WEHRAN ENGINEERING
Consulting Engineers

15521.6W06 Mary McIntosh

March 16, 1984

Mr. Robert J. Mitrey
Associate Sanitary Engineer
New York State Department of
Environmental Conservation
600 Delaware Avenue
Buffalo, New York 14202

Re: Lancaster Sanitary Landfill
WE Project No. 01339035

Dear Mr. Mitrey:

Pursuant to our meeting this afternoon with regard to the above-referenced landfill facility, I enclose herewith the following:

Table 1 (six pages)
Table 2
Figures 1 through 6

This information summarizes the groundwater monitoring program results from January, 1981 to September, 1983. We completed this study during November, 1983 and, therefore, results subsequent to the September, 1983 sampling are not included. As discussed during today's meeting, this information was apparently inadvertently not submitted to the Department. A very brief verbal description of this information follows:

Although there is a wide scatter of reported values for most parameters, several general trends can be seen. The reported levels for organics (benzene, ethylbenzene, ethylene chloride, toluene, trichloroethylene and vinyl chloride) are generally below detection limits or extremely close to detection limits. However, several extremely high values are observed, predominantly for toluene in 1981, which does not seem consistent with the remaining data. Well W-3 is the only well which has shown consistently elevated values of organics. This well is clearly a downgradient well, showing groundwater quality degradation in other parameters as well. Manganese values are elevated in Well W-3 and exceed, at this location, the Class GA groundwater standards as defined by the NYSDEC. Substantial differences in manganese concentrations are seen between the upgradient wells (i.e., W-5, W-6A, W-7, etc.) and the downgradient well W-3.

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Iron concentrations are elevated in all wells. This is most likely a reflection of naturally high iron concentrations within the Onandaga Limestone. The reported values for ammonia nitrogen and nitrate nitrogen are low in all cases. Furthermore, in the case of nitrate, the observed levels are well below the standards for Class GA groundwaters (see Tables 1 and 2).

pH values (Figure 1) have fluctuated greatly in several cases, i.e., W-7, and to a lesser extent, B-24D. With these exceptions, the remainder of the reported values generally fall within the Class GA range of 6.5 - 8.5. It may be worth noting, however, that the observed pH values at Well W-3 (downgradient) are significantly lower than the values reported for other sampling locations. In addition, there has been a general decrease in the reported pH value at all locations during the last year.

Figure 2 indicates the plot of specific conductance (in umhos/cm) vs. time. Although significant scatter of results has occurred in the past, the reported values of specific conductance seem to be "levelling off" at all sampling locations. There are no standards, per se, for the levels of conductance. In general, conductance and TDS (for which standards exist) values are closely linked. In addition to existing guidelines for TDS values, upon close examination of the data presented, the background levels of conductance appear to fall between 500 and 1,000 umhos/cm. Values exceeding the 1,000 umhos/cm level are limited to the downgradient well W-3 and the highly fluctuating values at W-6A.

Figure 3 depicts reported alkalinity values. Reported values are extremely variable and in some instances point to laboratory or sampling techniques, i.e., May, 1982 values are all extremely high. Chloride concentrations vs. time are depicted in Figure 4. Tremendous scattering of values, both at a given location and a given time, are observed. However, most of the reported values are below Class GA standards. It should, however, be noted that chloride concentrations are lower in the upgradient wells (W-5, B-24D, etc.) and higher in the downgradient wells (W-3, W-8). Finally, Figure 5 depicts TOC concentrations vs. time at various sampling locations. Again, the reported values are highly scattered.

Please review this data with regard to the recent decision to re-evaluate the adequacy of the current groundwater monitoring program. We will be contacting you during the week of March 26th to discuss the matter in detail. Thank you.

Yours very truly,

WEHRAN ENGINEERING, P.C.

James R. Woods, P.E.
Branch Manager

JRW:lc
cc: Mary McIntosh
D. Darragh, Esq.
Mark Kahle

TABLE 1
LANCASTER SANITARY LANDFILL

GROUND-WATER QUALITY DATA SUMMARY
Well Number 3


| Parameter | Units | 1/81 | 3/81 | 5/81 | 8/81 | 11/81 | 3/82 | 5/82 | 8/82 | 12/82 | 3/83 | 6/83 | 9/83 | Mean | Standard Deviation $\sigma_n$ | Standard Deviation $\sigma_{n-1}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | | 7.44 | 6.77 | 6.45 | 6.56 | 6.56 | 6.51 | 6.54 | 6.78 | 6.45 | -- | -- | -- | 6.67 | 0.29 | 0.31 |
| Conductance | umhos/cm | 2100 | 1050 | 1480 | 1580 | 822 | 1280 | 1620 | 2410 | 1300 | -- | -- | -- | 155.78 | 466.39 | 494.68 |
| Alkalinity | ppm | 6.6 | 470 | 600 | 540 | 430 | 290 | 760 | 800 | 390 | -- | -- | -- | 476.29 | 228.42 | 242.28 |
| Chloride | ppm | 270 | 69 | 140 | 210 | 67 | 320 | 243 | 460 | 180 | -- | -- | -- | 217.67 | 117.80 | 124.94 |
| TOC | ppm | 16 | 10 | 20 | 21 | 16 | <1 | 53 | 6.9 | 4.0 | -- | -- | -- | 16.43 | 14.51 | 15.40 |
| Ammonia Nitrogen | ppm | 9.1 | 6.4 | 8.1 | 6.6 | 10 | 0.52 | 5.8 | 5.6 | 1.5 | -- | -- | -- | 5.96 | 3.00 | 3.18 |
| Nitrate Nitrogen | ppm | 1.5 | 0.49 | 0.15 | 0.1 | 0.79 | 0.42 | <0.05 | 0.09 | <0.05 | -- | -- | -- | 0.40 | 0.46 | 0.48 |
| Fe (Total) | ppm | 37 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | | |
| Fe (Soluble) | ppm | -- | 15 | 26 | 9.3 | 17 | 2.5 | 36 | 17 | 8.0 | -- | -- | -- | 16.35 | 9.96 | 10.64 |
| Mn (Total) | ppm | 3.0 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | | | |
| Mn (Soluble) | ppm | -- | 1.2 | 3.1 | 3.1 | 0.20 | 0.57 | 3.6 | 3.5 | 1.6 | -- | -- | -- | 2.11 | 1.29 | 1.37 |
| Benzene | ppb | <20 | 310 | 29 | 11 | 11 | ≤10 | 12 | 12 | 10 | -- | -- | -- | 47.22 | 93.10 | 98.74 |
| Ethylbenzene | ppb | 34 | <10 | 14 | ≤ 5 | <10 | ≤10 | ≤10 | ≤10 | <7.2 | -- | -- | -- | ≤12.24 | 8.02 | 8.51 |
| Methlene Chloride | ppb | 120 | < 1 | <5 | < 5 | 68 | 14 | <20 | <10 | 20 | -- | -- | -- | <29.22 | 37.25 | 39.51 |
| Toluene | ppb | 67 | 75 | 21 | ≤10 | ≤10 | ≤10 | 15 | 20 | 18 | -- | -- | -- | 27.33 | 23.76 | 25.20 |
| Trichloroethylene | ppb | 33 | < 5 | 120 | 78 | 18 | 22 | 78 | ≤10 | 42 | -- | -- | -- | 45.11 | 36.57 | 38.79 |
| Vinyl Chloride | ppb | <40 | <10 | 74 | 98 | <10 | 15 | 35 | ≤10 | 38 | -- | -- | -- | 36.67 | 29.39 | 31.17 |

TABLE 1
LANCASTER SANITARY LANDFILL

GROUND-WATER QUALITY DATA SUMMARY
Well Number 5


| Parameter | Units | 1/81 | 3/81 | 5/81 | 8/81 | 11/81 | 3/82 | 5/82 | 8/82 | 12/82 | 3/83 | 6/83 | 9/83 | Mean | Standard Deviation $\sigma_n$ | Standard Deviation $\sigma_{n-1}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | | 9.66 | 8.87 | 7.55 | 7.37 | 8.34 | 7.58 | 7.71 | 7.64 | 7.63 | 7.58 | 7.99 | 7.13 | 7.92 | 0.68 | 0.71 |
| Conductance | umhos/cm | 355 | 371 | 551 | 550 | 475 | 559 | 620 | 599 | 670 | 580 | 578 | 562 | 539.17 | 90.32 | 94.34 |
| Alkalinity | ppm | 97 | 140 | 300 | 240 | 250 | 440 | 390 | 300 | 270 | 346 | 283 | 297 | 279.42 | 90.76 | 94.79 |
| Chloride | ppm | 4.4 | 3.5 | 10 | 8.3 | 5.5 | 3.8 | 8.0 | 11 | 6.5 | 1.3 | 2.6 | 15.1 | 6.67 | 3.82 | 4.00 |
| TOC | ppm | 1.9 | < 2 | ≤ 1 | < 1 | 1.0 | 1.5 | 5 | < 1 | 3.0 | 4.0 | <0.5 | 18.1 | 3.33 | 4.64 | 4.85 |
| Ammonia Nitrogen | ppm | 0.17 | <0.1 | <0.1 | 0.15 | <0.1 | <0.1 | < 0.1 | < 0.1 | 0.10 | < 0.093 | <0.05 | 0.15 | 0.11 | 0.03 | 0.03 |
| Nitrate Nitrogen | ppm | < 0.2 | <0.1 | <0.1 | 0.10 | 0.24 | <0.1 | 0.23 | 0.08 | 0.05 | 0.8 | 0.2 | 0.3 | 0.21 | 0.19 | 0.20 |
| Fe (Total) | ppm | 0.55 | -- | -- | -- | -- | -- | -- | -- | -- | 12.5 | 4.39 | 2.1 | 4.89 | 4.60 | 5.32 |
| Fe (Soluble) | ppm | -- | 0.04 | <0.02 | <0.05 | 0.40 | 4.9 | 0.23 | 0.11 | 0.45 | 0.5 | 0.15 | 0.2 | 0.64 | 1.36 | 1.42 |
| Mn (Total) | ppm | < 0.02 | -- | -- | -- | -- | -- | -- | -- | -- | 0.19 | 0.07 | 0.03 | 0.08 | 0.07 | 0.08 |
| Mn (Soluble) | ppm | -- | <0.02 | <0.02 | <0.02 | < 0.02 | 0.02 | 0.02 | 0.04 | <0.02 | <0.01 | 0.02 | 0.02 | 0.02 | 0.01 | 0.01 |
| Benzene | ppb | < 20 | <10 | <10 | <5 | <10 | <10 | <10 | < 10 | ND | 30 | <1 | <1 | | | |
| Ethylbenzene | ppb | <40 | <10 | <5 | <5 | <10 | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |
| Methylene Chloride | ppb | < 2 | < 1 | <5 | <5 | <10 | <10 | <10 | <10 | ND | < 1 | <1 | < 1 | | | |
| Toluene | ppb | 220 | 200 | <20 | <10 | < 10 | <10 | <10 | <10 | ND | <1 | <1 | < 1 | | | |
| Trichloroethylene | ppb | < 2 | < 2 | <5 | <5 | <10 | <10 | <10 | < 10 | ND | 16 | 1 | 2 | | | |
| Vinyl Chloride | ppb | <50 | <10 | < 5 | <5 | <10 | <10 | < 10 | <10 | ND | <1 | <1 | <1 | | | |

**TABLE 1**
**LANCASTER SANITARY LANDFILL**

**GROUND-WATER QUALITY DATA SUMMARY**
**Well Number 6A**


| Parameter | Units | 1/81 | 3/81 | 5/81 | 8/81 | 11/81 | 3/82 | 5/82 | 8/82 | 12/82 | 3/83 | 6/83 | 9/83 | Mean | Standard Deviation $\sigma_n$ | Standard Deviation $\sigma_{n-1}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | | -- | 8.24 | 7.40 | 7.43 | 7.74 | 7.44 | 7.44 | 7.28 | 7.76 | 7.17 | 7.15 | 6.83 | 7.44 | 0.36 | 0.37 |
| Conductance | umhos/cm | -- | 940 | 10,100 | 830 | 730 | 780 | 759 | 817 | 1,380 | 900 | 904 | 538 | 1,698.0 | 2,664.1 | 2,794.2 |
| Alkalinity | ppm | -- | 320 | 310 | 280 | 320 | 320 | 860 | 340 | 1,600 | 317 | 283 | 402 | 486.55 | 385.54 | 404.36 |
| Chloride | ppm | -- | 110 | 80 | 77 | 77 | 72 | 69 | 44 | 210 | 97.2 | 109 | 116 | 96.47 | 41.28 | 43.30 |
| TOC | ppm | -- | 12 | 14 | 4.0 | 2.9 | 2.5 | 12 | 1.0 | 1.0 | <0.5 | <0.5 | 41.5 | 8.35 | 11.57 | 12.13 |
| Ammonia Nitrogen | ppm | -- | 0.28 | 0.32 | 0.60 | 0.34 | 0.22 | 0.3 | 0.24 | 0.19 | 0.99 | <0.05 | 0.12 | 0.33 | 0.25 | 0.26 |
| Nitrate Nitrogen | ppm | -- | <0.1 | <0.1 | <0.1 | 0.30 | 0.24 | <0.05 | 0.06 | <0.05 | <0.1 | <0.1 | 1.7 | 0.26 | 0.46 | 0.48 |
| Fe (Total) | ppm | -- | 5.1 | -- | -- | -- | -- | -- | -- | -- | 1.7 | 1.06 | 1.8 | 2.42 | 1.58 | 1.82 |
| Fe (Soluble) | ppm | -- | -- | 0.28 | <0.05 | 0.55 | 0.14 | 0.15 | 0.19 | 0.67 | 0.09 | <0.01 | <0.1 | 0.22 | 0.21 | 0.22 |
| Mn (Total) | ppm | -- | 0.14 | -- | -- | -- | -- | -- | -- | -- | <0.1 | 0.06 | 0.13 | 0.11 | 0.03 | 0.04 |
| Mn (Soluble) | ppm | -- | -- | 0.07 | 0.09 | 0.09 | 0.06 | 0.20 | 0.09 | 0.09 | 0.07 | 0.04 | 0.10 | 0.09 | 0.04 | 0.04 |
| Benzene | ppb | -- | 290 | <10 | <5 | <10 | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |
| Ethylbenzene | ppb | -- | 34 | <5 | <5 | <10 | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |
| Methylene Chloride | ppb | -- | <1 | <5 | <5 | <10 | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |
| Toluene | ppb | -- | 82 | <20 | <10 | <10 | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |
| Trichloroethylene | ppb | -- | <5 | <5 | <5 | <10 | <10 | <10 | <10 | ND | 2 | 2 | 3 | | | |
| Vinyl Chloride | ppb | -- | <10 | <5 | <5 | <10 | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |

TABLE 1
LANCASTER SANITARY LANDFILL

GROUND-WATER QUALITY DATA SUMMARY
Well Number 7


| Parameter | Units | 1/81 | 3/81 | 5/81 | 8/81 | 11/81 | 3/82 | 5/82 | 8/82 | 12/82 | 3/83 | 6/83 | 9/83 | Mean | Standard Deviation $\sigma_n$ | Standard Deviation $\sigma_{n-1}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | | 8.22 | 7.87 | 7.25 | -- | -- | 10.91 | 11.41 | 9.65 | 9.76 | 10.61 | 10.52 | 9.40 | 9.56 | 1.32 | 1.39 |
| Conductance | umhos/cm | 1,610 | 1,800 | 2,100 | -- | -- | 438 | 580 | 219 | 276 | 320 | 348 | -- | 854.56 | 710.68 | 753.79 |
| Alkalinity | ppm | 180 | 380 | 530 | -- | -- | 190 | 650 | 120 | 110 | 149 | 188 | -- | 277.44 | 184.86 | 196.08 |
| Chloride | ppm | 390 | 270 | 470 | -- | -- | 18 | 13 | 11 | 14 | 17.0 | 14.3 | -- | 135.26 | 177.19 | 187.94 |
| TOC | ppm | 6.0 | 12 | 16 | -- | -- | 1.5 | 6 | 4.0 | <1 | <0.5 | <0.5 | 41.0 | 8.85 | 11.79 | 12.43 |
| Ammonia Nitrogen | ppm | 0.27 | 0.24 | <0.1 | -- | -- | 0.21 | 0.2 | 0.20 | 0.17 | 0.44 | <0.05 | -- | 0.21 | 0.10 | 0.11 |
| Nitrate Nitrogen | ppm | 0.38 | 0.61 | <0.1 | -- | -- | 0.84 | 0.33 | 0.83 | 0.40 | 0.6 | 0.3 | -- | 0.49 | 0.24 | 0.25 |
| Fe (Total) | ppm | 21 | -- | -- | -- | -- | -- | -- | -- | -- | 0.2 | 0.92 | 0.6 | 5.68 | 8.85 | 10.22 |
| Fe (Soluble) | ppm | -- | 0.67 | 0.10 | -- | -- | 0.25 | 0.03 | 3.3 | 0.19 | <0.1 | 0.06 | <0.1 | 0.53 | 1.00 | 1.06 |
| Mn (Total) | ppm | 0.10 | -- | -- | -- | -- | -- | -- | -- | -- | <0.01 | <0.01 | 0.1 | 0.06 | 0.05 | 0.05 |
| Mn (Soluble) | ppm | -- | 0.13 | 0.25 | -- | -- | <0.02 | <0.02 | 0.04 | <0.02 | <0.01 | <0.01 | 0.10 | 0.67 | 0.08 | 0.08 |
| Benzene | ppb | <30 | <10 | <10 | -- | -- | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |
| Ethylbenzene | ppb | <10 | <10 | < 5 | -- | -- | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |
| Methylene Chloride | ppb | 3 | <1 | <5 | -- | -- | ≤10 | <10 | <10 | ND | <1 | <1 | <1 | | | |
| Toluene | ppb | <100 | 130 | <20 | -- | -- | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |
| Trichloroethylene | ppb | < 2 | < 5 | 8 | -- | -- | <10 | <10 | <10 | ND | <1 | 1 | 1 | | | |
| Vinyl Chloride | ppb | <50 | <10 | 11 | -- | -- | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |

**TABLE 1**
**LANCASTER SANITARY LANDFILL**

**GROUND-WATER QUALITY DATA SUMMARY**
**Well Number 8**


| Parameter | Units | 1/81 | 3/81 | 5/81 | 8/81 | 11/81 | 3/82 | 5/82 | 8/82 | 12/82 | 3/83 | 6/83 | 9/83 | Mean | Standard Deviation $\sigma_n$ | Standard Deviation $\sigma_{n-1}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | | -- | 7.98 | 7.69 | 7.97 | 7.98 | 7.59 | 8.03 | 7.60 | 7.38 | 7.71 | 7.35 | 6.61 | 7.63 | 0.39 | 0.41 |
| Conductance | umhos/cm | -- | 980 | 842 | 868 | 675 | 958 | 840 | 850 | 840 | 820 | 379 | 464 | 774.18 | 182.98 | 191.91 |
| Alkalinity | ppm | -- | 230 | 250 | 290 | 290 | 200 | 310 | 360 | 280 | 247 | 175 | 358 | 271.82 | 56.22 | 58.96 |
| Chloride | ppm | -- | 160 | 140 | 86 | 58 | 180 | 127 | 110 | 130 | 130 | 10.0 | 75.5 | 109.68 | 46.57 | 48.84 |
| TOC | ppm | -- | 2.1 | <1 | 10 | 5.3 | <1 | 7.5 | 87 | 6.5 | 4.0 | 67.0 | 41.0 | 21.13 | 28.73 | 30.13 |
| Ammonia Nitrogen | ppm | -- | <0.1 | <0.1 | 0.11 | 0.11 | <0.1 | 0.1 | <0.1 | <0.1 | 1.9 | <0.05 | 1.6 | 0.40 | 0.64 | 0.67 |
| Nitrate Nitrogen | ppm | -- | 1.3 | 1.4 | 2.1 | 1.6 | 1.7 | 2.5 | 4.6 | 1.6 | 1.8 | <0.1 | 1.5 | 1.84 | 1.04 | 1.09 |
| Fe (Total) | ppm | -- | 4.3 | -- | -- | -- | -- | -- | -- | -- | 0.2 | 34.8 | 0.4 | 9.93 | 14.45 | 16.69 |
| Fe (Soluble) | ppm | -- | -- | <0.02 | <0.02 | 0.24 | 0.24 | 0.04 | 0.49 | 0.12 | <0.1 | 0.07 | <0.1 | 0.14 | 0.14 | 0.15 |
| Mn (Total) | ppm | -- | 0.10 | -- | -- | -- | -- | -- | -- | -- | <0.01 | 0.24 | 0.68 | 0.26 | 0.26 | 0.30 |
| Mn (Soluble) | ppm | -- | -- | 0.02 | 0.02 | 0.01 | 0.02 | 0.03 | 0.03 | 0.02 | 0.01 | 0.07 | 0.05 | 0.23 | 0.59 | |
| Benzene | ppb | -- | <10 | <10 | <5 | <10 | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |
| Ethylbenzene | ppb | -- | <10 | <5 | <5 | <10 | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |
| Methylene Chloride | ppb | -- | <1 | <5 | <5 | <10 | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |
| Toluene | ppb | -- | 710 | <20 | <10 | <10 | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |
| Trichloroethylene | ppb | -- | 1.2 | ≤5 | ≤5 | <10 | <10 | <10 | ≤10 | 5.5 | 3 | 2 | 4 | | | |
| Vinyl Chloride | ppb | -- | <10 | <5 | <5 | <10 | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |

**TABLE 1**
**LANCASTER SANITARY LANDFILL**

**GROUND-WATER QUALITY DATA SUMMARY**
**Well Number B-24D**
Page 6 of 6

| Parameter | Units | 1/81 | 3/81 | 5/81 | 8/81 | 11/81 | 3/82 | 5/82 | 8/82 | 12/82 | 3/83 | 6/83 | 9/83 | Mean | Standard Deviation $\sigma_0$ | Standard Deviation $\sigma_{n-1}$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| pH | | 8.58 | 8.16 | 7.56 | 8.29 | 9.08 | 9.17 | 8.19 | 8.35 | 9.16 | 8.25 | 7.78 | 7.70 | 8.36 | 0.53 | 0.55 |
| Conductance | umhos/cm | 216 | 320 | 330 | 258 | 95 | 128 | 210 | 114 | 119 | 380 | 379 | 338 | 240.58 | 103.64 | 108.25 |
| Alkalinity | ppm | 65 | 140 | 340 | 140 | 66 | 110 | 2,300 | 580 | 96 | 142 | 175 | 192 | 362.17 | 600.33 | 627.03 |
| Chloride | ppm | 19 | 11 | 6.5 | 5.4 | 7.0 | 6.5 | 3.4 | 4.5 | 6.4 | 6.4 | 10.0 | 4.0 | 7.51 | 4.06 | 4.24 |
| TOC | ppm | 10 | 9.0 | 6.0 | 13 | 17 | 1.0 | 10 | 22 | 1.0 | 46.0 | 67.0 | 18.0 | 18.33 | 18.61 | 19.44 |
| Ammonia Nitrogen | ppm | <0.1 | <0.1 | <0.1 | 0.21 | <0.1 | 0.13 | 0.1 | 0.18 | 0.11 | 3.1 | <0.05 | 0.07 | 0.36 | 0.83 | 0.86 |
| Nitrate Nitrogen | ppm | <0.1 | <0.1 | <0.1 | <0.1 | 3.7 | <0.2 | <0.05 | <0.05 | <0.05 | 1.7 | <0.1 | <0.1 | 0.53 | 1.05 | 1.10 |
| Fe (Total) | ppm | 100 | -- | -- | -- | -- | -- | -- | -- | -- | 13.5 | 34.8 | 20.0 | 42.08 | 34.32 | 39.63 |
| Fe (Soluble) | ppm | -- | 1.0 | 0.13 | 0.14 | <0.05 | 0.19 | 0.23 | 8.9 | 0.45 | <0.1 | 0.07 | 0.2 | 1.04 | 2.50 | 2.62 |
| Mn (Total) | ppm | 0.55 | -- | -- | -- | -- | -- | -- | -- | -- | 0.27 | 0.24 | 0.19 | 0.31 | 0.14 | 0.16 |
| Mn (Soluble) | ppm | -- | 0.10 | 0.11 | 0.05 | <0.01 | 0.02 | 0.04 | 0.14 | <0.02 | 0.15 | 0.07 | 0.04 | 0.07 | 0.05 | 0.05 |
| Benzene | ppb | <30 | <10 | <10 | <5 | <10 | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |
| Ethylbenzene | ppb | <60 | <10 | <5 | <5 | <10 | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |
| Methylene Chloride | ppb | <2 | <1 | <5 | ≤5 | <10 | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |
| Toluene | ppb | 240 | <80 | <20 | ≤10 | ≤10 | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |
| Trichloroethylene | ppb | <2 | <5 | <5 | <5 | <10 | <10 | <10 | <10 | ND | <1 | 2 | 1 | | | |
| Vinyl Chloride | ppb | <40 | <10 | <5 | <5 | <10 | <10 | <10 | <10 | ND | <1 | <1 | <1 | | | |

ND = Not Detected

TABLE 2

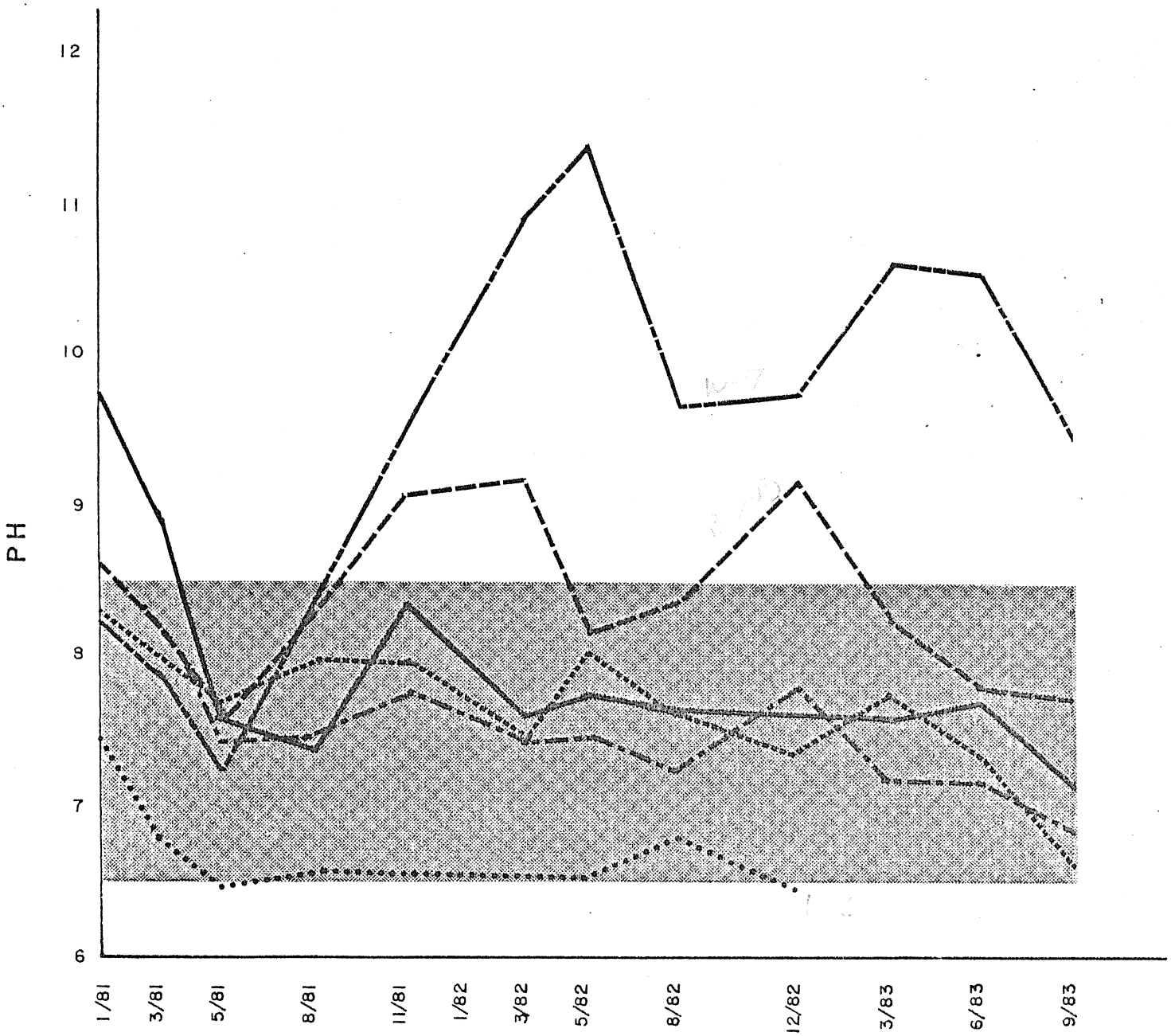
GROUND-WATER STANDARDS
LANCASTER SANITARY LANDFILL

| PARAMETER | MAXIMUM LEVEL |
|---|---|
| Chloride | 250 ppm |
| Iron | 0.3 ppm* |
| Manganese | 0.3 ppm* |
| Nitrate | 10 ppm |
| pH | 6.5 - 8.5 |
| Vinyl Chloride | 5 ppb |
| Trichloroethylene | 10 ppb |
| Benzene | Not Detectable |

* Combined iron and manganese level not to exceed 0.5 ppm.

Parameters listed above are only those which are presently being analyzed. Maximum levels shown are in accordance with Class GA waters, as defined by the NYDEC.

# FIGURE 1




LEGEND:

- W-5
- W-6A
- W-7
- W-8
- B-24D
- W-3

WITHIN WATER QUALITY STANDARDS

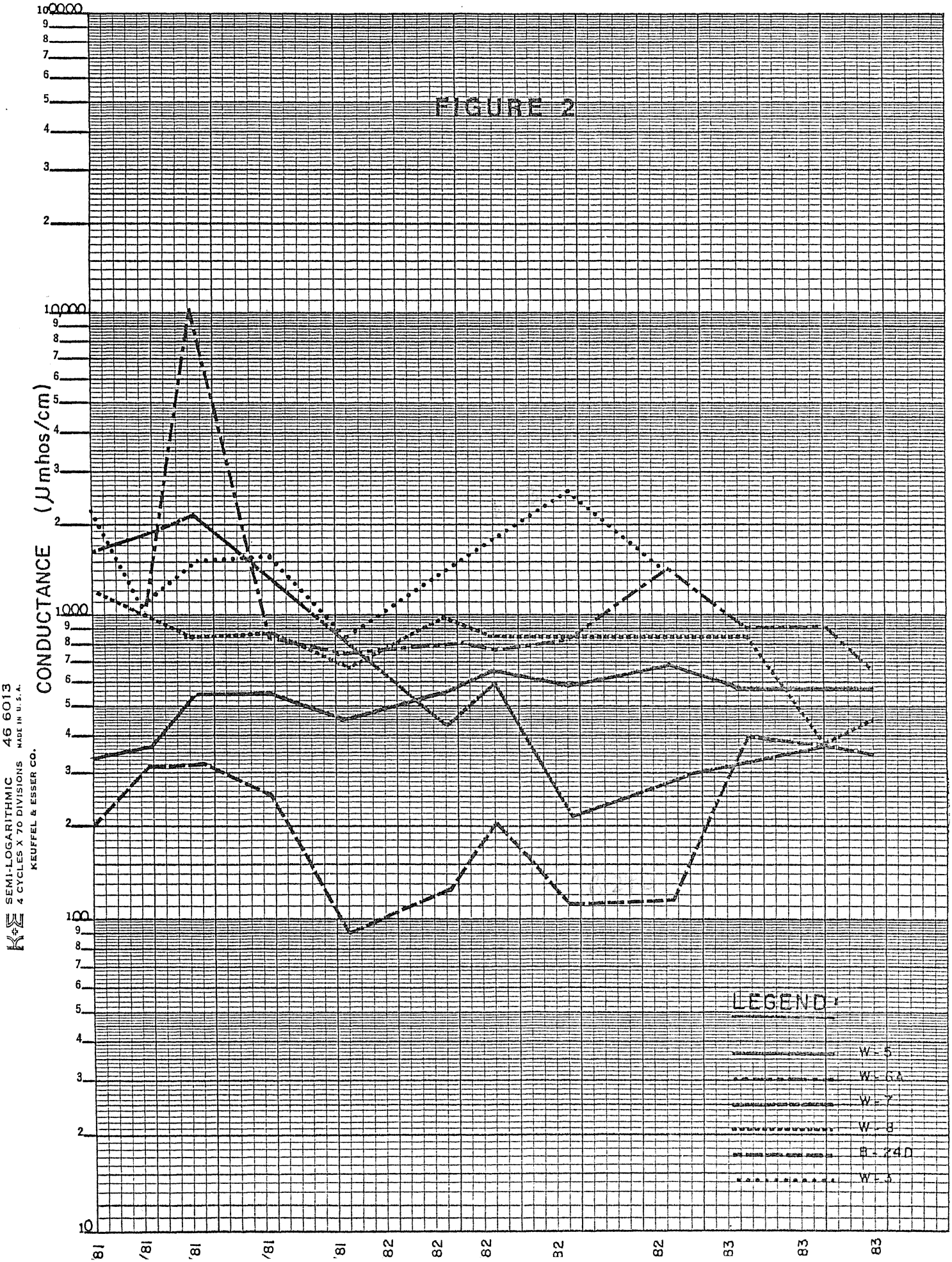


FIGURE 2
CONDUCTANCE (μmhos/cm)
100000
10000
1000
100
10
LEGEND:
W-5
W-6A
W-7
W-8
B-24D
W-3
SEMI-LOGARITHMIC 46 6013
4 CYCLES X 70 DIVISIONS MADE IN U.S.A.
KEUFFEL & ESSER CO.

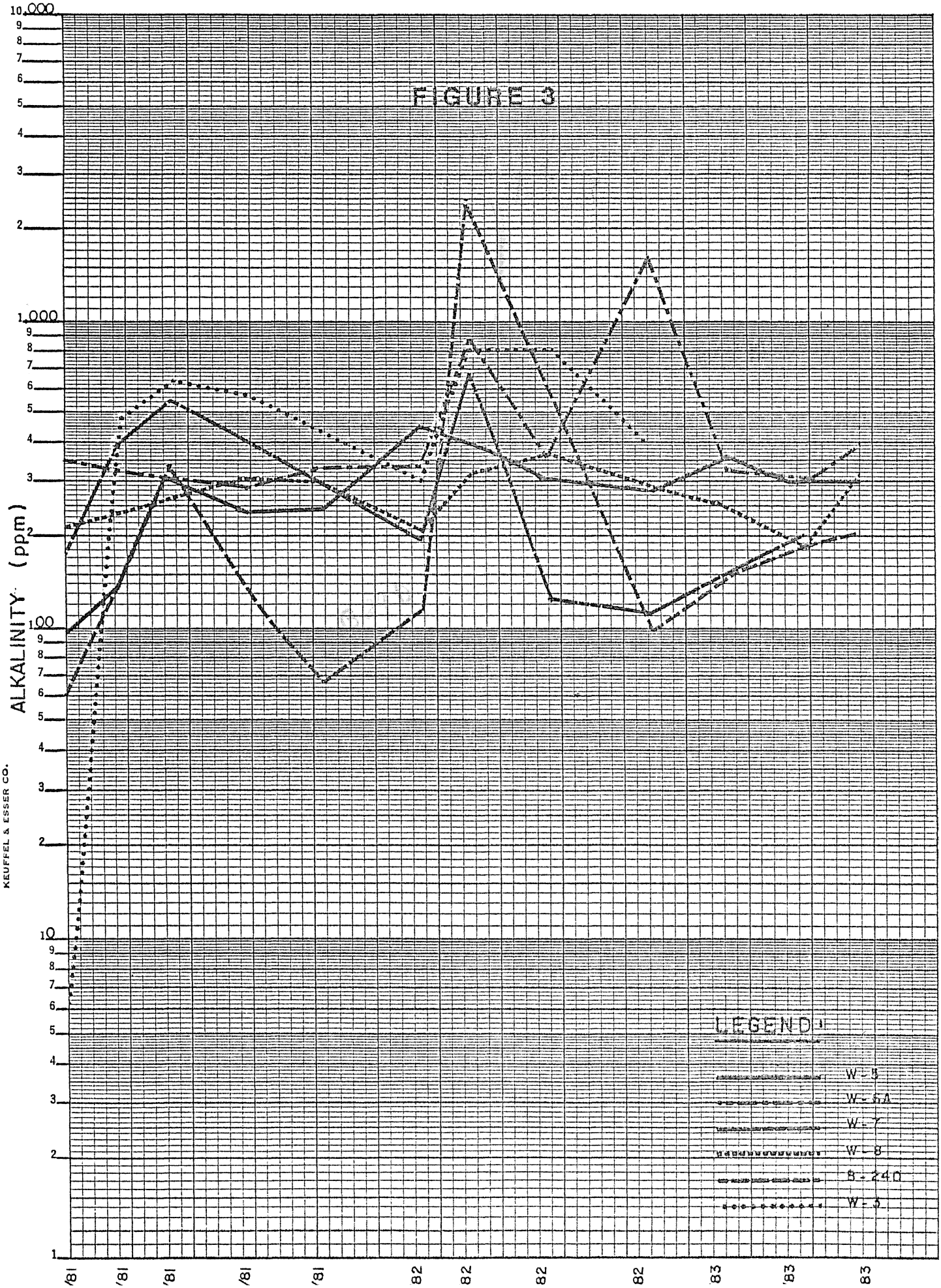


FIGURE 3
ALKALINITY (ppm)
10,000
1,000
100
10
1
LEGEND
W-5
W-5A
W-7
W-8
S-240
W-2
'81
'82
'83
SEMI-LOGARITHMIC
4 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO.
MADE IN U.S.A.
46 6013

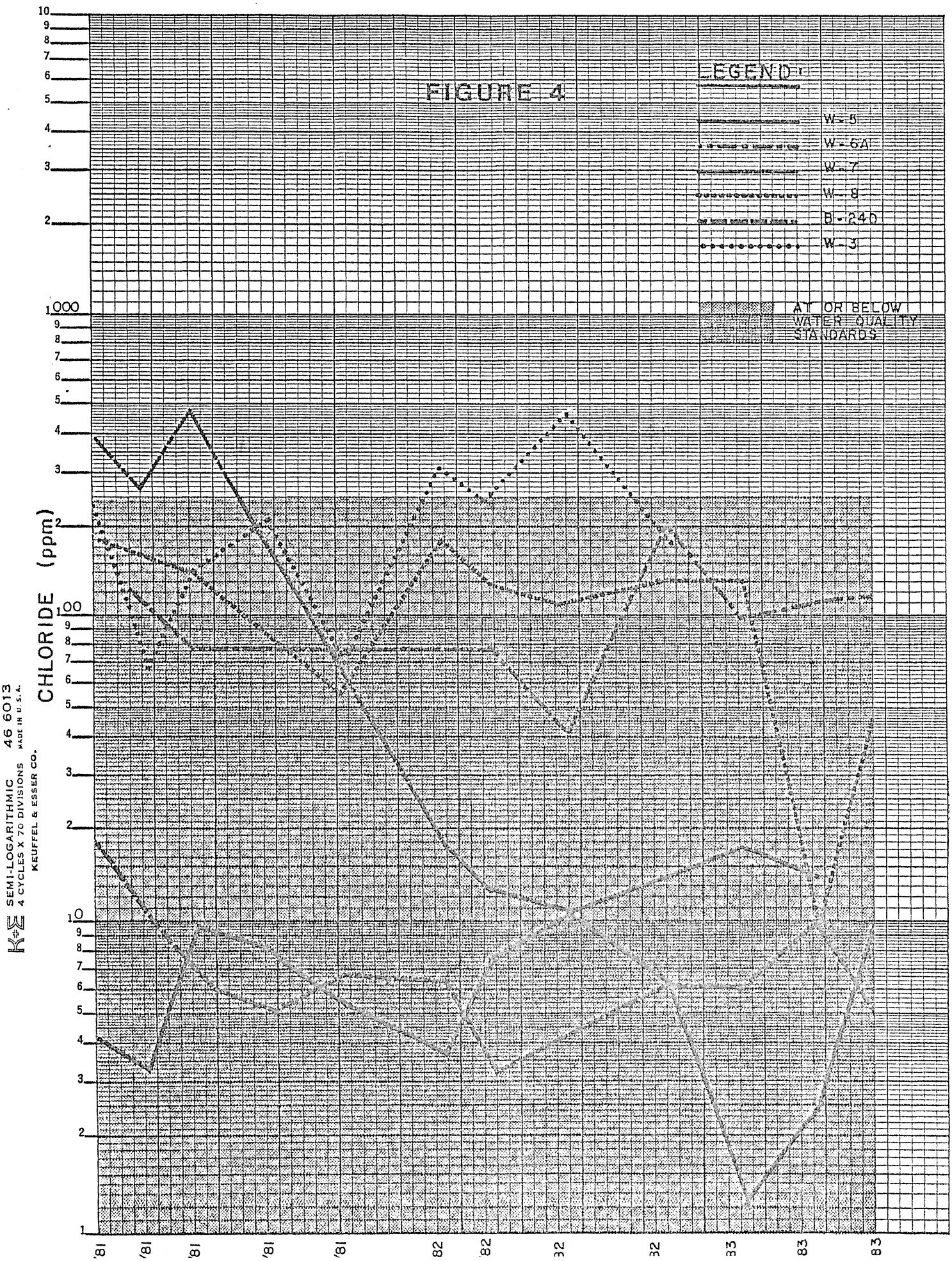


FIGURE 4
LEGEND:
W-5
W-6A
W-7
W-8
B-24D
W-3
AT OR BELOW WATER QUALITY STANDARDS
CHLORIDE (ppm)
10
9
8
7
6
5
4
3
2
1,000
100
10
1
'81
'82
'83
K&E SEMI-LOGARITHMIC 46 6013
4 CYCLES X 70 DIVISIONS MADE IN U.S.A.
KEUFFEL & ESSER CO.

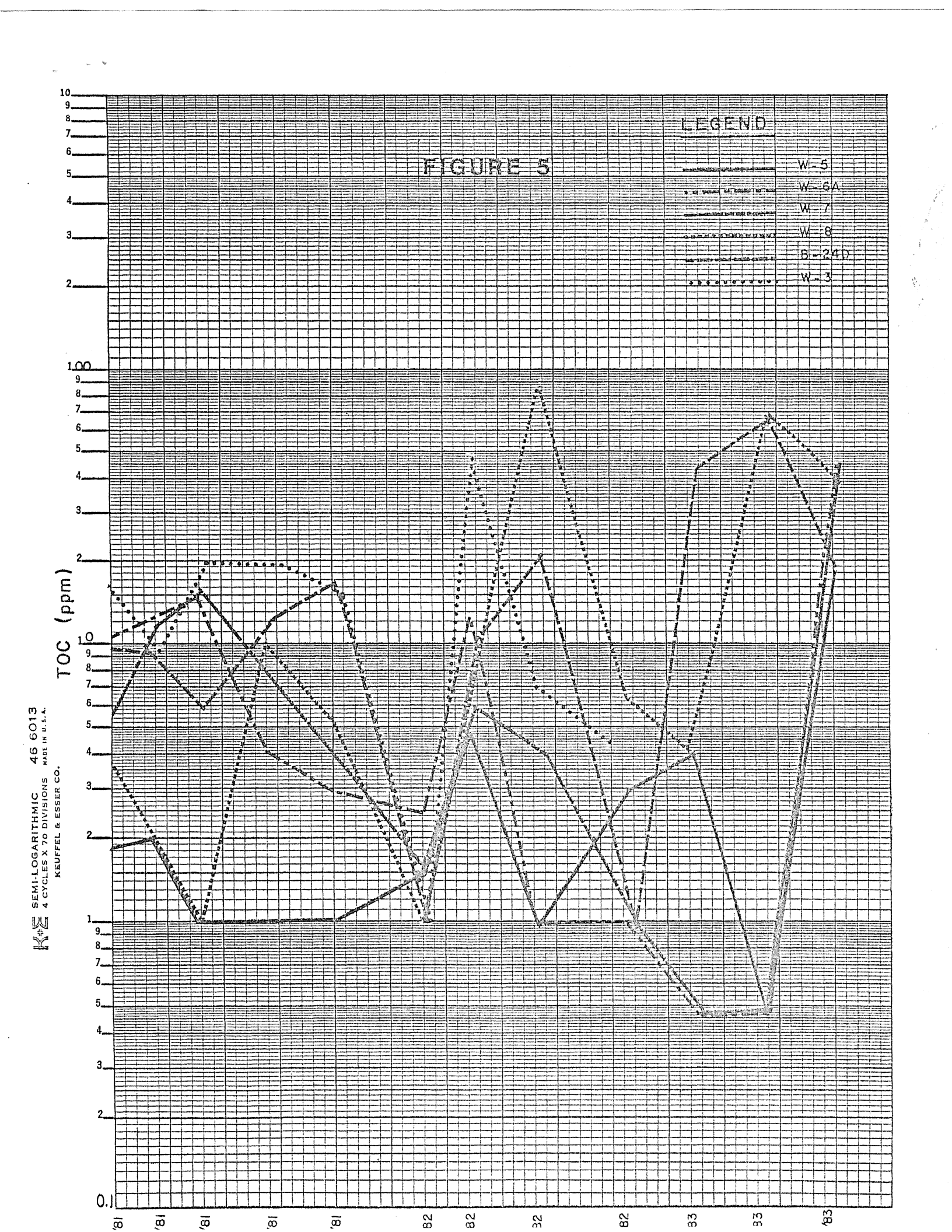
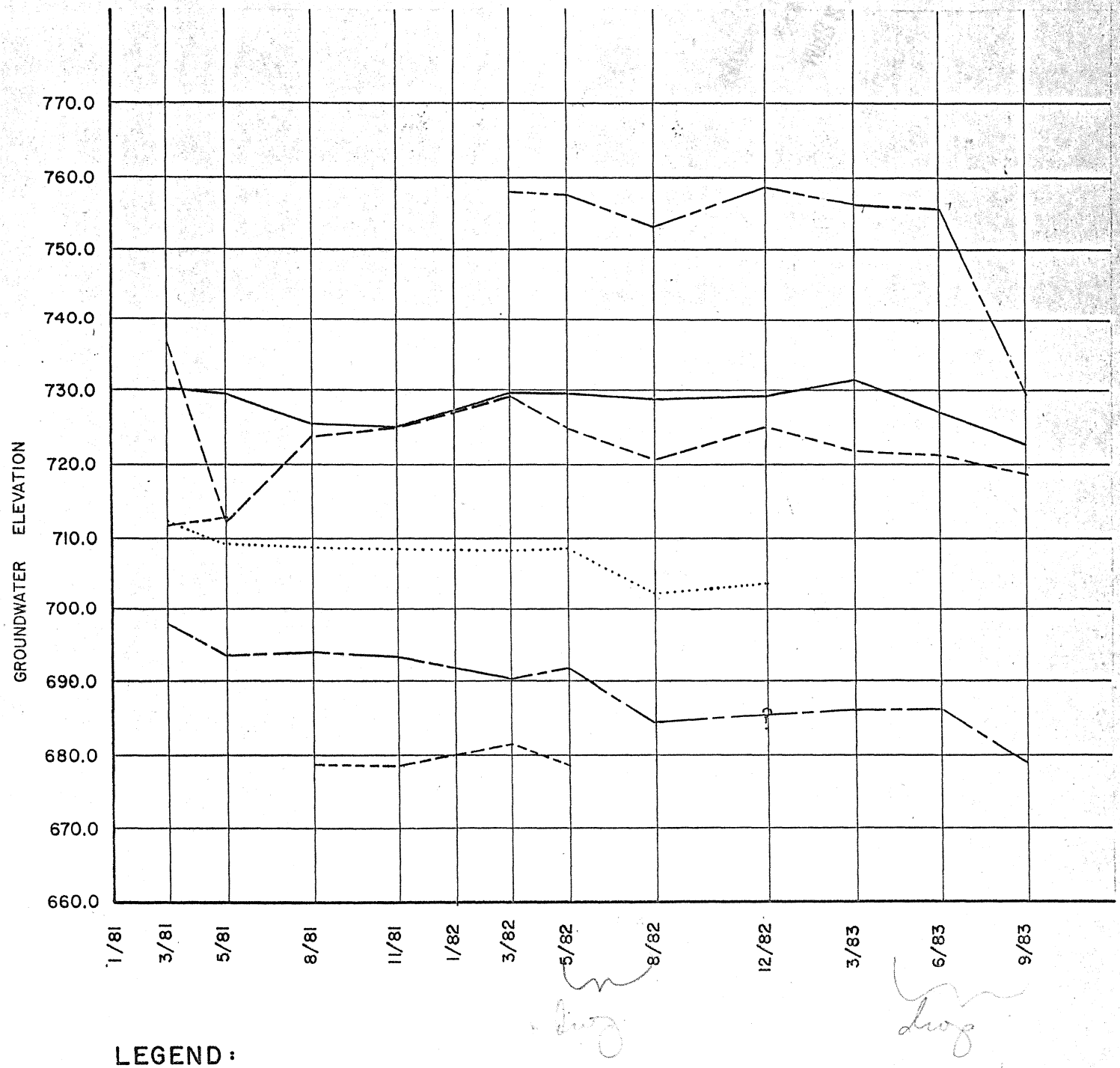


FIGURE 5
LEGEND
W-5
W-6A
W-7
W-8
B-24D
W-3
TOC (ppm)
10
9
8
7
6
5
4
3
2
1.00
9
8
7
6
5
4
3
2
1.0
9
8
7
6
5
4
3
2
1
9
8
7
6
5
4
3
2
0.1
'81
'81
'81
'81
'81
82
82
82
82
83
83
83
SEMI-LOGARITHMIC 46 6013
4 CYCLES X 70 DIVISIONS MADE IN U.S.A.
KEUFFEL & ESSER CO.

# FIGURE 6


GROUNDWATER ELEVATION
770.0
760.0
750.0
740.0
730.0
720.0
710.0
700.0
690.0
680.0
670.0
660.0
1/81
3/81
5/81
8/81
11/81
1/82
3/82
5/82
8/82
12/82
3/83
6/83
9/83
LEGEND:
W-5
W-6A
W-7
W-8
B-24D
W-3