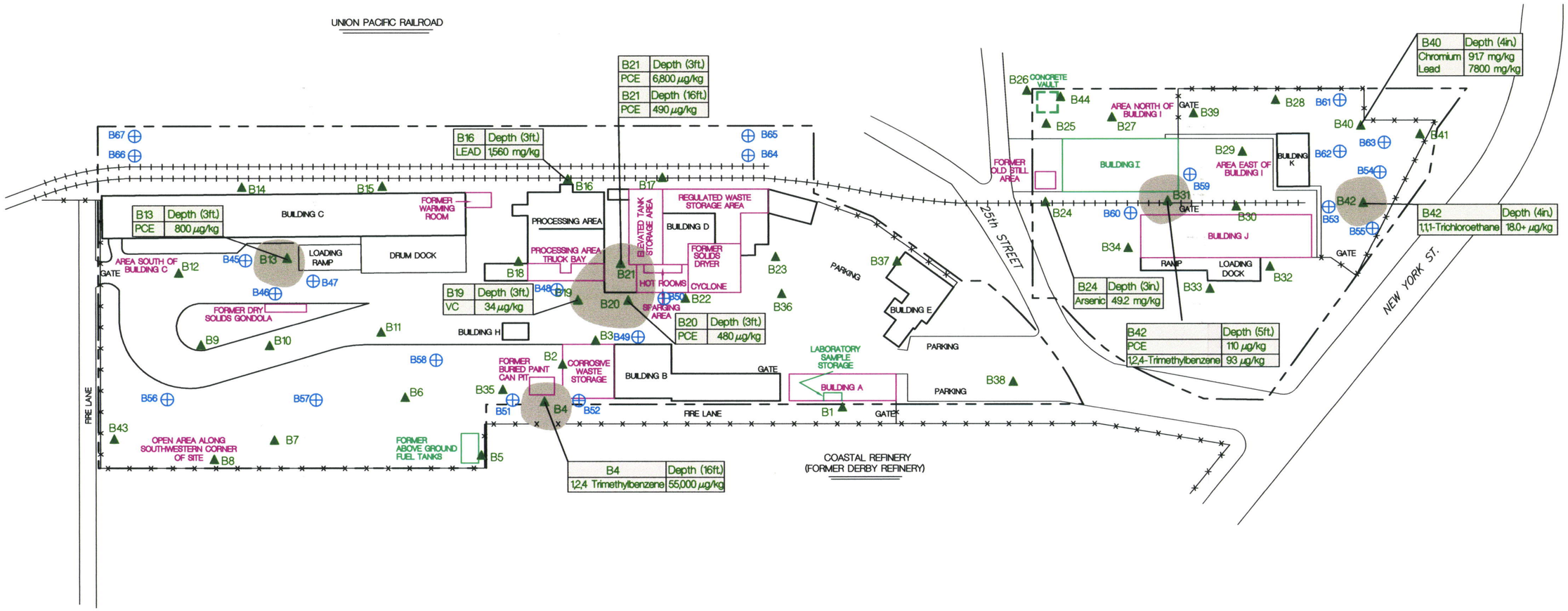
SAFETY-KLEEN - (WICHITA) FACILITY

FIGURE 2
SITE MAP

SCALE: 1" = 100'

DWG. NO.: 963231-0042



NOTES: CONCENTRATIONS PRESENTED HERE EXCEED EITHER THE KDHE SOIL TO GROUNDWATER VALUES AND/OR REGION IX NON-RESIDENTIAL PRG's.

SURVEYED TO STATE PLANE COORDINATE SYSTEM

	BY	DATE
DRAWN	WRB	6-11-01
CHECKED		
APPROVED		
APPROVED		
APPROVED		

safety-kleen consulting

SAFETY-KLEEN - (WICHITA) FACILITY

FIGURE 3

SOIL EXCEEDANCES AND PROPOSED BORING LOCATIONS

SCALE: 1" = 100'

DWG. NO.: 963231-0038

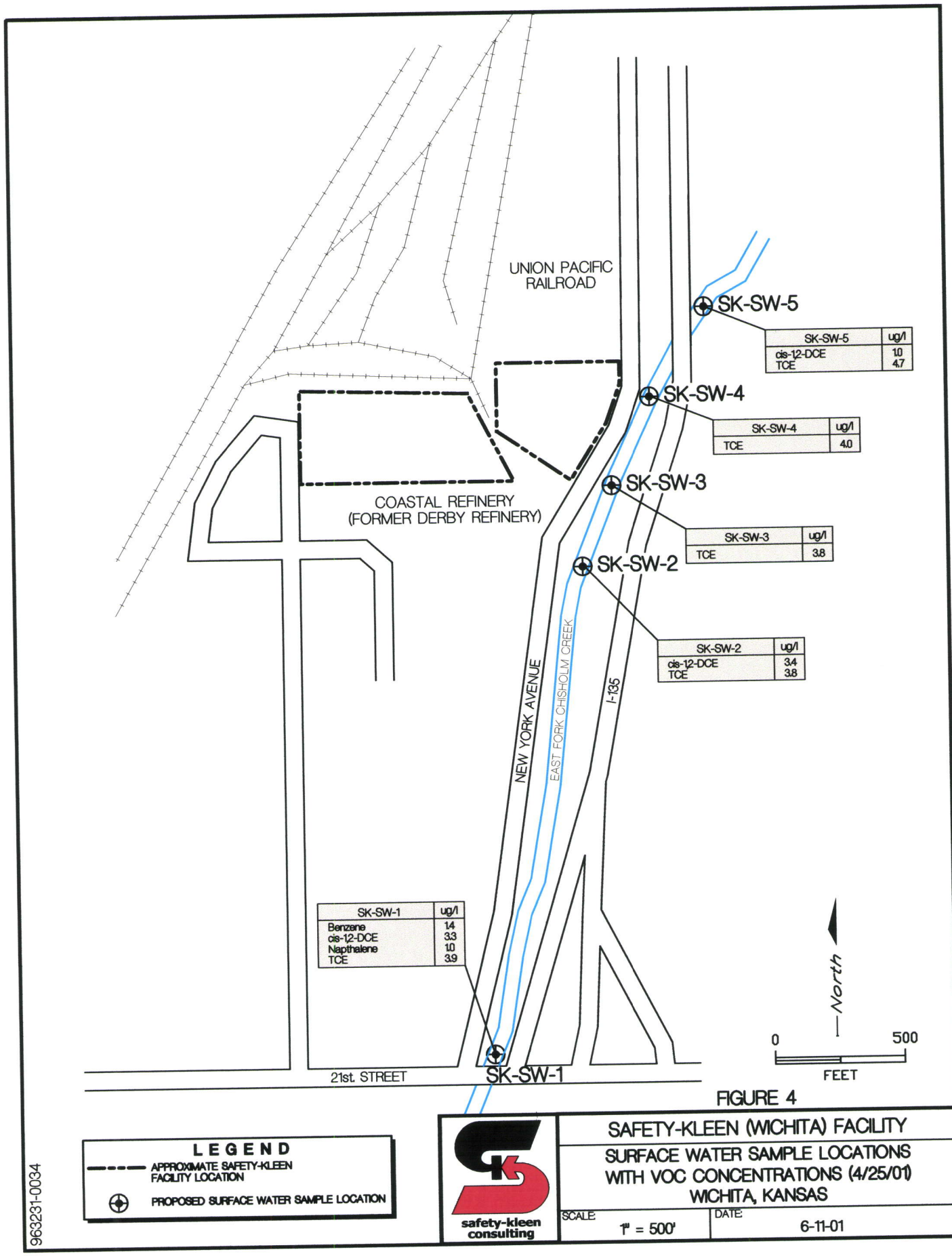
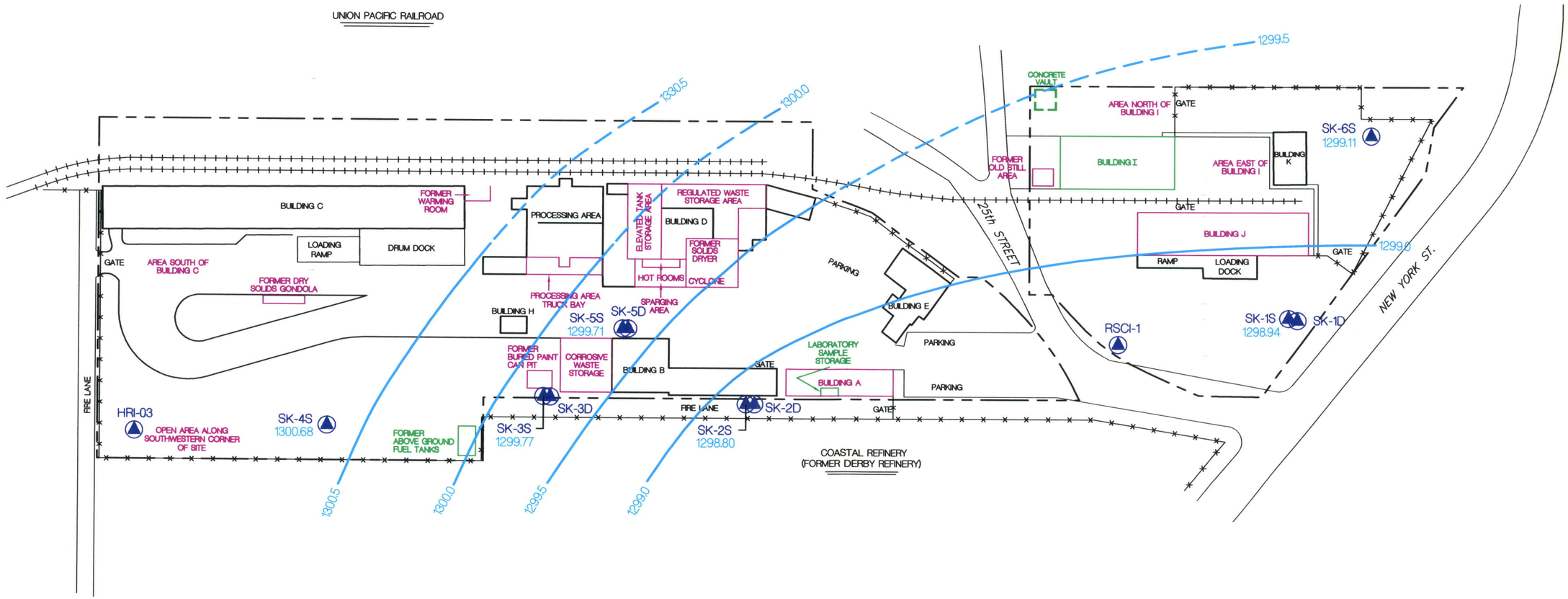

UNION PACIFIC RAILROAD
COASTAL REFINERY (FORMER DERBY REFINERY)
SK-SW-5
SK-SW-4
SK-SW-3
SK-SW-2
SK-SW-1
NEW YORK AVENUE
EAST FORK CHISHOLM CREEK
I-135
21st. STREET
North
0
500
FEET
SK-SW-5 | ug/l
cis-12-DCE 1.0
TCE 4.7
SK-SW-4 | ug/l
TCE 4.0
SK-SW-3 | ug/l
TCE 3.8
SK-SW-2 | ug/l
cis-12-DCE 3.4
TCE 3.8
SK-SW-1 | ug/l
Benzene 1.4
cis-12-DCE 3.3
Napthalene 1.0
TCE 3.9
LEGEND
APPROXIMATE SAFETY-KLEEN FACILITY LOCATION
PROPOSED SURFACE WATER SAMPLE LOCATION
safety-kleen consulting
SAFETY-KLEEN (WICHITA) FACILITY
SURFACE WATER SAMPLE LOCATIONS WITH VOC CONCENTRATIONS (4/25/01)
WICHITA, KANSAS
SCALE: 1" = 500'
DATE: 6-11-01
963231-0034

FIGURE 4



LEGEND

- : SWMU Locations
- : AOC Locations
- MONITORING WELL LOCATIONS
- 1300.68 SHALLOW GROUNDWATER ELEVATION (FT. MSL)
- GROUNDWATER ELEVATION CONTOUR

NOTE: SURVEYED TO STATE PLANE COORDINATE SYSTEM
CONTOURS BASED ON SHALLOW GROUNDWATER MEASUREMENTS

North

0 100
FEET

FIGURE 5

	BY	DATE
DRAWN	CJJ	6-12-01
CHECKED		
APPROVED		
APPROVED		
APPROVED		

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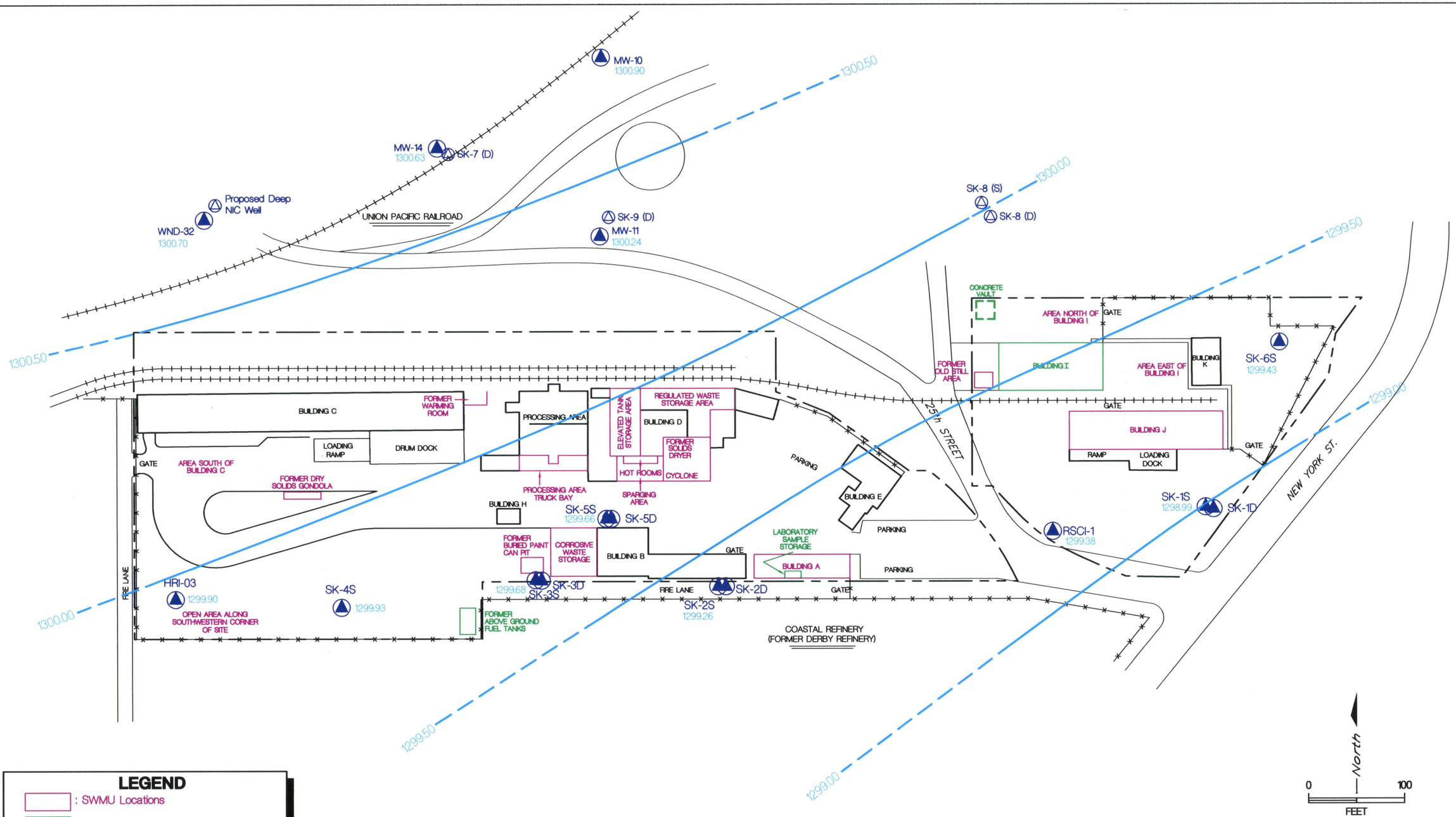
SAFETY-KLEEN - (WICHITA) FACILITY

CONTOURED GROUNDWATER ELEVATION MAP FOR THE SHALLOW ZONE - OCTOBER 25, 2000

SCALE: 1" = 100'

DWG. NO: 963231-0026



LEGEND

- : SWMU Locations
- : AOC Locations
- EXISTING MONITORING WELL LOCATIONS
- PROPOSED MONITORING WELLS
- GROUNDWATER ELEVATION CONTOUR (DASHED WHERE INFERRED)
- 1300.70 GROUNDWATER ELEVATION (FT./MSL)

NOTE: SURVEYED TO STATE PLANE COORDINATE SYSTEM

FIGURE 6

	BY	DATE
DRAWN	CJJ	6-11-01
CHECKED		
APPROVED		
APPROVED		
APPROVED		

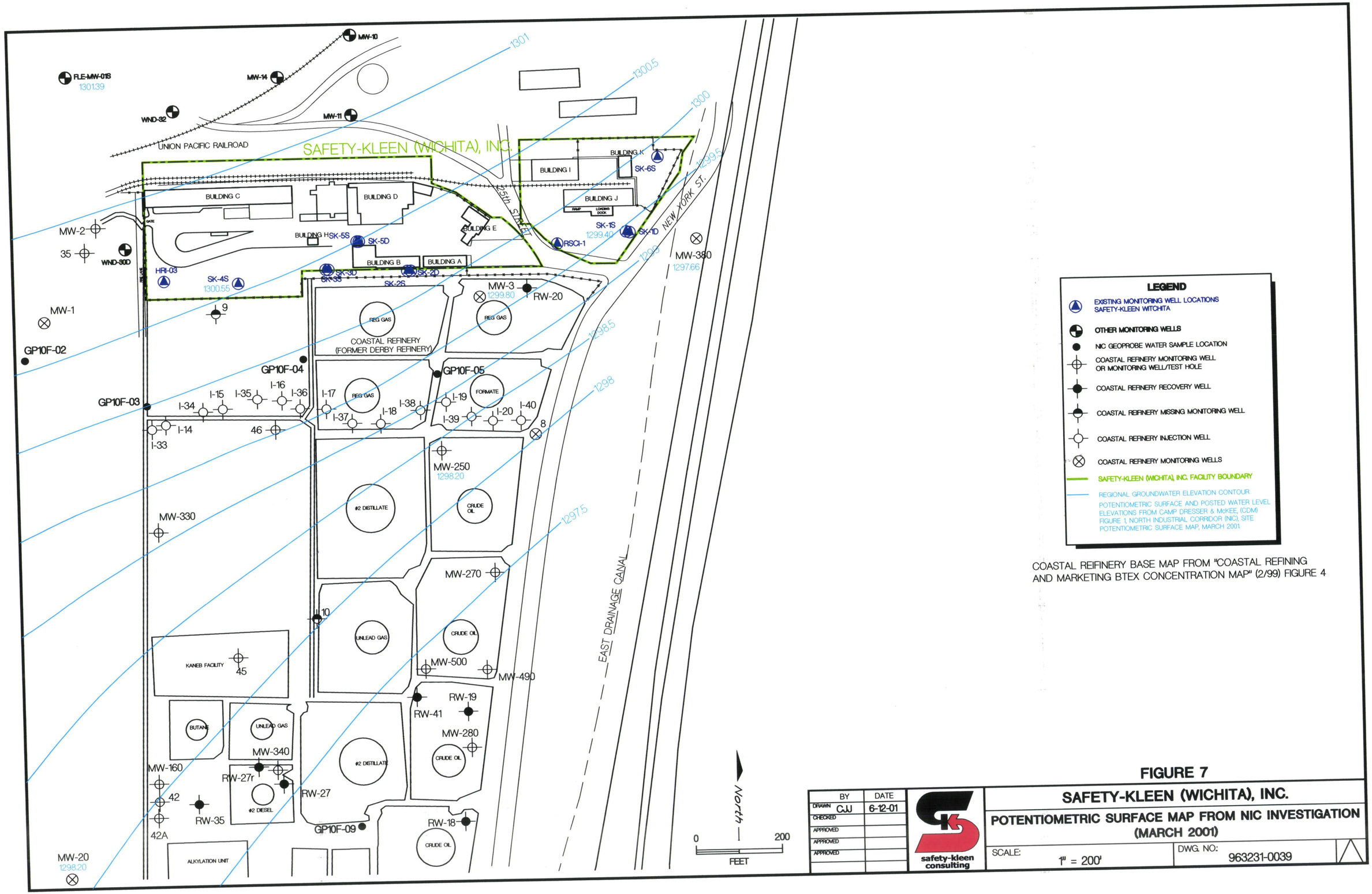
safety-kleen consulting

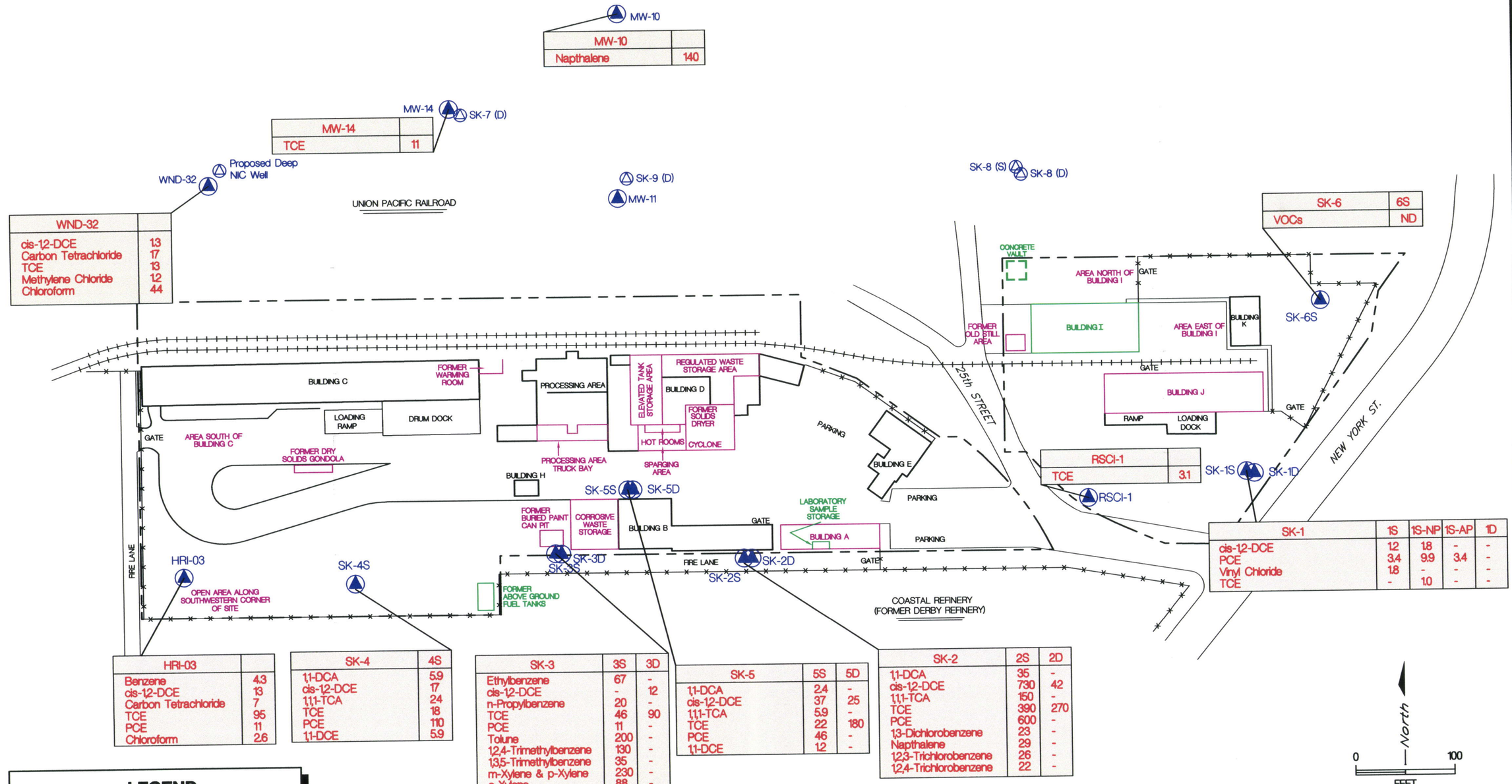
SAFETY-KLEEN - (WICHITA) FACILITY

CONTOURED GROUNDWATER ELEVATION MAP FOR THE SHALLOW ZONE - APRIL 25, 2001

SCALE: 1" = 100'

DWG. NO: 963231-0036


SAFETY-KLEEN (WICHITA), INC.
UNION PACIFIC RAILROAD
MW-10
MW-14
MW-11
WND-32
FLE-MW-01S
1301.39
1301
1300.5
1300
1299.5
1299
1298.5
1298
1297.5
BUILDING C
BUILDING D
BUILDING E
BUILDING H
BUILDING B
BUILDING A
BUILDING I
BUILDING K
BUILDING J
RAMP
LOADING DOCK
GATE
25th STREET
NEW YORK ST.
EAST DRAINAGE CANAL
MW-2
35
WND-30D
HRI-03
SK-4S
1300.55
SK-5S
SK-5D
SK-3D
SK-3S
SK-2D
SK-2S
SK-6S
SK-1S
1299.40
SK-1D
RSCI-1
MW-380
1297.66
MW-3
1299.80
RW-20
MW-1
9
GP10F-02
GP10F-03
GP10F-04
GP10F-05
GP10F-09
REG GAS
COASTAL REFINERY
(FORMER DERBY REFINERY)
FORMATE
I-14
I-15
I-16
I-17
I-18
I-19
I-20
I-33
I-34
I-35
I-36
I-37
I-38
I-39
I-40
46
8
MW-250
1298.20
#2 DISTILLATE
CRUDE OIL
MW-330
MW-270
10
UNLEAD GAS
KANEB FACILITY
45
MW-500
MW-490
RW-19
RW-41
BUTANE
MW-280
MW-340
MW-160
RW-27r
42
#2 DIESEL
RW-27
RW-35
42A
RW-18
ALKYLATION UNIT
MW-20
1298.20
North
0
200
FEET
LEGEND
EXISTING MONITORING WELL LOCATIONS SAFETY-KLEEN WITCHITA
OTHER MONITORING WELLS
NIC GEOPROBE WATER SAMPLE LOCATION
COASTAL REFINERY MONITORING WELL OR MONITORING WELL/TEST HOLE
COASTAL REFINERY RECOVERY WELL
COASTAL REFINERY MISSING MONITORING WELL
COASTAL REFINERY INJECTION WELL
COASTAL REFINERY MONITORING WELLS
SAFETY-KLEEN (WICHITA), INC. FACILITY BOUNDARY
REGIONAL GROUNDWATER ELEVATION CONTOUR
POTENTIOMETRIC SURFACE AND POSTED WATER LEVEL ELEVATIONS FROM CAMP DRESSER & McKEE, (CDM) FIGURE 1, NORTH INDUSTRIAL CORRIDOR (NIC), SITE POTENTIOMETRIC SURFACE MAP, MARCH 2001
COASTAL REIFINERY BASE MAP FROM "COASTAL REFINING AND MARKETING BTEX CONCENTRATION MAP" (2/99) FIGURE 4
BY
DATE
DRAWN CJJ
6-12-01
CHECKED
APPROVED
APPROVED
APPROVED
safety-kleen consulting
FIGURE 7
SAFETY-KLEEN (WICHITA), INC.
POTENTIOMETRIC SURFACE MAP FROM NIC INVESTIGATION (MARCH 2001)
SCALE: 1" = 200'
DWG. NO: 963231-0039



MW-10	
Napthalene	140

MW-14	
TCE	11

WND-32	
cis-1,2-DCE	13
Carbon Tetrachloride	17
TCE	13
Methylene Chloride	12
Chloroform	44

SK-6	6S
VOCs	ND

RSCI-1	
TCE	3.1

SK-1	1S	1S-NP	1S-AP	1D
cis-1,2-DCE	1.2	1.8	-	-
PCE	3.4	9.9	3.4	-
Vinyl Chloride	1.8	-	-	-
TCE	-	1.0	-	-

HRI-03	
Benzene	4.3
cis-1,2-DCE	13
Carbon Tetrachloride	7
TCE	95
PCE	11
Chloroform	2.6

SK-4	4S
1,1-DCA	5.9
cis-1,2-DCE	17
1,1,1-TCA	24
TCE	18
PCE	110
1,1-DCE	5.9

SK-3	3S	3D
Ethylbenzene	67	-
cis-1,2-DCE	-	12
n-Propylbenzene	20	-
TCE	46	90
PCE	11	-
Toluene	200	-
1,2,4-Trimethylbenzene	130	-
1,3,5-Trimethylbenzene	35	-
m-Xylene & p-Xylene	230	-
o-Xylene	88	-

SK-5	5S	5D
1,1-DCA	2.4	-
cis-1,2-DCE	37	25
1,1,1-TCA	5.9	-
TCE	22	180
PCE	46	-
1,1-DCE	1.2	-

SK-2	2S	2D
1,1-DCA	35	-
cis-1,2-DCE	730	42
1,1,1-TCA	150	-
TCE	390	270
PCE	600	-
1,3-Dichlorobenzene	23	-
Napthalene	29	-
1,2,3-Trichlorobenzene	26	-
1,2,4-Trichlorobenzene	22	-

NOTE: SURVEYED TO STATE PLANE COORDINATE SYSTEM

LEGEND

- : SWMU Locations
- : AOC Locations
- EXISTING MONITORING WELL LOCATIONS
- PROPOSED MONITORING WELLS

NOTES: Sample 1S-NP is a discrete interval sample collected before purging the well at 18.5 feet below ground surface (bgs).

Sample 1S-AP is a discrete sample collected after purging the well at 18.5 feet below ground surface (bgs).

FIGURE 8

	BY	DATE
DRAWN	CJJ	6-07-01
CHECKED		
APPROVED		
APPROVED		
APPROVED		

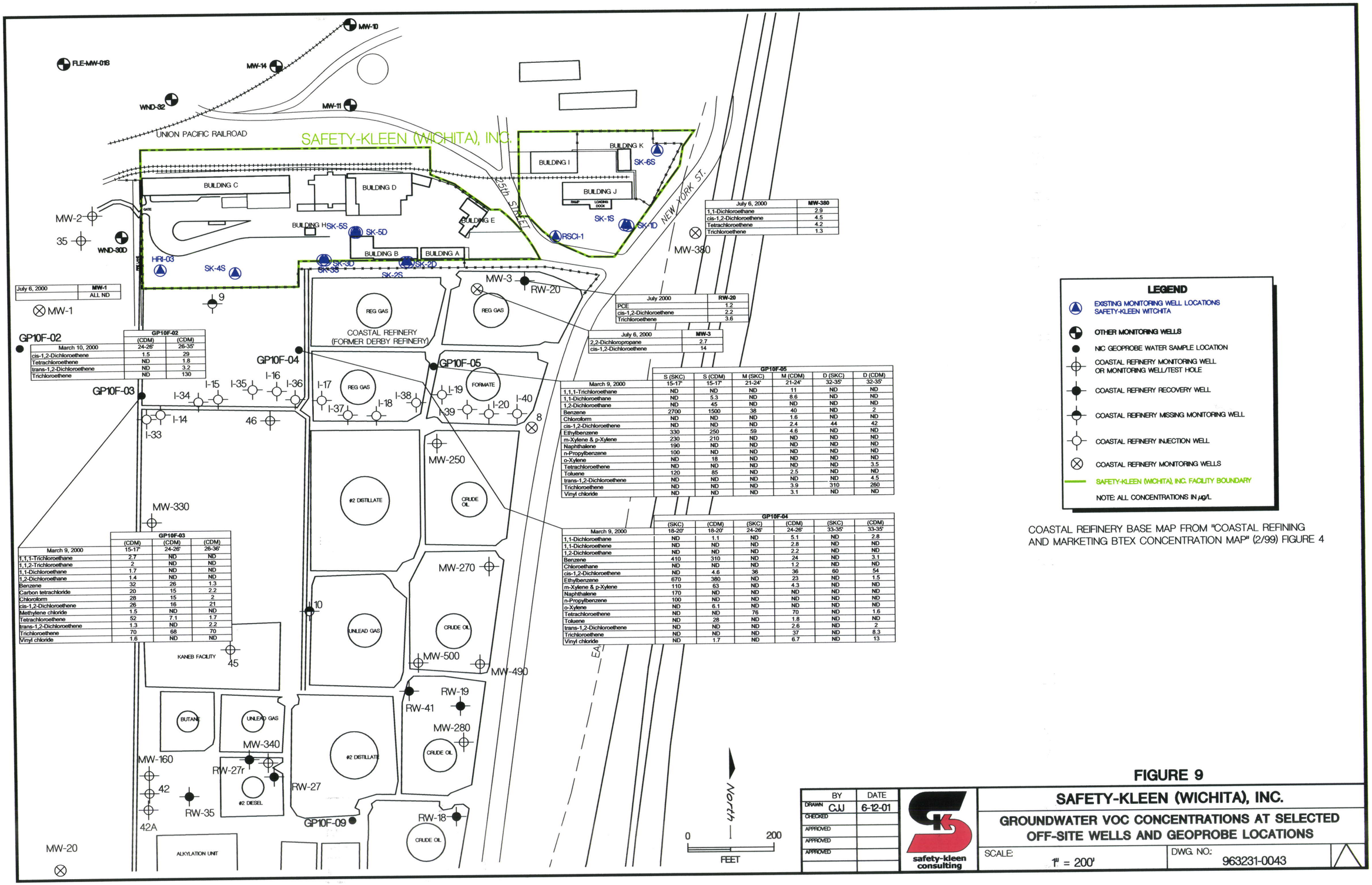
safety-kleen consulting

SAFETY-KLEEN - (WICHITA) FACILITY

GROUNDWATER VOC CONCENTRATIONS (ug/l)
APRIL 25, 2001

SCALE: 1" = 100'

DWG. NO.: 963231-0035



July 6, 2000	MW-1
	ALL ND

GP10F-02		
March 10, 2000	(CDM) 24-26'	(CDM) 26-35'
cis-1,2-Dichloroethene	1.5	29
Tetrachloroethene	ND	1.8
trans-1,2-Dichloroethene	ND	3.2
Trichloroethene	ND	130

GP10F-03			
March 9, 2000	(CDM) 15-17'	(CDM) 24-26'	(CDM) 26-36'
1,1,1-Trichloroethane	2.7	ND	ND
1,1,2-Trichloroethane	2	ND	ND
1,1-Dichloroethane	1.7	ND	ND
1,2-Dichloroethane	1.4	ND	ND
Benzene	32	26	1.3
Carbon tetrachloride	20	15	2.2
Chloroform	28	15	2
cis-1,2-Dichloroethene	26	16	21
Methylene chloride	1.5	ND	ND
Tetrachloroethene	52	7.1	1.7
trans-1,2-Dichloroethene	1.3	ND	2.2
Trichloroethene	70	68	70
Vinyl chloride	1.6	ND	ND

July 6, 2000	MW-380
1,1-Dichloroethane	2.9
cis-1,2-Dichloroethene	4.5
Tetrachloroethene	4.2
Trichloroethene	1.3

July 2000	RW-20
PCE	1.2
cis-1,2-Dichloroethene	2.2
Trichloroethene	3.6

July 6, 2000	MW-3
2,2-Dichloropropane	2.7
cis-1,2-Dichloroethene	14

GP10F-05					
March 9, 2000	S (SKC) 15-17'	S (CDM) 15-17'	M (SKC) 21-24'	M (CDM) 21-24'	D (SKC) 32-35'	D (CDM) 32-35'
1,1,1-Trichloroethane	ND	ND	ND	11	ND	ND
1,1-Dichloroethane	ND	5.3	ND	8.6	ND	ND
1,2-Dichloroethane	ND	45	ND	ND	ND	ND
Benzene	2700	1500	38	40	ND	2
Chloroform	ND	ND	ND	1.6	ND	ND
cis-1,2-Dichloroethene	ND	ND	ND	2.4	44	42
Ethylbenzene	330	250	59	4.6	ND	ND
m-Xylene & p-Xylene	230	210	ND	ND	ND	ND
Naphthalene	190	ND	ND	ND	ND	ND
n-Propylbenzene	100	ND	ND	ND	ND	ND
o-Xylene	ND	18	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	3.5
Toluene	120	85	ND	2.5	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	ND	ND	4.5
Trichloroethene	ND	ND	ND	3.9	310	260
Vinyl chloride	ND	ND	ND	3.1	ND	ND

GP10F-04						
March 9, 2000	(SKC) 18-20'	(CDM) 18-20'	(SKC) 24-26'	(CDM) 24-26'	(SKC) 33-35'	(CDM) 33-35'
1,1-Dichloroethane	ND	1.1	ND	5.1	ND	2.8
1,1-Dichloroethene	ND	ND	ND	2.8	ND	ND
1,2-Dichloroethane	ND	ND	ND	2.2	ND	ND
Benzene	410	310	ND	24	ND	3.1
Chloroethane	ND	ND	ND	1.2	ND	ND
cis-1,2-Dichloroethene	ND	4.6	36	36	60	54
Ethylbenzene	670	380	ND	23	ND	1.5
m-Xylene & p-Xylene	110	63	ND	4.3	ND	ND
Naphthalene	170	ND	ND	ND	ND	ND
n-Propylbenzene	100	ND	ND	ND	ND	ND
o-Xylene	ND	6.1	ND	ND	ND	ND
Tetrachloroethene	ND	ND	76	70	ND	1.6
Toluene	ND	28	ND	1.8	ND	ND
trans-1,2-Dichloroethene	ND	ND	ND	2.6	ND	2
Trichloroethene	ND	ND	ND	37	ND	8.3
Vinyl chloride	ND	1.7	ND	6.7	ND	13

LEGEND

- EXISTING MONITORING WELL LOCATIONS SAFETY-KLEEN WITCHITA
- OTHER MONITORING WELLS
- NIC GEOPROBE WATER SAMPLE LOCATION
- COASTAL REFINERY MONITORING WELL OR MONITORING WELL/TEST HOLE
- COASTAL REFINERY RECOVERY WELL
- COASTAL REFINERY MISSING MONITORING WELL
- COASTAL REFINERY INJECTION WELL
- COASTAL REFINERY MONITORING WELLS
- SAFETY-KLEEN (WICHITA), INC. FACILITY BOUNDARY

NOTE: ALL CONCENTRATIONS IN µg/L

COASTAL REIFINERY BASE MAP FROM "COASTAL REFINING AND MARKETING BTEX CONCENTRATION MAP" (2/99) FIGURE 4

FIGURE 9

	BY	DATE
DRAWN	CJJ	6-12-01
CHECKED		
APPROVED		
APPROVED		
APPROVED		

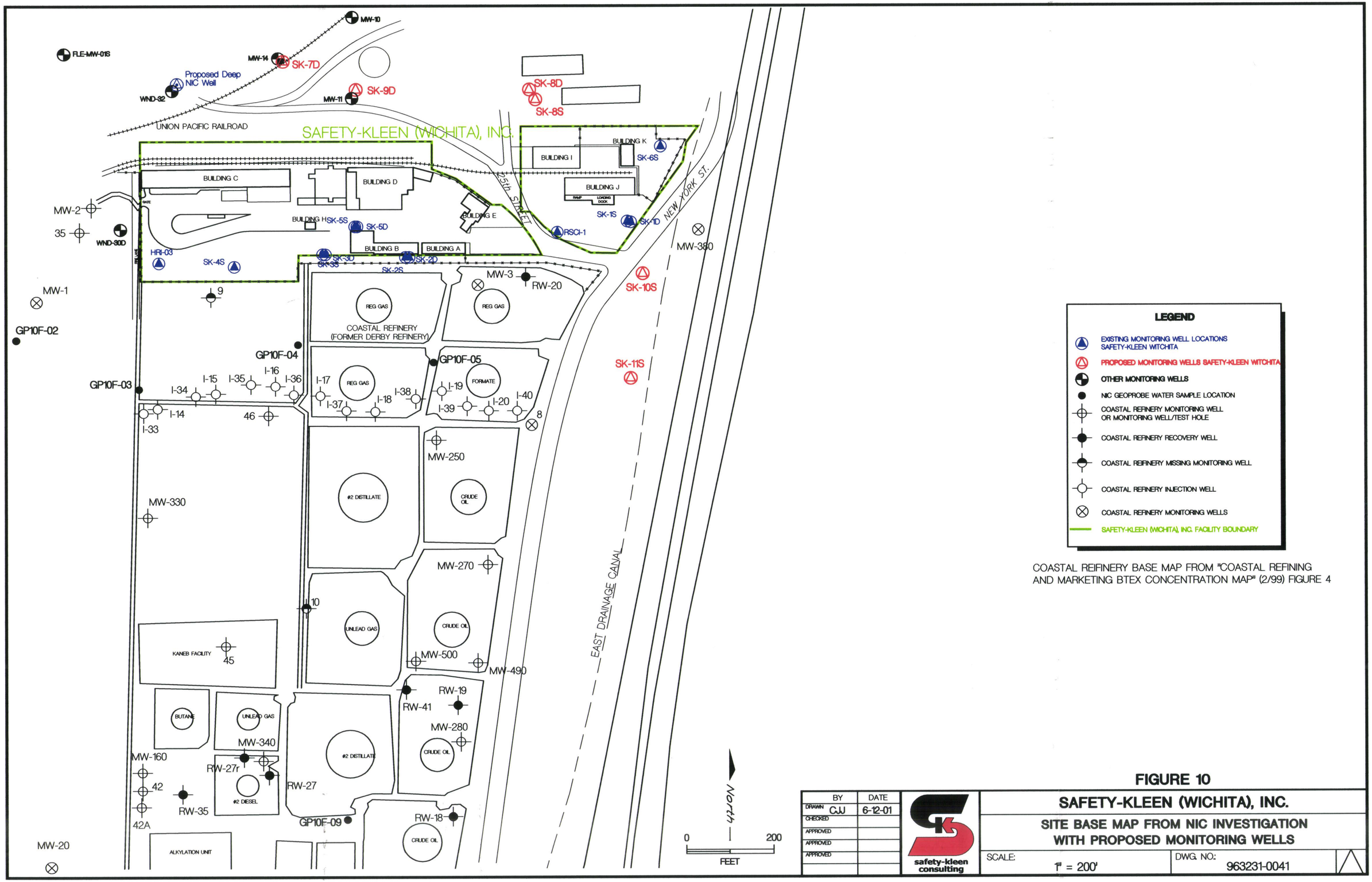
safety-kleen consulting

SAFETY-KLEEN (WICHITA), INC.

GROUNDWATER VOC CONCENTRATIONS AT SELECTED OFF-SITE WELLS AND GEOPROBE LOCATIONS

SCALE: 1" = 200'

DWG. NO: 963231-0043



COASTAL REIFINERY BASE MAP FROM "COASTAL REFINING AND MARKETING BTEX CONCENTRATION MAP" (2/99) FIGURE 4

	BY	DATE
DRAWN	CJJ	6-12-01
CHECKED		
APPROVED		
APPROVED		
APPROVED		

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FIGURE 10

SAFETY-KLEEN (WICHITA), INC.

SITE BASE MAP FROM NIC INVESTIGATION WITH PROPOSED MONITORING WELLS

SCALE: 1" = 200'

DWG. NO: 963231-0041

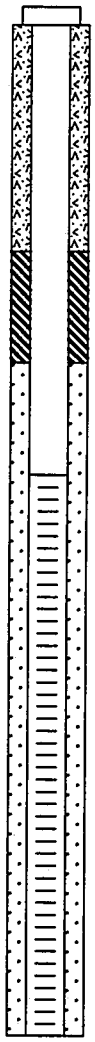
APPENDIX A
WELL LOGS, S-K (WICHITA) FACILITY

SAFETY-KLEEN CONSULTING

LOG

BORING NO. WELL NO. SK-1S

CLIENT: *Safety-Kleen*		JOB NO.: *963231*	
PROJECT: *Safety-Kleen (Wichita), Inc. Facility*	LOCATION: *Wichita, KS*		
DRILLED BY: *Geotechnical Services*	DRILLER: *R. Lewis*	METHOD: *Auger, CME-75*	
START DATE: *10/23/00*	COMP. DATE: *10/23/00*	SURF. EL.: *1315.66*	TD: *27.0 FT. BGS*
LOGGED BY: *Nick Malakar*	MEAS. PT ELEV.: *1315.43*	D. T. WATER: *16.49 FT. BGS*	



DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	OVM	BLOW COUNT	SAMPLE ANALYSIS
	0.8 Concrete				
	Advanced augers to 15.0' below ground surface to begin sampling. Descriptions taken from soil cuttings on augers. Dark brown, fat clay (70% clay, 30% silt), slightly moist, no odor.	CL-ML			
5	5' Light brown, clay (70% clay, 15% silt, 15% sand) slightly moist, no odor.	CL			
10					
15	Light medium brown, sandy clay (50% clay, 30% fine sand, 20% silt) moist, no odor.		0.0		
	17.8' Brown, poorly graded sand (75% med sand, 20% fine sand, 5% coarse sand) wet, no odor, becoming poorly graded coarse sand, silt stringer at 20.5'	SP	0.0		
20			0.0		
			0.0		
25	Brown, well graded sand, 95% sand (fine to coarse grained), 5% silt, slightly moist, no odor or stain.		0.0		
	Total Depth 27'.				
30	7 bags #12-20 silica sand 1 bag holeplug bentonite 1 4" long, PVC, 2" dia., threaded end cap, schd 40 15' 2" dia., PVC, schd. 40, threaded screen, 10-slot 12' 2" dia., PVC, schd 40, threaded riser 1 J-plug 1 8" dia. x 12" deep surface well monument				
35					

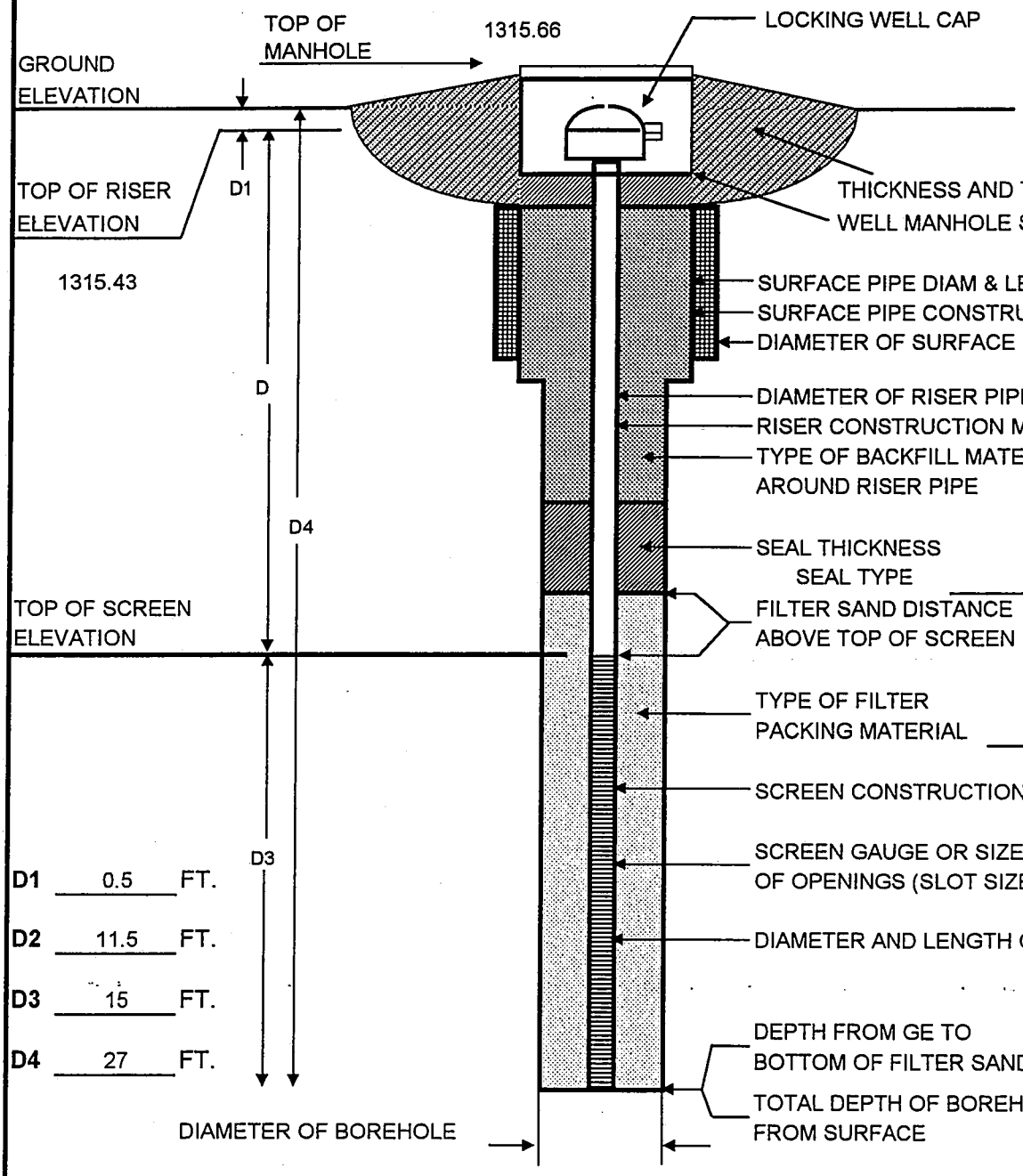
JOB NUMBER: 963231

MONITORING WELL
CONSTRUCTION AND INSTALLATION DIAGRAM

SAFETY-KLEEN PROJECT NO. 963231

PROJECT NAME: SK-Wichita

MONITORING WELL NO. SK-1S



D1	0.5	FT.
D2	11.5	FT.
D3	15	FT.
D4	27	FT.

THICKNESS AND TYPE OF SEAL	6" Concrete
WELL MANHOLE SIZE	8"x12"
SURFACE PIPE DIAM & LENGTH	N/A
SURFACE PIPE CONSTRUCTION MATL	N/A
DIAMETER OF SURFACE BOREHOLE	N/A
DIAMETER OF RISER PIPE	2"
RISER CONSTRUCTION MATERIAL	PVC
TYPE OF BACKFILL MATERIAL AROUND RISER PIPE	Cement Bentonite
SEAL THICKNESS	1.0'
SEAL TYPE	Bentonite Holeplug
FILTER SAND DISTANCE ABOVE TOP OF SCREEN	3.0'
TYPE OF FILTER PACKING MATERIAL	12-20 Sand
SCREEN CONSTRUCTION MATERIAL	PVC
SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE)	No. 10
DIAMETER AND LENGTH OF SCREEN	2"x15'
DEPTH FROM GE TO BOTTOM OF FILTER SAND	27.0'
TOTAL DEPTH OF BOREHOLE FROM SURFACE	27.0'

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NOT TO SCALE

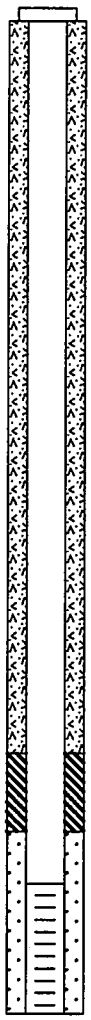
MONITORING WELL INSTALLATION INFORMATION		
DRILLING CONTRACTOR: Geotechnical Services Inc.	DRILLER: R. Lewis	
DRILLING RIG TYPE: CME-75	DRILLING METHOD: 4.5" HAS	
DATED STARTED: 10/23/00	DATE COMPLETED: 10/23/00	FORM COMPLETED BY: N. Malakar

SAFETY-KLEEN CONSULTING

LOG

BORING NO. WELL NO. SK-1D

CLIENT: *Safety-Kleen*		JOB NO.: *963231*	
PROJECT: *Safety-Kleen (Wichita), Inc. Facility*	LOCATION: *Wichita, KS*		
DRILLED BY: *Geotechnical Services*	DRILLER: *R. Lewis*	METHOD: *Auger-CME-75*	
START DATE: *10/23/00*	COMP. DATE: *10/23/00*	SURF. EL.: *1315.87*	TD: *40.0 FT. BGS*
LOGGED BY: *Nick Malakar*	MEAS. PT ELEV.: *1315.61*	D. T. WATER: *15.65 FT. BGS*	



DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	OVM	BLOW COUNT	SAMPLE ANALYSIS
	0.8 Concrete				
	Advanced augers to 15.0' below ground surface to begin sampling. Descriptions taken from soil cuttings on augers. Dark brown, fat clay (70% clay, 30% silt), slightly moist, no odor.	CL-ML			
5	5.0'-17.8' Light brown, clay (70% clay, 15% silt, 15% sand) slightly moist, no odor.	CL			
10					
15	Light medium brown, sandy clay (50% clay, 30% fine sand, 20% silt) moist, no odor.		0.0	1-2-3	
	17.8' Brown, poorly graded sand (75% med sand, 20% fine sand, 5% coarse sand) wet, no odor, becoming poorly graded coarse sand, silt stringer at 20.5'	SP	0.0	3-3-4	
20			0.0	4-4-5	
	Same as above, wet, no odor, 5 gal. H20 added to borehole to prevent flowing sand.		0.0	5-8-11	
25	Brown, well graded sand, 85% sand (fine to coarse grained), 5% silt, slightly moist, no odor or stain.		0.0	5-7-11	Sieve Analysis
	26.8'-29.0' Gray, stiff, clay, slightly moist, no odor or staining.	CL	0.0	4-4-4	
30	29.0'-40.0' Brown poorly, graded sand (75% fine sand, 20% med sand, 5% silt), wet, no odor or stain.	SP	0.0	5-15-20	
			0.0	7-10-15	
35	Becoming poorly graded medium sand at 35.0' (70% med sand, 10% fine sand, 20% coarse sand).		0.0	5-11-10	Sieve Analysis
	Becoming poorly graded coarse sand (80% coarse, 20% med) at 37.0'		0.0	7-15-26	
	38.0'-39.0' Shale, weathered, bluish gray, dry.	BDRK			
40	Total Depth 39'				
	30 gal H20 added to borehole during drilling. 3 bags #12-20 sand 4 bags Aqua guard bentonite grout 1 4" long, PVC, 2" dia., threaded end cap 1 5' long joint of 2" dia. schd. 40, PVC screen, 10-slot 34' of 2" dia., schd. 40, PVC riser 1 J-plug 1 8" dia. x 12" deep surface well monument				
45					
50					

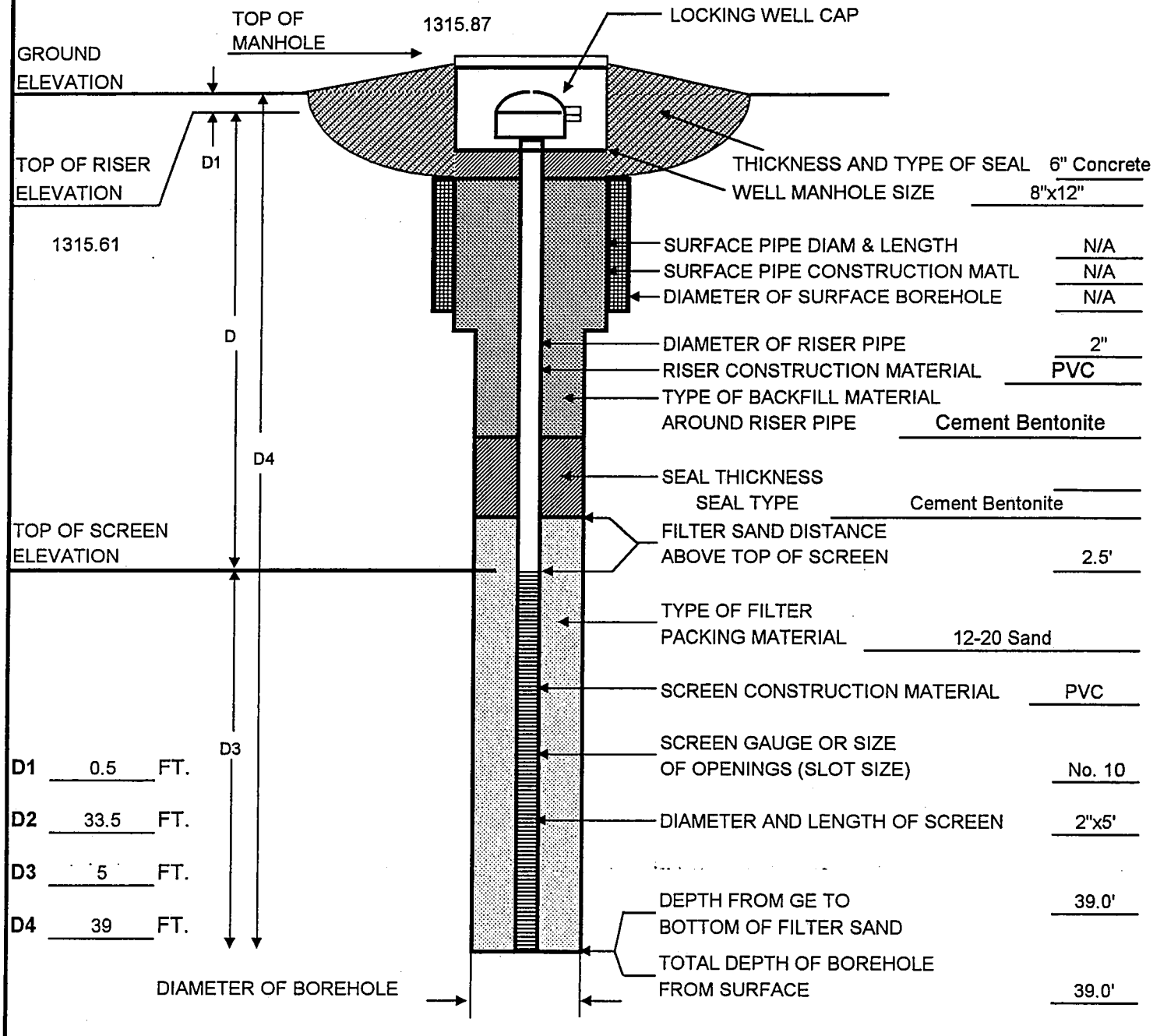
JOB NUMBER: 963231

MONITORING WELL
CONSTRUCTION AND INSTALLATION DIAGRAM

SAFETY-KLEEN PROJECT NO. 963231

PROJECT NAME: SK-Wichita

MONITORING WELL NO. SK-1D



D1	0.5	FT.
D2	33.5	FT.
D3	5	FT.
D4	39	FT.

NOT TO SCALE

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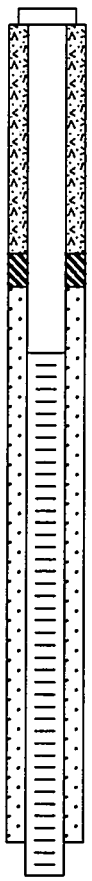
MONITORING WELL INSTALLATION INFORMATION		
DRILLING CONTRACTOR: Geotechnical Services Inc.	DRILLER: R. Lewis	
DRILLING RIG TYPE: CME-75	DRILLING METHOD: 4.5" HSA, CMF-75	
DATED STARTED: 10/23/00	DATE COMPLETED: 10/23/00	FORM COMPLETED BY: N. Malakar

SAFETY-KLEEN CONSULTING

LOG

BORING NO. WELL NO. SK-2S

CLIENT: *Safety-Kleen*			JOB NO.: *963231*
PROJECT: *Safety-Kleen (Wichita), Inc. Facility*		LOCATION: *Wichita, KS*	
DRILLED BY: *Geotechnical Services*	DRILLER: *S. Genster*		METHOD: *Auger-CME-75*
START DATE: *10/24/00*	COMP. DATE: *10/24/00*	SURF. EL.: *1313.81*	TD: *26.0 FT. BGS*
LOGGED BY: *Phil Cavendor*	MEAS. PT ELEV.: *1313.51*		D. T. WATER: *14.71 FT. BGS*



WELL DIAGRAM	DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	OVM	BLOW COUNT	SAMPLE ANALYSIS
		0-3.0' Lean clay, very dark grayish brown (10YR3/2) stiff, low plasticity, 20% silt, 80% clay, dry, no odor or stain.	CL			
	5	3.0'-7.0' Lean clay as above, dark yellowish brown (10YR4/4), 85% clay, 5% silt, no strength, med. plasticity, dry, no odor or stain.	CL			
		7.0'-9.0' Lean clay as above (10YR4/4) dry, med. plasticity.	CL			
	10	9.0'-14.0' Poorly graded sand, yellowish brown (10YR5/6), 90% sand, (very fine to fine grained) 10% silt, dry, no odor or stain.	SP			
	15 ▽	14.0'-16.0' Poorly graded sand, yellowish brown as above, slight iron stain, sand 95% (very fine to very coarse grained), 5% silt, moist, no odor or stain.	SW	5.0	4-6-7	
		16.5'-18.5' Well graded sand, yellowish brown (10YR5/4), 20% gravel 75% sand. (very fine to very coarse), 5% silt, moist, no odor or stain.	SW	0.0	3-3-4	
	20	19.0'-21.0' Well graded sand as above, wet.	SW	0.0	7-5-6	
		21.5'-23.5' Well graded sand as above, wet.	SW	0.0	3-3-4	
	25	24.0'-25.0' Same as above.	SW	0.0	5-7-11	
		25.0'-26.0' Lean clay with silt: Dark yellowish brown (10YR4/6), 60% clay, 40% silt, stiff, low plasticity, med. hardness, no odor or stain, dry.	CL-ML			
		Total Depth 26.0'				
	30	Sand to 7.0' Bent to 1.0' 7 sacks sand 1.5 sack bent 4 gal H20 to hydrate bentonite 5 gallons 3 sacks cement				
	35	1 4" long 2" dia., schd 40, PVC, threaded end cap 15' 2" dia., schd 40, PVC, threaded screen, 10-slot 11' 2" dia., schd 40, PVC, threaded riser 1 J-plug 1 8" dia. x 12" deep surface well monument				
	40					

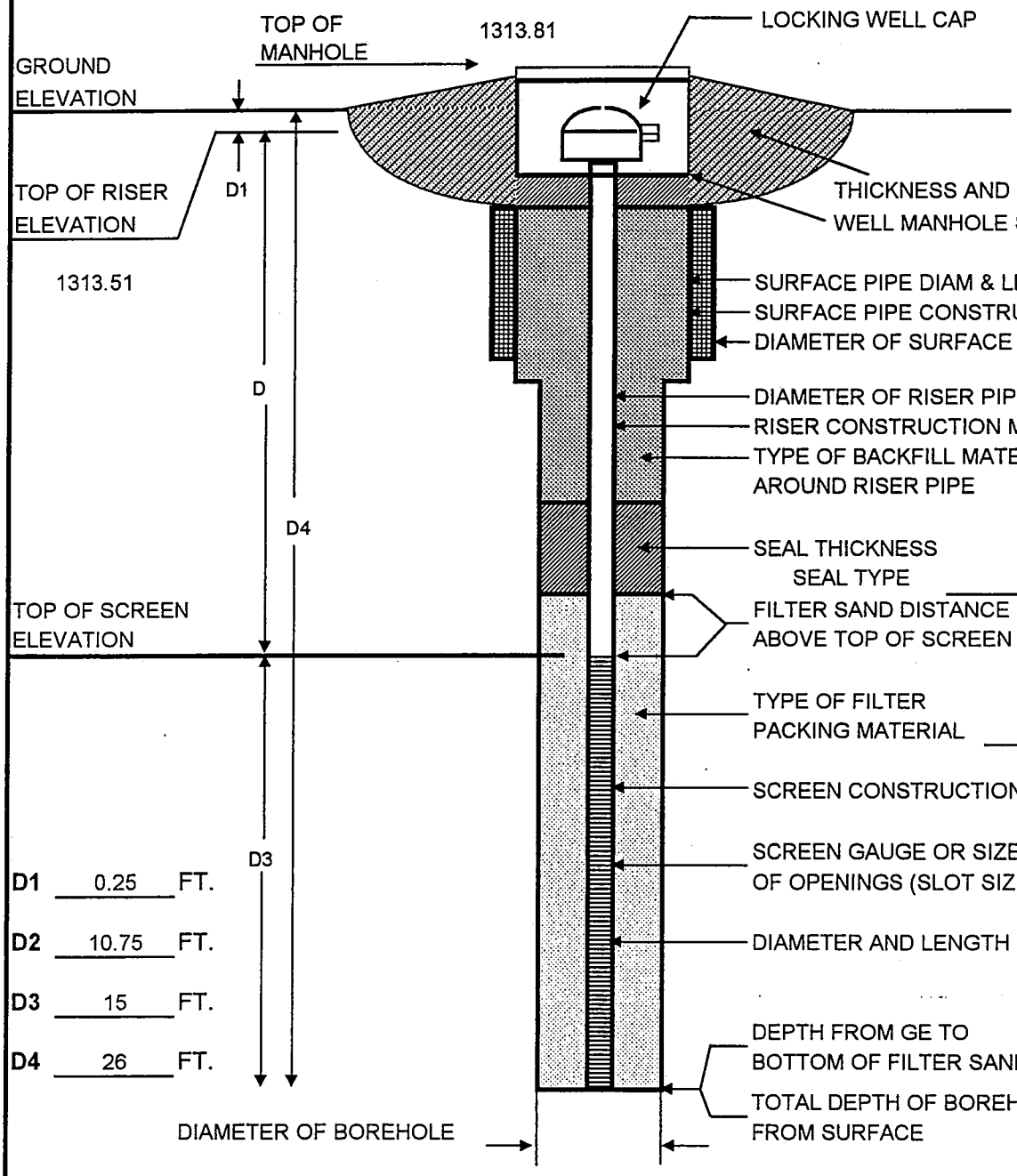
JOB NUMBER: 963231

MONITORING WELL
CONSTRUCTION AND INSTALLATION DIAGRAM

SAFETY-KLEEN PROJECT NO. 963231

PROJECT NAME: SK-Wichita

MONITORING WELL NO. SK-2S



THICKNESS AND TYPE OF SEAL	1' Cement
WELL MANHOLE SIZE	8"x12"
SURFACE PIPE DIAM & LENGTH	N/A
SURFACE PIPE CONSTRUCTION MATL	N/A
DIAMETER OF SURFACE BOREHOLE	N/A
DIAMETER OF RISER PIPE	2"
RISER CONSTRUCTION MATERIAL	PVC
TYPE OF BACKFILL MATERIAL AROUND RISER PIPE	Bentonite hole plug
SEAL THICKNESS	6'
SEAL TYPE	Bentonite hole plug
FILTER SAND DISTANCE ABOVE TOP OF SCREEN	3.0'
TYPE OF FILTER PACKING MATERIAL	12-20 Sand
SCREEN CONSTRUCTION MATERIAL	PVC
SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE)	No. 10
DIAMETER AND LENGTH OF SCREEN	2"x15'
DEPTH FROM GE TO BOTTOM OF FILTER SAND	26.0'
TOTAL DEPTH OF BOREHOLE FROM SURFACE	26.0'

D1	0.25	FT.
D2	10.75	FT.
D3	15	FT.
D4	26	FT.

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NOT TO SCALE

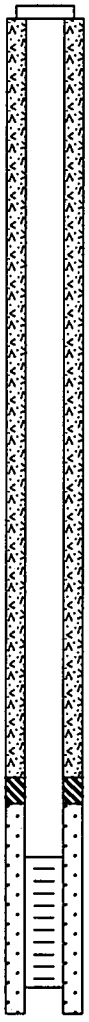
MONITORING WELL INSTALLATION INFORMATION		
DRILLING CONTRACTOR: Geotechnical Services Inc.	DRILLER: S. Genster	
DRILLING RIG TYPE: CME-45	DRILLING METHOD: HSA	
DATED STARTED: 10/24/00	DATE COMPLETED: 10/24/00	FORM COMPLETED BY: P. Cavendor

SAFETY-KLEEN CONSULTING

LOG

BORING NO. WELL NO. SK-2D

CLIENT: *Safety-Kleen*		JOB NO.: *963231*	
PROJECT: *Safety-Kleen (Wichita), Inc. Facility*	LOCATION: *Wichita, KS*		
DRILLED BY: *Geotechnical Services*	DRILLER: *S. Genster*	METHOD: *Auger-CME-75*	
START DATE: *10/24/00*	COMP. DATE: *10/24/00*	SURF. EL.: *1313.75*	TD: *38.0 FT. BGS*
LOGGED BY: *Phil Cavendor*	MEAS. PT ELEV.: *1313.47*	D. T. WATER: *14.62 FT. BGS*	



WELL DIAGRAM	DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	OVM	BLOW COUNT	SAMPLE ANALYSIS
		0.0'-3.0' Lean clay with silt, dark grayish brown (10YR2/3) 80% clay, 20% silt, dry, low plasticity, no odor or stain.	CL	0.0		
	5	3.0'-9.0' Lean clay, dark yellowish brown (10YR4/4) 85% clay, 15% silt, medium plasticity, low strength, dry, no odor or stain.	CL	0.0		
	10	9.0'-14.0' Poorly graded sand, yellowish brown (10YR5/6) 90% sand (very fine to fine grained), silt 10%, dry, no odor or stain, slight precipitation between 15-16'.	SP	0.0		
	15	14.0'-25.0' Well graded sand, yellowish brown (10YR5/4) 20% gravel, 75% sand (very fine to coarse), 5% silt, moist at 18', no odor or stain. Wet at 18'.	SW	0.0 0.0 0.0		
	25	25.0'-27.5' Upper clay layer. Lean clay with silt, dark yellowish brown (10YR4/6), Lean clay 60%, 40% silt, stiff, low plasticity, med. hardness, no odor or stain, dry.	CL			
	30	27.5'-36.5' Poorly sorted sand, brown to yellowish brown, 90% sand, (very fine to coarse), 10% silt, wet, no stain or odor.	SP	0.0		
	35	36.5'-38.0' Weathered zone, lean clay, brown (10YR4/3) 50% clay, low plasticity, stiff, med. hardness, dry, no odor or stain.	CL	0.0		
	40	Total Depth 38.0'				
	45	4 bags #12-20 silica sand 4 bags Aqua guard powdered bentonite 2 bags sackrete cement 1 4" long, 2" dia., schd 40, PVC, threaded end cap 5' 2" dia., schd 40, PVC, threaded screen, 10-slot 33' 2" dia., schd 40, PVC, threaded riser 1 J-plug 1 8" dia. x 12" deep surface well monument				
	50					

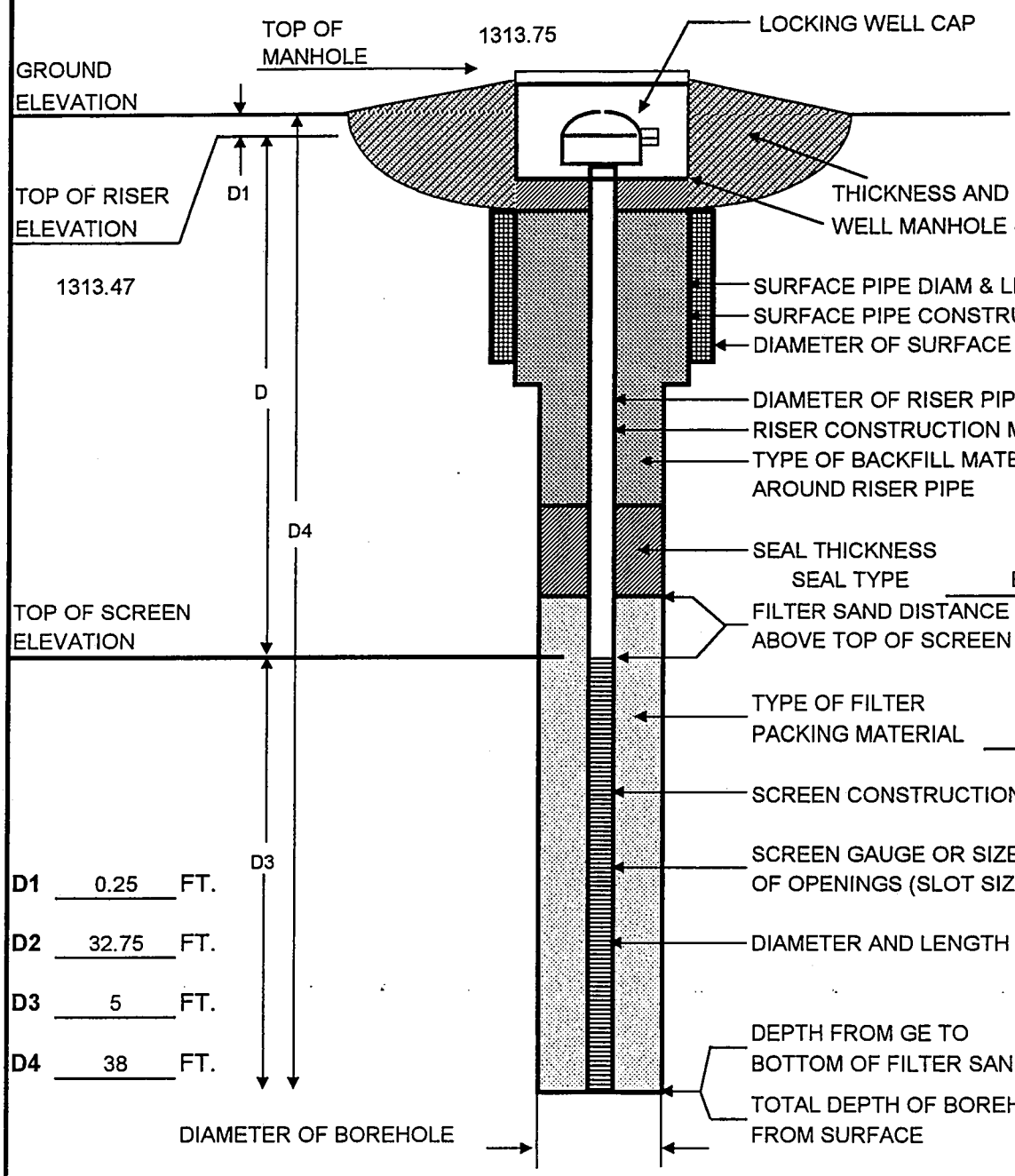
JOB NUMBER: 963231

MONITORING WELL
CONSTRUCTION AND INSTALLATION DIAGRAM

SAFETY-KLEEN PROJECT NO. 963231

PROJECT NAME: SK-Wichita

MONITORING WELL NO. SK-2D



D1	0.25	FT.
D2	32.75	FT.
D3	5	FT.
D4	38	FT.

THICKNESS AND TYPE OF SEAL	2' Cement
WELL MANHOLE SIZE	8"x12"
SURFACE PIPE DIAM & LENGTH	N/A
SURFACE PIPE CONSTRUCTION MATL	N/A
DIAMETER OF SURFACE BOREHOLE	N/A
DIAMETER OF RISER PIPE	2"
RISER CONSTRUCTION MATERIAL	PVC
TYPE OF BACKFILL MATERIAL AROUND RISER PIPE	Bentonite grout
SEAL THICKNESS	28
SEAL TYPE	Bentonite (aqua gaurd)
FILTER SAND DISTANCE ABOVE TOP OF SCREEN	3.0'
TYPE OF FILTER PACKING MATERIAL	12-20 Sand
SCREEN CONSTRUCTION MATERIAL	PVC
SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE)	No. 10
DIAMETER AND LENGTH OF SCREEN	2"x5'
DEPTH FROM GE TO BOTTOM OF FILTER SAND	38.0'
TOTAL DEPTH OF BOREHOLE FROM SURFACE	38.0'

safety-kleen consulting

NOT TO SCALE

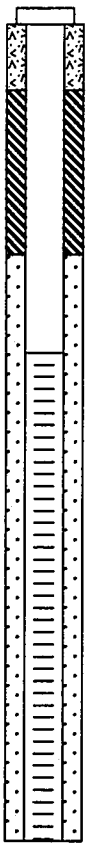
MONITORING WELL INSTALLATION INFORMATION		
DRILLING CONTRACTOR: Geotechnical Services Inc.	DRILLER: S. Genster	
DRILLING RIG TYPE: CME-45	DRILLING METHOD: HSA	
DATED STARTED: 10/24/00	DATE COMPLETED: 10/24/00	FORM COMPLETED BY: P. Cavendor

SAFETY-KLEEN CONSULTING

LOG

BORING NO. WELL NO. SK-3S

CLIENT: *Safety-Kleen*			JOB NO.: *963231*
PROJECT: *Safety-Kleen (Wichita), Inc. Facility*		LOCATION: *Wichita, KS*	
DRILLED BY: *Geotechnical Services*	DRILLER: *R. Lewis*		METHOD: *Auger-CME-75*
START DATE: *10/24/00*	COMP. DATE: *10/24/00*	SURF. EL.: *1313.67*	TD: *25.0 FT. BGS*
LOGGED BY: *Nick Malakar*	MEAS. PT ELEV.: *1313.33*		D. T. WATER: *13.56 FT. BGS*



WELL DIAGRAM	DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	OVM	BLOW COUNT	SAMPLE ANALYSIS
		Advanced augers to 20' below ground surface prior to sampling. Soils logged from cuttings.				
		0-8.0' Dark gray, clay, medium strength, high plasticity, slightly moist, petroleum odor, no stain.	CL			
	5					
		8.0'-23.5' Brown, poorly graded sand, 70% coarse, 25% medium, 5% fine sand, wet, petroleum odor, no staining.				
	10					
	15		SP			
	20			0.0	5-5-6	Sieve Analysis
				0.0	6-6-6	
		23.5'-25.0' Brown, clay, medium strength, medium plasticity, occasional sub-rounded, sub-angular fine gravel, slightly moist, no odor or stain.	CL	0.0	6-6-7	
	25	Total Depth 25.0'				
		10 bags #12-20 silica sand 2 bags Holeplug bentonite 1 4" long, 2" dia., schd 40, PVC 15' 2" dia., schd 40, PVC, threaded screen, 10-slot 10' 2" dia., schd 40, PVC, threaded riser 1 J-plug 1 8" dia. x 12" deep surface well monument				
	30					
	35					
	40					

JOB NUMBER: 963231

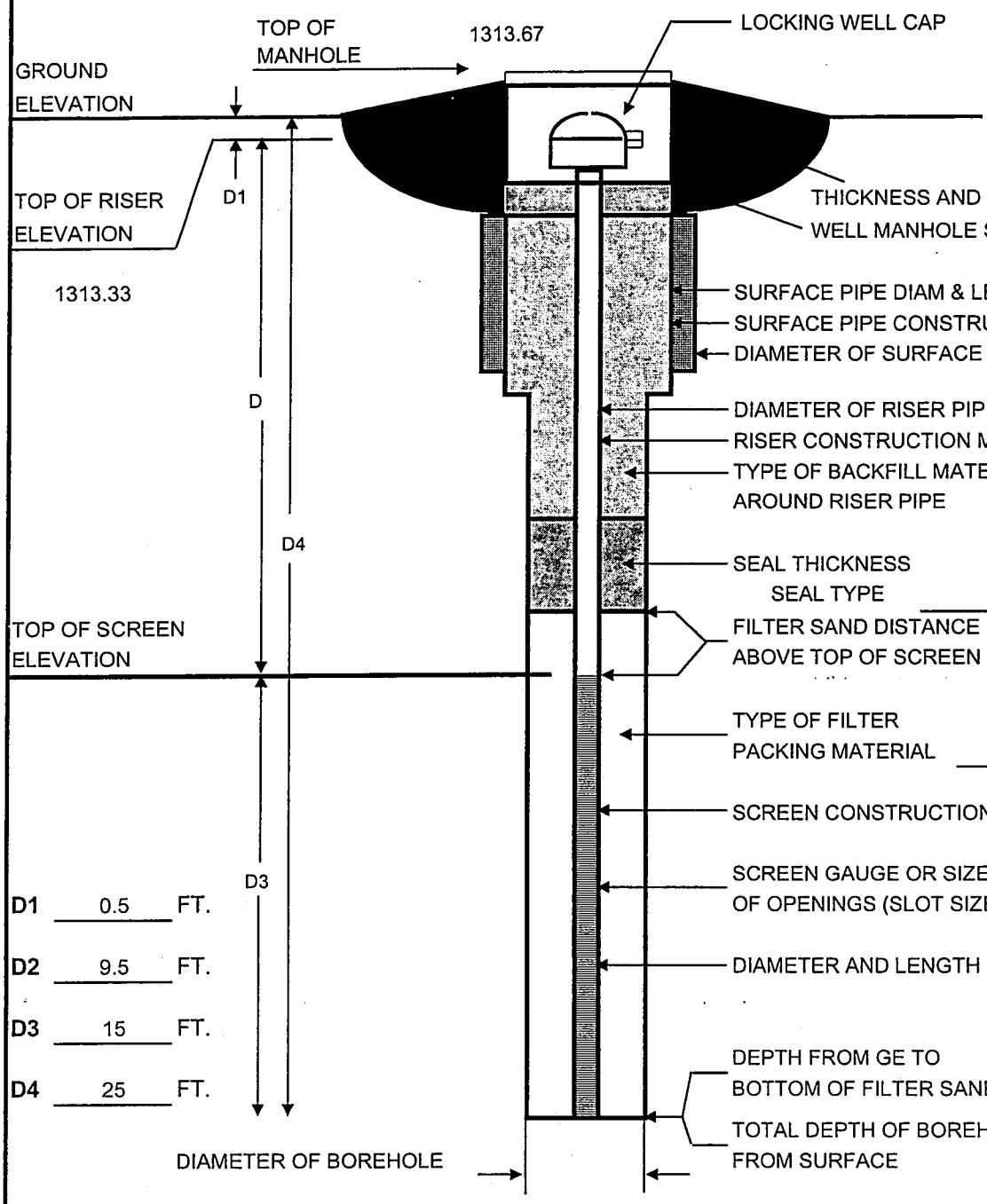
MONITORING WELL

CONSTRUCTION AND INSTALLATION DIAGRAM

SAFETY-KLEEN PROJECT NO. 963231

PROJECT NAME: SK-Wichita

MONITORING WELL NO. SK-3S



THICKNESS AND TYPE OF SEAL	6" Cement
WELL MANHOLE SIZE	8"x12"
SURFACE PIPE DIAM & LENGTH	N/A
SURFACE PIPE CONSTRUCTION MATL	N/A
DIAMETER OF SURFACE BOREHOLE	N/A
DIAMETER OF RISER PIPE	2"
RISER CONSTRUCTION MATERIAL	PVC
TYPE OF BACKFILL MATERIAL AROUND RISER PIPE	Bentonite Hole Plug
SEAL THICKNESS	4'
SEAL TYPE	Bentonite Hole Plug
FILTER SAND DISTANCE ABOVE TOP OF SCREEN	3.0'
TYPE OF FILTER PACKING MATERIAL	12-20 Sand
SCREEN CONSTRUCTION MATERIAL	PVC
SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE)	No. 10
DIAMETER AND LENGTH OF SCREEN	2"x15'
DEPTH FROM GE TO BOTTOM OF FILTER SAND	25.0'
TOTAL DEPTH OF BOREHOLE FROM SURFACE	25.0'

D1	0.5	FT.
D2	9.5	FT.
D3	15	FT.
D4	25	FT.

NOT TO SCALE

safety-kleen consulting

MONITORING WELL INSTALLATION INFORMATION

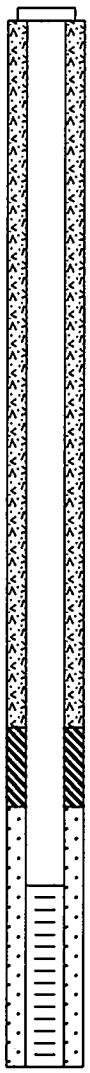
DRILLING CONTRACTOR:	DRILLER:	
Geotechnical Services Inc.	R. Lewis	
DRILLING RIG TYPE:	DRILLING METHOD:	
CME-75, truck mtd.	4.25" HSA	
DATED STARTED:	DATE COMPLETED:	FORM COMPLETED BY:
10/23/00	10/23/00	N. Malakar

SAFETY-KLEEN CONSULTING

LOG

BORING NO. WELL NO. SK-3D

CLIENT: *Safety-Kleen*		JOB NO.: *963231*
PROJECT: *Safety-Kleen (Wichita), Inc. Facility*	LOCATION: *Wichita, KS*	
DRILLED BY: *Geotechnical Services*	DRILLER: *R. Lewis*	METHOD: *Auger-CME-75*
START DATE: *10/24/00*	COMP. DATE: *10/24/00*	SURF. EL.: *1313.67*	TD: *40.0 FT. BGS*
LOGGED BY: *Nick Malakar*	MEAS. PT ELEV.: *1313.37*	D. T. WATER: *13.25 FT. BGS*



DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	OVM	BLOW COUNT	SAMPLE ANALYSIS
	Advanced augers to 20' below ground surface prior to sampling. Soils logged from cuttings from SK-3S.				
5	Dark gray, clay, medium strength, high plasticity, slightly moist, petroleum odor, no stain.	CL			
10	8.0'-23.5' Brown, poorly graded sand, 70% coarse, 25% medium, 5% fine sand, wet, petroleum odor, no staining.	SP			
15					
20			0.0	5-5-6	Sieve Analysis
			0.0	6-6-6	
25	23.5'-27.0' Brown, clay, medium strength, medium plasticity, occasional sub-rounded, sub-angular fine gravel, slightly moist, no odor or stain.	CL	0.0	6-6-7	
	27.0'-36.0' Brown, well graded sand, 85% sand (fine to coarse grained), 15% clay, wet, no odor, stained.		0.0	7-16-20	
30			0.0	8-14-20	Sieve Analysis
35	Could not sample because of blowback in the augers, continued to drill to bedrock.	SW			
	36.0'-38.0' Olive green/gray, clay, high strength, low plasticity, slightly moist, no odor or stain.	CL			
	38.0'-40.0' Shale bedrock.	BDRK			
40	Total Depth 40.0'				
45	4 bags #12-20 silica sand 2 bags bentonite grout 1 4" long, 2" dia., schd 40, PVC, threaded end cap 7' 2" dia., schd 40, PVC, threaded screen, 10-slot 33' 2" dia., schd 40, PVC, threaded riser 1 J-plug 1 8" dia. x 12" deep surface well monument				
50					

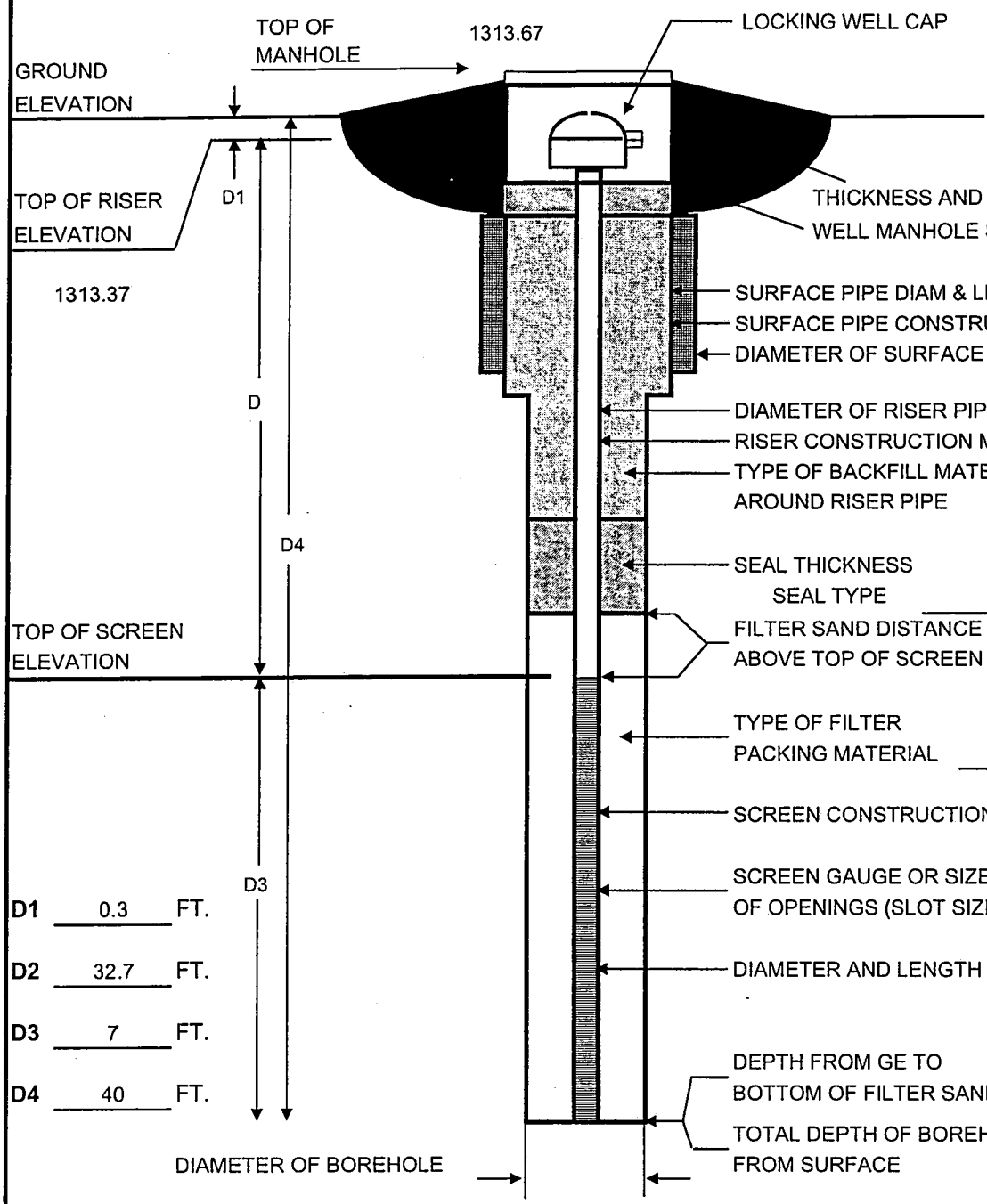
JOB NUMBER: 963231

MONITORING WELL
CONSTRUCTION AND INSTALLATION DIAGRAM

SAFETY-KLEEN PROJECT NO. 963231

PROJECT NAME: SK-Wichita

MONITORING WELL NO. SK-3D



D1	0.3	FT.
D2	32.7	FT.
D3	7	FT.
D4	40	FT.

THICKNESS AND TYPE OF SEAL	6" Concrete
WELL MANHOLE SIZE	8"x12"
SURFACE PIPE DIAM & LENGTH	N/A
SURFACE PIPE CONSTRUCTION MATL	N/A
DIAMETER OF SURFACE BOREHOLE	N/A
DIAMETER OF RISER PIPE	2"
RISER CONSTRUCTION MATERIAL	PVC
TYPE OF BACKFILL MATERIAL AROUND RISER PIPE	Cement Bentonite
SEAL THICKNESS	29'
SEAL TYPE	Cement Bentonite
FILTER SAND DISTANCE ABOVE TOP OF SCREEN	4.0'
TYPE OF FILTER PACKING MATERIAL	12-20 Sand
SCREEN CONSTRUCTION MATERIAL	PVC
SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE)	No. 10
DIAMETER AND LENGTH OF SCREEN	2"x7'
DEPTH FROM GE TO BOTTOM OF FILTER SAND	40.0
TOTAL DEPTH OF BOREHOLE FROM SURFACE	40.0

safety-kleen consulting

NOT TO SCALE

MONITORING WELL INSTALLATION INFORMATION

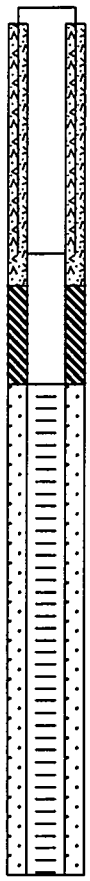
DRILLING CONTRACTOR:	DRILLER:	
Geotechnical Services Inc.	R. Lewis	
DRILLING RIG TYPE:	DRILLING METHOD:	
CME-75	4.25" HSA	
DATED STARTED:	DATE COMPLETED:	FORM COMPLETED BY:
10/24/00	10/24/00	N. Malakar

SAFETY-KLEEN CONSULTING

LOG

BORING NO. WELL NO. SK-4S

CLIENT: *Safety-Kleen*		JOB NO.: *963231*	
PROJECT: *Safety-Kleen (Wichita), Inc. Facility*		LOCATION: *Wichita, KS*	
DRILLED BY: *Geotechnical Services*	DRILLER: *S. Gensler*	METHOD: *Auger-CME-75*	
START DATE: *10/23/00*	COMP. DATE: *10/23/00*	SURF. EL.: *1313.03*	TD: *26 FT. BGS*
LOGGED BY: *Phil Cavendor*	MEAS. PT ELEV.: *1312.80*	D. T. WATER: *12.12 FT. BGS*	



WELL DIAGRAM	DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	OVM	BLOW COUNT	SAMPLE ANALYSIS
		0.0'-3.0' Clayey silt, dark brown to brown, 65% silt, 35% lean clay, low plasticity, high strength, dry, no odor or stain.	CL-ML	0.0		
	5	3.0'-7.5' Lean clay, brown, medium plasticity, minor silt, dry, no odor or stain.		0.0		
	10	7.5'-14' Lean clay, dark grayish brown, minor silt, medium plasticity, medium strength, dry, no odor or stain.	CL	0.0		
		14'-15' Lean clay as above, no odor or stain.		0.0		
	15	15'-16.5' Silty sand, very dark gray, 65% sand (very fine to coarse grained) 35% silt, wet, no odor or stain.	SM	0.0		
		16.5'-17' Silt with sand, very dark gray, 30% sand (very fine grained) 70% silt.	ML / SM	0.0		
	20	17'-18.5' Silty sand, light yellow brown, 80% sand (very fine to coarse grained) 20% silt, wet, no odor or stain.				
		19'-21' Poorly graded sand, dark gray to yellow brown, 85% sand (very fine to coarse grained) 15% silt, wet, no odor or stain.	SP			
		21.5'-23.5' Poorly graded sand with gravel, yellowish brown, 30% gravel (fine to medium), 65% sand (very fine to very coarse grained) 5% silt, wet, no odor or stain.		0.0		
	25	24'-26' Poorly graded gravel with sand, yellowish brown, 50% gravel (very fine to medium) 40% sand (very fine to very coarse grained) 10% silt, wet, no odor or stain.	GP	0.0		

Total Depth 26.0 feet.

30 Well Materials

1 4" long PVC 2" dia, threaded end cap, schd. 40
1 10' long joint of 2" dia, threaded, schd. 40 PVC screen, 10-slot
1 5' long joint of 2" dia, threaded, schd. 40 PVC screen, 10-slot
1 10' long joint of 2" dia, threaded, schd 40 PVC riser
1 J-plug
35 1 8" dia x 12" deep surface well monument
8 sacks Oglebay Norton silica sand #12-20
1 sacks bentonite holeplug
3.0 sacks cement

26.0'-22.0' Hole collapse
40 22.0'-7.0' 15' of 10-slot screen
22.0'-5.0' filter sand
5.0'-1.0' Bentonite holeplug
1.0'-0.0' cement for monument

JOB NUMBER: 963231

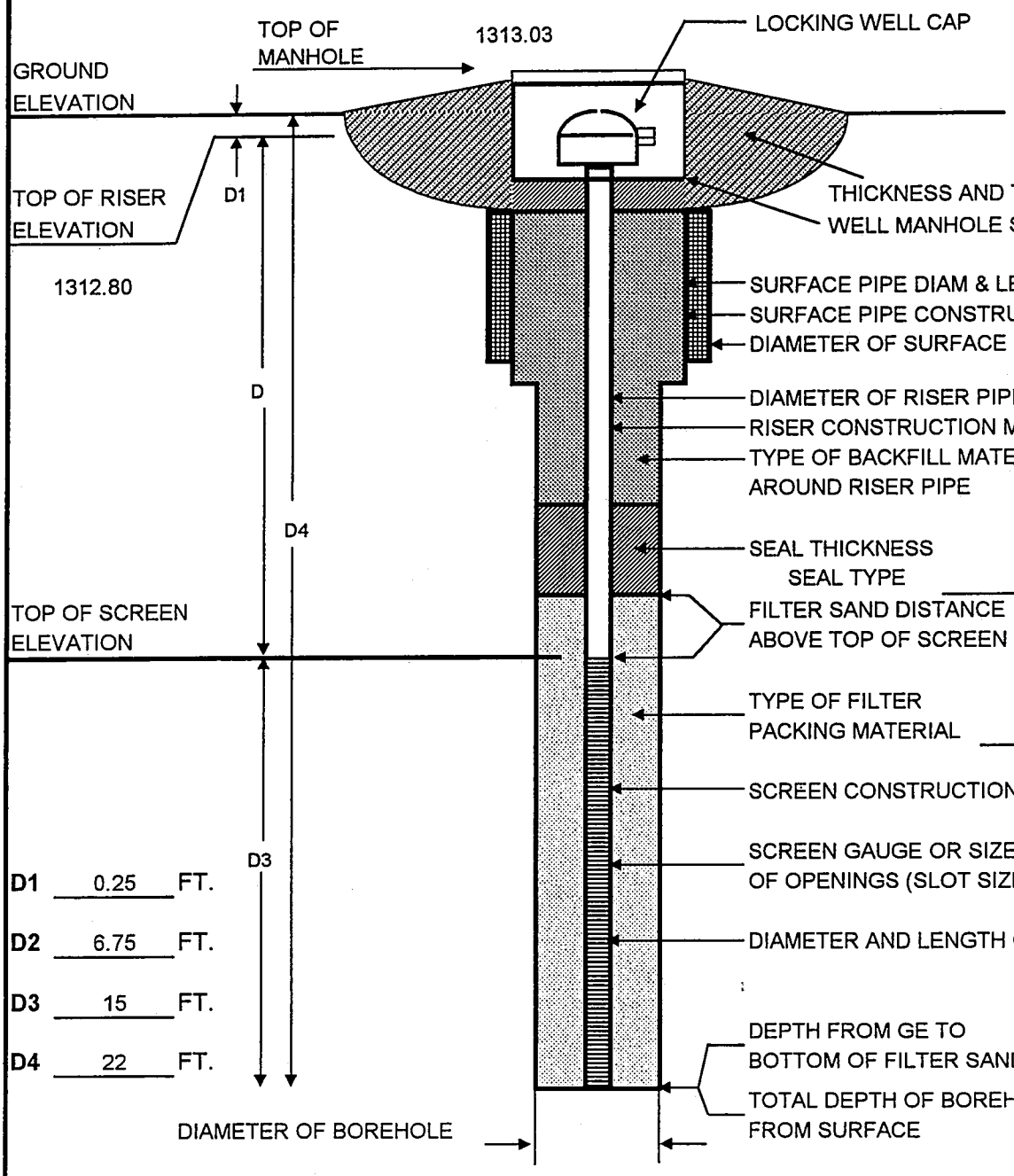
10 gallons of potable water added to HSA to keep down flowing sand.

MONITORING WELL
CONSTRUCTION AND INSTALLATION DIAGRAM

SAFETY-KLEEN PROJECT NO. 963231

PROJECT NAME: SK-Wichita

MONITORING WELL NO. SK-4S



THICKNESS AND TYPE OF SEAL	1' Cement
WELL MANHOLE SIZE	8"x12"
SURFACE PIPE DIAM & LENGTH	NA
SURFACE PIPE CONSTRUCTION MATL	N/A
DIAMETER OF SURFACE BOREHOLE	N/A
DIAMETER OF RISER PIPE	2"
RISER CONSTRUCTION MATERIAL	PVC
TYPE OF BACKFILL MATERIAL AROUND RISER PIPE	Bentonite hole plug
SEAL THICKNESS	6'
SEAL TYPE	Bentonite hole plug
FILTER SAND DISTANCE ABOVE TOP OF SCREEN	2.0'
TYPE OF FILTER PACKING MATERIAL	12-20 Sand
SCREEN CONSTRUCTION MATERIAL	PVC
SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE)	No. 10
DIAMETER AND LENGTH OF SCREEN	2"x15'
DEPTH FROM GE TO BOTTOM OF FILTER SAND	22.0
TOTAL DEPTH OF BOREHOLE FROM SURFACE	26.0

D1	0.25	FT.
D2	6.75	FT.
D3	15	FT.
D4	22	FT.

NOT TO SCALE

safety-kleen consulting

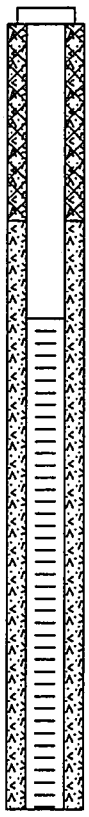
MONITORING WELL INSTALLATION INFORMATION		
DRILLING CONTRACTOR: Geotechnical Services Inc.	DRILLER: S. Genster	
DRILLING RIG TYPE: CME-45	DRILLING METHOD: HSA	
DATED STARTED: 10/23/00	DATE COMPLETED: 10/23/00	FORM COMPLETED BY: P. Cavendor

SAFETY-KLEEN CONSULTING

LOG

BORING NO. WELL NO. SK-5S

CLIENT: *Safety-Kleen*		JOB NO.: *963231*	
PROJECT: *Safety-Kleen (Wichita), Inc. Facility*	LOCATION: *Wichita, KS*		
DRILLED BY: *Geotechnical Services*	DRILLER: *R. Lewis*	METHOD: *Auger-CME-75*	
START DATE: *10/24/00*	COMP. DATE: *10/24/00*	SURF. EL.: *1314.03*	TD: *24.0 FT. BGS*
LOGGED BY: *Nick Malakar*	MEAS. PT ELEV.: *1313.49*	D. T. WATER: *13.78 FT. BGS*	



DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	OVM	BLOW COUNT	SAMPLE ANALYSIS
	0-8' Advanced augers to 15.0 feet bgs, then began continuous soil sampling. Clay brown, medium strength, medium plasticity, no odor or stain, Fill.	CL	0.0		
5					
	8-12.5' Sandy clay, reddish brown, 60% clay, 30% silt, 10% fine sand, soft, no odor or stain.		0.0		
10					
	12.5'-23.2'	SP	0.0		
15	15-17.5' Brown poorly graded sand, 60% coarse sand, 30% medium sand, 10% silt, wet, no odor or stain.		0.0	8-7-7	
	17.5-20' Same as above. graded sand, 90% coarse sand, 10% medium sand, wet, no odor or stain.		0.0	2-2-2	
20	20-23.2' Poorly graded sand as above,gray, 95% fine, 5% clay, wet, no odor or stain.		0.0	2-2-2	Sieve Analysis
			0.0	3-5-6	
	23.2'-24.0' Reddish brown clay, 90% clay, 10% silt, minor coarse sand, slightly moist, no odor or stain.	CL			
25	Total Depth 24.0'				
	8 bags #12-20 silica sand 1-4" long, 2" dia., schd 40, PVC, threaded end cap 15' 2" dia., schd 40, PVC, threaded screen, 10-slot 9' 2" dia., schd 40, PVC, threaded riser 1 J-plug 1 8" dia. x 12" deep surface well monument				
30					
35					
40					

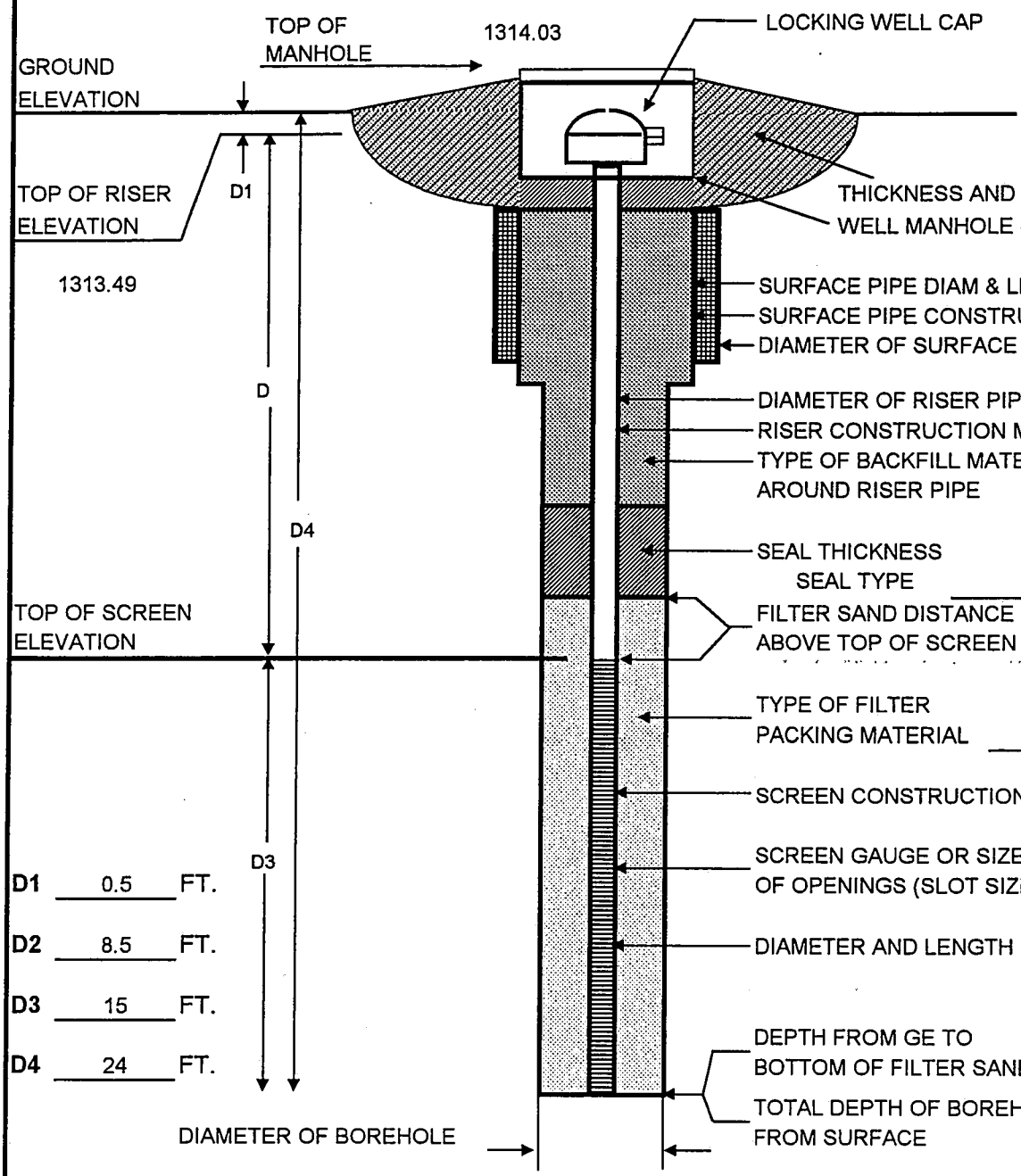
JOB NUMBER: 963231

MONITORING WELL
CONSTRUCTION AND INSTALLATION DIAGRAM

SAFETY-KLEEN PROJECT NO. 963231

PROJECT NAME: SK-Wichita

MONITORING WELL NO. SK-5S



THICKNESS AND TYPE OF SEAL	6" Cement
WELL MANHOLE SIZE	8"x12"
SURFACE PIPE DIAM & LENGTH	N/A
SURFACE PIPE CONSTRUCTION MATL	N/A
DIAMETER OF SURFACE BOREHOLE	N/A
DIAMETER OF RISER PIPE	2"
RISER CONSTRUCTION MATERIAL	PVC
TYPE OF BACKFILL MATERIAL AROUND RISER PIPE	Cement Bentonite
SEAL THICKNESS	6.0'
SEAL TYPE	Cement Bentonite
FILTER SAND DISTANCE ABOVE TOP OF SCREEN	3.0'
TYPE OF FILTER PACKING MATERIAL	12-20 Sand
SCREEN CONSTRUCTION MATERIAL	PVC
SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE)	No. 10
DIAMETER AND LENGTH OF SCREEN	2"x6"
DEPTH FROM GE TO BOTTOM OF FILTER SAND	24.0'
TOTAL DEPTH OF BOREHOLE FROM SURFACE	24.0'

D1	0.5	FT.
D2	8.5	FT.
D3	15	FT.
D4	24	FT.

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NOT TO SCALE

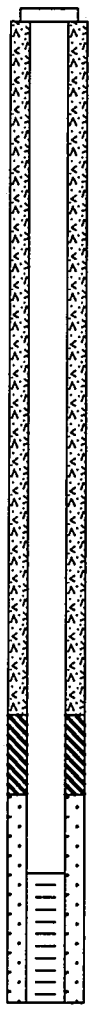
MONITORING WELL INSTALLATION INFORMATION		
DRILLING CONTRACTOR: Geotechnical Services Inc.	DRILLER: R. Lewis	
DRILLING RIG TYPE: CME-75	DRILLING METHOD: 4.25" HSA	
DATED STARTED: 10/24/00	DATE COMPLETED: 10/24/00	FORM COMPLETED BY: N. Malakar

SAFETY-KLEEN CONSULTING

LOG

BORING NO. WELL NO. SK-5D

CLIENT: *Safety-Kleen*		JOB NO.: *963231*	
PROJECT: *Safety-Kleen (Wichita), Inc. Facility*	LOCATION: *Wichita, KS*		
DRILLED BY: *Geotechnical Services*	DRILLER: *R. Lewis*	METHOD: *Auger-CME-75*	
START DATE: *10/24/00*	COMP. DATE: *10/24/00*	SURF. EL.: *1313.96*	TD: *37.5 FT. BGS*
LOGGED BY: *Nick Malakar*	MEAS. PT ELEV.: *1313.65*	D. T. WATER: *14.21 FT. BGS*	



DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	OVM	BLOW COUNT	SAMPLE ANALYSIS
	0-8' Advanced augers to 15.0 feet bgs, then began continuous soil sampling.				
	Clay brown, medium strength, medium plasticity, no odor or stain, Fill.	CL	0.0		
5					
	8-12.5' Sandy clay, reddish brown, 60% clay, 30% silt, 10% fine sand, soft, no odor or stain.		0.0		
10					
	12.5'-23.2'		0.0		
15	15-17.5' Brown poorly graded sand, 60% coarse sand, 30% medium sand, 10% silt, wet, no odor or stain.		0.0	8-7-7	
	17.5-20' Same as above. Poorly graded sand, 90% coarse sand, 10% medium sand, wet, no odor or stain.	SP	0.0	2-2-2	
20	20-23.2' Poorly graded sand as above, gray, 95% fine, 5% clay, wet, no odor or stain.		0.0	2-2-2	Sieve Analysis
			0.0	3-5-6	
	23.2'-26.0' Reddish brown clay, 90% clay, 10% silt, minor coarse sand, slightly moist, no odor or stain.	CL	0.0	4-6-6	
25	Same as above except, gray clay with light gray seams, high plasticity, medium strength, stained.		0.0	4-6-11	
	26.0'-28.0' Gray well graded sand, 90% sand (fine to coarse grained), 10% clay, clay stringer throughout, wet, no odor or stain.	SW	0.0	6-13-15	Sieve Analysis
30	28.0'-35.0' Reddish brown, well graded sand, 90% sand, (fine to coarse grained), 10% clay, 1" thick, green, fine sand at 28.9', moist.		0.0	8-12-15	
	Same as above, clay stringers throughout.				
35	Same as above. 8" clay sand seam from 32.5-33.2", moist, no odor or stain.	CL	0.0	8-14-16	
	35.0'-36.0' Olive clay, 80% clay, 20% silt, slightly moist, no odor or stain.	BDRK			
40	36.0'-37.5' Bedrock, shale, bluish gray, moist to dry.				
	Total Depth 37.5'				
45	3 bags #12-20 silica sand 3 bags aquagel 1 4" long, 2" dia., schd 40, PVC, threaded end cap 15' 2" dia, schd 40, PVC, threaded screen, 10-slot 22.5' 2" dia, schd 40, PVC, threaded riser 1 J-plug 1 8" dia x 12" deep surface well monument				
50					

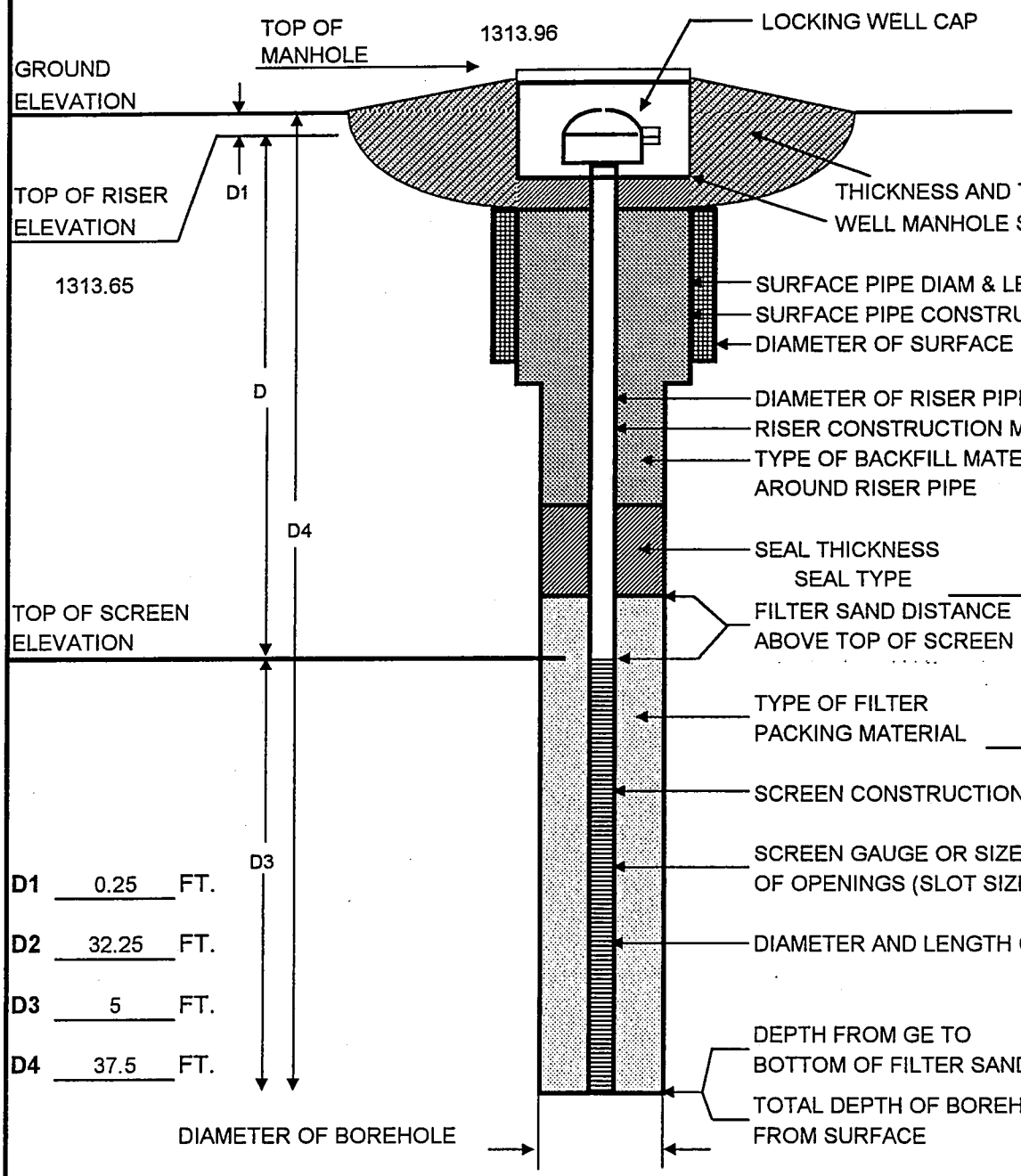
JOB NUMBER: 963231

MONITORING WELL
CONSTRUCTION AND INSTALLATION DIAGRAM

SAFETY-KLEEN PROJECT NO. 963231

PROJECT NAME: SK-Wichita

MONITORING WELL NO. SK-5D



THICKNESS AND TYPE OF SEAL	6" Cement
WELL MANHOLE SIZE	8"x12"
SURFACE PIPE DIAM & LENGTH	N/A
SURFACE PIPE CONSTRUCTION MATL	N/A
DIAMETER OF SURFACE BOREHOLE	N/A
DIAMETER OF RISER PIPE	2"
RISER CONSTRUCTION MATERIAL	PVC
TYPE OF BACKFILL MATERIAL AROUND RISER PIPE	Cement Bentonite
SEAL THICKNESS	29.5
SEAL TYPE	Cement Bentonite
FILTER SAND DISTANCE ABOVE TOP OF SCREEN	3.0'
TYPE OF FILTER PACKING MATERIAL	12-20 Sand
SCREEN CONSTRUCTION MATERIAL	PVC
SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE)	No. 10
DIAMETER AND LENGTH OF SCREEN	5'
DEPTH FROM GE TO BOTTOM OF FILTER SAND	37.5
TOTAL DEPTH OF BOREHOLE FROM SURFACE	37.5

D1	0.25	FT.
D2	32.25	FT.
D3	5	FT.
D4	37.5	FT.

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NOT TO SCALE

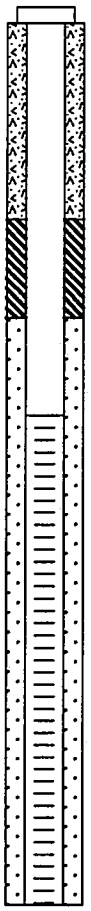
MONITORING WELL INSTALLATION INFORMATION		
DRILLING CONTRACTOR: Geotechnical Services Inc.	DRILLER: R. Lewis	
DRILLING RIG TYPE: CME-75	DRILLING METHOD: 4.25" HSA	
DATED STARTED: 10/24/00	DATE COMPLETED: 10/24/00	FORM COMPLETED BY: N. Malakar

SAFETY-KLEEN CONSULTING

LOG

BORING NO. WELL NO. SK-6S

CLIENT: *Safety-Kleen*			JOB NO.: *963231*
PROJECT: *Safety-Kleen (Wichita), Inc. Facility*		LOCATION: *Wichita, KS*	
DRILLED BY: *Geotechnical Services*	DRILLER: *S. Gensler*		METHOD: *Auger-CME-75*
START DATE: *10/23/00*	COMP. DATE: *10/23/00*	SURF. EL.: *1317.25*	TD: *28.5 FT. BGS*
LOGGED BY: *Phil Cavendor*	MEAS. PT ELEV.: *1316.98*		D. T. WATER: *17.87 FT. BGS*



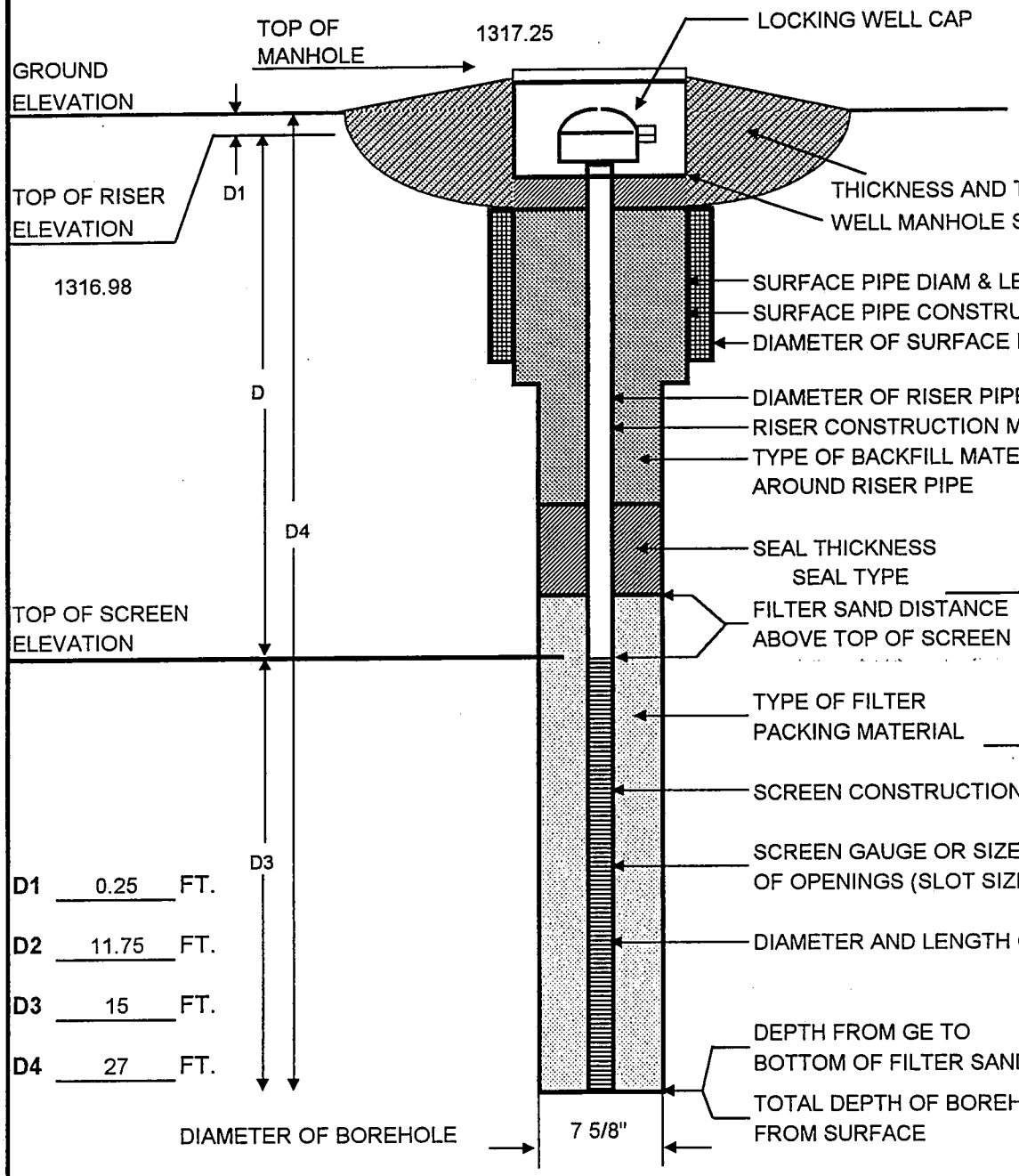
DPT	DESCRIPTION	GRAPHIC LOG USCS CODE	OVM	BLOW COUNT	SAMPLE ANALYSIS
	0.0'-3.0' Silty gravel with sand, light yellow brown, 40% gravel (medium to fine), 25% sand (very fine to coarse), 35% silt, dry, no odor or stain.	GM	0.0		
	3.0'-5.0' Silty gravel with sand, very dark brown, fill material, crushed rock, glass fragments throughout.				
5	5.0'-14' Lean clay, very dark grayish brown, stiff, dry. Changing to dark yellow brown at 7.0'. No odor or stain. Moist at 13'.	CL	0.0		
10					
15	14'-16' Poorly graded sand, yellwoish brown, moist, very fine, minor gravel at 15.5', dry, no odor or stain.	SP	0.0	8-9-16	
	16.5'-18.5' Poorly graded sand as above, moist, no odor or stain.		0.0	9-6-4	
20	18.5'-21.5' Poorly graded sand as above, wet, 6" fine gravel lens with sand at 20', siltier at 20.5', no odor or stain.	SW	0.0	4-3-2	
	21.5'-23.5' Well graded sand, yellow brown, wet, 90% sand (very coarse to fine grained), 10% silt, no odor or stain.		0.0	3-5-7	
25	24'-26' Well sorted sand with gravel as above, 20% gravel (very fine to medium), 75% sand (very fine to coarse grained), 5% silt, wet.	SP	0.0	3-3-3	
	26.5'-28.5' Lean clay, brown, stiff, dry, no odor or stain.	CL	0.0	5-6-12	
30	Total Depth 28.5 feet. 9 bags #12-20 silica sand 3.5 bags Holeplug bentonite pellets 3 bags cement mix 1 4" long, 2" dia, schd 40, PVC, threaded end cap 15' 2" dia, schd 40, PVC, threaded screen, 10-slot 12' 2" dia, schd 40, PVC, threaded riser 1 J-plug 1 8" dia x 12" deep surface well monument				
35					
40					

MONITORING WELL
CONSTRUCTION AND INSTALLATION DIAGRAM

SAFETY-KLEEN PROJECT NO. 963231

PROJECT NAME: SK-Wichita

MONITORING WELL NO. SK-6S



THICKNESS AND TYPE OF SEAL	2' Cement
WELL MANHOLE SIZE	8"x12"
SURFACE PIPE DIAM & LENGTH	NA
SURFACE PIPE CONSTRUCTION MATL	NA
DIAMETER OF SURFACE BOREHOLE	NA
DIAMETER OF RISER PIPE	2"
RISER CONSTRUCTION MATERIAL	PVC
TYPE OF BACKFILL MATERIAL AROUND RISER PIPE	Bentonite hole plug
SEAL THICKNESS	6.0'
SEAL TYPE	Bentonite hole plug
FILTER SAND DISTANCE ABOVE TOP OF SCREEN	2.0'
TYPE OF FILTER PACKING MATERIAL	12-20 Sand
SCREEN CONSTRUCTION MATERIAL	PVC
SCREEN GAUGE OR SIZE OF OPENINGS (SLOT SIZE)	No. 10
DIAMETER AND LENGTH OF SCREEN	2"x15'
DEPTH FROM GE TO BOTTOM OF FILTER SAND	27.0
TOTAL DEPTH OF BOREHOLE FROM SURFACE	27.0

D1	0.25	FT.
D2	11.75	FT.
D3	15	FT.
D4	27	FT.

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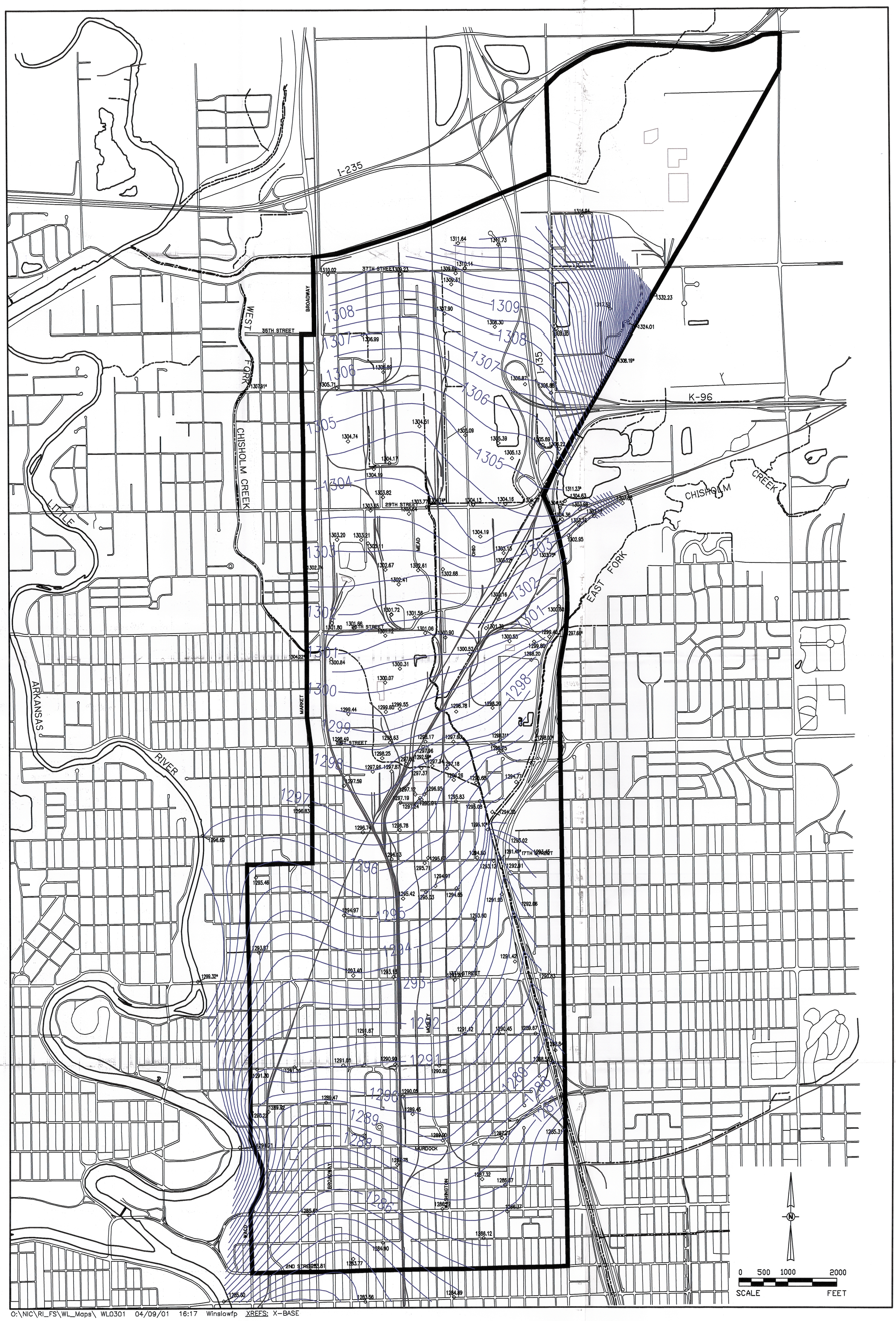
NOT TO SCALE

MONITORING WELL INSTALLATION INFORMATION		
DRILLING CONTRACTOR: Geotechnical Services Inc.	DRILLER: S. Genster	
DRILLING RIG TYPE: CME-45	DRILLING METHOD: HSA	
DATED STARTED: 10/23/00	DATE COMPLETED: 10/23/00	FORM COMPLETED BY: P. Cavendor

APPENDIX B
REGIONAL POTENTIOMETRIC SURFACE MAP FROM THE NIC INVESTIGATION - MARCH 2001

(REFERENCE: CDM 2000)



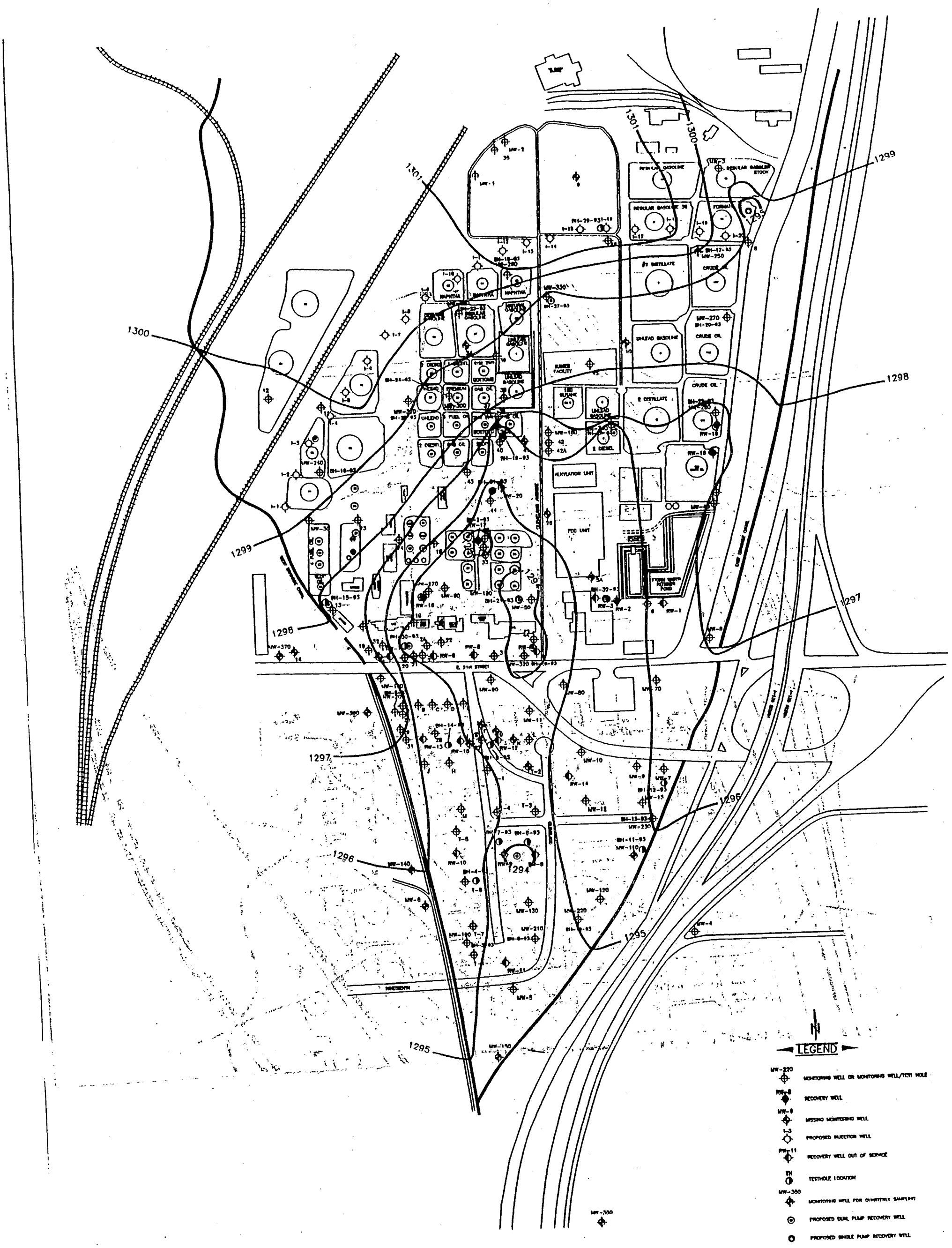
O:\NIC\RI_FS\WL_Maps\ WL0301 04/09/01 16:17 Winslowfp XREFS: X-BASE

Figure 1
North Industrial Corridor (NIC) Site
Potentiometric Surface Map, March 2001

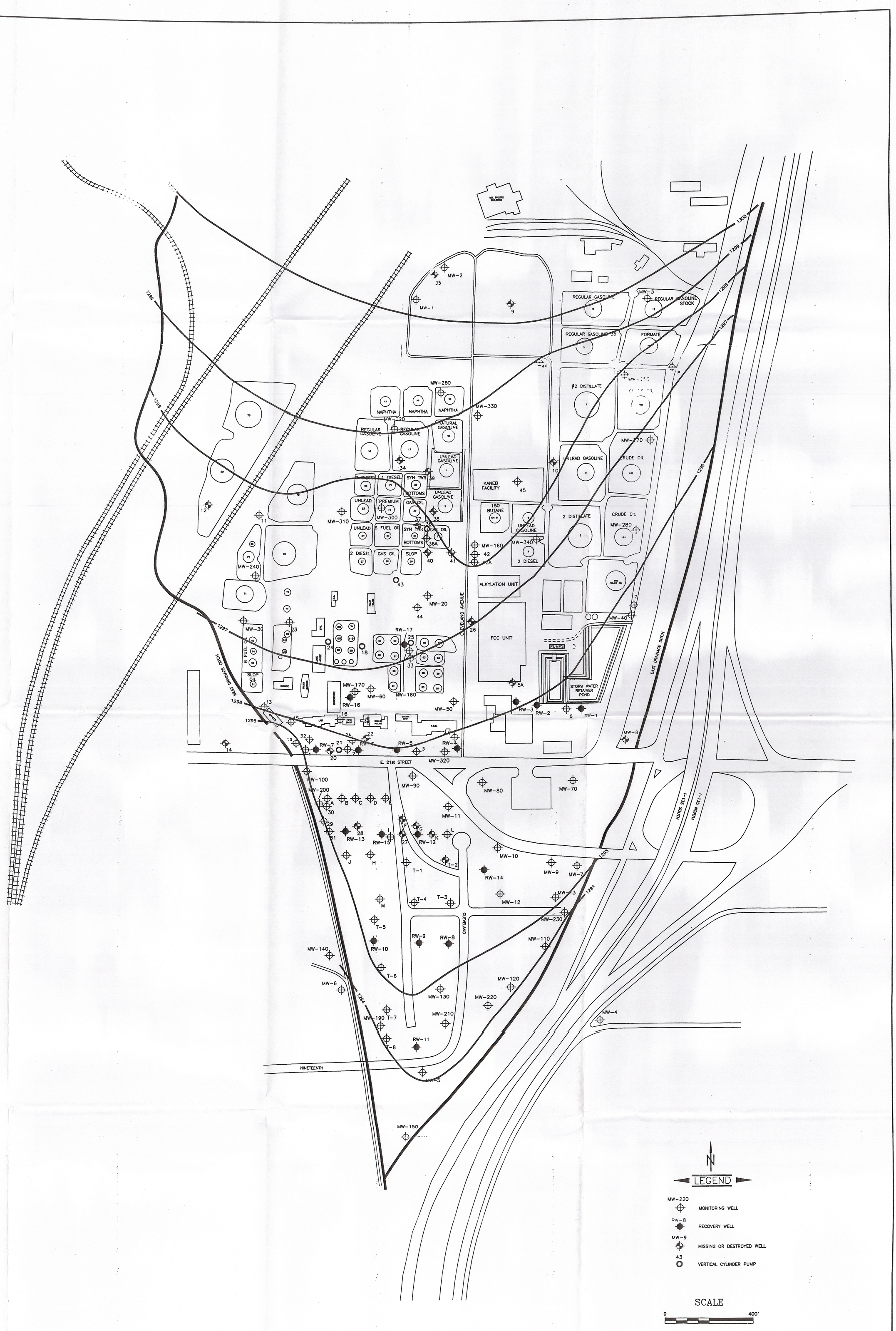
CDM Camp Dresser & McKee

APPENDIX C
1994 MODEL SIMULATION OF THE POTENTIOMETRIC SURFACE FOR PUMPING AND RE-INJECTION AT THE COASTAL REFINERY

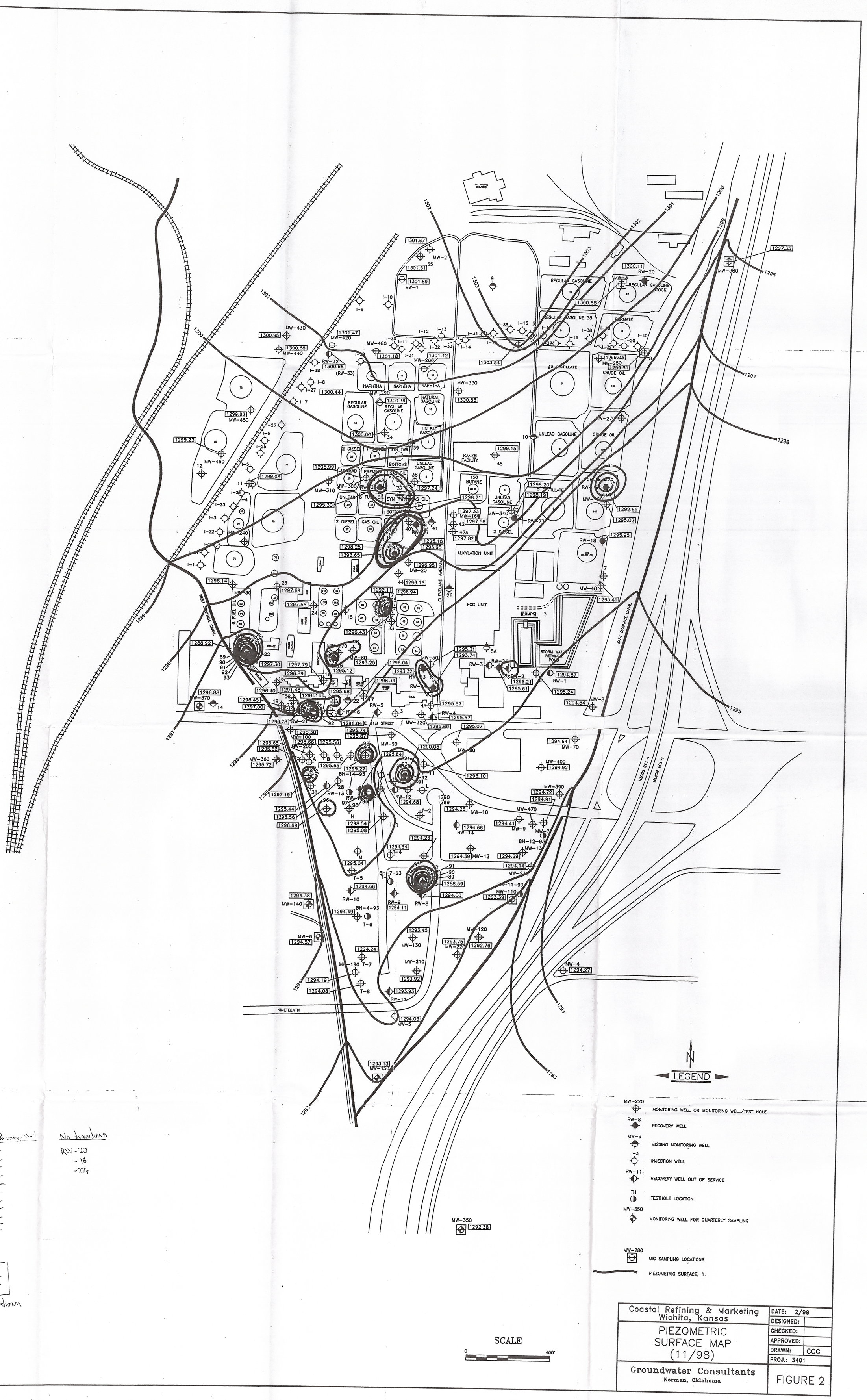
(REFERENCE: GROUNDWATER CONSULTANTS 1994B)



Coastal Refining & Marketing Wichita, Kansas	DATE: 7/94
	DESIGNED:
	CHECKED:
	APPROVED:
RUN 08	DRAWN: COG
	PROJ.: 3401
Groundwater Consultants Norman, Oklahoma	



Coastal Refining & Marketing Wichita, Kansas	DATE: 1/94
	DESIGNED:
PIEZOMETRIC SURFACE MAP (9/8/93)	CHECKED:
	APPROVED:
	DRAWN: COG
	PROJ.: 3401
Groundwater Consultants Norman, Oklahoma	Figure 4



Existing Recovery Wells

RW-16
-17
-18
-19
-20
-21
-22
-23
-25
-26
-28
? -29
-30
-31
-24r
-27r
-29r

not shown

No transform

RW-20
-16
-27r

Coastal Refining & Marketing Wichita, Kansas	DATE: 2/99
PIEZOMETRIC SURFACE MAP (11/98)	DESIGNED:
	CHECKED:
	APPROVED:
	DRAWN: COG
	PROJ.: 3401
Groundwater Consultants Norman, Oklahoma	FIGURE 2

APPENDIX E
COASTAL REFINERY DOWNGRADIENT WELL LOGS

BH-17-93

SB-17-93
MW-250

CLIENT: Coastal Refining & Marketing

PROJECT NO.: 3401

DATE DRILLED: 8-20-93

SITE: Wichita Refinery

LOCATION: 100' W of Tank #9 Adjacent to Road in N portion of Refinery

DRILLING COMPANY: Layne-Western

RIG: Mobile B-57

BOREHOLE: 8" O.D.

LOGGED BY: Mark Clemence

DRILLING METHOD: Hollow Stem Auger

FLUID: None

SAMPLING PROCEDURE: Split Barrel

INTERVAL: Continuous

TOTAL DEPTH: 23'

	MATERIAL	DIAMETER	SIZE	INTERVAL (FROM LAND SURFACE, ft.)
CASING:	Sch. 40 PVC	2"	N/A	+2'-8'
SCREEN:	Sch. 40 PVC	2"	0.020:	8'-23'
FILTER PACK:	Sand	N/A	8-20	6'-23'
SEAL:	Bentonite	N/A	Pellets	4'-6'
GROUT:	Cement	N/A	N/A	0-4'

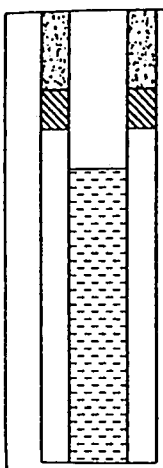
N/A - NOT APPLICABLE

DEVELOPMENT: Used Submersible Pump-Removed Approx 20 Gallons

NOTES:

ELEVATIONS: G.L. 1311.95 T.O.C. 1313.95 RISER HT. 2'

WELL CONSTRUCTION



DEPTH (FT.)	LITHOLOGY	USCS	LITHOLOGIC DESCRIPTION/COMMENTS	SAMPLE	ORGANIC VAPOR READINGS (ppm)
		CL	0-2' FILL: Rocks, concrete fragments 2'-4' CLAY: Black, medium to high plasticity, slightly moist, odor		
5		CL	4'-7' CLAY: Silty, green-gray, medium to low plasticity, some iron oxide slightly moist, odor, grades to sandy clay @ 5.25'		
		CL	7'-9' CLAY: Green-gray, hard, high plasticity, moist, odor		9
10					
		CL	9'-20' CLAY: Sandy, green-gray, fine grained, low to medium plasticity, moist, odor, grades to clayey sand @ 10.5', light brown layer from 10.25' to 10.5', moist, odor, black mottling throughout		
15					
					21
20		SM	20'-22' SAND: Green-gray, fine to medium grained, fair sorting, wet, odor, small rounded cobble sized clasts		
		SM	22'-23' SAND: Very coarse clasts filling auger-unable to use sample from this point to total depth		
25		CL	23' CLAY T.D. = 23'		
30					
35					
40					

BH 20-93
MW-270

CLIENT: Coastal Refining & Marketing
PROJECT NO.: 3401
DATE DRILLED: 8-23-93
SITE: Wichita Refinery
LOCATION: NE Corner of Berm @ AST #102
DRILLING COMPANY: Layne-Western
RIG: Mobile B-57
BOREHOLE: 8" O.D.
LOGGED BY: Mark Clemence
DRILLING METHOD: Hollow Stem Auger
FLUID: None
SAMPLING PROCEDURE: Split Barrel
INTERVAL: Continuous
TOTAL DEPTH: 29'

	MATERIAL	DIAMETER	SIZE	INTERVAL (FROM LAND SURFACE, ft.)
CASING:	Sch. 40 PVC	2"	N/A	+2'-12'
SCREEN:	Sch. 40 PVC	2"	0.020"	12'-27'
FILTER PACK:	Sand	N/A	8--20	10'-29'
SEAL:	Bentonite	N/A	Pellets	8'-10'
GROUT:	Cement	N/A	N/A	0-8'

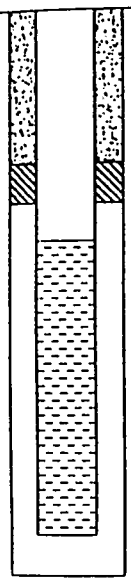
N/A - NOT APPLICABLE

DEVELOPMENT: Used Submersible Pump-Removed Approx 20 Gallons

NOTES:

ELEVATIONS: G.L. 1311.82 T.O.C. 1313.82 RISER HT. 2'

WELL CONSTRUCTION



DEPTH (FT.)	USCS	LITHOLOGIC DESCRIPTION/COMMENTS	SAMPLE	ORGANIC VAPOR READINGS (ppm)
	CL	0-1.25' SURFACE FILL 1.25'-3' CLAY: Black, medium to high plasticity, moist, no odor		26.5
5	CL	3'-6' CLAY: Silty, green-gray, black mottling, medium plasticity, moist, odor		
	CL	6'-9.2' CLAY: Green-gray, medium plasticity, moist, odor		30.1
	CL	9.2'-9.75' CLAY: Silty, green-gray, medium plasticity, moist, odor		
10	SM	9.75'-13.25' SAND: Clayey, green-gray, black mottling, fine grained, well sorted, moist, odor	■	
	SM	13.25'-14' SAND: Light brown, medium grained, fair to poor sorting, moist, odor	■	
15	SM	14'-15' NO RECOVERY 15'-17.5' SAND: Medium grained, color change @ 17' to green-gray, strong odor		633
		17.5'-20.5' NO RECOVERY 20.5'-20.75' SAND: Very fine grained, green-gray, well sorted, wet	■	
20	SM	20.75'-22' SAND: Fine to medium grained, green-gary, fair sorting, wet		
	SM	22'-25' NO RECOVERY 25'- 25.75' SAND: Light brown, fine grained, well sorted, wet		
25	SM	25.75'-27' SAND: Light brown, medium to coarse grained, poor sorting, wet	■	
	SM			
	CL	27'-29' CLAY T.D. = 29'		
30				
35				
40				

BH22-93
MW-280

CLIENT: Coastal Refining & Marketing

PROJECT NO.: 3401

DATE DRILLED: 8-24-93

SITE: Wichita Refinery

LOCATION: Eastern Edge of Refinery @ NE Corner of AST # 101

DRILLING COMPANY: Layne-Western

RIG: Mobile B-57

BOREHOLE: 8" O.D.

LOGGED BY: Mark Clemence

DRILLING METHOD: Hollow Stem Auger

FLUID: None

SAMPLING PROCEDURE: Split Barrel

INTERVAL: Continuous

TOTAL DEPTH: 27'

	MATERIAL	DIAMETER	SIZE	INTERVAL (FROM LAND SURFACE, ft.)
CASING:	Sch. 40 PVC	2"	N/A	+2'-14'
SCREEN:	Sch. 40 PVC	2"	0.020"	14'-24'
FILTER PACK:	Sand	N/A	8-20	12'-27'
SEAL:	Bentonite	N/A	Pellets	10'-12'
GROUT:	Cement	N/A	N/A	0-10'

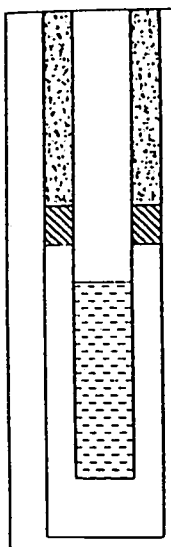
N/A - NOT APPLICABLE

DEVELOPMENT: Used Submersible Pump-Removed Approx 20 Gallons

NOTES:

ELEVATIONS: G.L. 1311.46 T.O.C. 1313.46 RISER HT. 2'

WELL CONSTRUCTION



DEPTH (FT.)	LITHOLOGY	USCS	LITHOLOGIC DESCRIPTION/COMMENTS	SAMPLE	ORGANIC VAPOR READINGS (ppm)
		CL	0-1.5' SURFACE: Fill, rocks 1.5'-6.25' CLAY: Black, medium plasticity, moist, faint odor		16
5		CL	6.25'-12.5' CLAY: Silty, green-brown, black mottling, medium plasticity, moist, odor		12
10		SM	12.5'-14' SAND: Light tan, very fine grained, well sorted, dry to moist, slight odor		3
			14'-15' NO RECOVERY		
15		SM	15'-17' SAND: Light tan-brown, fine to medium grained, well to fair sorting, coarsens downward, moist to wet, odor, some pebbles in coarsen section		
			17'-20' NO RECOVERY		
20		SM	20'-20.75' SAND: Green-gray, very fine grained, well sorted, wet, odor		
		SM	20.75'-22' SAND: Light brown, coarse to medium grained, poorly sorted, wet, odor		
		SM	22'-25.5' SAND: Light brown, medium grained, fair sorting, wet, odor		
25		CL	25.5'-27' CLAY		
			T.D. = 27'		
30					
35					
40					

BH27-93
MW-330

CLIENT: Coastal Refining & Marketing
PROJECT NO.: 3401
DATE DRILLED: 8-26-93
SITE: Wichita Refinery
LOCATION: 35' E of Clevelan Ave., 600' WSW of AST #7
DRILLING COMPANY: Layne-Western
RIG: Mobile B-57
BOREHOLE: 8" O.D.
LOGGED BY: Mark Clemence
DRILLING METHOD: Hollow Stem Auger
FLUID: None
SAMPLING PROCEDURE: Split Barrel
INTERVAL: Continuous
TOTAL DEPTH: 32'

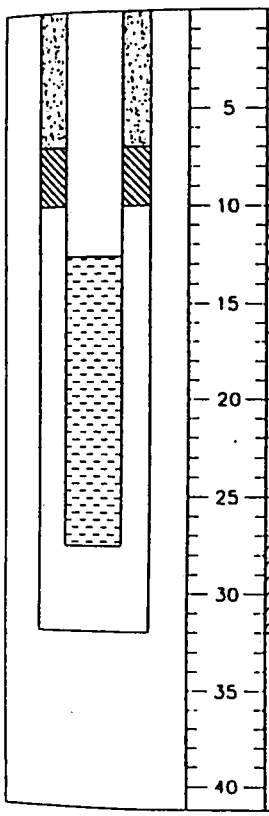
	MATERIAL	DIAMETER	SIZE	INTERVAL (FROM LAND SURFACE, ft.)
CASING:	Sch. 40 PVC	2"	N/A	+2'-12.5'
SCREEN:	Sch. 40 PVC	2"	0.020"	12.5'-27.5'
FILTER PACK:	Sand	N/A	8-20	10'-32'
SEAL:	Bentonite	N/A	Pellets	7'-10'
GROUT:	Cement	N/A	N/A	0-7'

N/A - NOT APPLICABLE

DEVELOPMENT: Used Submersible Pump-Removed Approx 20 Gallons

NOTES:

ELEVATIONS: G.L. 1311.81 T.O.C. 1313.81 RISER HT. 2'



DEPTH (FT.)	USCS	LITHOLOGIC DESCRIPTION/COMMENTS	SAMPLE	ORGANIC VAPOR READINGS (ppm)
		0-1.5' SURFACE: Slag, rock fragments, brick fragments, fill		
		1.5'-5' NO RECOVERY		
5		5'-6.5' FILL: Slag, rock fragments, brick fragments		
10	CL	6.5'-13.75' CLAY: Silty, yellow-brown, grades down to green-gray, black mottling, very hard, medium to low plasticity, moist, odor		336
				531
15	SM	13.75'-16.5' SAND: Clayey, green-gray, fine grained, very hard, wet, strong odor		
	SM	16.5'-20' SAND: Fine to coarse grained, green-gray, poorly sorted, wet, odor, with granules and cobbles		
20	SM	20'-22' SAND: Light brown, very fine to medium grained, some granules coarsens from 20.75'-21.5', fair sorting, wet, odor		
		22'-25'		
25		25'-27' NO RECOVERY		
30	CL	27'-32' CLAY		
		T.D. = 32'		
35				
40				

BH28-93
MW-340

CLIENT: Coastal Refining & Marketing
PROJECT NO.: 3401
DATE DRILLED: 8-26-93

SITE: Wichita Refinery
LOCATION: NE Corner of Berm @ AST #4

DRILLING COMPANY: Layne-Western
RIG: Mobile B-57
BOREHOLE: 8" O.D.

LOGGED BY: Mark Clemence
DRILLING METHOD: Hollow Stem Auger
FLUID: None

SAMPLING PROCEDURE: Split Barrel
INTERVAL: Continuous
TOTAL DEPTH: 27'

	MATERIAL	DIAMETER	SIZE	INTERVAL (FROM LAND SURFACE, ft.)
CASING:	Sch. 40 PVC	2"	N/A	+2'-14'
SCREEN:	Sch. 40 PVC	2"	0.020"	14'-24'
FILTER PACK:	Sand	N/A	8-20	11'-27'
SEAL:	Bentonite	N/A	Pellets	8.5'-11'
GROUT:	Cement	N/A	N/A	0-8.5'

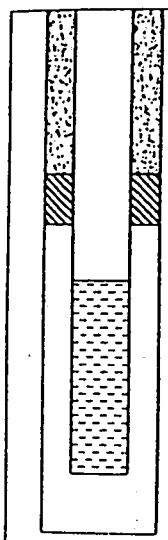
N/A - NOT APPLICABLE

DEVELOPMENT: Used Submersible Pump-Removed Approx 20 Gallons

NOTES:

ELEVATIONS: G.L. 1310.40 T.O.C. 1312.40 RISER HT. 2'

WELL CONSTRUCTION



DEPTH (FT.)	LITHOLOGY	USCS	LITHOLOGIC DESCRIPTION/COMMENTS	SAMPLE	ORGANIC VAPOR READINGS (ppm)
		CL	0-1.25' FILL: Rock fragments 1.25'-3.5' CLAY: Black, high plasticity, moist, odor		321
5		CL	3.5'- 13.75' CLAY: Silty, green-gray, black mottling, medium to low plasticity, slightly, moist, odor, with iron oxide staining and calcium crbonate nodules throughout		190
10					422
15		SM	13.75'-15.25' SAND: Clayey, green-gray, fine grained, moist, odor		
		SM	15.25'-17.75' SAND: Fine to medium grained, gree-gray, coarsens downward, wet, odor	■	
			17.75'-20' NO RECOVERY		
20		SM	20'-22' SAND: Green-gray, fine to medium grained, fair sorting, some small granules, wet, odor	■	
		SM	22'-26.25' SAND: Fine to medium grained, fines downward, green-gray, fair sorting, some cobbles, wet, odor		
25		CL	26.25'-27' CLAY T.D.= 27'		
30					
35					
40					

#42 W. .R WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
...unty: Sedgwick	¼ ¼ SE ¼	4	T 27 S	R 4 E W

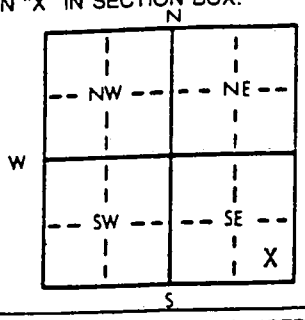
...tance and direction from nearest town or city street address of well if located within city?
996' north and 54' west of 21st & Cleveland, Wichita, Kansas

WATER WELL OWNER: Derby Refining Company
...#, St. Address, Box # : 1100 East 21st Street
..., State, ZIP Code : Wichita, Kansas 67214

Board of Agriculture, Division of Water Resource
Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
NW NE
W E
SW SE X
S



4 DEPTH OF COMPLETED WELL 20 ft. ELEVATION: 1310.78

Depth(s) Groundwater Encountered 1. 12 ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter 8 in. to 20 ft., and in. to ft

WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only 10 Observation well

Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued X Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
2 PVC 4 ABS 7 Fiberglass Threaded

...lank casing diameter 4 in. to 20 ft., Dia in. to ft., Dia in. to ft.

...sing height above land surface 6 in., weight lbs./ft. Wall thickness or gauge No. SCH 40

...PE OF SCREEN OR PERFORATION MATERIAL: 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fi... 11 Other (specify)
2 Brass 4 Galvanized steel 6 Co... 12 None used (open hole)

Copy to Ralph

note guess

...REEN OR PERFORATION OPENINGS ARE: 8 Saw cut 11 None (open hole)
1 Continuous slot 3 Mill slot 9 Drilled holes
2 Louvered shutter 4 Key punched 10 Other (specify)

18 11 Copy sent 9-13-84 SC

...REEN-PERFORATED INTERVALS: From 20 ...rom ft. to ft.
From ...rom ft. to ft.

GRAVEL PACK INTERVALS: From 20 ...rom ft. to ft.
From ft. to ft., From ft. to ft.

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

...out Intervals: From 9 ft. to 0 ft., From ft. to ft., From ft. to ft.

...hat is the nearest source of possible contamination: 10 Livestock pens 14 Abandoned water well
1 Septic tank 4 Lateral lines 7 Pit privy 11 Fuel storage 15 Oil well/Gas well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 12 Fertilizer storage 16 Other (specify below)
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 13 Insecticide storage

...irection from well? How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0	6	Gray brown silty clay			
6	12	Brown sandy clayey silt			
12	20	Tan gray fine-medium grained silty sand			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was ...mpleted on (mo/day/year) 4-9-84 and this record is true to the best of my knowledge and belief. Kansas ...ter Well Contractor's License No. 415 This Water Well Record was completed on (mo/day/yr) [illegible]
...der the business name of Daniels Drilling Company by (signature) [illegible]

...NSTRUCTIONS: Use typewriter or ball point pen, *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top ...ree copies to Kansas Department of Health and Environment, Division of Environment, Environmental Geology Section, Topeka, KS 66620. Send one to WATER WELL ...WNER and retain one for your records.

#42A

WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Sedgwick	¼ ¼ SE ¼	4	T 27 S	R 1 E W

Distance and direction from nearest town or city street address of well if located within city?

994' north and 54' west of 21st & Cleveland, Wichita, Kansas

WATER WELL OWNER: Derby Refining Company

Address, St. Address, Box # : 1100 East 21st Street

City, State, ZIP Code : Wichita, Kansas 67214

Board of Agriculture, Division of Water Resourc

Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N / W / E / S — NW, NE, SW, SE — X

4 DEPTH OF COMPLETED WELL 20 ft. ELEVATION: 1311.30

Depth(s) Groundwater Encountered 1. 12 ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter 6 in. to 20 ft., and in. to ft.

WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Observation well 11 Injection well 12 Other (Specify below)

Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

CASING JOINTS: Glued Clamped X Welded Threaded

Blank casing diameter 2 in. to 20 ft., Dia in. to ft., Dia in. to ft

Casing height above land surface 12 in., weight lbs./ft. Wall thickness or gauge No. SCH 40

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 20 ft. to 10 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

GRAVEL PACK INTERVALS: From 20 ft. to 8 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

Grout Intervals: From 8 ft. to 0 ft., From ft. to ft., From ft. to ft.

What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below)

Direction from well? How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0	6	Gray brown silty clay			
6	12	Brown sandy clayey silt			
12	20	Tan gray fine-medium grained silty sand			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 3-15-84 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 415 This Water Well Record was completed on (mo/day/yr) [illegible] under the business name of Daniels Drilling Company by (signature) [illegible]

INSTRUCTIONS: Use typewriter or ball point pen, *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Division of Environment, Environmental Geology Section, Topeka, KS 66620. Send one to WATER WELL OWNER and retain one for your records.

WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL: County: Sedgwick 087	Fraction: NW ¼ SE ¼ SE ¼	Section Number: 4	Township Number: T 27 S	Range Number: R 1 E

Distance and direction from nearest town or city street address of well if located within city?

Near Cleveland & 21st St. in Wichita, Ks.

WATER WELL OWNER: Derby Refining Company

RR#, St. Address, Box # : P. O. Box 1030

City, State, ZIP Code : Wichita, Ks. 67201-1030

Board of Agriculture, Division of Water Resou

Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N / NW / NE / W / E / SW / SE X / S

4 DEPTH OF COMPLETED WELL 28 ft. ELEVATION:

Depth(s) Groundwater Encountered 1. ft. 2. ft. 3.

WELL'S STATIC WATER LEVEL 15 ft. below land surface measured on mo/day/yr 10/5/88

Pump test data: Well water was ft. after hours pumping g

Est. Yield gpm: Well water was ft. after hours pumping g

Bore Hole Diameter 11 in. to 28 ft., and in. to

WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Observation well 11 Injection well 12 Other (Specify below)

Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes X No

TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

CASING JOINTS: Glued Clamped Welded Threaded X

Blank casing diameter 4 in. to 28 ft., Dia in. to ft., Dia in. to

Casing height above land surface 24 in., weight 2.08 lbs./ft. Wall thickness or gauge No. 237

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 8 ft. to 28 ft., From ft. to

From ft. to ft., From ft. to

GRAVEL PACK INTERVALS: From 6 ft. to 28 ft., From ft. to

From ft. to ft., From ft. to

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

Grout Intervals: From 0 ft. to 6 ft., From ft. to ft., From ft. to

What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below)

Direction from well? Within immediate area. How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0	4	01 Black clay.			
4	7	01 Brown clay.			
7	16	03 Gray silty clay.			
16	25	17 Sand fine, medium coarse - small gravel pack.			
25	30	08 Sand fine, medium coarse.			

RECEIVED NOV 07 1988 DIVISION OF ENVIRONMENT

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 10/5/88 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 145 This Water Well Record was completed on (mo/day/yr) 10/11/88 under the business name of Castle Drilling & Supply Company, Inc. by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water Protection, Topeka, Kansas 66620-7320, Telephone: 913-862-9360. Send one to WATER WELL OWNER and retain one for your records

ER WELL RECORD Form WWC-5 KSA 82 12 Copy - 0/2

CATION OF WATER WELL	Fraction	Section Number	Township Number	Range Number
ity: Sedgwick	NE ¼ SE ¼ SE ¼	4	T 27 S	R 1E E/W

nce and direction from nearest town or city? N.E. Wichita, Kansa

Street address of well if located within city? 1100 E. 21st Street Well #7

/ATER WELL OWNER: Derby Refining Company

St. Address, Box # : 1100 E. 21st Street

State, ZIP Code : Wichita, KS 67214

Board of Agriculture, Division of Water Resources Application Number:

EPTH OF COMPLETED WELL 23.0 ft. Bore Hole Diameter 8 in. to 23.0 ft., and in. to ft.

Water to be used as: 5 Public water supply 8 Air conditioning 11 Injection well
Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
Irrigation 4 Industrial 7 Lawn and garden only (10) Observation well

s static water level 13.0 ft. below land surface measured on 11 month 26 day 80 year

Test Data : Well water was ft. after hours pumping gpm
Yield gpm: Well water was ft. after hours pumping gpm

YPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile Casing Joints: Glued X Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
2 PVC 4 ABS 7 Fiberglass Threaded

casing dia 4 in. to ft., Dia in. to ft., Dia in. to ft.

ng height above land surface 48 in., weight lbs./ft. Wall thickness or gauge No 200

OF SCREEN OR PERFORATION MATERIAL: X7 PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)

en or Perforation Openings Are: 5 Gauzed wrapped X 8 Saw cut 11 None (open hole)
1 Continuous slot 3 Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)

en-Perforation Dia 4 in. to 23.0 ft., Dia in. to ft., Dia in to ft.

n-Perforated Intervals: From 11.0 ft. to 23.0 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

el Pack Intervals: From 10.0 ft. to 23.0 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

ROUT MATERIAL: 1 Neat cement X2 Cement grout 3 Bentonite 4 Other

ed Intervals: From 0.0 ft. to 10.0 ft., From ft. to ft., From ft. to ft.

t is the nearest source of possible contamination: 10 Fuel storage 14 Abandoned water well
1 Septic tank 4 Cess pool 7 Sewage lagoon 11 Fertilizer storage 15 Oil well/Gas well
2 Sewer lines 5 Seepage pit 8 Feed yard 12 Insecticide storage X16 Other (specify below)
3 Lateral lines 6 Pit privy 9 Livestock pens 13 Watertight sewer lines Hydrocarbon H_2O

tion from well ALL How many feet 0 ? Water Well Disinfected? Yes No X

a chemical/bacteriological sample submitted to Department? Yes No X If yes, date sample submitted month day year: Pump Installed? Yes No X

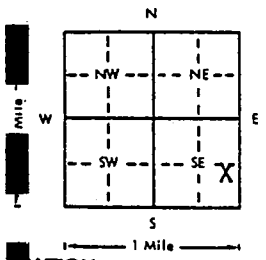
s: Pump Manufacturer's name Model No. HP Volts

of Pump Intake ft. Pumps Capacity rated at gal./min.

of pump: 1 Submersible 2 Turbine 3 Jet 4 Centrifugal 5 Reciprocating 6 Other

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was leted on 11 month 26 day 80 year. This record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 415-B. Water Well Record was completed on 12 month 10 day 81 year under the business e of DANIELS DRILLING COMPANY by (signature) David W. Daniels

OCATE WELL'S LOCATION TH AN "X" IN SECTION OX:



FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0.0	13.0	Silty Clay			
13.0	23.0	Silty Clayey Sand			

ATION:

h(s) Groundwater Encountered 1. 13.0 ft. 2. ft. 3. ft. 4. ft. (Use a second sheet if needed)

TRUCTIONS: Use typewriter or ball point pen, *please press firmly* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three s to Kansas Department of Health and Environment, Division of Environment, Water Well Contractors, Topeka, KS 66620. Send one to WATER WELL OWNER and one for your records.

nc

WATER WELL RECORD Form WWC-5 KSA 82 212 Copy - 06

LOCATION OF WATER WELL	Fraction	Section Number	Township Number	Range Number
unty: Sedgwick	SE ¼ NE ¼ SE ¼	4	T 27 S	R 1E E/W

tance and direction from nearest town or city? N.E. Wichita, Kansas

Street address of well if located within city? 1100 E. 21st Street Well #8

WATER WELL OWNER: Derby Refining Company

#, St. Address, Box # : 1100 E. 21st Street

, State, ZIP Code : Wichita, KS 67214

Board of Agriculture, Division of Water Resources Application Number:

DEPTH OF COMPLETED WELL 21.0 ft. Bore Hole Diameter 8 in. to 21.0 ft., and ..... in. to ..... ft.

ll Water to be used as: 5 Public water supply 8 Air conditioning 11 Injection well

1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)

2 Irrigation 4 Industrial 7 Lawn and garden only X10 Observation well

ll's static water level 17.0 ft. below land surface measured on 11 month 26 day 80 year

np Test Data : Well water was ..... ft. after ..... hours pumping ..... gpm

Yield gpm: Well water was ft. after hours pumping gpm

TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile Casing Joints: Glued X Clamped

1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded

X 2 PVC 4 ABS 7 Fiberglass Threaded

k casing dia 4 in. to 10.0 ft., Dia ..... in. to ..... ft., Dia ..... in. to ..... ft.

ing height above land surface 18 in., weight ..... lbs./ft. Wall thickness or gauge No 200

E OF SCREEN OR PERFORATION MATERIAL: X7 PVC 10 Asbestos-cement

1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)

2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)

en or Perforation Openings Are: 5 Gauzed wrapped X 8 Saw cut 11 None (open hole)

1 Continuous slot 3 Mill slot 6 Wire wrapped 9 Drilled holes

2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)

en-Perforation Dia 4 in. to 21.0 ft., Dia ..... in. to ..... ft., Dia ..... in to ..... ft.

en-Perforated Intervals: From 10.0 ft. to 21.0 ft., From ..... ft. to ..... ft.

From ..... ft. to ..... ft., From ..... ft. to ..... ft.

el Pack Intervals: From 10.0 ft. to 21.0 ft., From ..... ft. to ..... ft.

From ft. to ft., From ft. to ft.

ROUT MATERIAL: 1 Neat cement X 2 Cement grout 3 Bentonite 4 Other

ed Intervals: From 0.0 ft. to 10.0 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.

t is the nearest source of possible contamination: 10 Fuel storage 14 Abandoned water well

1 Septic tank 4 Cess pool 7 Sewage lagoon 11 Fertilizer storage 15 Oil well/Gas well

2 Sewer lines 5 Seepage pit 8 Feed yard 12 Insecticide storage X16 Other (specify below)

3 Lateral lines 6 Pit privy 9 Livestock pens 13 Watertight sewer lines Hydrocarbon H_2O

tion from well ALL How many feet 0 ? Water Well Disinfected? Yes ..... No X

a chemical/bacteriological sample submitted to Department? Yes ..... No X : If yes, date sample

ubmitted ..... month ..... day ..... year: Pump Installed? Yes ..... No X

s: Pump Manufacturer's name ..... Model No. ..... HP ..... Volts

of Pump Intake ..... ft. Pumps Capacity rated at ..... gal./min.

of pump: 1 Submersible 2 Turbine 3 Jet 4 Centrifugal 5 Reciprocating 6 Other

NTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was

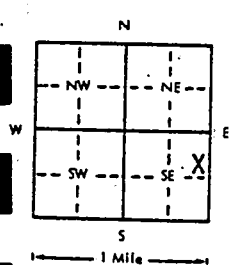
leted on 11 month 26 day 80 year

is record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 415-B

Water Well Record was completed on 12 month 10 day 81 year under the business

of by (signature) David W Daniels

CATE WELL'S LOCATION TH AN "X" IN SECTION X:



FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0.0	9.0	Silty Clay			
9.0	21.0	Sand			

TION:

) Groundwater Encountered 1 17.0 ft. 2 ..... ft. 3 ..... ft. 4 ..... ft. (Use a second sheet if needed)

RUCTIONS: Use typewriter or ball point pen, *please press firmly* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three to Kansas Department of Health and Environment, Division of Environment, Water Well Contractors, Topeka, KS 66620. Send one to WATER WELL OWNER and ne for your records.

SEC. 4 SE ¼ NE ¼ SE ¼

WATER WELL RECORD Form WWC-5 KSA 82a-1212 Copy — Ob

LOCATION OF WATER WELL	Fraction	Section Number	Township Number	Range Number
unty: Sedgwick	NW ¼ NE ¼ SE ¼	4	T 27 S	R 1E E/W

tance and direction from nearest town or city? .E. Wichita, Kansas

Street address of well if located within city? 1100 E. 21st Street Well #9

WATER WELL OWNER: Derby Refining Company
#, St. Address, Box # : 1100 E. 21st Street
, State, ZIP Code : Wichita, KS 67214

Board of Agriculture, Division of Water Resources Application Number:

DEPTH OF COMPLETED WELL 23.0 ft. Bore Hole Diameter 8 in. to 23.0 ft., and ..... in. to ..... ft.

ll Water to be used as:
1 Domestic 3 Feedlot
2 Irrigation 4 Industrial
5 Public water supply
6 Oil field water supply
7 Lawn and garden only
8 Air conditioning
9 Dewatering
X10 Observation well
11 Injection well
12 Other (Specify below)

ll's static water level 13.5 ft. below land surface measured on 11 month 26 day 80 year

mp Test Data : Well water was ..... ft. after ..... hours pumping ..... gpm
Yield gpm: Well was ..... ft. after ..... hours pumping ..... gpm

TYPE OF BLANK CASING USED:
1 Steel 3 RMP (SR)
X2 PVC 4 ABS
5 Wrought iron
6 Asbestos-Cement
7 Fiberglass
8 Concrete tile
9 Other (specify below)

Casing Joints: Glued X Clamped ..... Welded ..... Threaded .....

nk casing dia 4 in. to 13.0 ft., Dia ..... in. to ..... ft., Dia ..... in. to ..... ft.

sing height above land surface 24 in., weight ..... lbs./ft. Wall thickness or gauge No 200

PE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless steel
2 Brass 4 Galvanized steel
5 Fiberglass
6 Concrete tile
X 7 PVC
8 RMP (SR)
9 ABS
10 Asbestos-cement
11 Other (specify) .....
12 None used (open hole)

reen or Perforation Openings Are:
1 Continuous slot 3 Mill slot
2 Louvered shutter 4 Key punched
5 Gauzed wrapped
6 Wire wrapped
7 Torch cut
X 8 Saw cut
9 Drilled holes
10 Other (specify) .....
11 None (open hole)

reen-Perforation Dia 4 in. to 23.0 ft., Dia ..... in. to ..... ft., Dia ..... in to ..... ft.

reen-Perforated Intervals: From 13.0 ft. to 23.0 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

vel Pack Intervals: From 10.0 ft. to 23.0 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

GROUT MATERIAL: 1 Neat cement X2 Cement grout 3 Bentonite 4 Other .....

uted Intervals: From 0.0 ft. to 10.0 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.

hat is the nearest source of possible contamination:
1 Septic tank 4 Cess pool 7 Sewage lagoon 10 Fuel storage 14 Abandoned water well
2 Sewer lines 5 Seepage pit 8 Feed yard 11 Fertilizer storage 15 Oil well/Gas well
3 Lateral lines 6 Pit privy 9 Livestock pens 12 Insecticide storage X16 Other (specify below)
13 Watertight sewer lines Hydrocarbon H_2O

rection from well ALL How many feet 0 ? Water Well Disinfected? Yes ..... No X

s a chemical/bacteriological sample submitted to Department? Yes ..... No X ..... If yes, date sample s submitted ..... month ..... day ..... year: Pump Installed? Yes ..... No X

Yes: Pump Manufacturer's name ..... Model No. ..... HP ..... Volts .....

pth of Pump Intake ..... ft. Pumps Capacity rated at ..... gal./min.

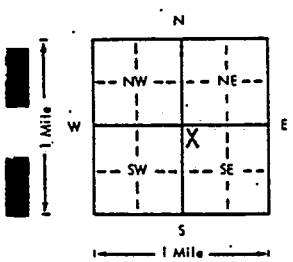
pe of pump: 1 Submersible 2 Turbine 3 Jet 4 Centrifugal 5 Reciprocating 6 Other

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was mpleted on 11 month 26 day 80 year

d this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 415-B

s Water Well Record was completed on 12 month 10 day 81 year under the business me of DANIELS DRILLING COMPANY by (signature) David W. Daniels

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0.0	15.0	Silty Clay			
15.0	17.0	Sandy Clay			
17.0	23.0	Sand			

EVATION:

pth(s) Groundwater Encountered 1 13.5 ft. 2 ..... ft. 3 ..... ft. 4 ..... ft. (Use a second sheet if needed)

NSTRUCTIONS: Use typewriter or ball point pen, *please press firmly* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three opies to Kansas Department of Health and Environment, Division of Environment, Water Well Contractors, Topeka, KS 66620. Send one to WATER WELL OWNER and ain one for your records.

N/a

WATER WELL RECORD Form WWC-5 KSA 82a-1212 Copy — OK

LOCATION OF WATER WELL	Fraction	Section Number	Township Number	Range Number
unty: Sedgwick	SW ¼ NE ¼ SE ¼	4	T 27 S	R 1E E/W

itance and direction from nearest town or city? N.E. Wichita, Kansas

Street address of well if located within city? 1100 E. 21st Street Well #10

WATER WELL OWNER: Derby Refining Company
#, St. Address, Box # : 1100 E. 21st Street
y, State, ZIP Code : Wichita, Kansas 67214

Board of Agriculture, Division of Water Resources
Application Number:

DEPTH OF COMPLETED WELL 24.0 ft. Bore Hole Diameter 8 in. to 24.0 ft., and ..... in. to ..... ft.

ll Water to be used as: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering X10 Observation well 11 Injection well 12 Other (Specify below)

ll's static water level 15.0 ft. below land surface measured on 11 month 26 day 80 year

mp Test Data : Well water was ..... ft. after ..... hours pumping ..... gpm
t. Yield gpm: Well water was ..... ft. after ..... hours pumping ..... gpm

TYPE OF BLANK CASING USED: 1 Steel X 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

Casing Joints: Glued X Clamped ..... Welded ..... Threaded .....

nk casing dia 4 in. to 14.0 ft., Dia ..... in. to ..... ft., Dia ..... in. to ..... ft.

sing height above land surface 12 in., weight ..... lbs./ft. Wall thickness or gauge No 200

PE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile X7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) ..... 12 None used (open hole)

reen or Perforation Openings Are: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut X 8 Saw cut 9 Drilled holes 10 Other (specify) ..... 11 None (open hole)

een-Perforation Dia 4 in. to 24.0 ft., Dia ..... in. to ..... ft., Dia ..... in to ..... ft.

reen-Perforated Intervals: From 14.0 ft. to 24.0 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

vel Pack Intervals: From 10.0 ft. to 24.0 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

GROUT MATERIAL: 1 Neat cement X2 Cement grout 3 Bentonite 4 Other .....

uted Intervals: From 0.0 ft. to 10.0 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.

at is the nearest source of possible contamination:
1 Septic tank 2 Sewer lines 3 Lateral lines 4 Cess pool 5 Seepage pit 6 Pit privy 7 Sewage lagoon 8 Feed yard 9 Livestock pens 10 Fuel storage 11 Fertilizer storage 12 Insecticide storage 13 Watertight sewer lines 14 Abandoned water well 15 Oil well/Gas well X16 Other (specify below) Hydrocarbon H_2O

rection from well ALL How many feet 0 ? Water Well Disinfected? Yes ..... No X

as a chemical/bacteriological sample submitted to Department? Yes ..... No X : If yes, date sample
s submitted ..... month ..... day ..... year: Pump Installed? Yes ..... No X

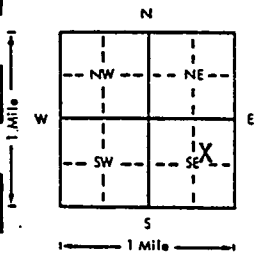
es: Pump Manufacturer's name ..... Model No. ..... HP ..... Volts .....

pth of Pump Intake ..... ft. Pumps Capacity rated at ..... gal./min.

pe of pump: 1 Submersible 2 Turbine 3 Jet 4 Centrifugal 5 Reciprocating 6 Other

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) X constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was
mpleted on 11 month 26 day 80 year
d this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 415-B
s Water Well Record was completed on 12 month 10 day 81 year under the business
me of DANIELS DRILLING COMPANY by (signature) Chuck W. Daniels

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



LEVATION:

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0.0	6.0	Silty Clay			
6.0	15.0	Clay			
15.0	17.5	Clayey Sand			
17.5	24.0	Sand			

pth(s) Groundwater Encountered 1 15.0 ft. 2 ..... ft. 3 ..... ft. 4 ..... ft. (Use a second sheet if needed)

STRUCTIONS: Use typewriter or ball point pen, *please press firmly* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three opies to Kansas Department of Health and Environment, Division of Environment, Water Well Contractors, Topeka, KS 66620. Send one to WATER WELL OWNER and tain one for your records.

N/a

MW-1 WATER WELL RECORD Form WWC-5 KSA 82a-1212

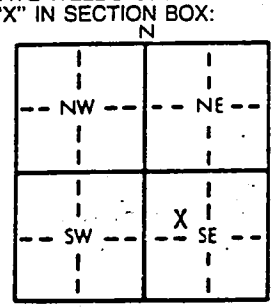
LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
unty: Sedgwick	¼ ¼ SE ¼	4	T 27 S	R 1 E/W

tance and direction from nearest town or city street address of well if located within city?
2088' north and 348' west of 21st & Cleveland, Wichita, Kansas

WATER WELL OWNER: Derby Refining Company
#, St. Address, Box # : 1100 East 21st Street
, State, ZIP Code : Wichita, Kansas 67214

Board of Agriculture, Division of Water Resources
Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 19 ft. ELEVATION: 1313.79
Depth(s) Groundwater Encountered 1. 13 ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 8 in. to 19 ft., and in. to ft.
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only 10 Observation well
Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued Clamped X
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
2 PVC 4 ABS 7 Fiberglass Threaded
nk casing diameter 4 in. to 19 ft., Dia in. to ft., Dia in. to ft.
ing height above land surface 24 in., weight lbs./ft. Wall thickness or gauge No. SCH 40
E OF SCREEN OR PERFORATION MATERIAL: 7 PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)
REEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
1 Continuous slot 3 Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)
REEN-PERFORATED INTERVALS: From 19 ft. to 11 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 19 ft. to 8 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
ut Intervals: From 8 ft. to 0 ft., From ft. to ft., From ft. to ft.
at is the nearest source of possible contamination: 10 Livestock pens 14 Abandoned water well
1 Septic tank 4 Lateral lines 7 Pit privy 11 Fuel storage 15 Oil well/Gas well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 12 Fertilizer storage 16 Other (specify below)
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 13 Insecticide storage
ection from well? How many feet?

OM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0	6	Gray brown silty clay			
6	12	Brown sandy silt			
2	19	Fine to medium grained sand			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was pleted on (mo/day/year) 1-23-84 and this record is true to the best of my knowledge and belief. Kansas r Well Contractor's License No. 415 This Water Well Record was completed on (mo/day/yr) 1-23-84
er the business name of Daniels Drilling Company by (signature)

STRUCTIONS: Use typewriter or ball point pen, *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top e copies to Kansas Department of Health and Environment, Division of Environment, Environmental Geology Section, Topeka, KS 66620. Send one to WATER WELL NER and retain one for your records.

MW-2 ...ER WELL RECORD Form WWC-5 KSA 82... 2

...ATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
...: Sedgwick	¼ ¼ SE ¼	4	T 27 S	R 1 EW

...ce and direction from nearest town or city street address of well if located within city?

1388' north and 82' west of 21st & Cleveland, Wichita, Kansas

...TER WELL OWNER: Derby Refining Company

...St. Address, Box # : 1100 East 21st Street

...State, ZIP Code : Wichita, Kansas 67214

Board of Agriculture, Division of Water Resources
Application Number:

...CATE WELL'S LOCATION WITH "X" IN SECTION BOX:

N
NW NE
W E
SW SE X
S

4 DEPTH OF COMPLETED WELL 21 ft. ELEVATION: 1315.69

Depth(s) Groundwater Encountered 1. 14 ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter 8 in. to 21 ft., and in. to ft.

WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only 10 Observation well

Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes No X

...PE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued Clamped X
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
2 PVC 4 ABS 7 Fiberglass Threaded

...casing diameter 4 in. to 21 ft., Dia in. to ft., Dia in. to ft.

...g height above land surface 30 in., weight lbs./ft. Wall thickness or gauge No. SCH 40

...OF SCREEN OR PERFORATION MATERIAL: 7 PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)

...EN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
1 Continuous slot 3 Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)

...EN-PERFORATED INTERVALS: From 21 ft. to 12 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

GRAVEL PACK INTERVALS: From 21 ft. to 10 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

...ROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

...Intervals: From 10 ft. to 0 ft., From ft. to ft., From ft. to ft.

...is the nearest source of possible contamination: 10 Livestock pens 14 Abandoned water well
1 Septic tank 4 Lateral lines 7 Pit privy 11 Fuel storage 15 Oil well/Gas well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 12 Fertilizer storage 16 Other (specify below)
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 13 Insecticide storage

...ion from well? How many feet?

...OM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0	5	Gray brown silty clay			
5	13	Brown sandy silt			
3	21	Medium to coarse grained silty sand			

...ONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was ...leted on (mo/day/year) 1-23-84 and this record is true to the best of my knowledge and belief. Kansas ...r Well Contractor's License No. 415 This Water Well Record was completed on (mo/day/yr) ...

...the business name of Daniels Drilling Company by (signature) [signature]

...RUCTIONS: Use typewriter or ball point pen, *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top ...copies to Kansas Department of Health and Environment, Division of Environment, Environmental Geology Section, Topeka, KS 66620. Send one to WATER WELL ...NER and retain one for your records.

OFFICE USE ONLY

E/W SEC. ¼ ¼ ¼

MW-3

..ATER WELL RECORD Form WWC-5 KSA 82a-1212

)CATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
nty: Sedgwick	¼ ¼ SE ¼	4	T 27 S	R 1 E/W

ance and direction from nearest town or city street address of well if located within city?

2256' north and 776' east of 21st & Cleveland, Wichita, Kansas

WATER WELL OWNER: Derby Refining Company

#, St. Address, Box # : 1100 East 21st Street

, State, ZIP Code : Wichita, Kansas 67214

Board of Agriculture, Division of Water Resources Application Number:

OCATE WELL'S LOCATION WITH N "X" IN SECTION BOX:

N — NW — NE — W — E — SW — SE — X — S

4 DEPTH OF COMPLETED WELL 20 ft. ELEVATION: 1316.73

Depth(s) Groundwater Encountered 1. 14 ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter 8 in. to 20 ft., and in. to ft.

WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well; 1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below); 2 Irrigation 4 Industrial 7 Lawn and garden only 10 Observation well

Was a chemical/bacteriological sample submitted to Department? Yes ..... No X ; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes No X

YPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued Clamped X; 1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded; 0 PVC 4 ABS 7 Fiberglass Threaded

k casing diameter 4 in. to 20 ft., Dia in. to ft., Dia in. to ft.

ing height above land surface 24 in., weight lbs./ft. Wall thickness or gauge No. SCH 40

E OF SCREEN OR PERFORATION MATERIAL: 0 PVC 10 Asbestos-cement; 1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify); 2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)

EEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole); 1 Continuous slot 0 Mill slot 6 Wire wrapped 9 Drilled holes; 2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)

EEN-PERFORATED INTERVALS: From 20 ft. to 11 ft., From ft. to ft.; From ft. to ft., From ft. to ft.

GRAVEL PACK INTERVALS: From 20 ft. to 9 ft., From ft. to ft.; From ft. to ft., From ft. to ft.

ROUT MATERIAL: 1 Neat cement 0 Cement grout 3 Bentonite 4 Other

t Intervals: From 9 ft. to 0 ft., From ft. to ft., From ft. to ft.

at is the nearest source of possible contamination: 10 Livestock pens 14 Abandoned water well; 1 Septic tank 4 Lateral lines 7 Pit privy 11 Fuel storage 15 Oil well/Gas well; 2 Sewer lines 5 Cess pool 8 Sewage lagoon 12 Fertilizer storage 16 Other (specify below); 3 Watertight sewer lines 6 Seepage pit 9 Feedyard 13 Insecticide storage

ection from well? How many feet?

ROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0	12	Gray brown, silty clay			
12	20	Fine grained, well sorted angular sand			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was pleted on (mo/day/year) 1-23-84 and this record is true to the best of my knowledge and belief. Kansas r Well Contractor's License No. 415 This Water Well Record was completed on (mo/day/yr)

r the business name of Daniels Drilling Company by (signature)

STRUCTIONS: Use typewriter or ball point pen, *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top e copies to Kansas Department of Health and Environment, Division of Environment, Environmental Geology Section, Topeka, KS 66620. Send one to WATER WELL NER and retain one for your records.

#45

WATER WELL RECORD Form WWC-5 KSA 82a-1212

OCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
nty: Sedgwick	¼ ¼ SE ¼	4	T 27 S	R 1 E W X

ance and direction from nearest town or city street address of well if located within city?

1351' north and 267' west of 21st & Cleveland, Wichita, Kansas

WATER WELL OWNER: Derby Refining Company

#, St. Address, Box # : 1100 East 21st Street

, State, ZIP Code : Wichita, Kansas

Board of Agriculture, Division of Water Resources

Application Number:

OCATE WELL'S LOCATION WITH N "X" IN SECTION BOX:

N

NW NE

W E

SW SE X

S

4 DEPTH OF COMPLETED WELL 20 ft. ELEVATION: 1313.70

Depth(s) Groundwater Encountered 1. 12 ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter 8 in. to 20 ft., and in. to ft.

WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well

1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)

2 Irrigation 4 Industrial 7 Lawn and garden only 10 Observation well

Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes No X

TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued X Clamped

1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded

2 PVC 4 ABS 7 Fiberglass Threaded

nk casing diameter 4 in. to 20 ft., Dia in. to ft., Dia in. to ft.

ing height above land surface 30 in., weight lbs./ft. Wall thickness or gauge No. SCH 40

PE OF SCREEN OR PERFORATION MATERIAL: 7 PVC 10 Asbestos-cement

1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)

2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)

REEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole)

1 Continuous slot 3 Mill slot 6 Wire wrapped 9 Drilled holes

2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)

REEN-PERFORATED INTERVALS: From 20 ft. to 11 ft., From ft. to ft.

From ft. to ft., From ft. to ft.

GRAVEL PACK INTERVALS: From 20 ft. to 8 ft., From ft. to ft.

From ft. to ft., From ft. to ft.

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

ut Intervals: From 8 ft. to 0 ft., From ft. to ft., From ft. to ft.

at is the nearest source of possible contamination: 10 Livestock pens 14 Abandoned water well

1 Septic tank 4 Lateral lines 7 Pit privy 11 Fuel storage 15 Oil well/Gas well

2 Sewer lines 5 Cess pool 8 Sewage lagoon 12 Fertilizer storage 16 Other (specify below)

3 Watertight sewer lines 6 Seepage pit 9 Feedyard 13 Insecticide storage

ection from well? How many feet?

ROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0	6	Gray brown silty clay			
6	12	Gray tan clayey silt			
12	20	Gray fine-grained silty sand			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was npleted on (mo/day/year) 4-20-84 and this record is true to the best of my knowledge and belief. Kansas er Well Contractor's License No. 415 This Water Well Record was completed on (mo/day/yr) [illegible]

er the business name of Daniels Drilling Company by (signature) [illegible]

STRUCTIONS: Use typewriter or ball point pen, *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top e copies to Kansas Department of Health and Environment, Division of Environment, Environmental Geology Section, Topeka, KS 66620. Send one to WATER WELL NER and retain one for your records.

#46

WATER WELL RECORD Form WWC-5 KSA 82a-1212

CATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
y: Sedgwick	¼ ¼ SE ¼	4	T 27 S	R 1 E/W

nce and direction from nearest town or city street address of well if located within city?
1874' north and 356' west of 21st & Cleveland, Wichita, Kansas

ATER WELL OWNER: Derby Refining Company
St. Address, Box # : 1100 East 21st Street
State, ZIP Code : Wichita, Kansas 67214

Board of Agriculture, Division of Water Resources
Application Number:

CATE WELL'S LOCATION WITH "X" IN SECTION BOX:

N
NW | NE
W | E
SW | SE X
S

4 DEPTH OF COMPLETED WELL 24 ft. ELEVATION: 1314.49
Depth(s) Groundwater Encountered 1. 14 ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 8 in. to 24 ft., and in. to ft.
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only 10 Observation well
Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes No X

YPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued X Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
2 PVC 4 ABS 7 Fiberglass Threaded
casing diameter in. to ft., Dia in. to ft., Dia in. to ft.
g height above land surface 24 in., weight lbs./ft. Wall thickness or gauge No. SCH 40
E OF SCREEN OR PERFORATION MATERIAL: 7 PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)
EEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
1 Continuous slot 3 Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)
EEN-PERFORATED INTERVALS: From 24 ft. to 15 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 24 ft. to 10 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

ROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
t Intervals: From 10 ft. to 0 ft., From ft. to ft., From ft. to ft.
t is the nearest source of possible contamination: 10 Livestock pens 14 Abandoned water well
1 Septic tank 4 Lateral lines 7 Pit privy 11 Fuel storage 15 Oil well/Gas well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 12 Fertilizer storage 16 Other (specify below)
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 13 Insecticide storage
ction from well? How many feet?

OM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0	6	Gray brown silty clay			
6	10	Tan clayey silt			
0	14	Brown gray sandy silt			
4	24	Gray fine grained slightly silty sand			

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was pleted on (mo/day/year) 4-20-84 and this record is true to the best of my knowledge and belief. Kansas er Well Contractor's License No. 415 This Water Well Record was completed on (mo/day/yr) 4-19-84
der the business name of Daniels Drilling Company by (signature)

STRUCTIONS: Use typewriter or ball point pen, *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top e copies to Kansas Department of Health and Environment, Division of Environment, Environmental Geology Section, Topeka, KS 66620. Send one to WATER WELL NER and retain one for your records.

WATER WELL RECORD Form WWC-5 KSA 82a-1212

LOCATION OF WATER WELL: County: Sedgwick 087	Fraction: SW ¼ SE ¼ SE ¼	Section Number: 4	Township Number: T 27 S	Range Number: R 1 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Near Cleveland and 21st St. in Wichita, Ks.

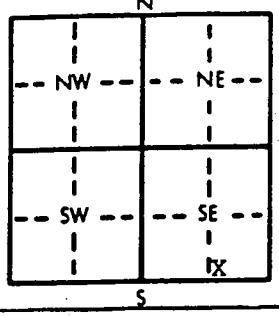
WATER WELL OWNER: Derby Refining Company

RR#, St. Address, Box # : P. O. Box 1030

City, State, ZIP Code : Wichita, Ks. 67201-1030

Board of Agriculture, Division of Water Resources Application Number:

LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 34.5 ft. ELEVATION:

Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL 19 ft. below land surface measured on mo/day/yr 9/4/88

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter 11 in. to 34.5 ft., and in. to ft.

WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Observation well 11 Injection well 12 Other (Specify below)

Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes X No

TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

CASING JOINTS: Glued Clamped Welded Threaded X

Blank casing diameter 4 in. to 34.5 ft., Dia in. to ft., Dia in. to ft.

Casing height above land surface 24 in., weight 2.08 lbs./ft. Wall thickness or gauge No. .237

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 14.5 ft. to 34.5 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

GRAVEL PACK INTERVALS: From 12.5 ft. to 34.5 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

Grout Intervals: From 0 ft. to 12.5 ft., From ft. to ft., From ft. to ft.

What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below)

Direction from well? Within immediate area. How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0	12	Clay & fill.			
12	01 19	Black clay.			
19	08 25	Sand fine, medium & few coarse.			
25	07 28	Sand fine.			
28	01 32	Brown clay.			
32	08 34.5	Sand fine, medium coarse.			

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NOV 07 1988
DIVISION OF WATER RESOURCES

CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 9/4/88 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 145 This Water Well Record was completed on (mo/day/yr) 9/4/88 under the business name of Berkie Drilling & Supply Company, Inc. by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water Protection, Topeka, Kansas 66620-7320, Telephone: 913-862-9360. Send one to WATER WELL OWNER and retain one for your records.