Groundwater Report

Fall 2008

San Joaquin County
Flood Control and Water Conservation District

San Joaquin County
Flood Control and Water Conservation District

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Copies of the Fall 2008 Groundwater Report may be purchased for $30 and 36″X48″ Contour Maps for $25 each from:

San Joaquin County Department of Public Works
P.O. Box 1810
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Make checks payable to: San Joaquin County Department of Public Works

Acknowledgements

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This Groundwater Report is a product of the commitment that the San Joaquin County Flood Control and Water Conservation District together with many other interested agencies made to sustain and enhance the groundwater resources of the Eastern San Joaquin Basin. The District extends thanks to…

California Water Service

City of Lathrop

City of Lodi

City of Manteca

City of Stockton Municipal Utilities Department

East Bay Municipal Utility District

Libby-Owens-Ford, Lathrop

Morada Area Association

Newark Sierra Paperboard Company

Pacific Gas and Electric Company

San Joaquin County Department of Public Works

State of California, Department of Water Resources, Central District

Stockton East Water District

United States Bureau of Reclamation

United States Geological Survey

Most of all, we would like to thank all of the individual well owners, who give us access to their wells and in some cases some of their time.

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San Joaquin County Flood Control and Water Conservation District
Fall 2008 Groundwater Report

Introduction

Since the fall of 1971, the San Joaquin County Flood Control and Water Conservation District has monitored groundwater levels and groundwater quality and has published the data in the Semi-annual Groundwater Report. This report utilizes data from federal, state and local government agencies as well as non-governmental sources.

Water level data is collected on a semi-annual basis, during the months of April and October, to observe groundwater levels before and after peak groundwater pumping conditions. Over 550 wells, of which 300 are measured by County staff, are included in the Monitoring Program. The exact number of wells varies from year to year, depending on circumstances such as destructions, new well construction, well accessibility, and well condition.

Purpose

The purpose of the Semi-annual Groundwater Report is to provide information on groundwater conditions in San Joaquin County and to publish the results of the groundwater monitoring program which consists of the following:

1. Monitor groundwater quality along a North-South line from the north of the City of Stockton to the City of Lathrop.
2. Measure groundwater levels on a County-wide basis.

In general, water quality data is more meaningful after peak production which usually occurs during the summer month. Therefore, groundwater quality data will be published only in the fall report. The groundwater depth and elevation data will be published in both the spring and fall.

Saline intrusion from the west is a continuing concern, affecting the quality of groundwater in the Basin. Groundwater quality analysis is completed on an annual basis, from approximately 18 municipal and domestic supply wells (exact number varies from year to year), located in proximity to the saline front.

Procedure

Groundwater quality sampling is conducted on an annual basis during the month of October, along with the Fall Measurements. Approximately 18 wells are currently sampled in the county (Figure 2-1). The exact number of wells may vary depending on well access and other conditions. Replicate groundwater samples (two) are analyzed for Chloride (Cl^-) using the Thomas Scientific 675 pH/ISE meter in conjunction with the ISE Cl^- Combination Electrode, and analyzed for Electrical Conductivity (EC) using DiST 3 by Hanna Instruments. Total Dissolved Solids (TDS) are calculated using the formula: TDS = 0.64 X EC(umhos). Data is then stored in a database for accessibility and reporting requirements.

Water Level Measurements are performed with the use of either a steel chain or sounder. Data is immediately recorded in field books and then stored in a database for accessibility and reporting requirements.

Section 1–Rainfall Distribution

Summary of Rainfall Distribution

The underlying groundwater basin levels in San Joaquin County respond to changes in annual precipitation. There are four total annual precipitation graphs and four monthly precipitation graphs included in this report (Figures 1-1 through 1-8). These graphs reflect three areas located across San Joaquin County and one area in Calaveras County. The station located at the Stockton Fire Station No. 4, as well as the station located in Tracy Carbona, has pertinent data beginning in 1940. Lodi station has data from 1949 to 2008. The Camp Pardee station has data available from 1949 to 2008.

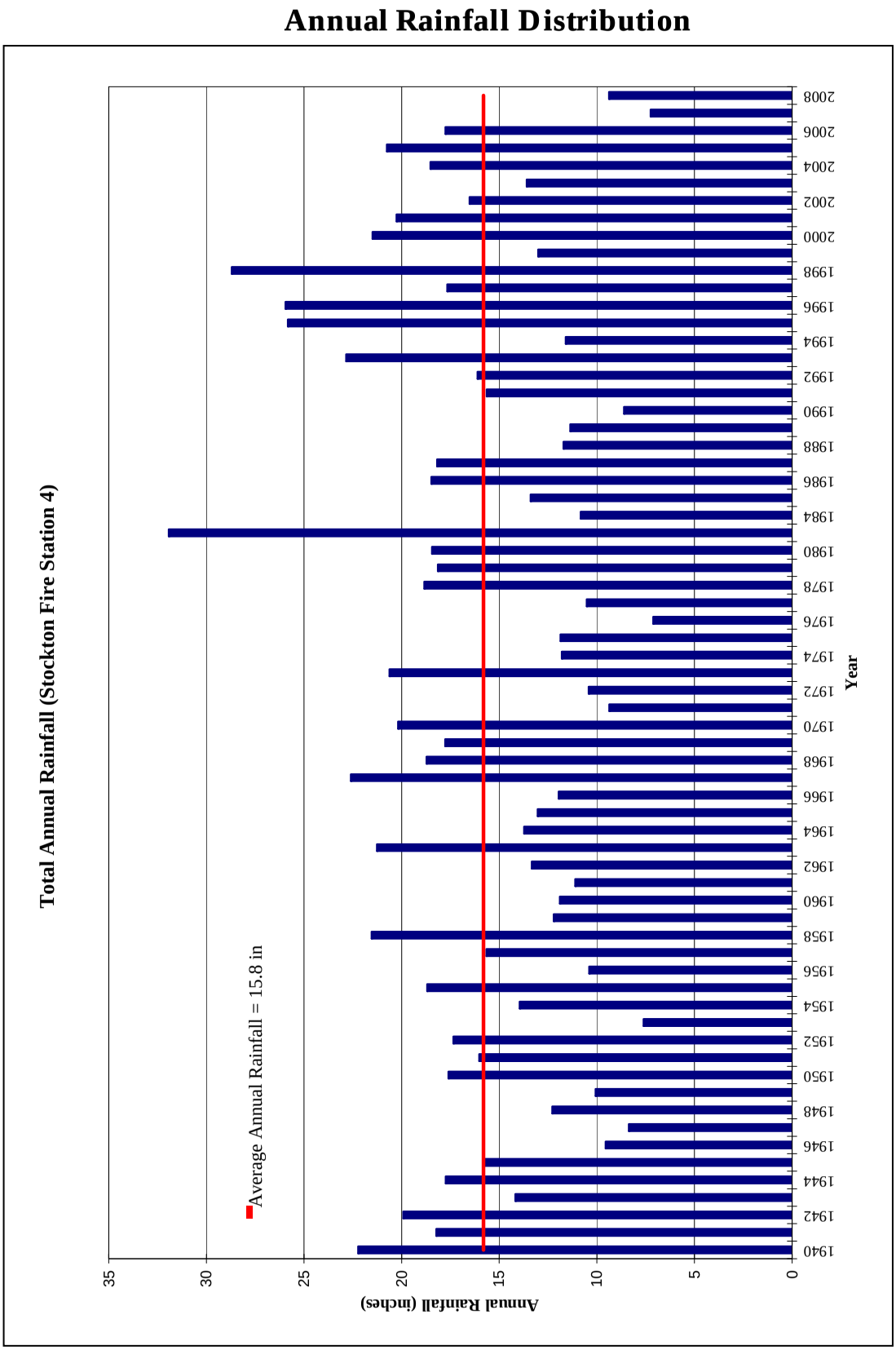

Figure 1-1: Total Annual Rainfall (Stockton Fire Station 4)

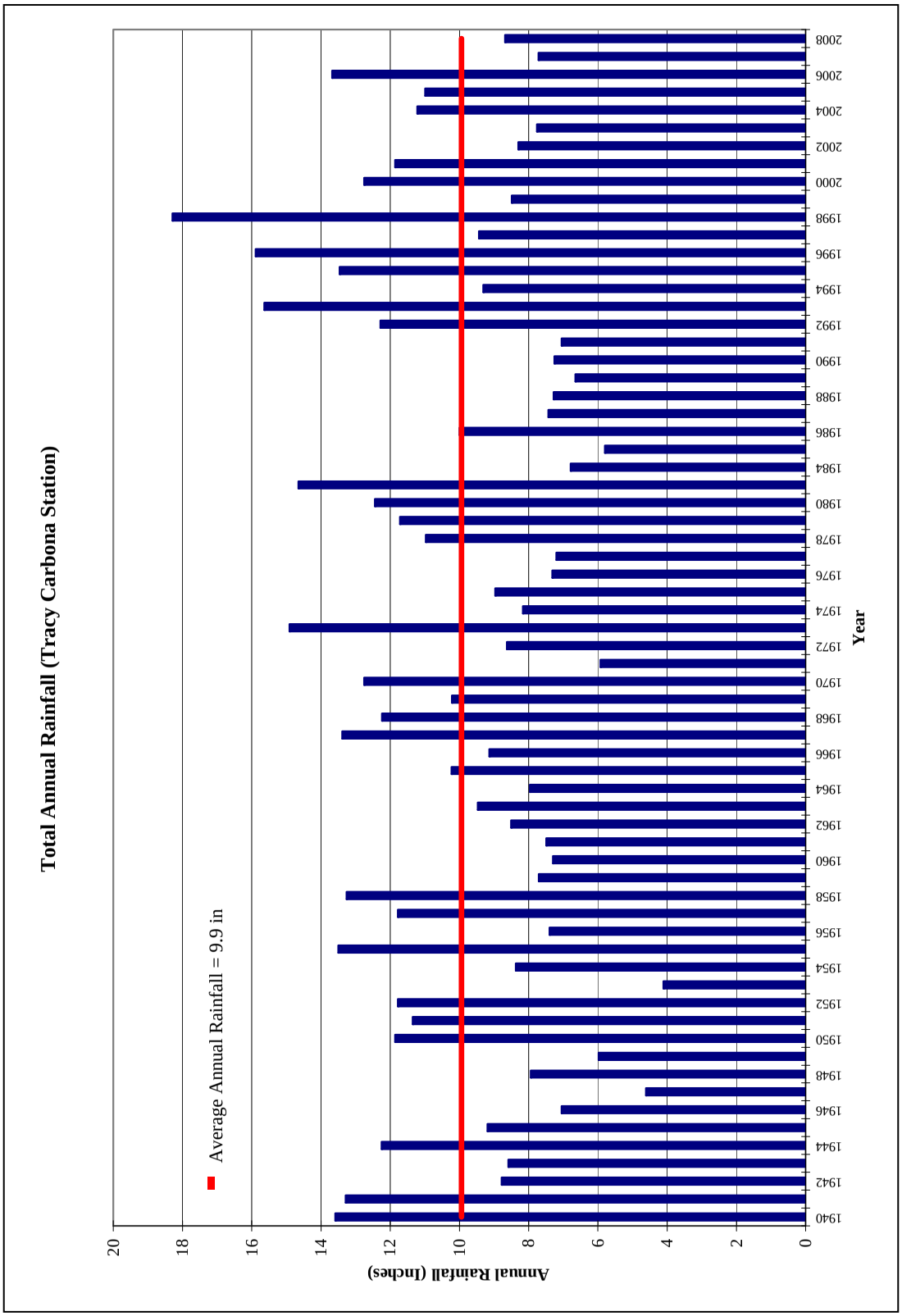

Figure 1-2: Total Annual Rainfall (Tracy Carbona Station)

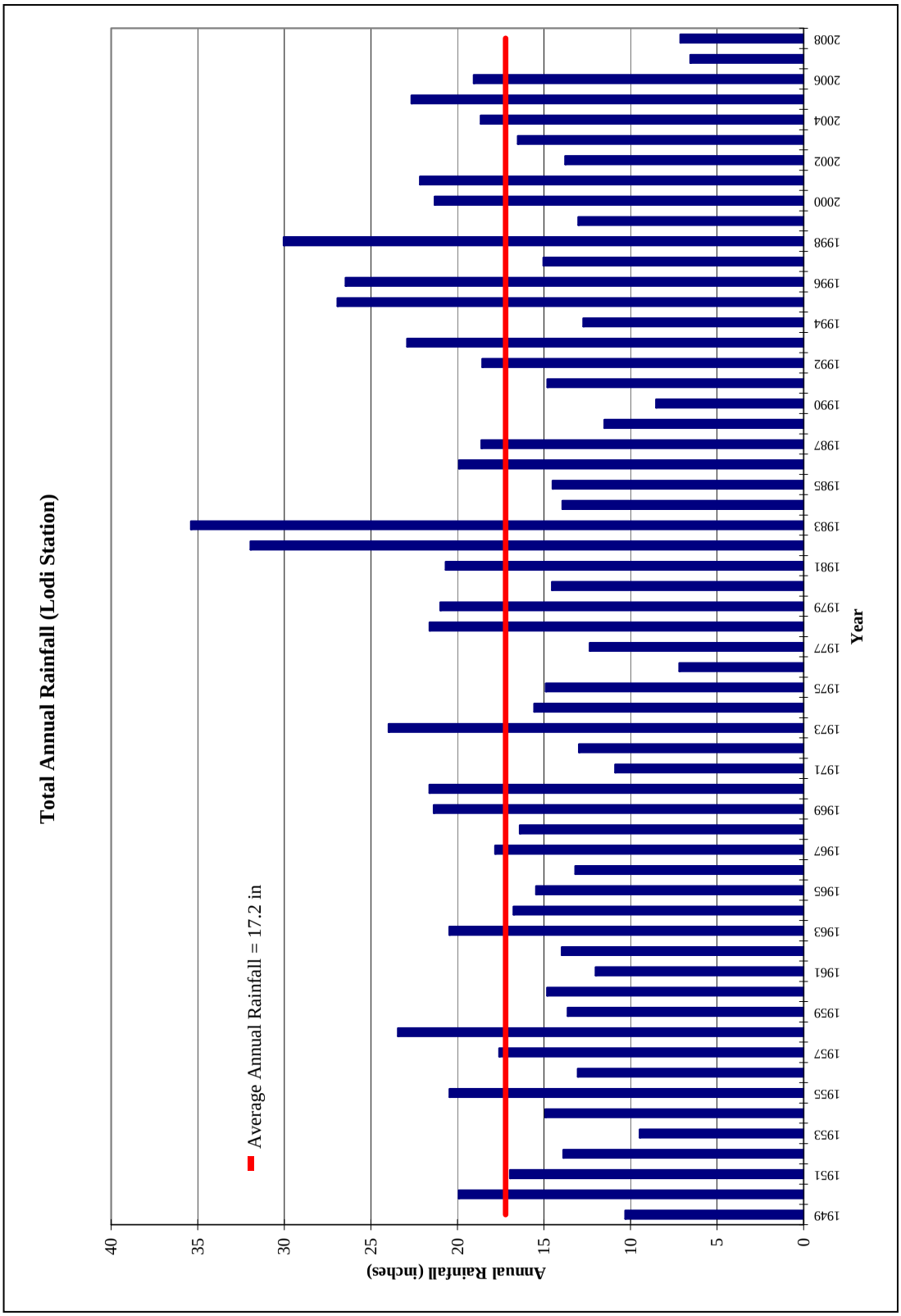

Figure 1-3: Total Annual Rainfall (Lodi Station)

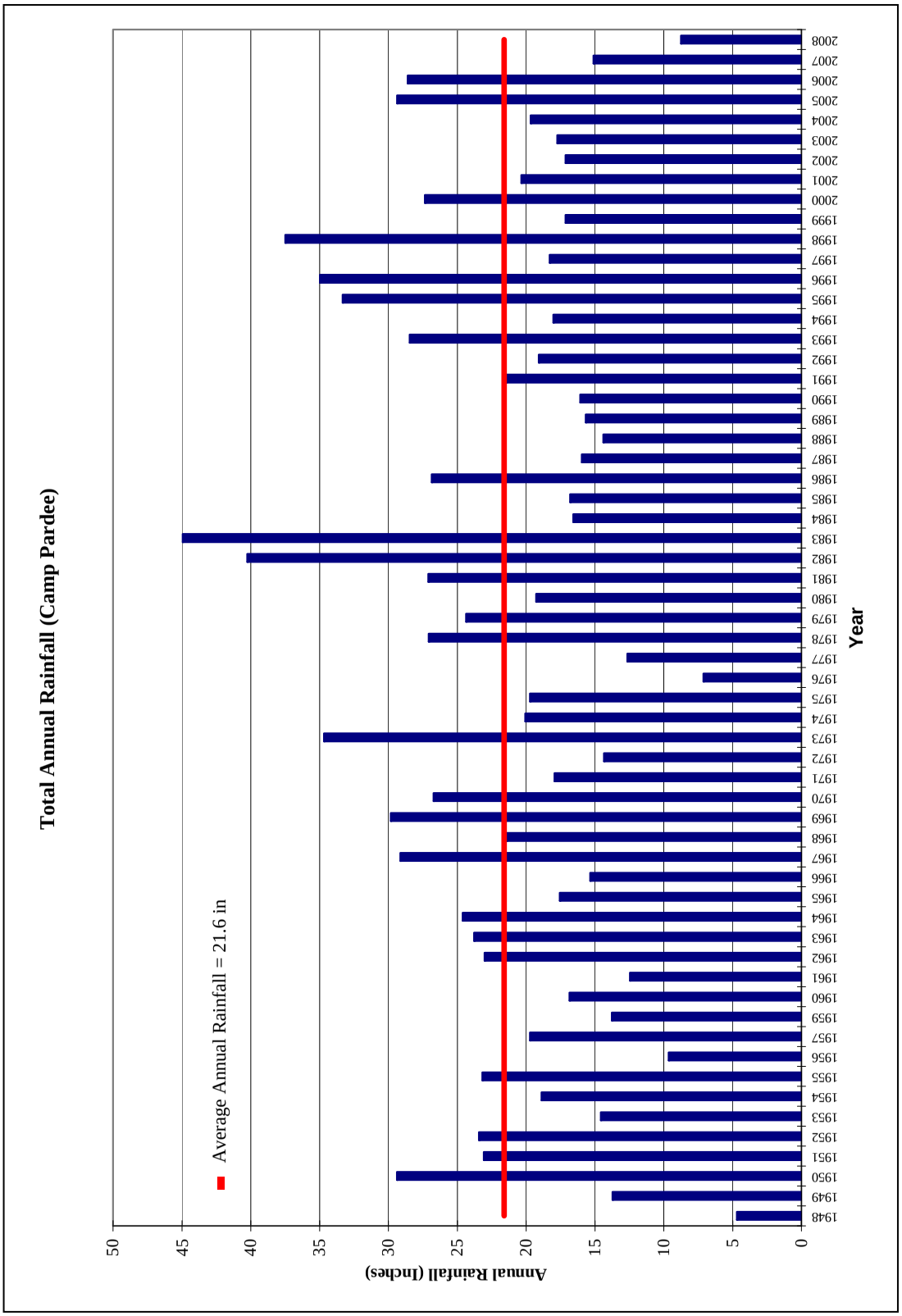

Figure 1-4: Total Annual Rainfall (Camp Pardee)

Monthly Rainfall Distribution

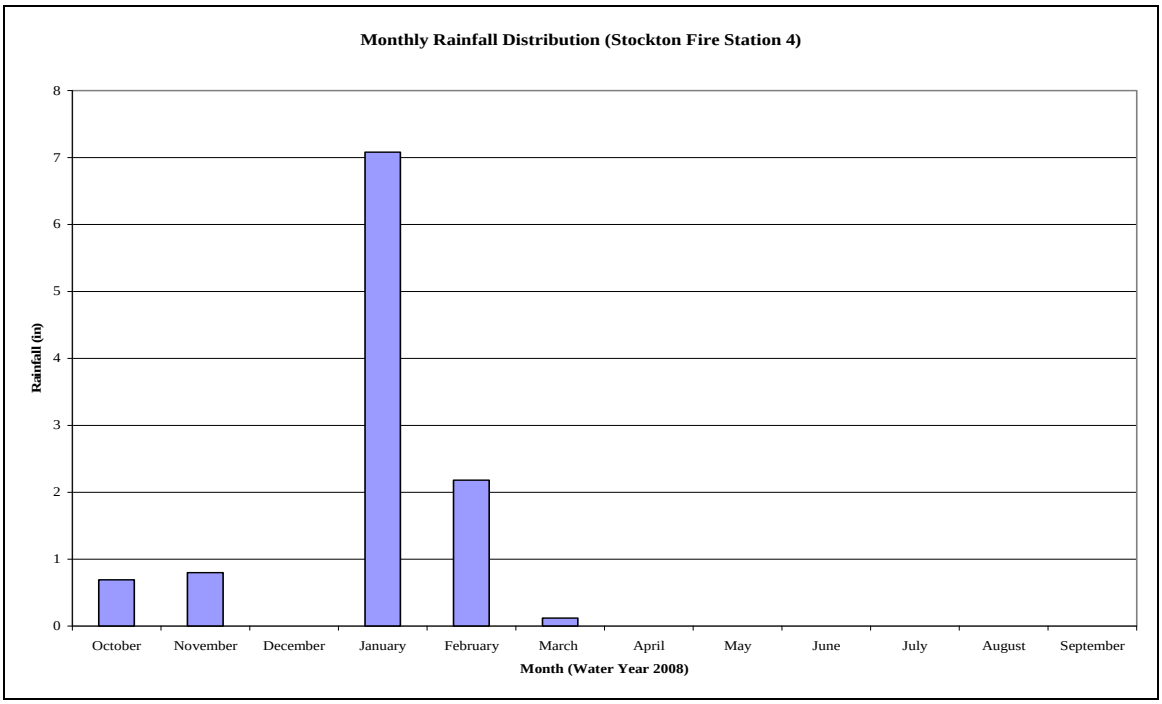

Figure 1-5: Monthly Rainfall Distribution (Stockton Fire Station 4)

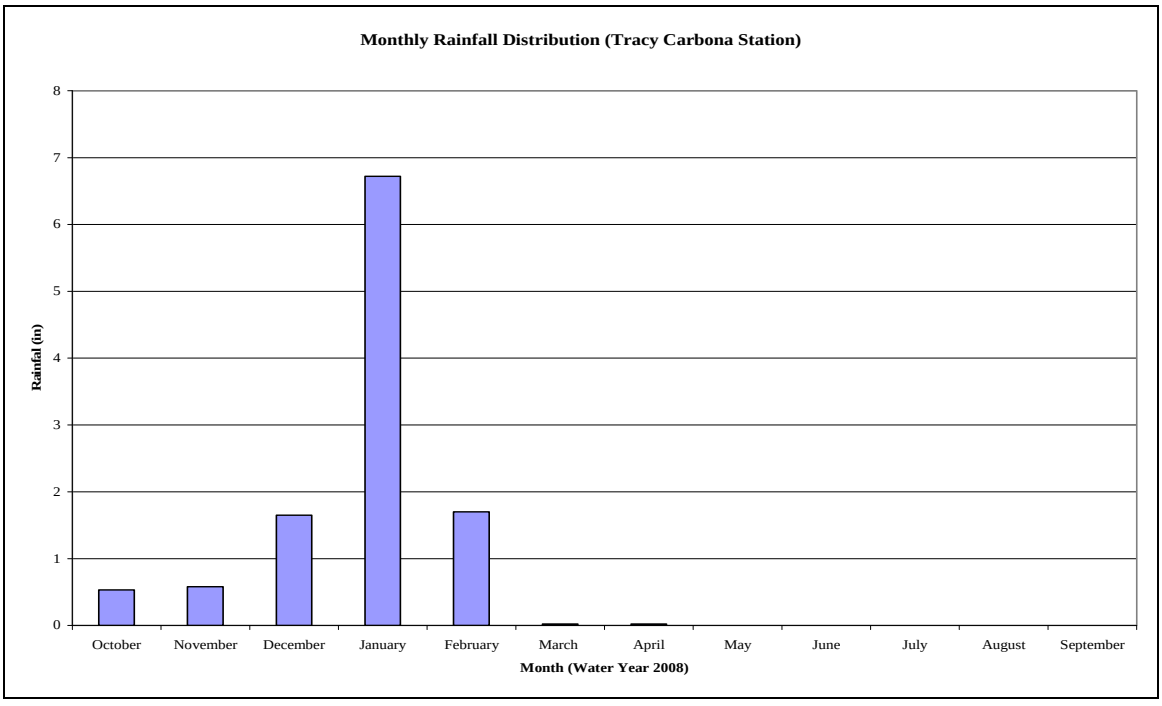

Figure 1-6: Monthly Rainfall Distribution (Tracy Carbona Station)

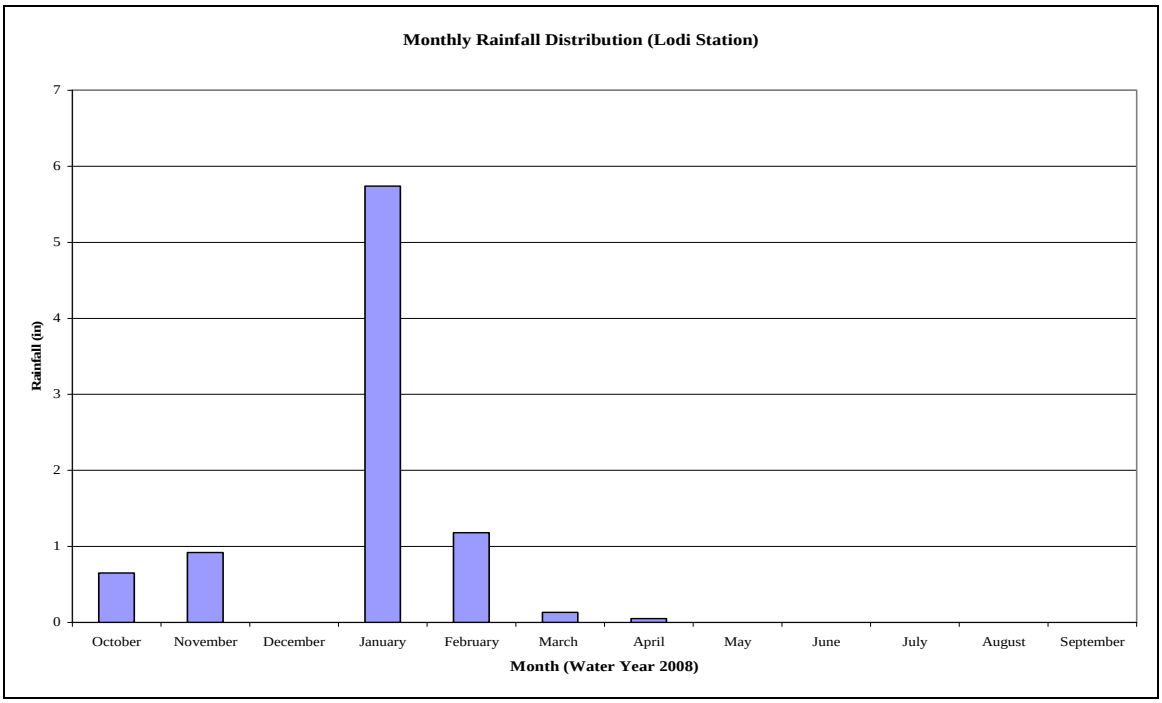

Figure 1-7: Monthly Rainfall Distribution (Lodi Station)

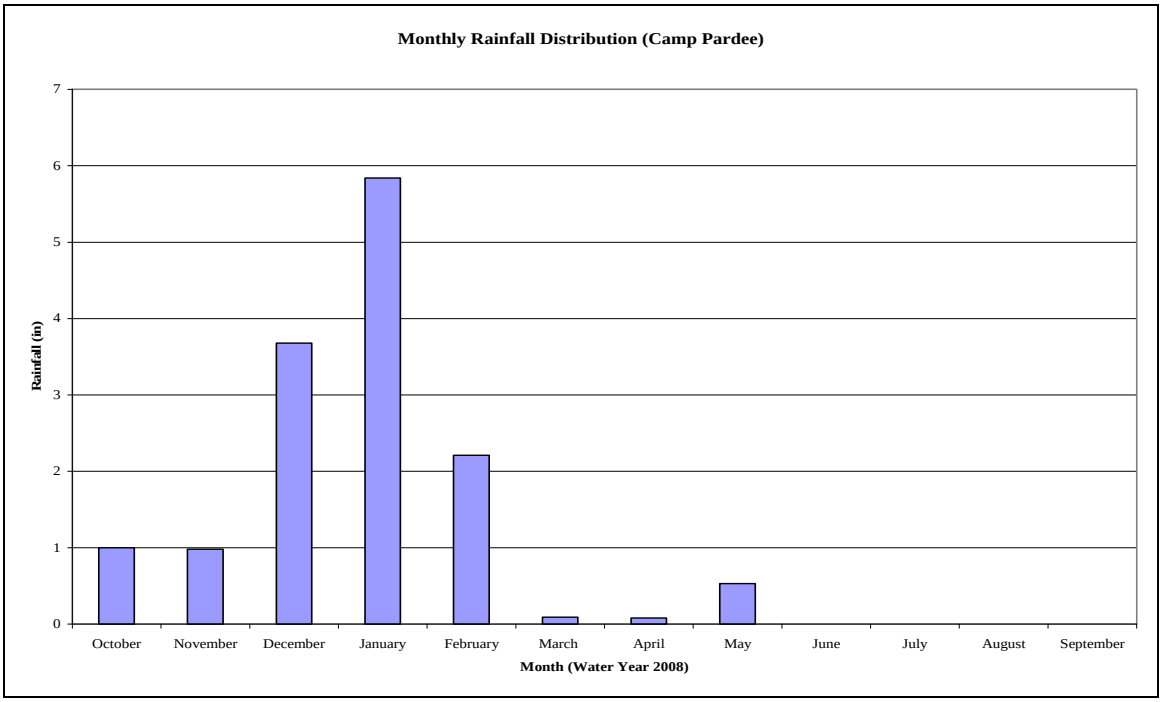

Figure 1-8: Monthly Rainfall Distribution (Camp Pardee)

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Section 2 – Groundwater Quality Monitoring

Summary of Groundwater Quality Results

The information contained in the Fall 2008 Groundwater Report is summarized as follows:

North San Joaquin County – One well was tested for chloride ions (Cl^-), electrical conductivity (EC) and total dissolved solids (TDS). There was a slight decrease in all analysis of Cl^-, EC and TDS from the previous measurements in the fall of 2007.

North Stockton – Six wells were tested for Cl^-, EC and TDS in North Stockton. Five wells decreased in Cl^- concentrations while one increased in Cl^- concentration from the analysis in the fall 2007. Two wells decreased in EC levels and three increased, one of the wells stayed relatively at the same level of EC when compared to last year's measurements. Of the six wells three have higher concentrations of TDS and three have lower concentrations when compared to the fall 2007 measurements.

Central Stockton – One well was tested for Cl^-, EC and TDS in Central Stockton. Concentrations in all of the analysis conducted in this well increased.

County Hospital Area - Four wells are usually tested near the San Joaquin County Hospital, one well was not tested this year because the sample was contaminated. Of the three wells that were tested two of them increased and one decreased in Cl^- concentration. Two decreased and once increased in EC levels and TDS concentrations.

Lathrop – Three wells were sampled in Lathrop. All three wells slightly decreased in Cl^-, EC and TDS concentrations.

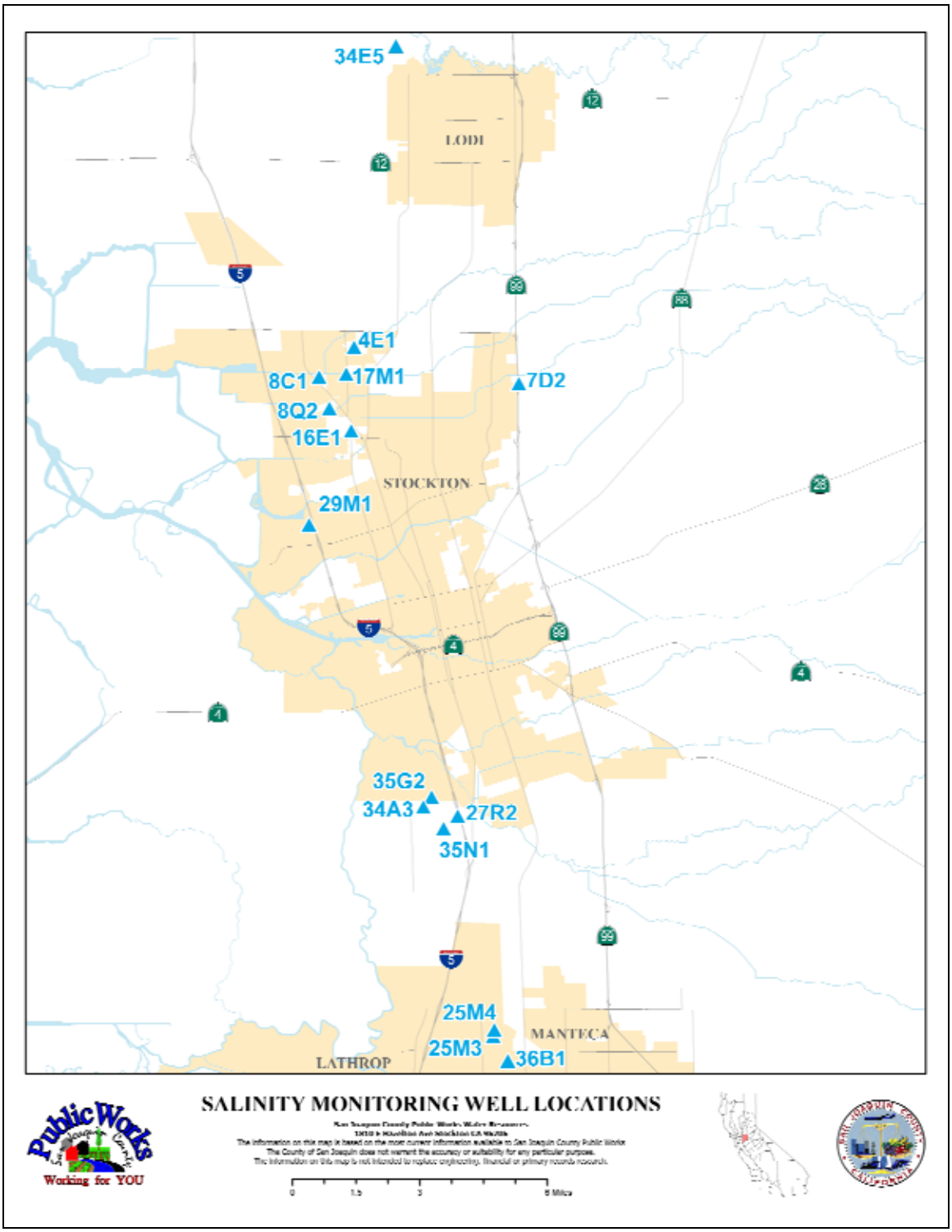

Figure 2-1: Salinity Monitoring Well Locations

Table 2-1: Groundwater Quality Mineral Analysis Fall 2008

Well	Chloride ppm	EC mmho	TDS* ppm
27R2	-		
34A3	1943	5.820	3724.8
35G2	806	2.970	1900.8
35N1	440	1.465	937.6
25M3	69	0.639	408.96
25M4	31	0.445	284.8
36B1	23	0.534	341.76
4E1	28	0.524	335.36
8C1	18	0.507	324.48
8Q2	55	0.936	599.04
16E1	59	0.926	592.64
17M1	17	0.279	178.56
29M1	88	0.542	346.88
7D2	16	0.386	247.04
34E5	19	0.819	524.16

*TDS values are calculated by the following formula: TDS = .64*1000*EC

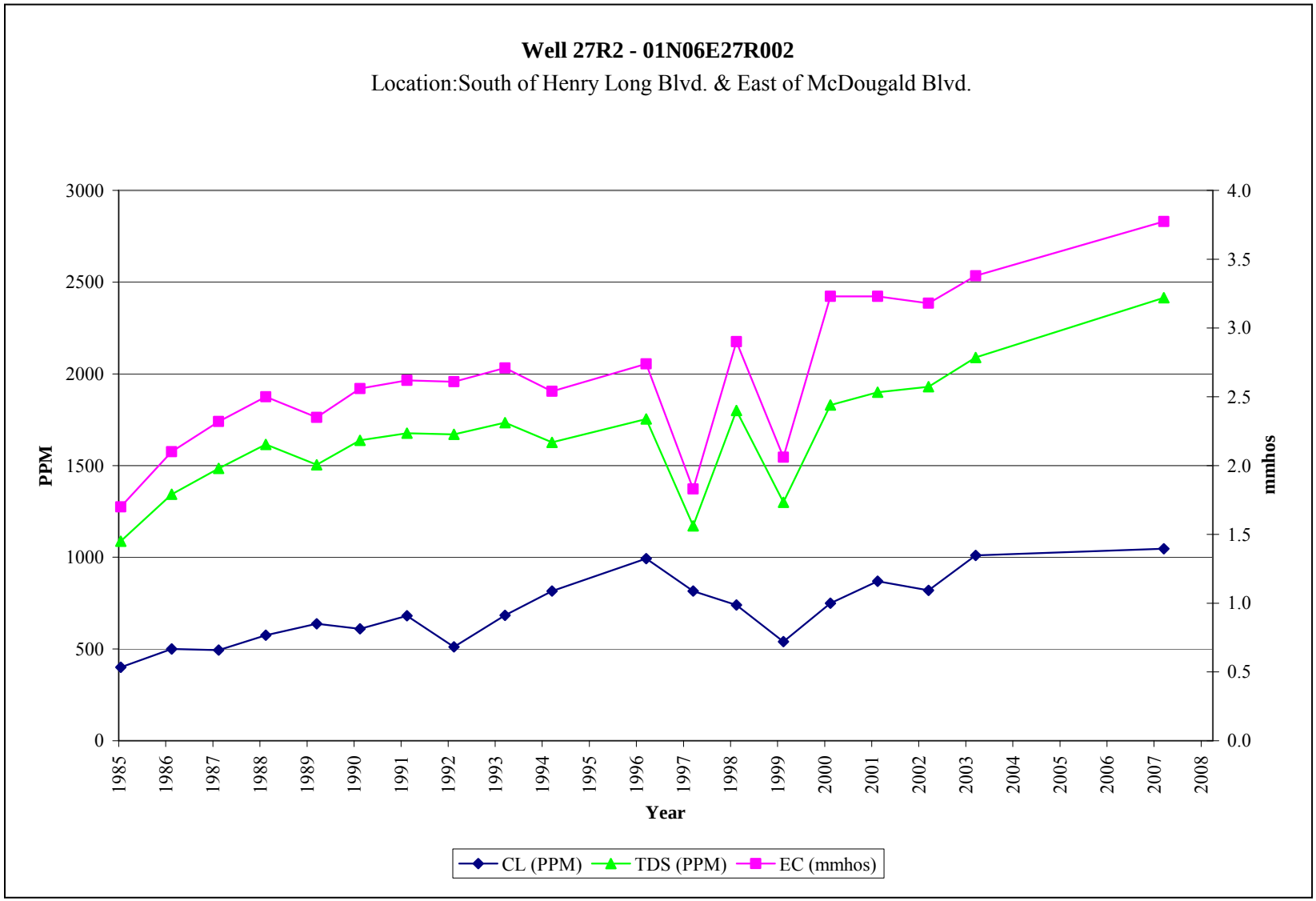

Figure 2-2: Quality Comparison Graph Well 27R2

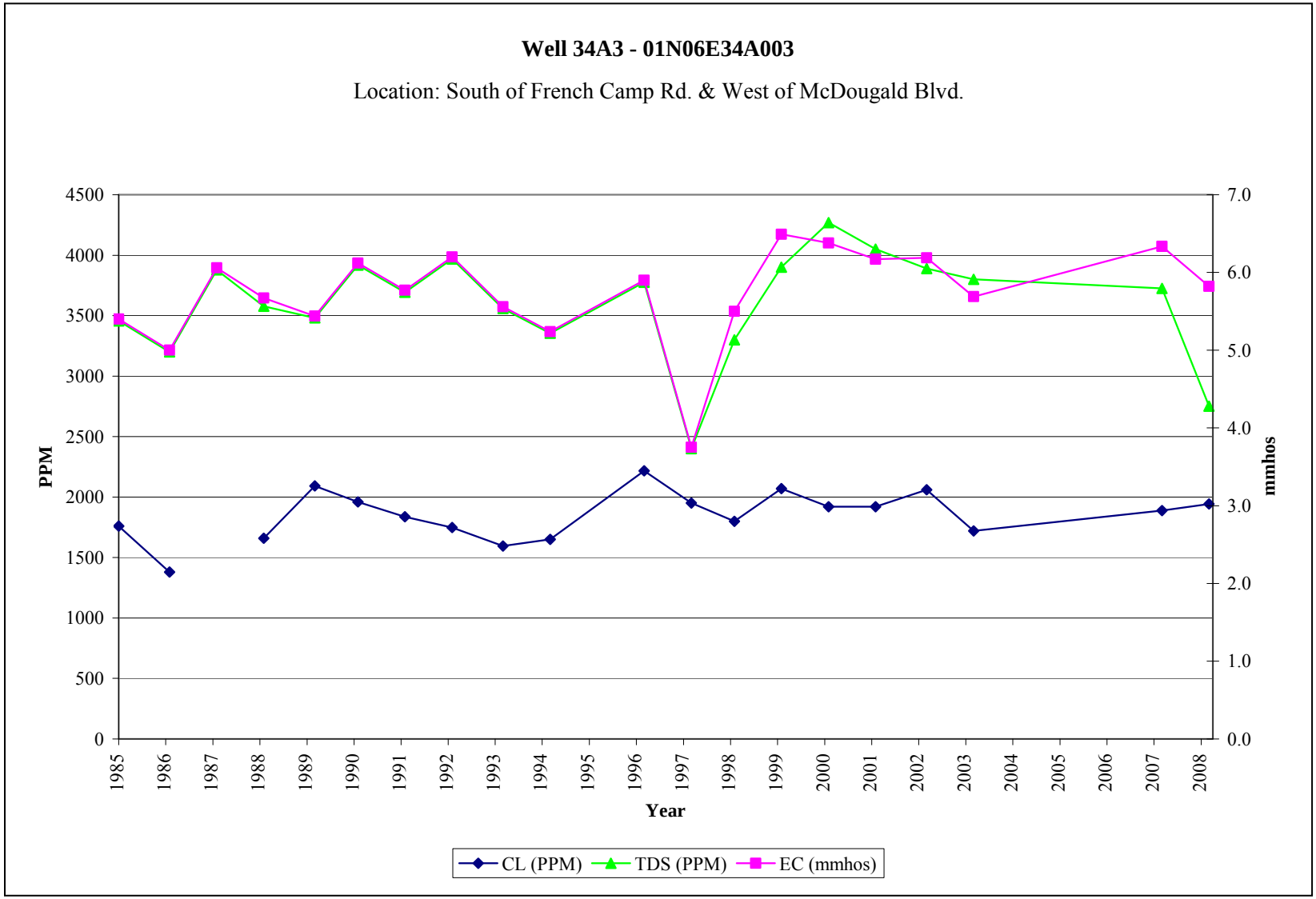

Figure 2-3: Quality Comparison Graph Well 34A3

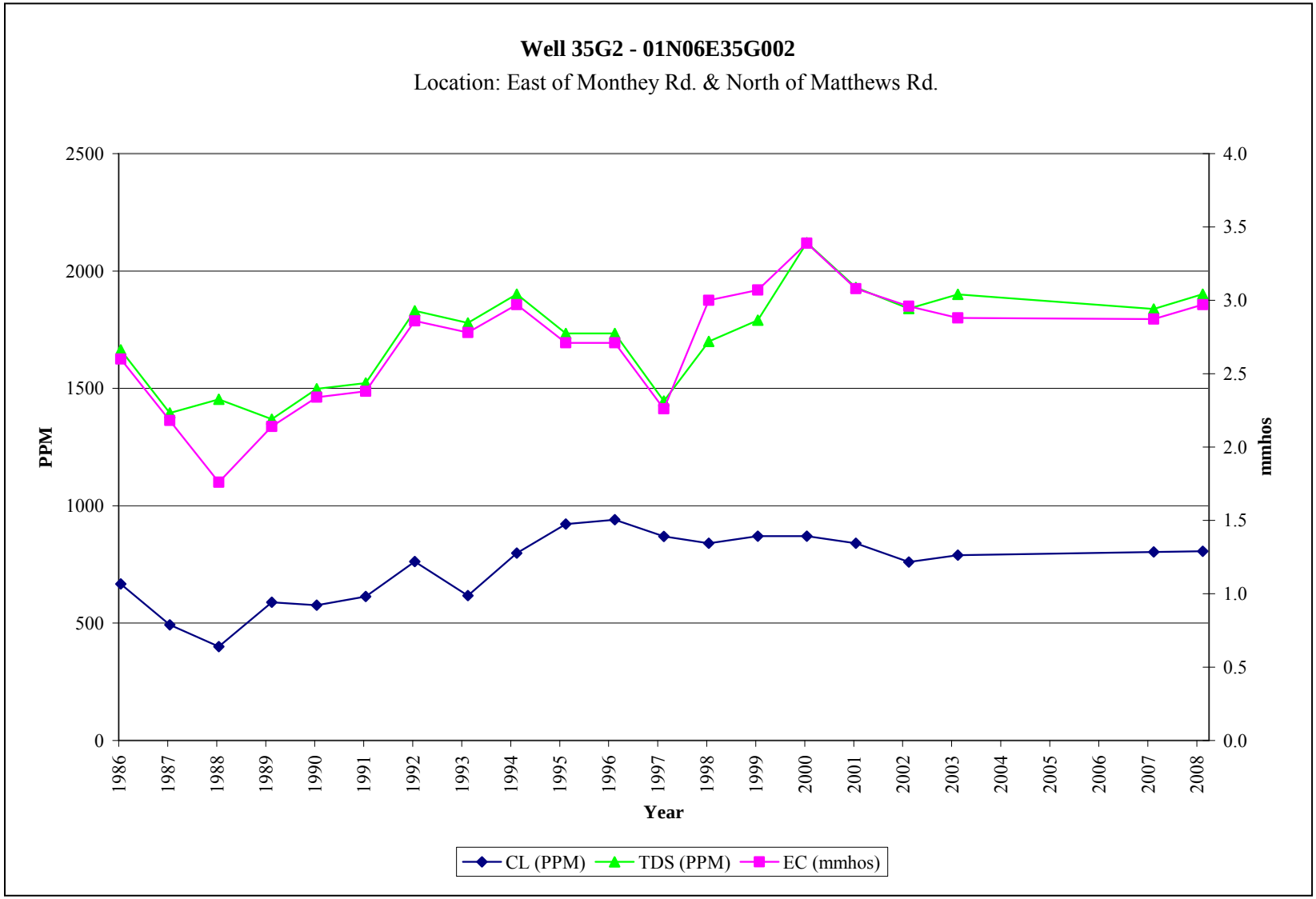

Figure 2-4: Quality Comparison Graph Well 35G2

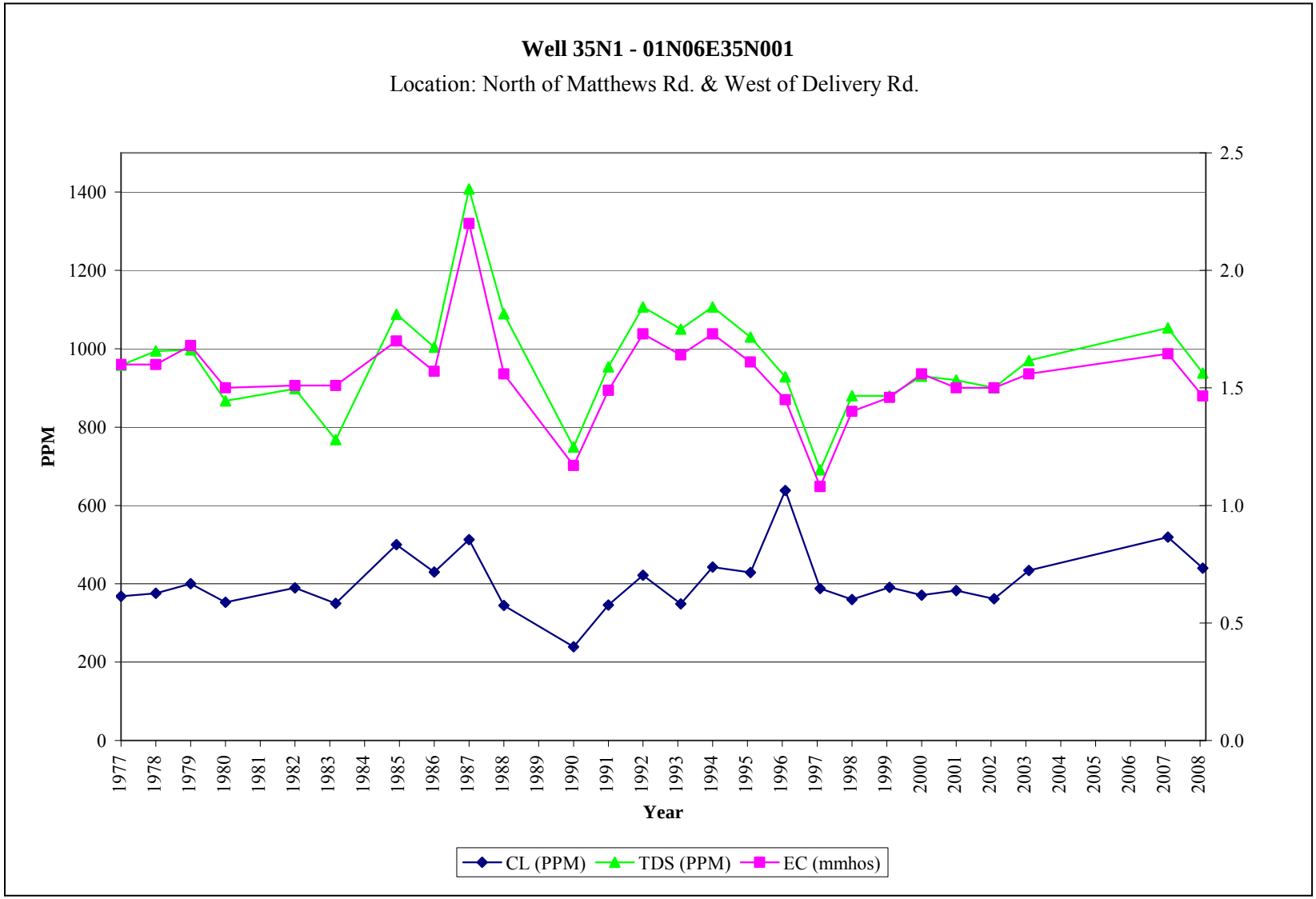

Figure 2-5: Quality Comparison Graph Well 35N1

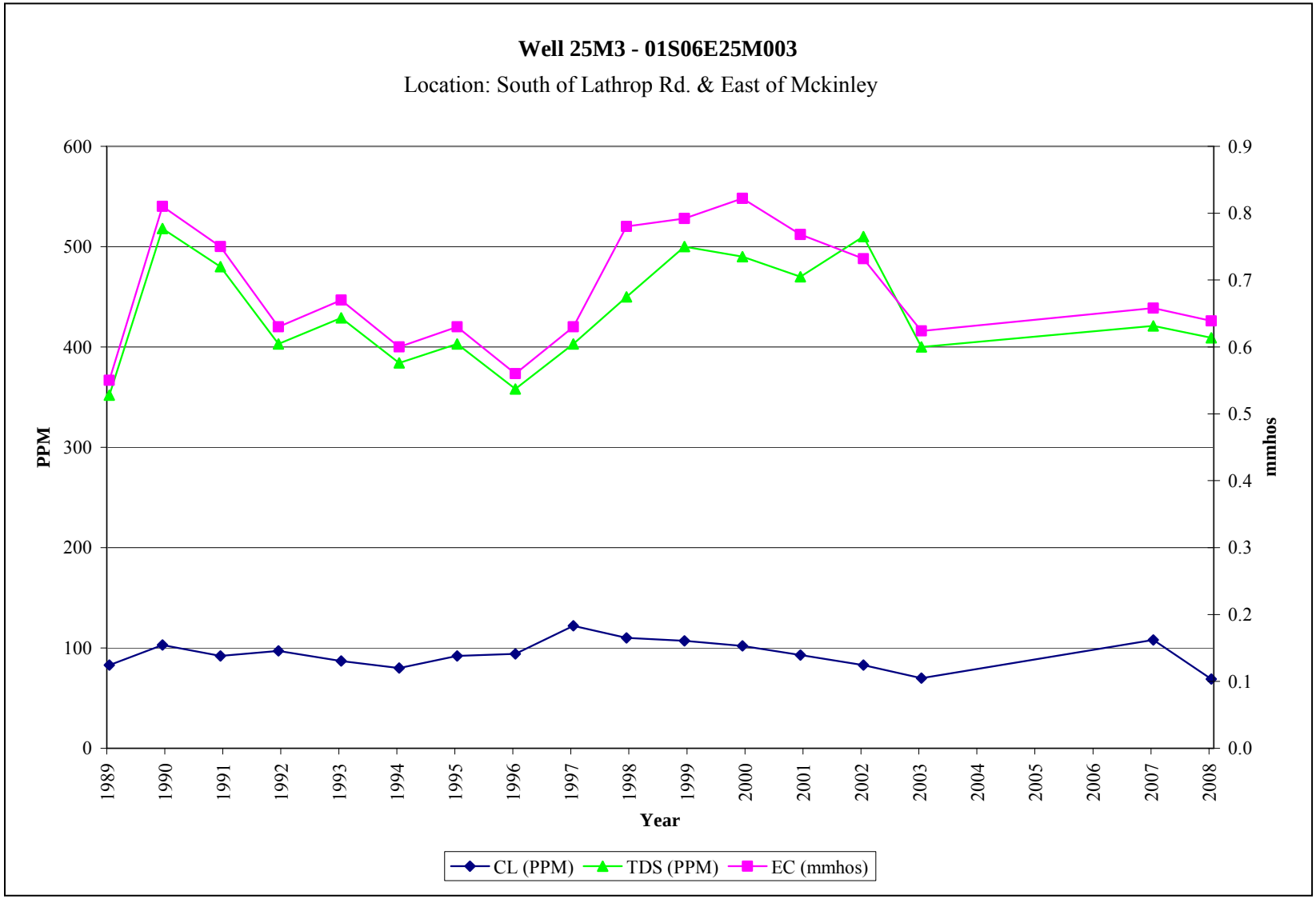

Figure 2-6: Quality Comparison Graph Well 25M3

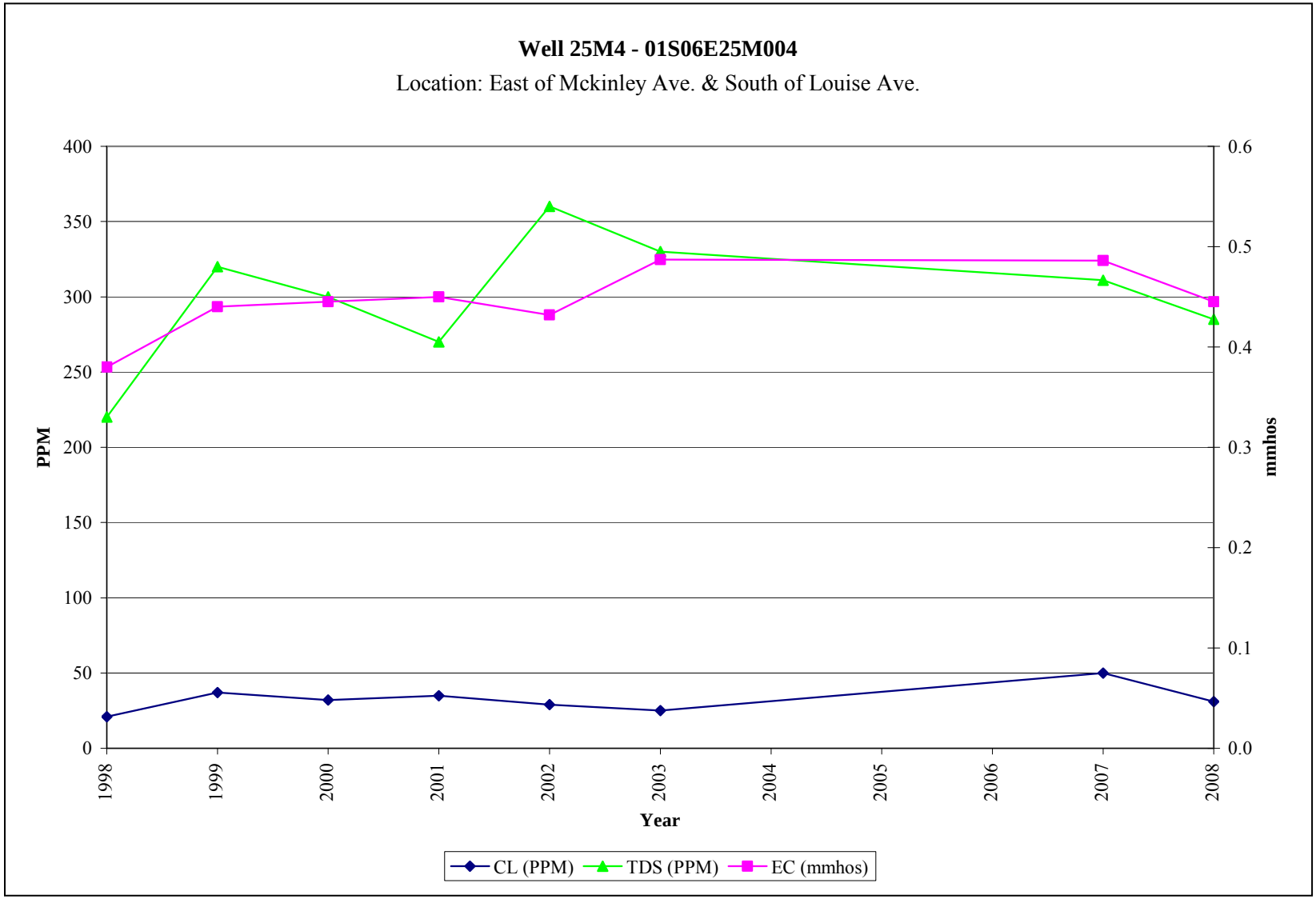

Figure 2-7: Quality Comparison Graph Well 25M4

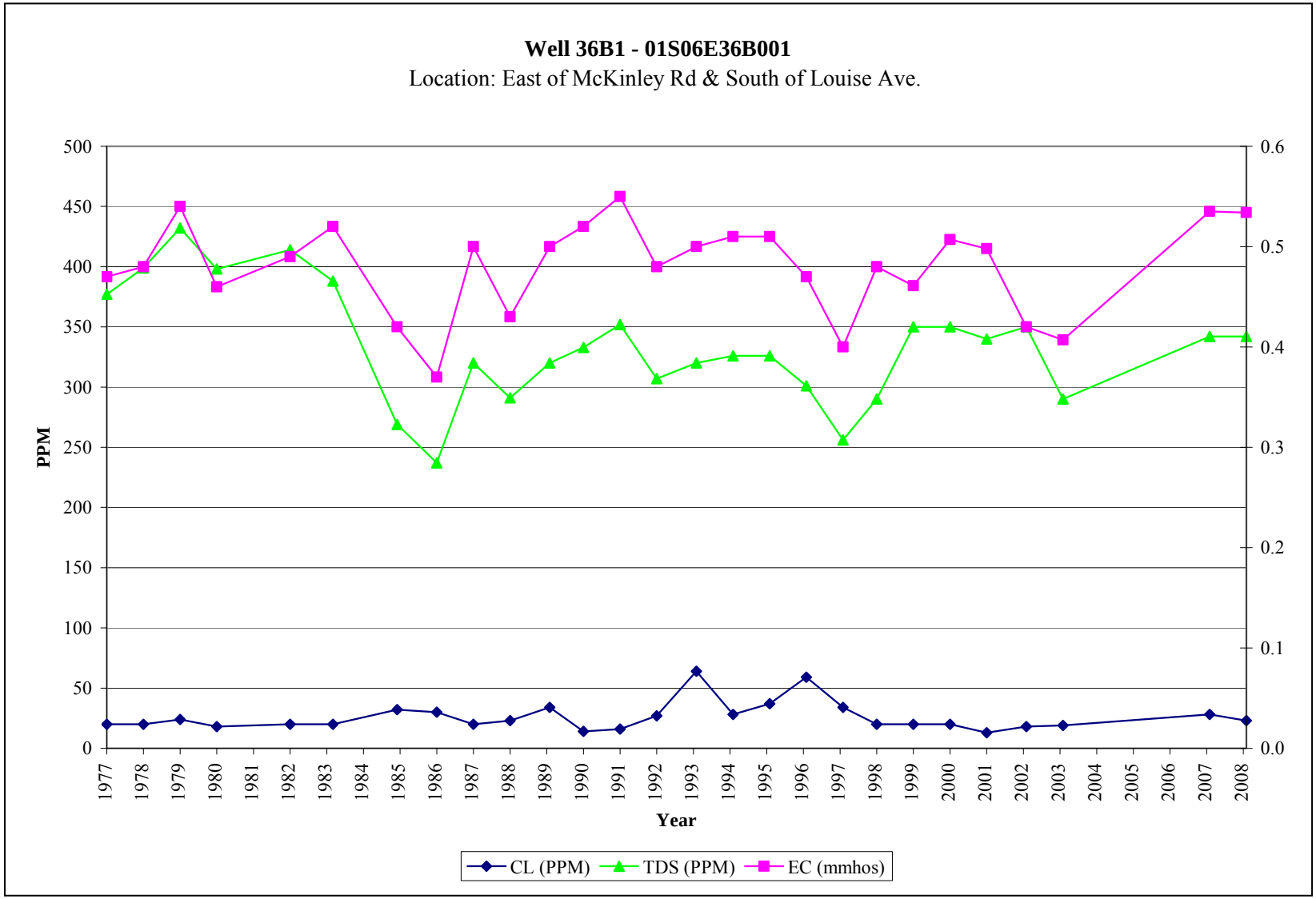

Figure 2-8: Quality Comparison Graph Well 36B1

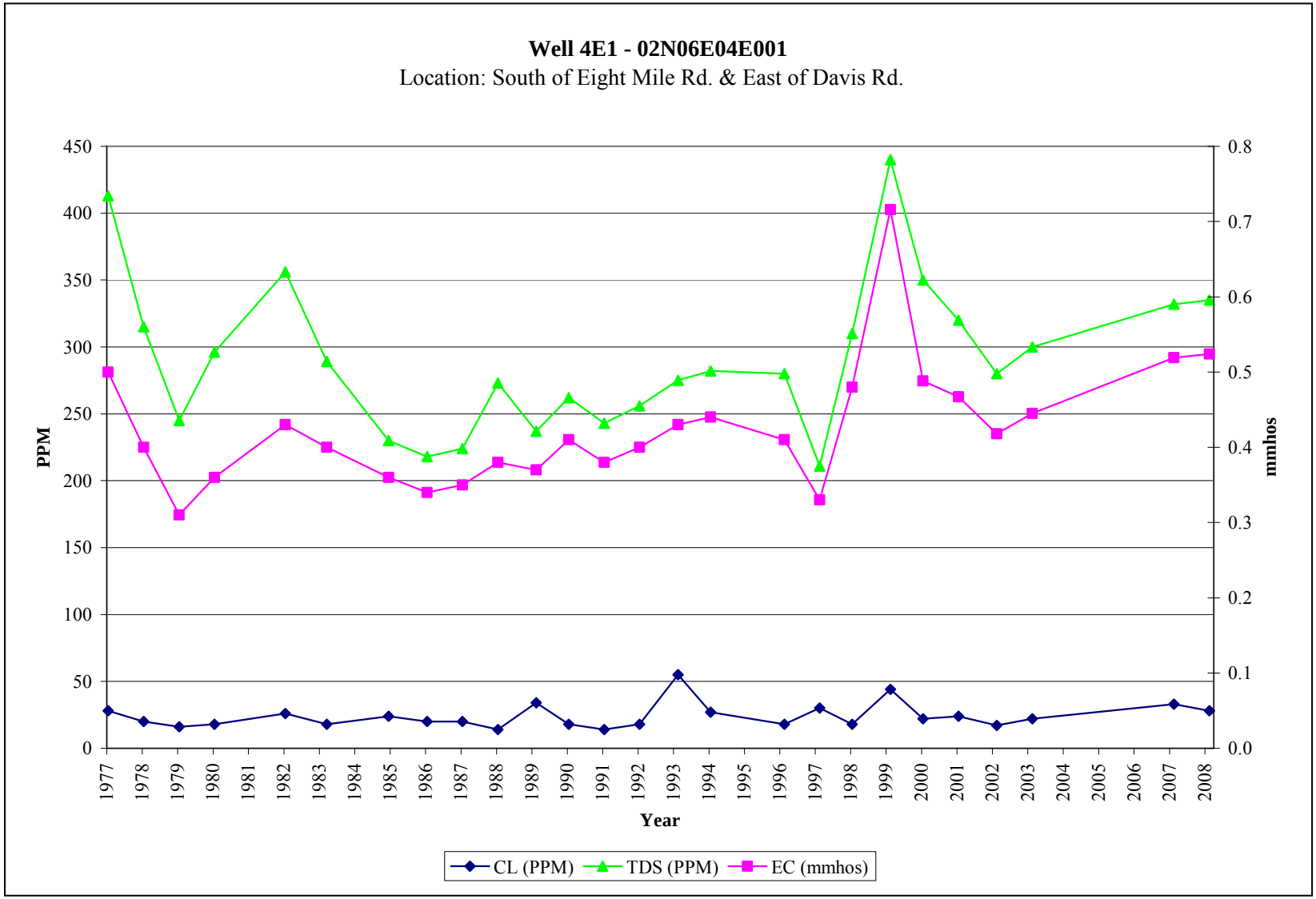

Figure 2-9: Quality Comparison Graph Well 4E1

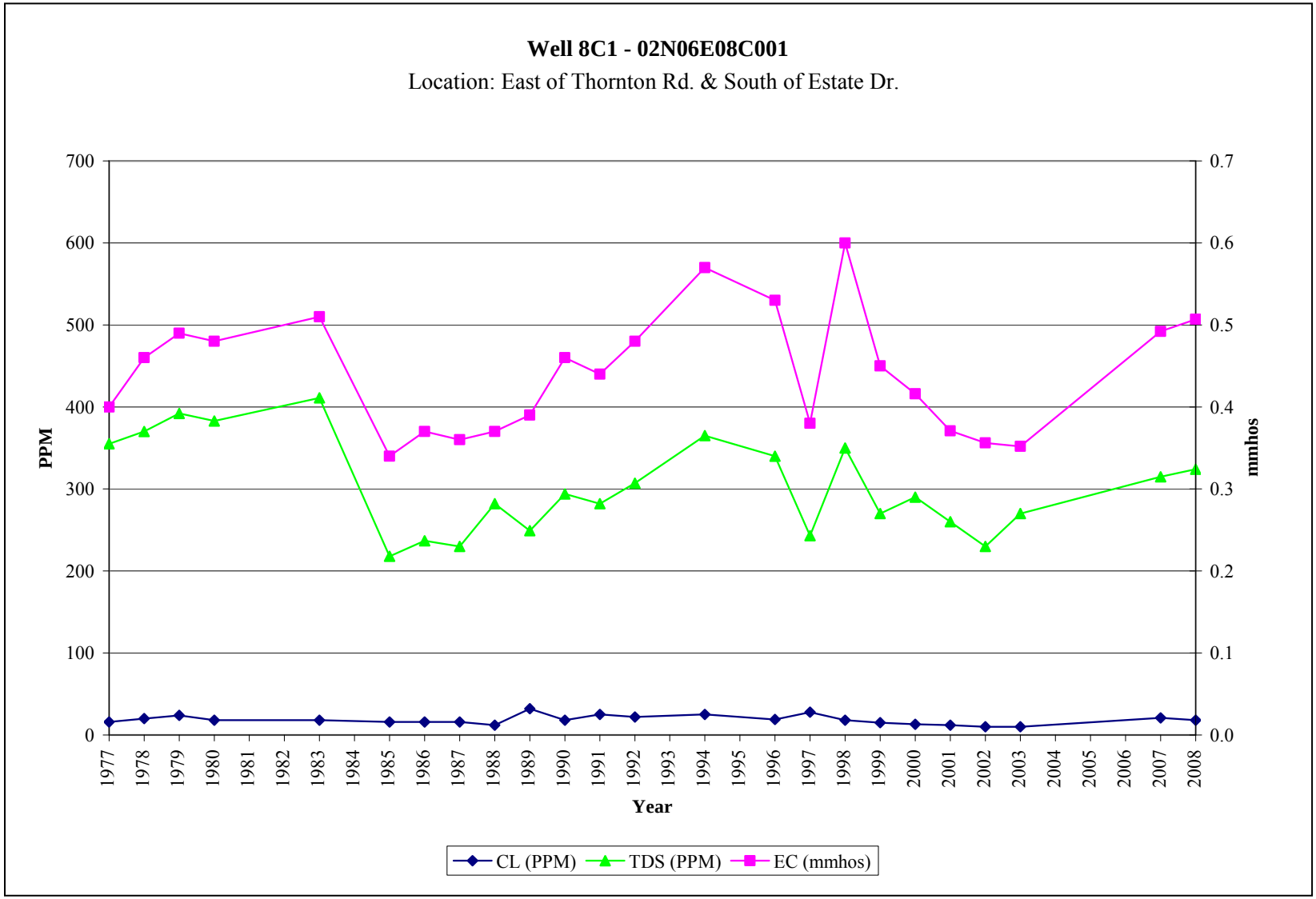

Figure 2-10: Quality Comparison Graph Well 8C1

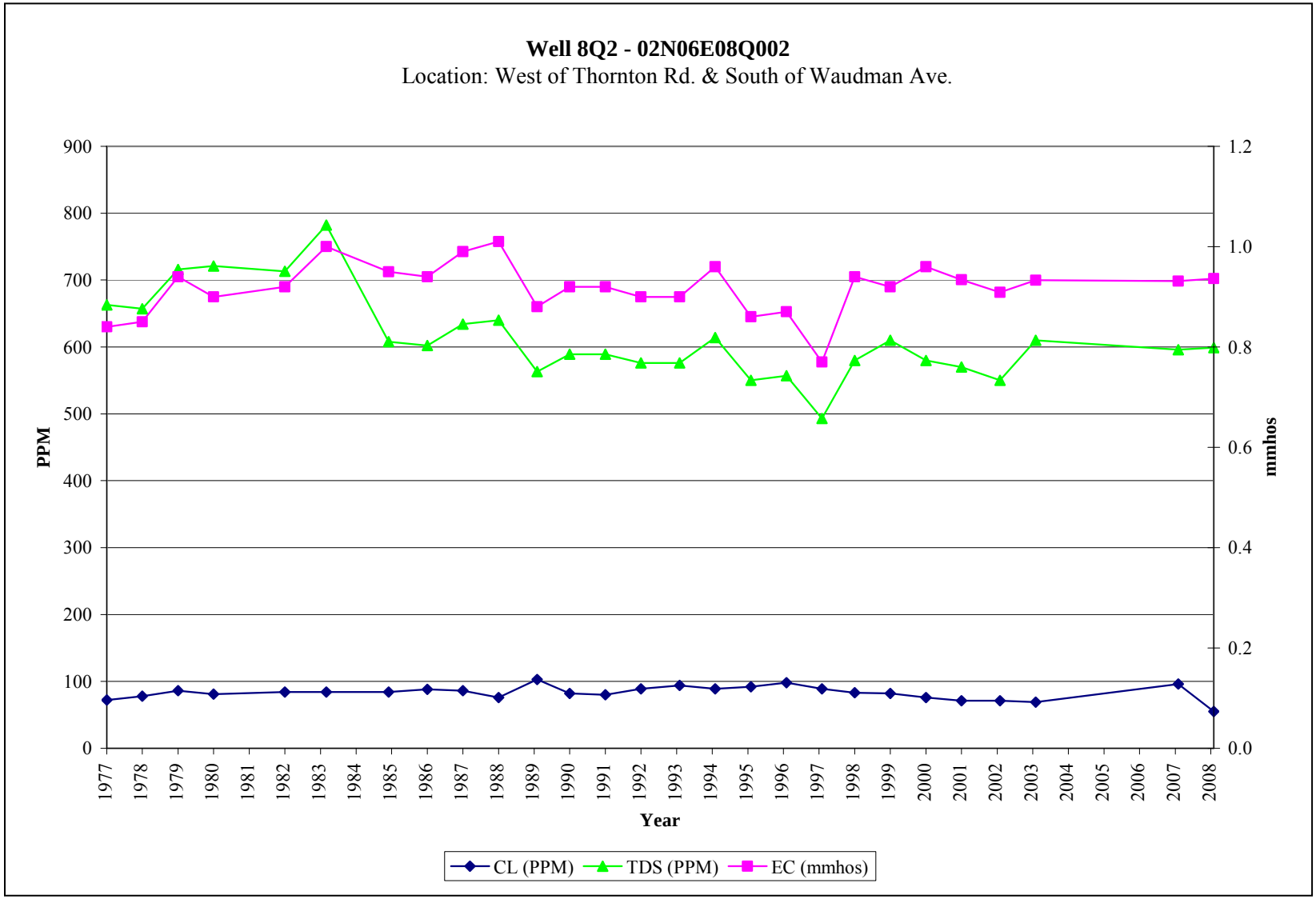

Figure 2-11: Quality Comparison Graph Well 8Q2

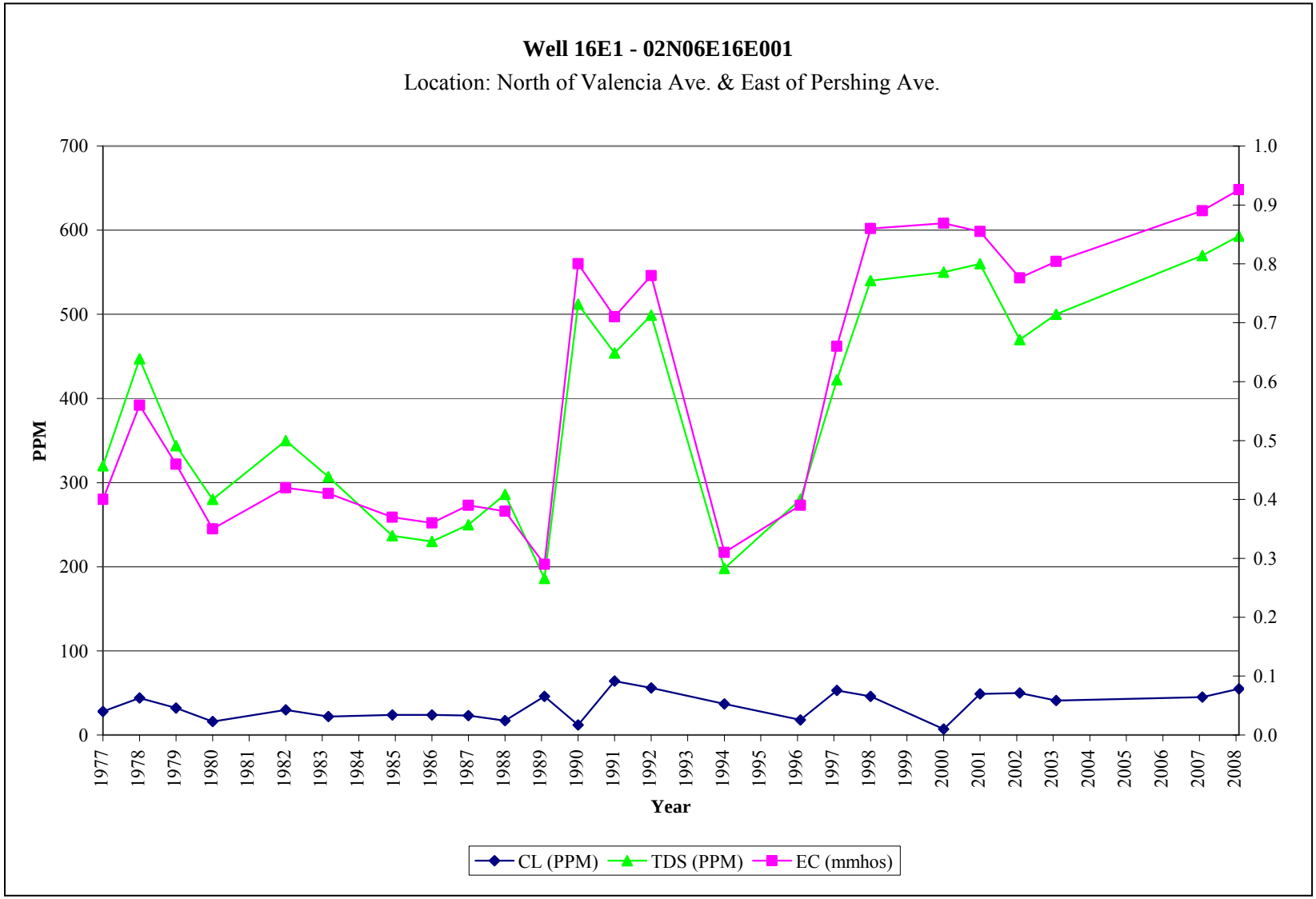

Figure 2-12: Quality Comparison Graph Well 16E1

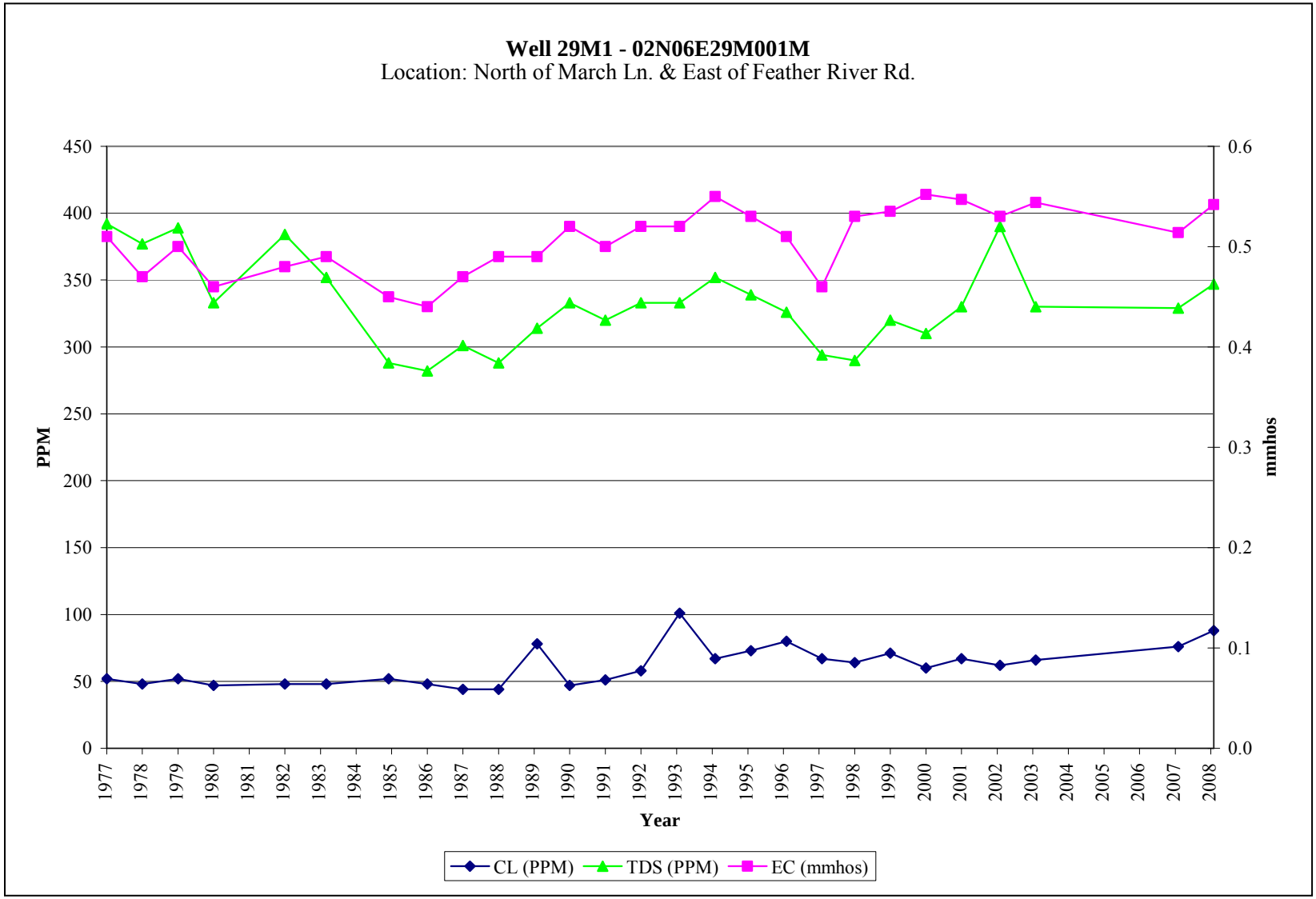

Figure 2-13: Quality Comparison Graph Well 29M1

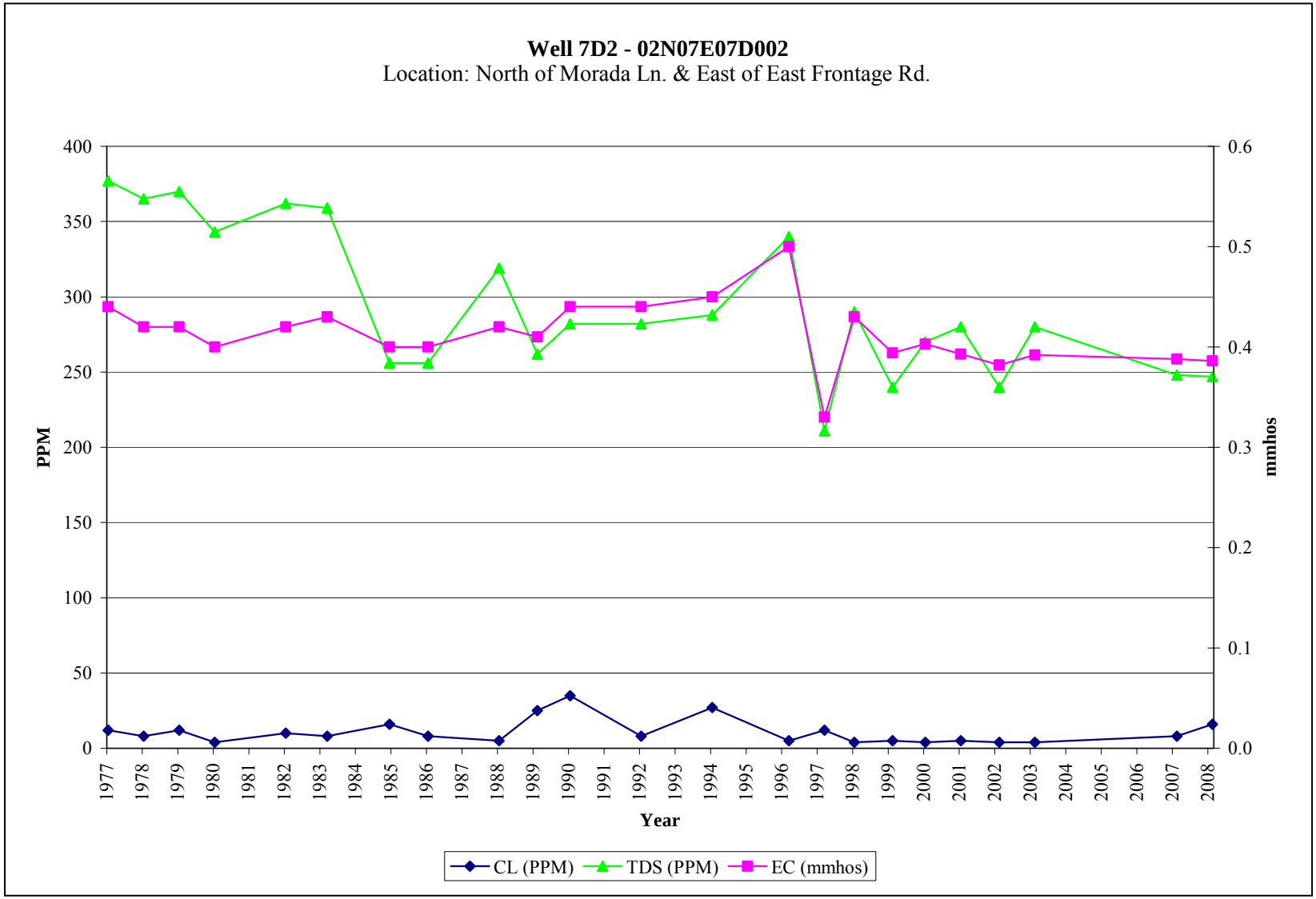

Figure 2-14: Quality Comparison Graph Well 7D2

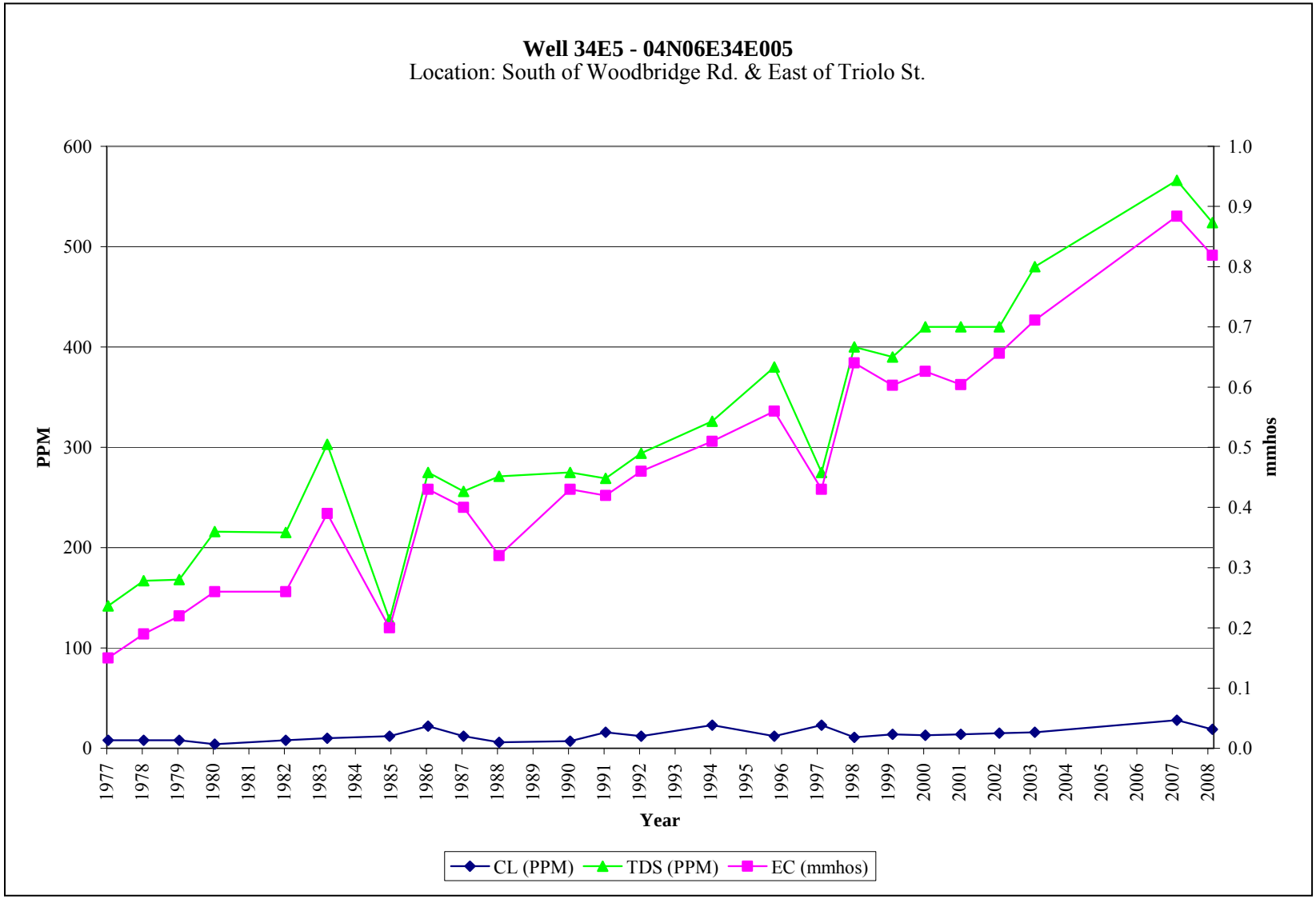

Figure 2-15: Quality Comparison Graph Well 34E5

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Section 3 – Groundwater Elevation Monitoring

Summary of Groundwater Elevations

The information contained in the Fall 2008 Groundwater Report is summarized as follows:

GROUNDWATER LEVELS

Banta-Carbona Irrigation District (BCID) – Two wells were compared in the BCID area. One well dropped one and a half foot in groundwater level and the other well dropped two feet in groundwater level.

Central San Joaquin Water Conservation District (CSJWCD) – Forty-five wells were measured in CSJWCD. Thirty-six show decreases in groundwater levels. Nine wells show an increase in groundwater levels.

North San Joaquin Water Conservation District (NSJWCD) – Thirty-three wells were measured in NSJWCD. Thirty-one wells decreased in groundwater levels. Two wells increased in groundwater levels.

Oakdale Irrigation District (OID) – Four wells were measured in the OID area. Three wells show a decrease in groundwater levels. One well increased in groundwater level.

Stockton East Water District (SEWD) – Eighty-one wells were measured in SEWD. Sixty-three wells decreased in groundwater levels. Seventeen wells show increases in groundwater levels. One well experienced no change in groundwater level.

South San Joaquin Irrigation District (SSJID) – Sixteen wells were measured in the SSJID area. Nine wells show decreases in groundwater levels. Five wells show increases in groundwater levels. Two wells experienced no change in groundwater level.

Woodbridge Irrigation District (WID) – Twenty-three wells were measured in the WID. Eleven wells decreased in groundwater levels. Eight wells show increases in groundwater levels. Four wells experienced no change in groundwater level.

Miscellaneous County Areas – Twenty-eight wells measured across the County in areas that are not a part of any major irrigation district. Sixteen wells descended in groundwater levels averaging. Eleven wells increased in groundwater. One well's groundwater level remained constant.

Table 3-1 Comparison of BCID Water Levels

State Well	Fall 2008	Fall 2007	Change
02S06E31N001	52.5	54.0	-1.5
03S06E27N001	75.8	77.8	-2.0

Total Number of Wells	**2**
Number of Wells with Decrease	**2**
Number of Wells with Increase	**0**
Number of Wells with No Change	**0**
Range of Change	**-2.0 to -1.5**
Average Change	**-1.8**

Table 3-2 Comparison of CSJWCD Area Water Levels

State Well	Fall 2008	Fall 2007	Change
01S08E04R001	-27.0	-23.6	-3.4
01S08E20B001	-7.2	-5.7	-1.5
01S08E09Q001	-20.9	-14.4	-6.5
01S08E15P001	-8.3	-6.6	-1.7
01S08E14B001	-8.7	-9.7	1.0
01S08E11F001	-15.9	-12.5	-3.4
01S08E12B001	-5.7	-4.5	-1.2
01S09E18R003	11.5	13.6	-2.1
01S09E07N001	3.7	4.8	-1.1
01S09E09R001	9.3	15.3	-6.0
01S09E19Q002	17.5	19.5	-2.0
01S09E07A001	2.2	3.1	-0.9
01S09E05H002	5.0	6.9	-1.9
01N09E29R001	-21.5	-9.5	-12.0
01S07E12H001	-20.0	-29.5	9.5
01S07E01J001	-25.1	-22.5	-2.6
01S08E06D001	-25.6	-23.3	-2.3
01S07E02J001	-32.0	-28.0	-4.0
01N07E26H003	-36.0	-33.9	-2.1
01N07E15M002	-36.0	-36.5	0.5
01N08E07M001	-59.1	-52.6	-6.5
01N07E11M001	-38.2	-33.8	-4.4
01N07E13J002	-52.5	-49.0	-3.5
01N07E24A001	-42.6	-49.1	6.5
01N07E24R001	-52.5	-51.5	-1.0
01N08E18A002	-41.0	-39.0	-2.0
01N08E16G001	-40.2	-38.2	-2.0
01N08E16H002	-39.5	-37.1	-2.4
01N08E22J001	-37.5	-34.5	-3.0
01N08E11L001	-43.5	-39.1	-4.4
01N07E11L001	-37.0	-38.0	1.0
01N09E06N001	-32.5	-30.3	-2.2

State Well	Fall 2008	Fall 2007	Change
01N09E05J001	-10.5	-10.0	-0.5
01N09E01C001	15.8	16.3	-0.5
01N09E13D001	18.0	19.0	-1.0
01N09E17D001	-21.5	-29.0	7.5
01N09E17M001	-20.5	-28.5	8.0
01N09E19C001	-22.5	-21.5	-1.0
01N08E13J001	-28.2	-27.7	-0.5
01N09E30C005	-23.7	-13.7	-10.0
01N08E36F001	-18.5	-14.6	-3.9
01N09E31J001	-5.0	-2.7	-2.3
01N08E35F001	-29.4	-30.9	1.5
01N08E26A002	-25.3	-26.3	1.0
01N08E27R002	-31.5	-28.0	-3.5

Total Number of Wells	**45**
Number of Wells with Decrease	**36**
Number of Wells with Increase	**9**
Number of Wells with No Change	**0**
Range of Change	**-12.0 to +9.5**
Average Change	**-1.6**

Table 3-3 Comparison of NSJWCD Area Water Levels

State Well	Fall 2008	Fall 2007	Change
03N08E22A001	-43.5	-41.7	-1.8
03N08E19C001	-42.3	-40.1	-2.2
03N07E25G001	-48.3	-47.2	-1.1
03N07E18D012	-28.5	-25.3	-3.3
03N07E08E002	-24.5	-22.0	-2.5
03N07E09C001	-25.2	-21.4	-3.8
03N07E17D004	-27.4	-26.4	-1.0
03N07E17K002	-36.5	-32.7	-3.8
03N07E19J004	-56.0	-43.5	-12.5
03N07E15C004	-34.5	-29.0	-5.5
03N07E03R001	-33.8	-18.3	-15.5
04N07E33H001	22.0	24.9	-2.9
04N07E28J002	-18.7	-17.7	-1.0
04N07E27C002	-30.5	-36.5	6.0
04N07E21F001	-26.3	-23.1	-3.2
04N07E12E001	-41.0	-40.0	-1.0
05N07E34Q001	-47.4	-40.0	-7.4
05N07E34G001	-50.1	-38.1	-12.0
04N08E06N002	-36.2	-33.6	-2.6
04N08E17A001	-30.3	-28.3	-2.0
04N08E17J001	-24.5	-23.3	-1.2
04N08E21M001	-27.6	-26.0	-1.6
04N08E14K001	-3.1	-0.9	-2.2
04N08E32N001	-31.1	-30.0	-1.1

State Well	Fall 2008	Fall 2007	Change
04N07E36L001	-23.5	-17.5	-6.0
04N06E24F001	-19.5	-25.0	5.5
04N07E17N001	-39.8	-31.3	-8.5
04N07E07A001	-38.5	-35.5	-3.0
05N06E36R001	-32.8	-24.3	-8.5
04N06E12C004	-26.0	-15.9	-10.1
04N06E23K00	-13.0	-8.0	-5.0
04N06E27D002	13.2	14.9	-1.7
03N06E36N001	-35.8	-29.7	-6.1

Total Number of Wells	**33**
Number of Wells with Decrease	**31**
Number of Wells with Increase	**2**
Number of Wells with No Change	**0**
Range of Change	**-15.5 to +6**
Average Change	**-3.9**

Table 3-4 Comparison of OID Area Water Levels

State Well	Fall 2008	Fall 2007	Change
01S09E21J002	40.5	42.8	-2.3
01S09E28M002	39.7	37.7	2.0
01S09E23N001	51.0	53.3	-2.3
01S09E24R001	67.6	69.7	-2.1

Total Number of Wells	**4**
Number of Wells with Decrease	**3**
Number of Wells with Increase	**1**
Number of Wells with No Change	**0**
Range of Change	**-2.3 to +2.0**
Average Change	**-1.2**

Table 3-5 Comparison of SEWD Area Water Levels

State Well	Fall 2008	Fall 2007	Change
01S06E10G001	-7.3	-6.8	-0.5
02N08E14C001	-52.5	-48.0	-4.5
02N08E12C002	-30.2	-28.0	-2.2
03N09E25R001	82.5	86.0	-3.5
03N09E36G001	66.2	82.2	-16.0
02N09E03A001	63.1	64.7	-1.6
02N09E04H001	54.6	56.0	-1.4
02N09E09D001	-15.8	-18.8	3.0
02N09E05H001	-2.3	-0.8	-1.5
02N09E08N001	-30.4	-20.9	-9.5
02N09E22D001	-15.4	-12.4	-3.0
02N09E18Q001	-37.6	-33.8	-3.8
02N08E24J001	-104.1	-93.6	-10.5
02N08E13K001	-38.1	-34.0	-4.1

State Well	Fall 2008	Fall 2007	Change
02N08E20F001	-56.8	-76.3	19.5
02N07E24B001	-55.1	-54.2	-0.9
02N07E26N001	-55.7	-49.6	-6.1
02N07E28N004	-43.0	-42.0	-1.0
02N07E31M001	-31.8	-26.3	-5.5
02N07E30E001	-40.0	-35.7	-4.3
02N07E20N002	-44.0	-43.0	-1.0
02N07E16L001	-58.3	-61.3	3.0
02N07E16F002	-59.4	-55.8	-3.6
02N07E21A002	-62.8	-58.6	-4.2
02N07E15C001	-60.8	-62.3	1.5
02N07E10F002	-54.8	-55.8	1.0
02N07E11F001	-59.5	-54.0	-5.5
02N07E11R002	-73.0	-69.5	-3.5
02N08E18C001	-68.2	-52.2	-16.0
02N08E08N001	-56.5	-51.5	-5.0
02N08E16D001	-50.1	-47.1	-3.0
02N08E10H002	-46.1	-43.0	-3.1
02N08E09G002	-54.0	-57.0	3.0
02N08E05C001	-55.5	-57.5	2.0
02N08E04C001	-50.5	-47.4	-3.1
02N08E03G002	-40.7	-32.3	-8.4
03N08E27R001	-44.0	-42.7	-1.3
03N07E36J001	-48.3	-42.3	-6.0
03N07E35L001	-50.0	-49.0	-1.0
03N07E35C002	-47.8	-45.6	-2.2
02N07E03D001	-51.0	-54.5	3.5
02N07E08D001	-61.2	-57.2	-4.0
02N07E08K003	-59.0	-55.8	-3.2
01N06E27R002	-8.2	-9.2	1.0
01S06E01C002	-9.5	-8.8	-0.7
01S07E06M002	-9.0	-7.7	-1.3
01S07E08J002	-8.5	-9.6	1.1
01N07E20G001	-29.5	-31.0	1.5
01N07E19G001	-27.0	-27.0	0.0
01N07E01M002	-50.0	-48.0	-2.0
01N08E03P001	-55.0	-52.5	-2.5
01N08E04E001	-56.0	-47.0	-9.0
02N08E32L002	-56.2	-51.2	-5.0
01N06E05M004	-7.5	-8.0	0.5
02N07E35L001	-54.0	-60.5	6.5
01N07E09E004	-32.0	-33.0	1.0
01N07E09Q003	-37.0	-33.9	-3.1
01N07E04R001	-29.0	-21.3	-7.7
01N07E10D001	-33.0	-28.0	-5.0
01N07E10G001	-37.5	-28.4	-9.1
01N07E01A002	-50.0	-44.8	-5.2
01N07E02G001	-35.5	-40.5	5.0
02N07E34R001	-38.5	-32.2	-6.3
01N07E03M001	-24.0	-21.0	-3.0

State Well	Fall 2008	Fall 2007	Change
02N07E32M002	-33.5	-25.0	-8.5
02N07E32J002	-36.0	-27.9	-8.1
02N07E33L001	-45.0	-36.0	-9.0
02N07E24Q001	-59.0	-54.9	-4.1
02N07E23B001	-62.0	-56.5	-5.5
02N07E21K002	-55.0	-50.9	-4.1
02N07E29M002	-42.0	-32.7	-9.3
02N07E30H001	-43.0	-38.5	-4.5
02N08E28H002	-47.6	-50.6	3.0
02N08E15M002	-51.2	-48.2	-3.0
02N06E24F001	-36.5	-32.5	-4.0
02N08E33E001	-54.6	-48.1	-6.5
02N09E28N001	-34.1	-16.1	-18.0
02N06E24J002	-33.3	-31.7	-1.6
02N06E13R002	-39.0	-49.5	10.5
02N06E06C002	-16.0	-14.6	-1.4
02N06E03A003	-31.8	-27.8	-4.0

Total Number of Wells	**81**
Number of Wells with Decrease	**63**
Number of Wells with Increase	**17**
Number of Wells with No Change	**1**
Range of Change	**-18.0 to +19.5**
Average Change	**-2.9**

Table 3-6 Comparison of SSJID Area Water Levels

State Well	Fall 2008	Fall 2007	Change
02S07E07D002	9.5	8.3	1.2
02S07E11N002	37.0	36.5	0.5
02S07E26B001	28.0	29.0	-1.0
02S07E19H001	20.0	20.0	0.0
01S07E26G001	14.0	-1.0	15.0
01S07E25E001	15.0	11.5	3.5
01S07E27K001	12.0	13.1	-1.1
02S08E06J001	22.5	22.6	-0.1
02S08E08E001	25.7	27.2	-1.5
01S08E25Q001	23.9	26.2	-2.3
01S09E29M002	34.0	40.5	-6.5
02S09E03K001	61.0	61.5	-0.5
01S09E34A001	57.5	59.5	-2.0
02S08E07R001	34.5	34.0	0.5
02S08E08A001	27.5	28.4	-0.9
02S08E04M001	24.5	24.5	0.0

Total Number of Wells	**16**
Number of Wells with Decrease	**9**
Number of Wells with Increase	**5**
Number of Wells with No Change	**2**
Range of Change	**-6.5 to +15.0**
Average Change	**0.3**

Comparison of WID Area Water Levels

State Well	Fall 2008	Fall 2007	Change
03N05E14C001	-6.3	-8.8	2.5
03N05E13L001	-12.0	-11.5	-0.5
03N06E18M003	-17.1	-20.6	3.5
03N06E32R001	-32.0	-32.5	0.5
03N06E20D002	-21.5	-19.5	-2.0
03N06E07H003	-16.0	-13.2	-2.8
03N06E05N003	-12.5	-12.5	0.0
03N06E10D001	-10.4	-12.9	2.5
03N06E27E001	-31.2	-33.7	2.5
03N06E26P002	-28.7	-25.7	-3.0
04N06E29N002	-3.0	0.1	-3.1
04N05E36H003	1.0	1.6	-0.6
04N06E30E001	1.7	0.7	1.0
04N05E24J004	-0.6	0.3	-0.9
04N05E13R004	-6.0	-4.4	-1.6
04N05E13H001	-6.0	-5.0	-1.0
04N05E14B002	-4.9	-4.9	0.0
05N05E32M001	-6.7	-6.3	-0.4
04N05E05H001	-4.0	-4.6	0.6
04N05E09D001	-6.8	-6.8	0.0
04N05E22H001	-5.5	-8.5	3.0
04N05E14P001	-2.0	-2.0	0.0
04N05E26F001	-1.8	-0.1	-1.7

Total Number of Wells	**23**
Number of Wells with Decrease	**11**
Number of Wells with Increase	**8**
Number of Wells with No Change	**4**
Range of Change	**-3.1 to +3.5**
Average Change	**-0.1**

Table 3-8 Comparison of Miscellaneous Area Water Levels

State Well	Fall 2008	Fall 2007	Change
02S05E13N001	13.2	13.5	-0.3
02S05E08B001	-4.7	-3.2	-1.5
01S05E31R002	0.6	0.1	0.5
03S05E04H001	57.5	57.0	0.5

State Well	Fall 2008	Fall 2007	Change
03S06E23C001	1.8	-5.2	7.0
03S06E03F002	15.5	16.5	-1.0
02S06E27E001	9.0	8.5	0.5
02S06E10K001	1.0	2.0	-1.0
02S06E26B001	6.5	6.8	-0.3
02S06E25J001	15.0	16.0	-1.0
02S07E31N001	12.5	14.0	-1.5
01S06E14F001	-3.6	-3.1	-0.5
01S06E04J001	-1.5	-2.0	0.5
01S07E15F002	-10.6	-9.1	-1.5
01S07E14M001	2.9	5.2	-2.3
01S07E14P003	-1.3	3.2	-4.5
01S09E11J002	39.2	33.2	6.0
01S09E02R001	31.3	35.6	-4.3
01S08E29K001	9.0	9.0	0.0
01S08E19R001	5.8	6.8	-1.0
01S08E30C002	13.0	9.1	3.9
01S07E13J001	-3.5	-4.4	0.9
03N06E29C001	-33.3	-34.3	1.0
03N06E15C004	-20.8	-27.0	6.2
04N06E34J002	18.9	17.2	1.7
04N05E03D003	-5.7	-4.9	-0.8
05N05E28L003	-4.5	-3.9	-0.6
04N05E16N001	-9.5	-8.5	-1.0

Total Number of Wells	**28**
Number of Wells with Decrease	**16**
Number of Wells with Increase	**11**
Number of Wells with No Change	**1**
Range of Change	**-4.5 to +7.0**
Average Change	**0.2**

HYDROGRAPHS

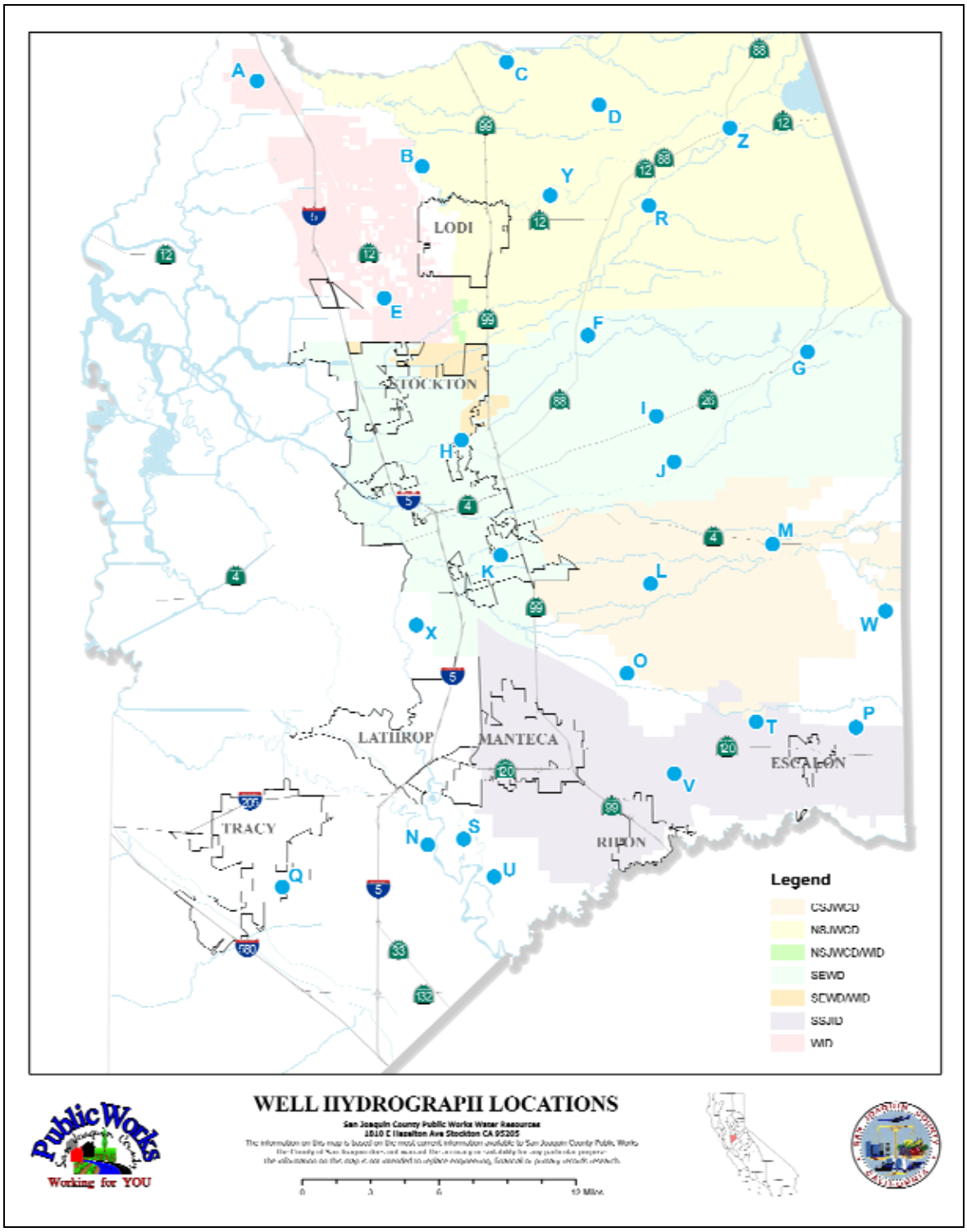

Figure 3-1: Well Hydrograph Locations

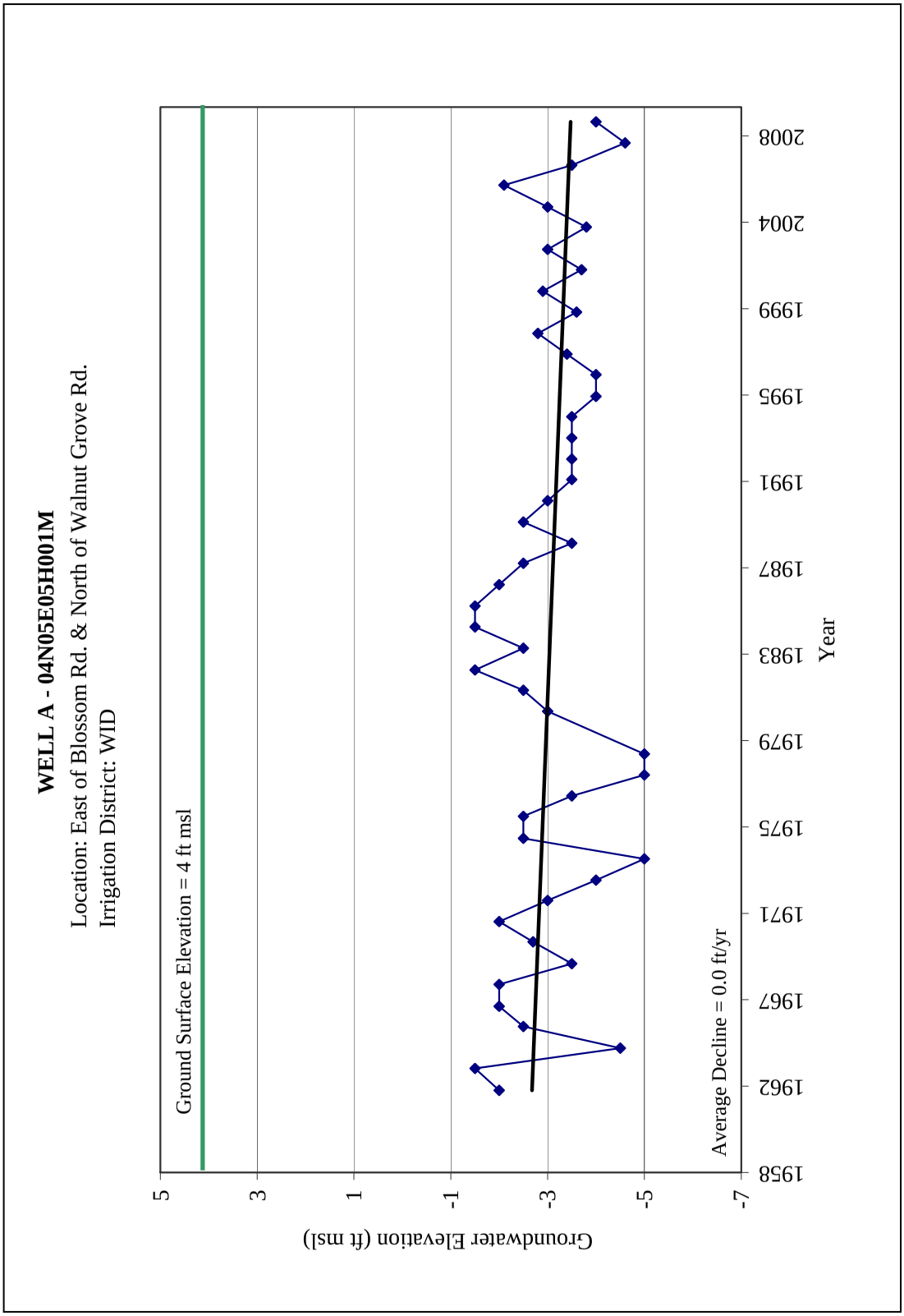

Figure 3-2: Fall Hydrograph Well A

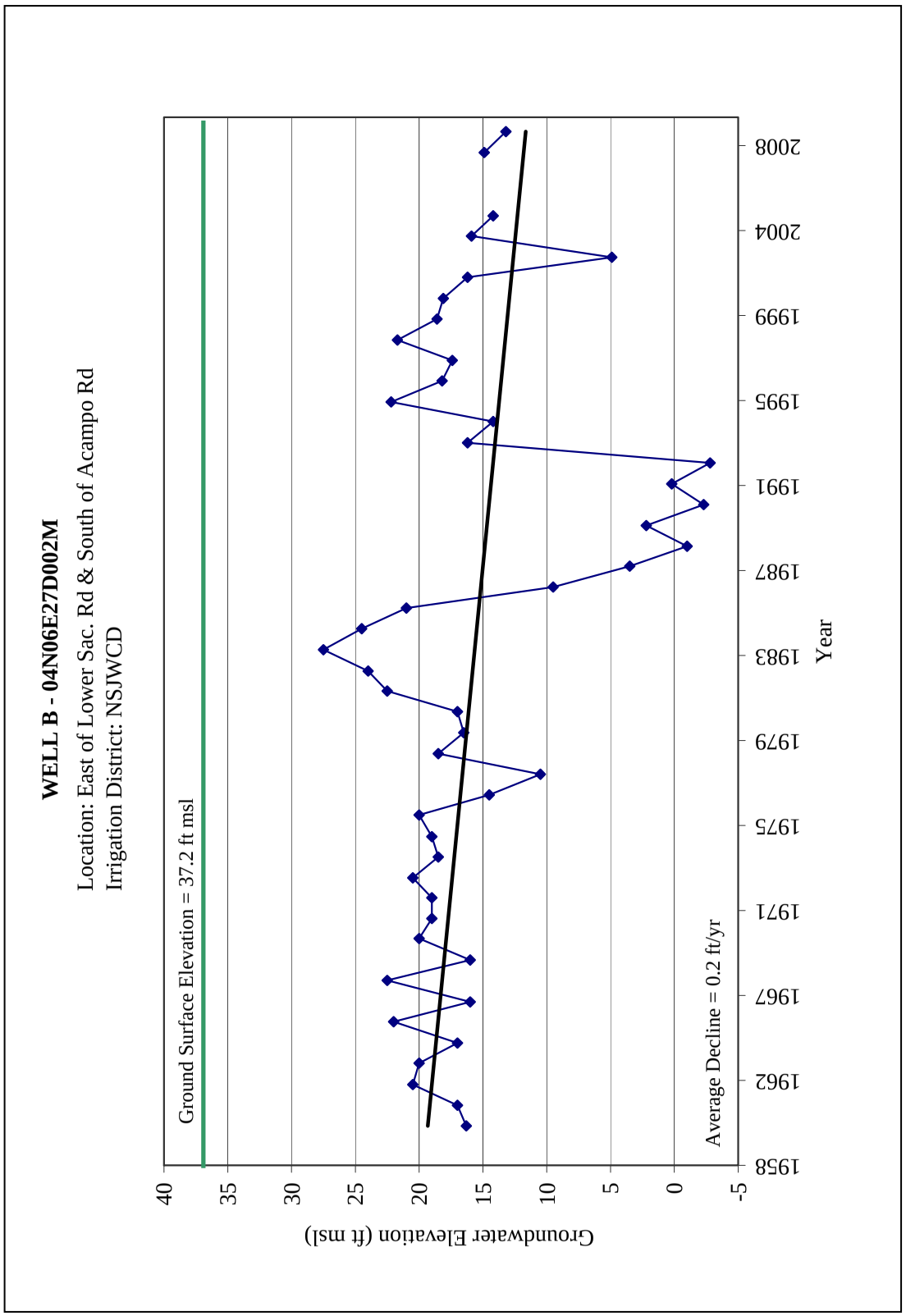

Figure 3-3: Fall Hydrograph Well B

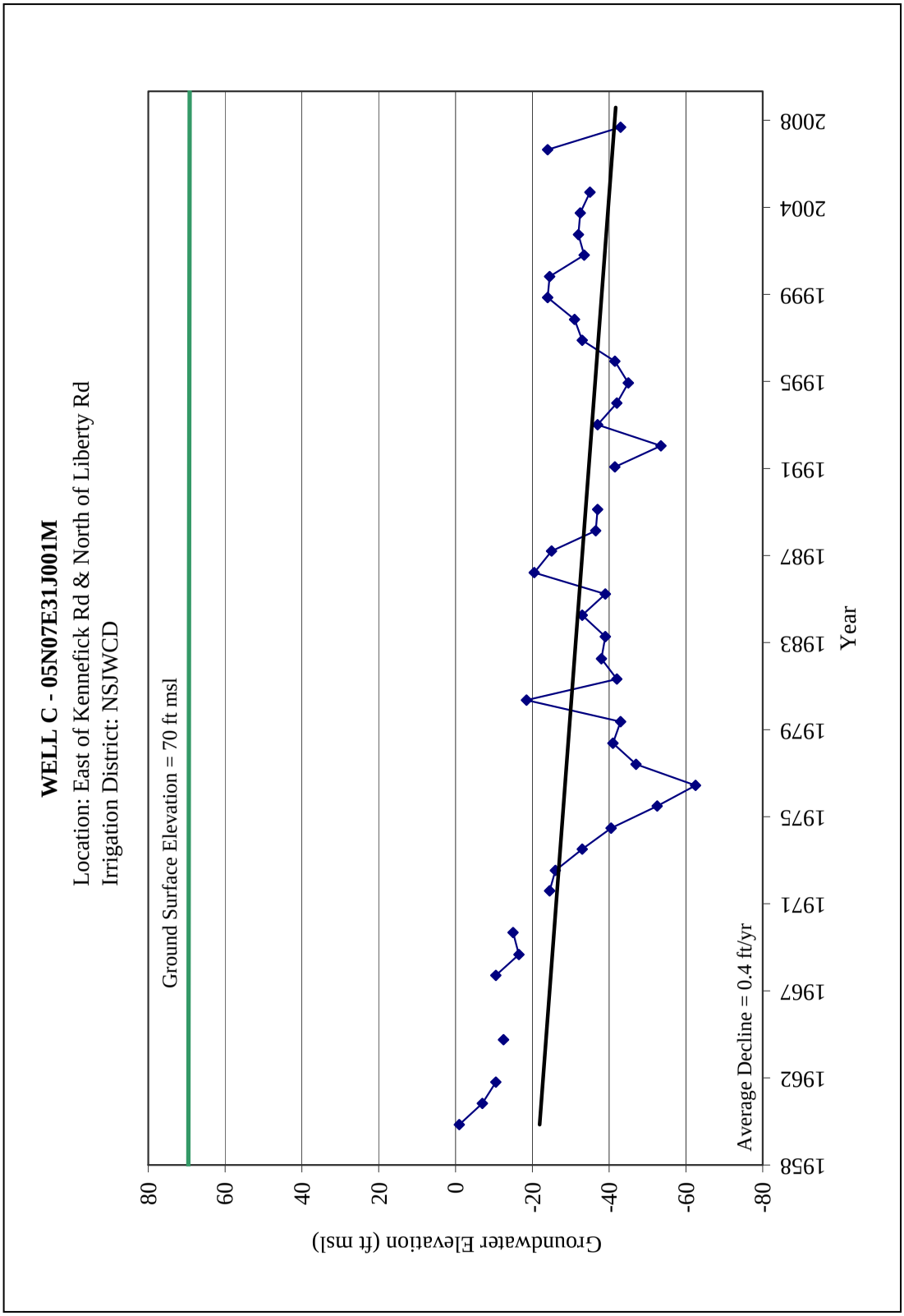

Figure 3-4: Fall Hydrograph Well C

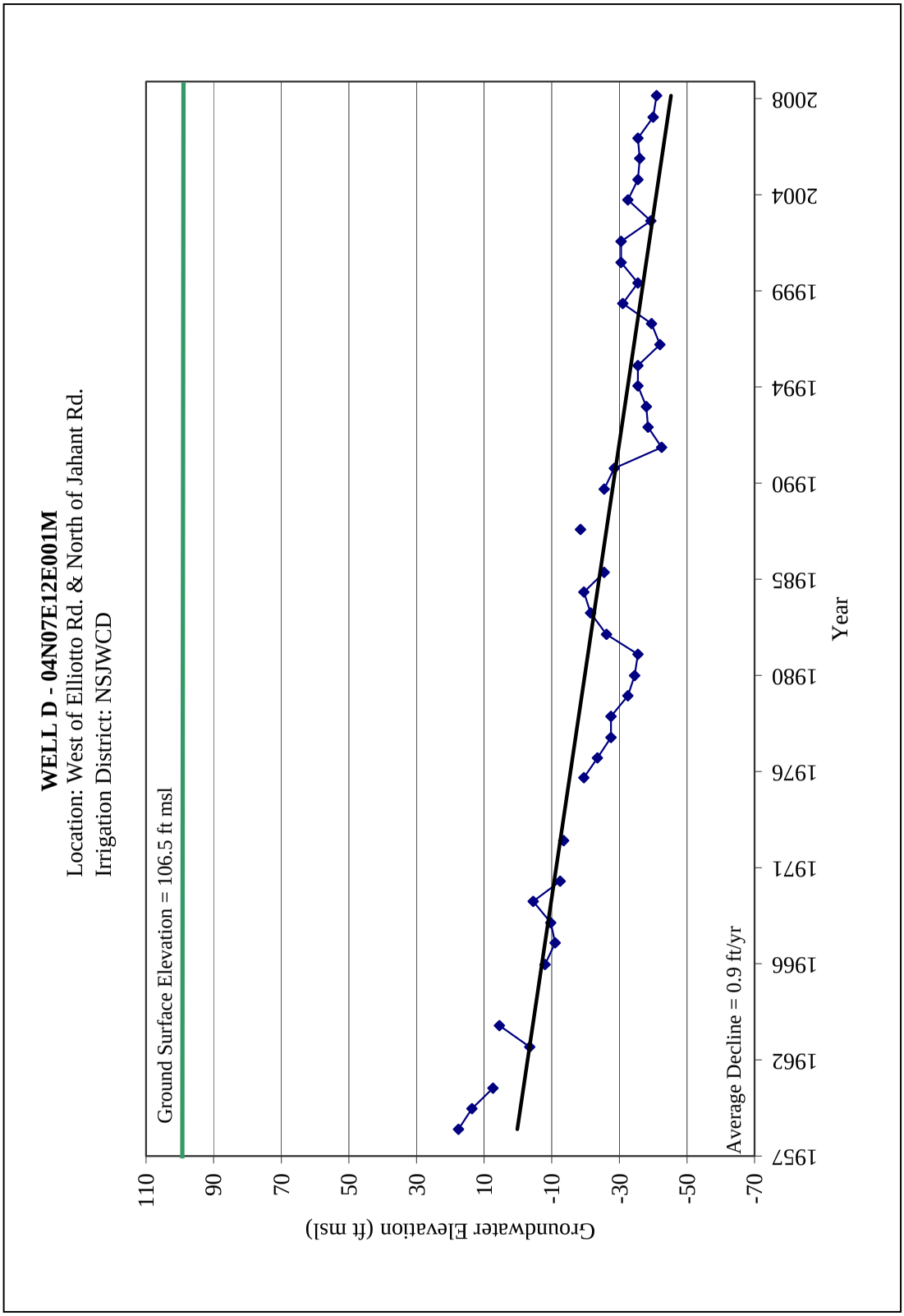

Figure 3-5: Fall Hydrograph Well D

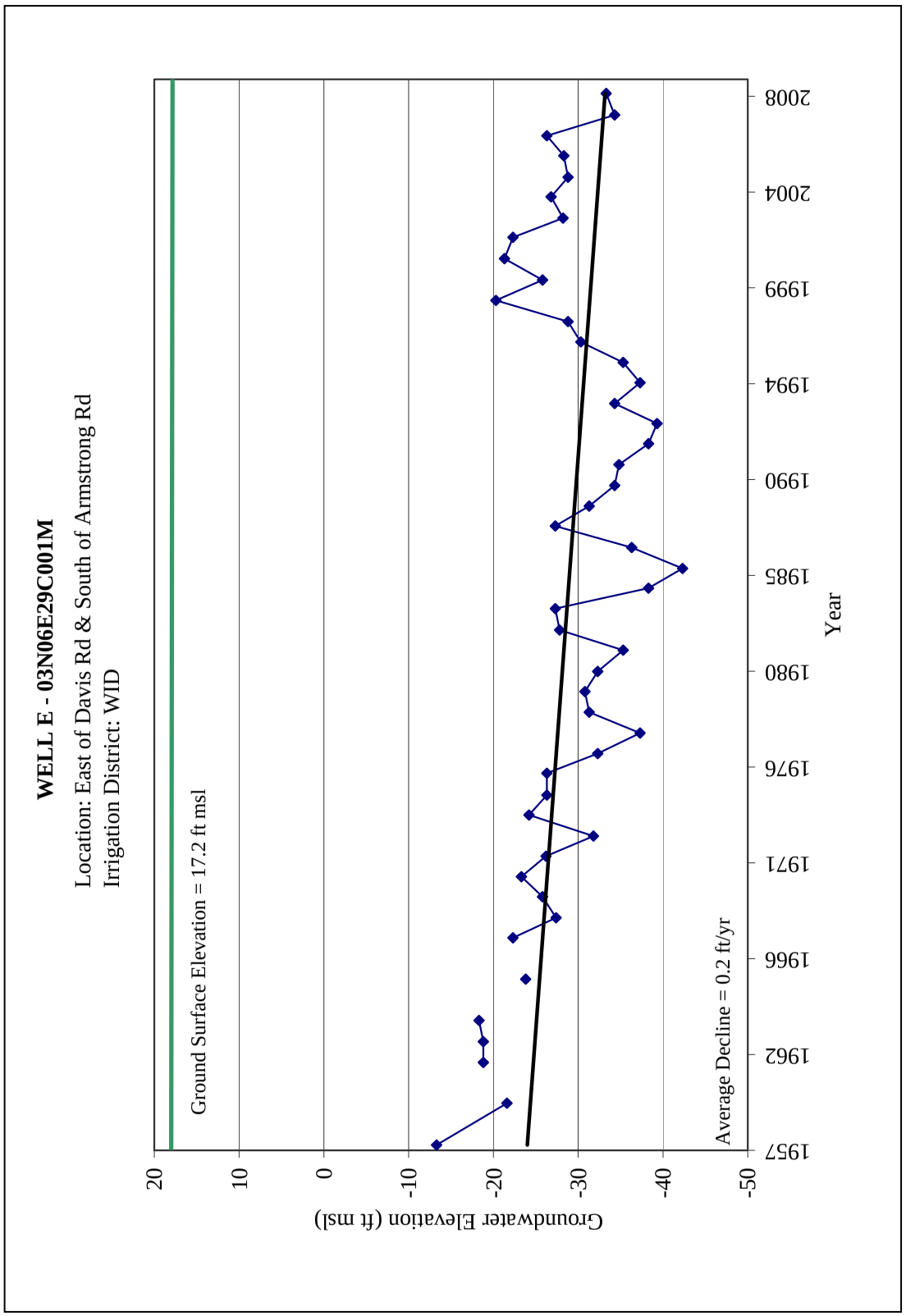

Figure 3-6: Fall Hydrograph Well E

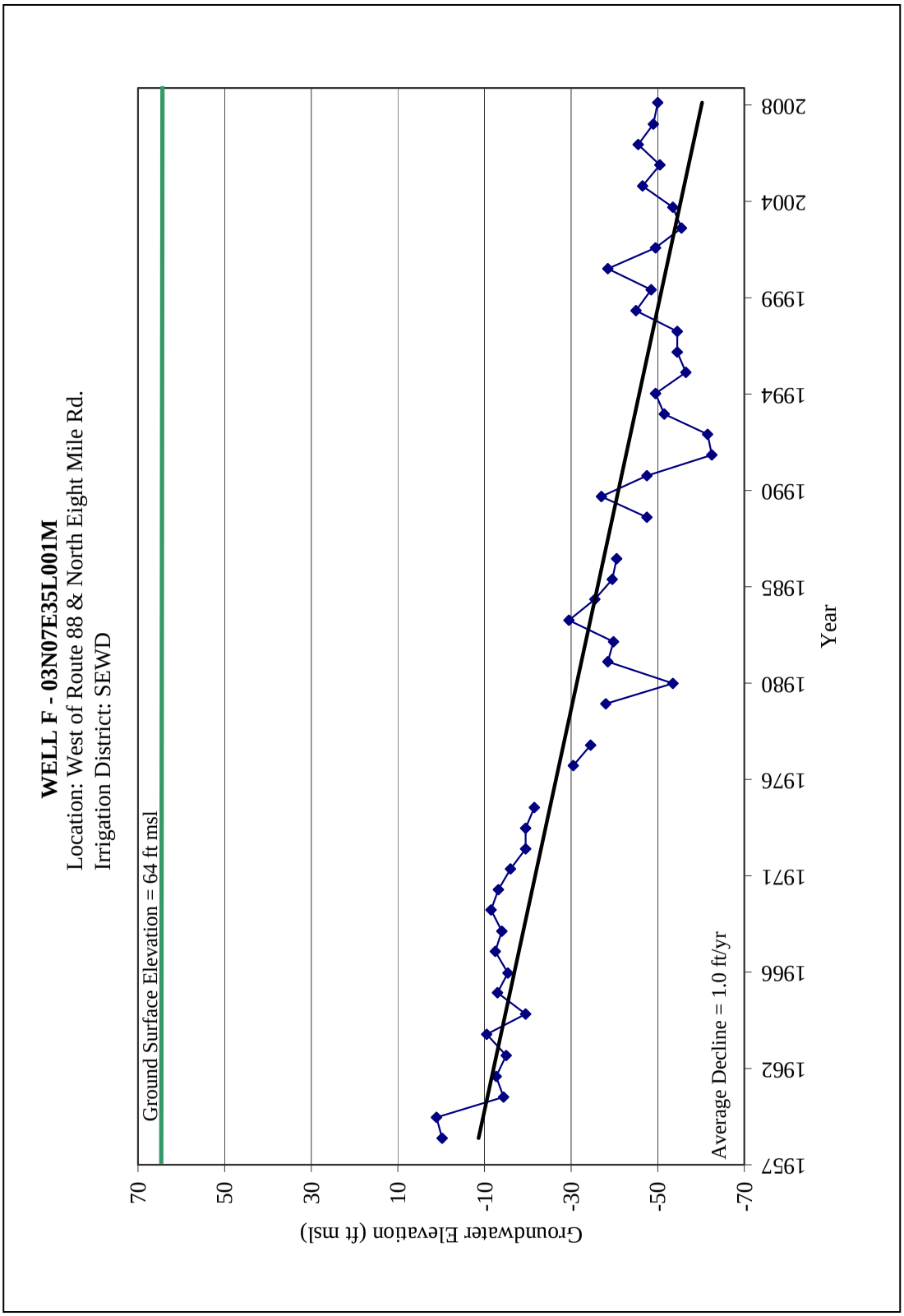

Figure 3-7: Fall Hydrograph Well F

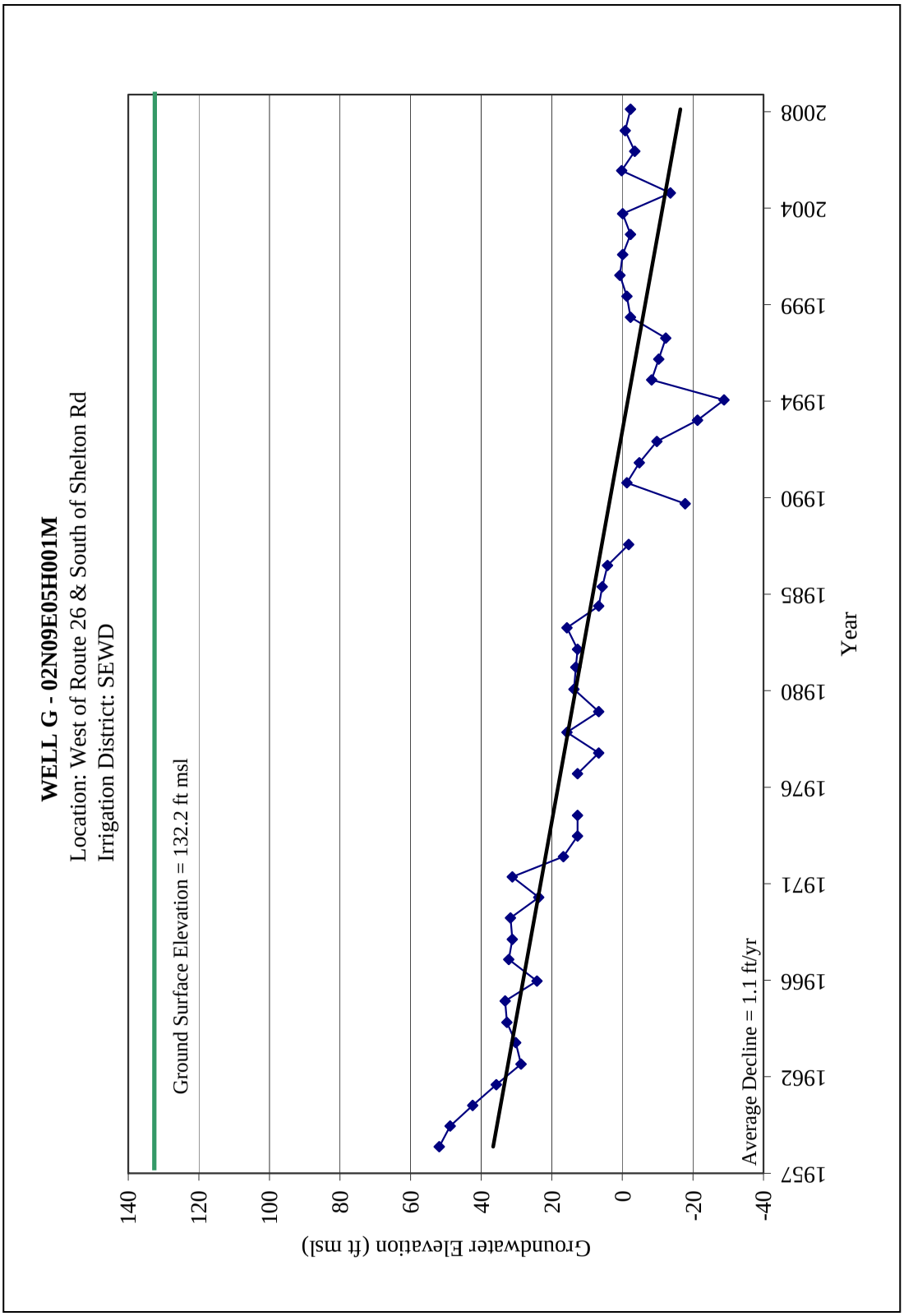

Figure 3-8: Fall Hydrograph Well G

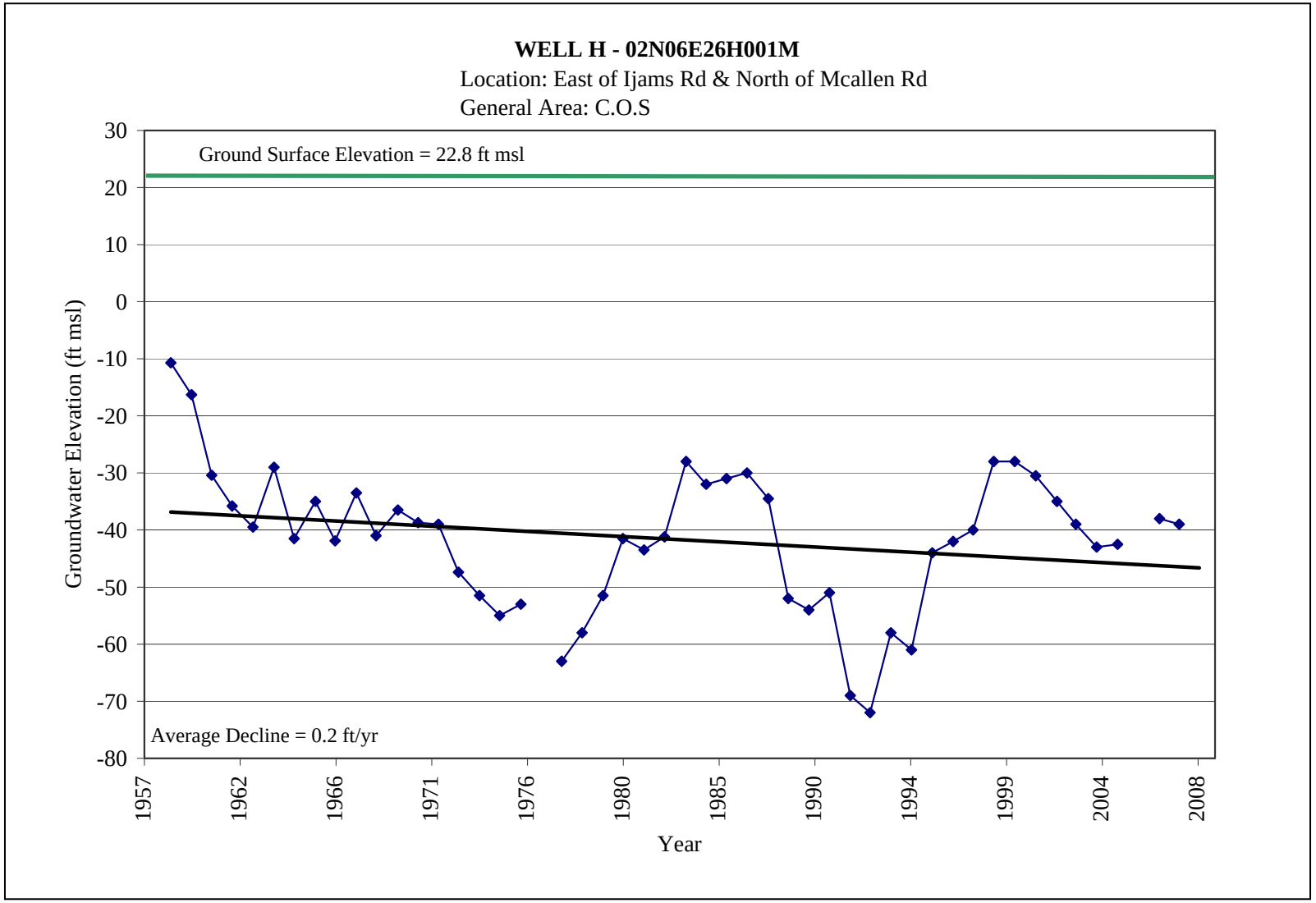

Figure 3-9: Fall Hydrograph Well H

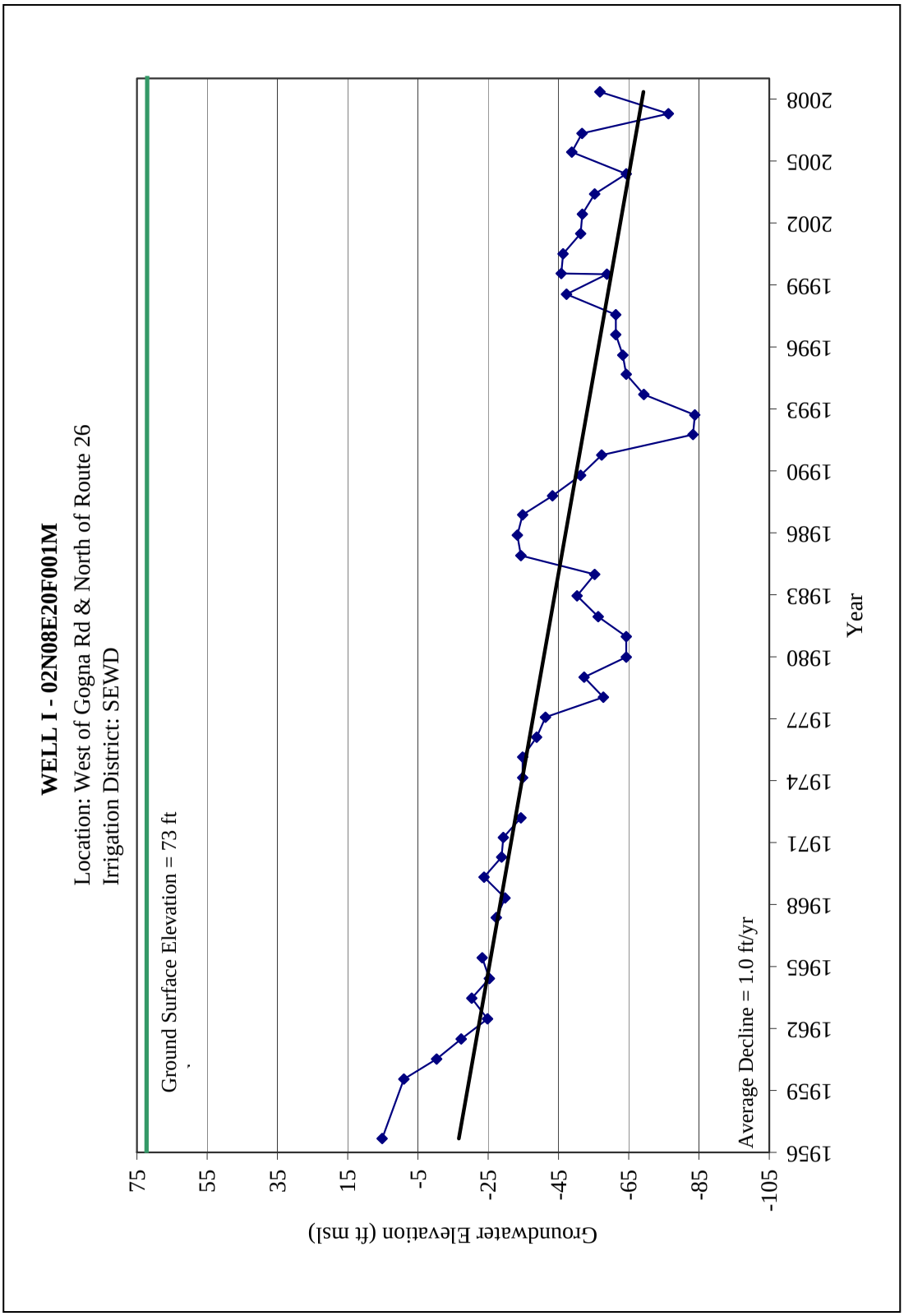

Figure 3-10: Fall Hydrograph Well I

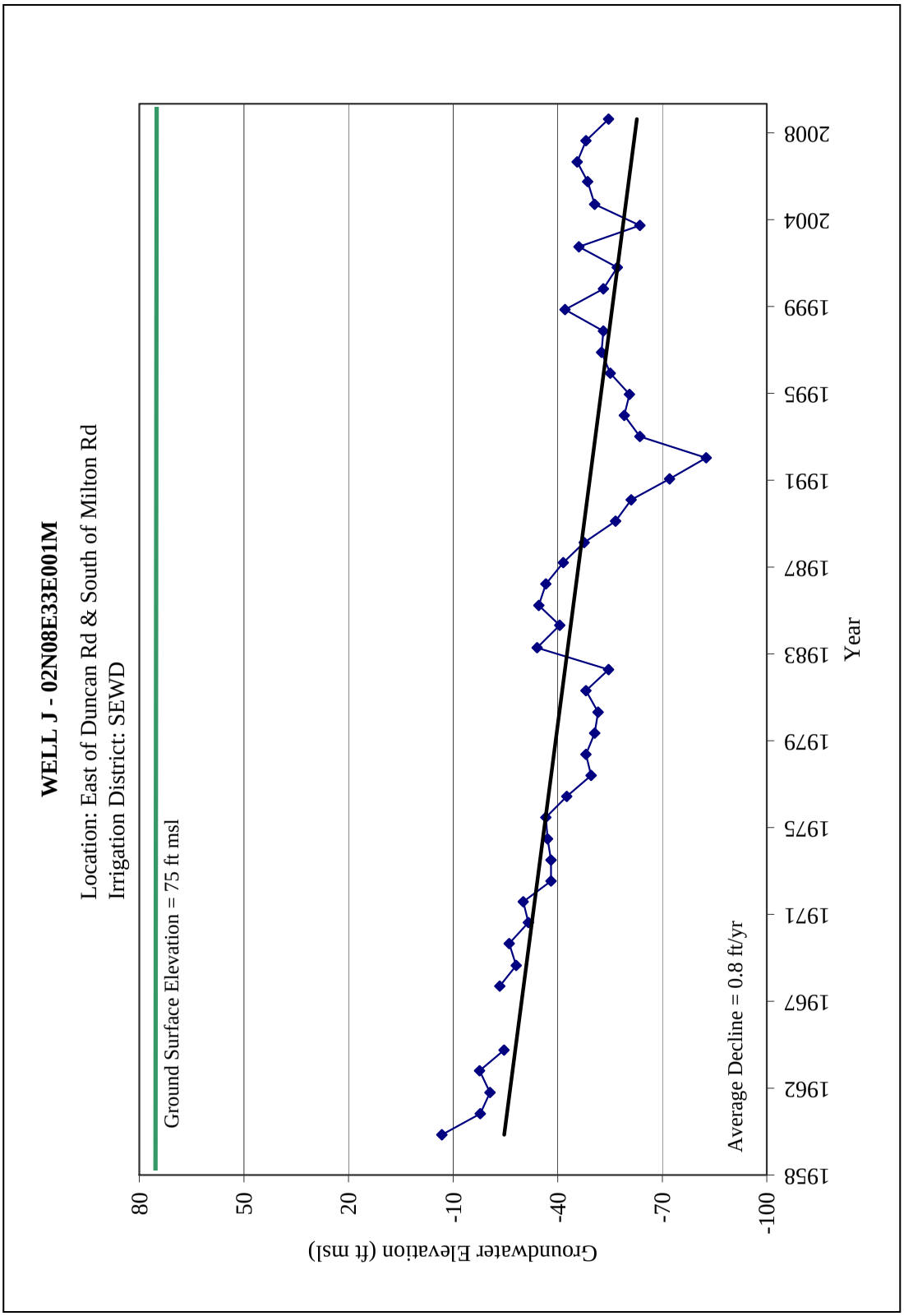

Figure 3-11: Fall Hydrograph Well J

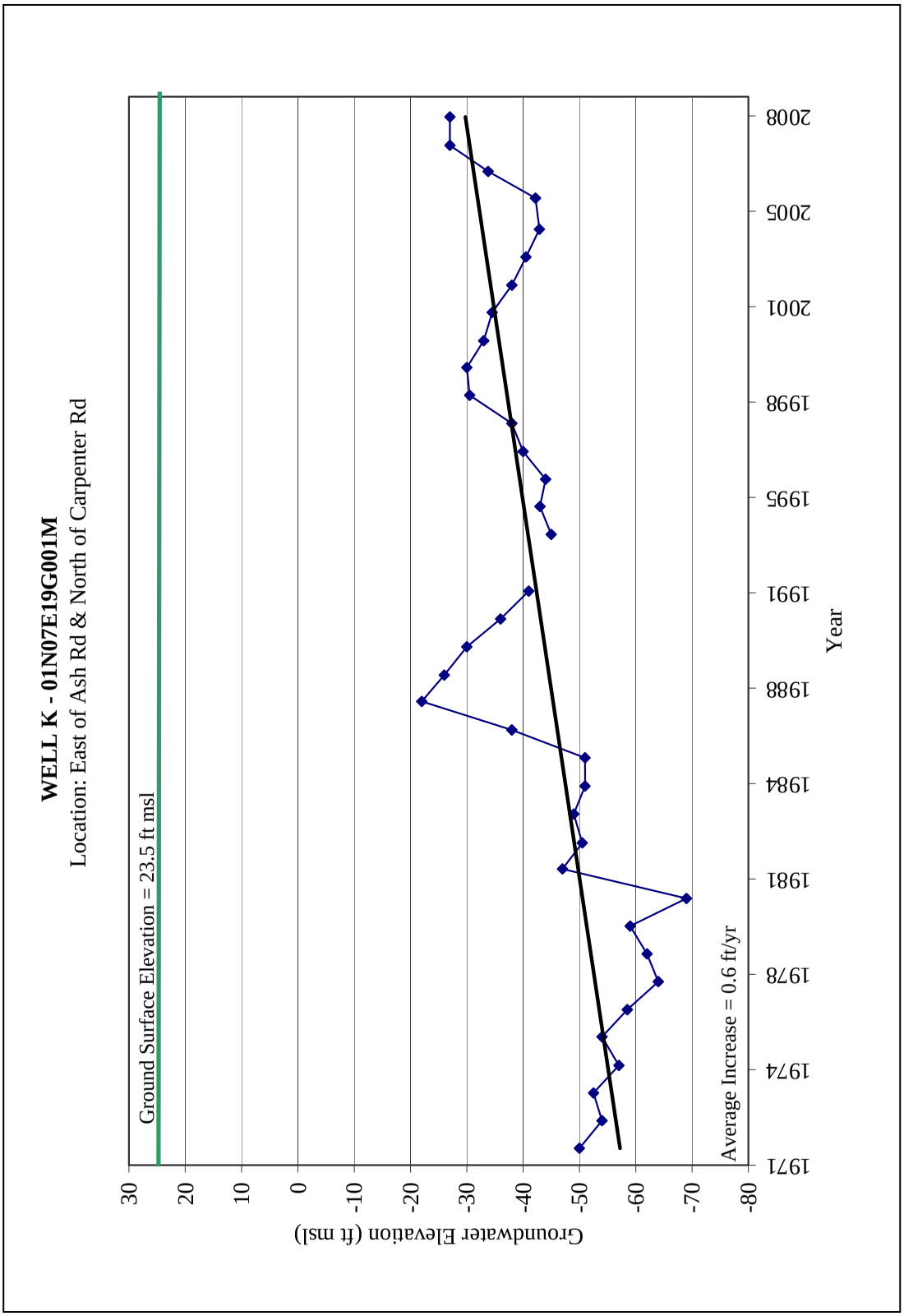

Figure 3-12: Fall Hydrograph Well K

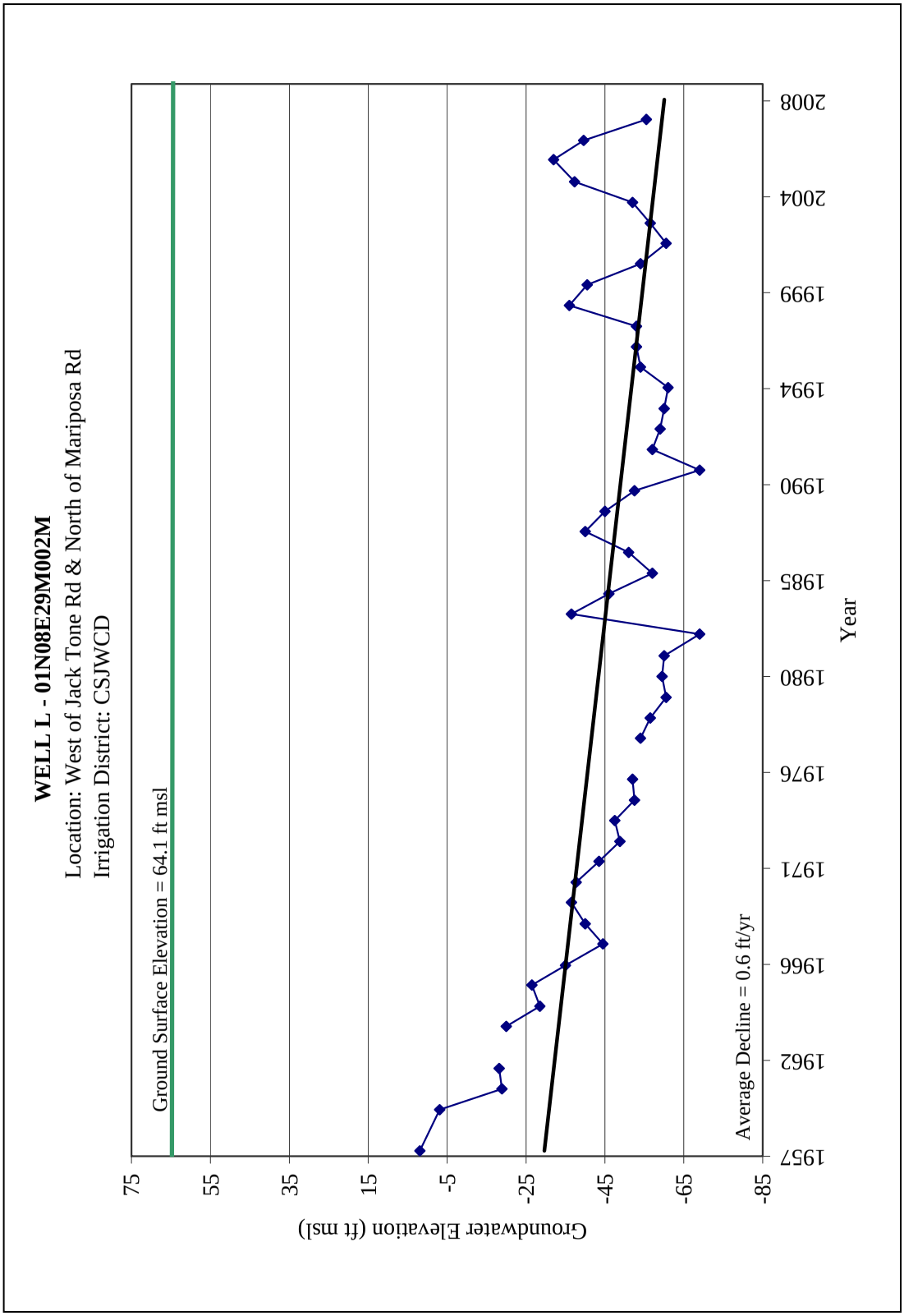

Figure 3-13: Fall Hydrograph Well L

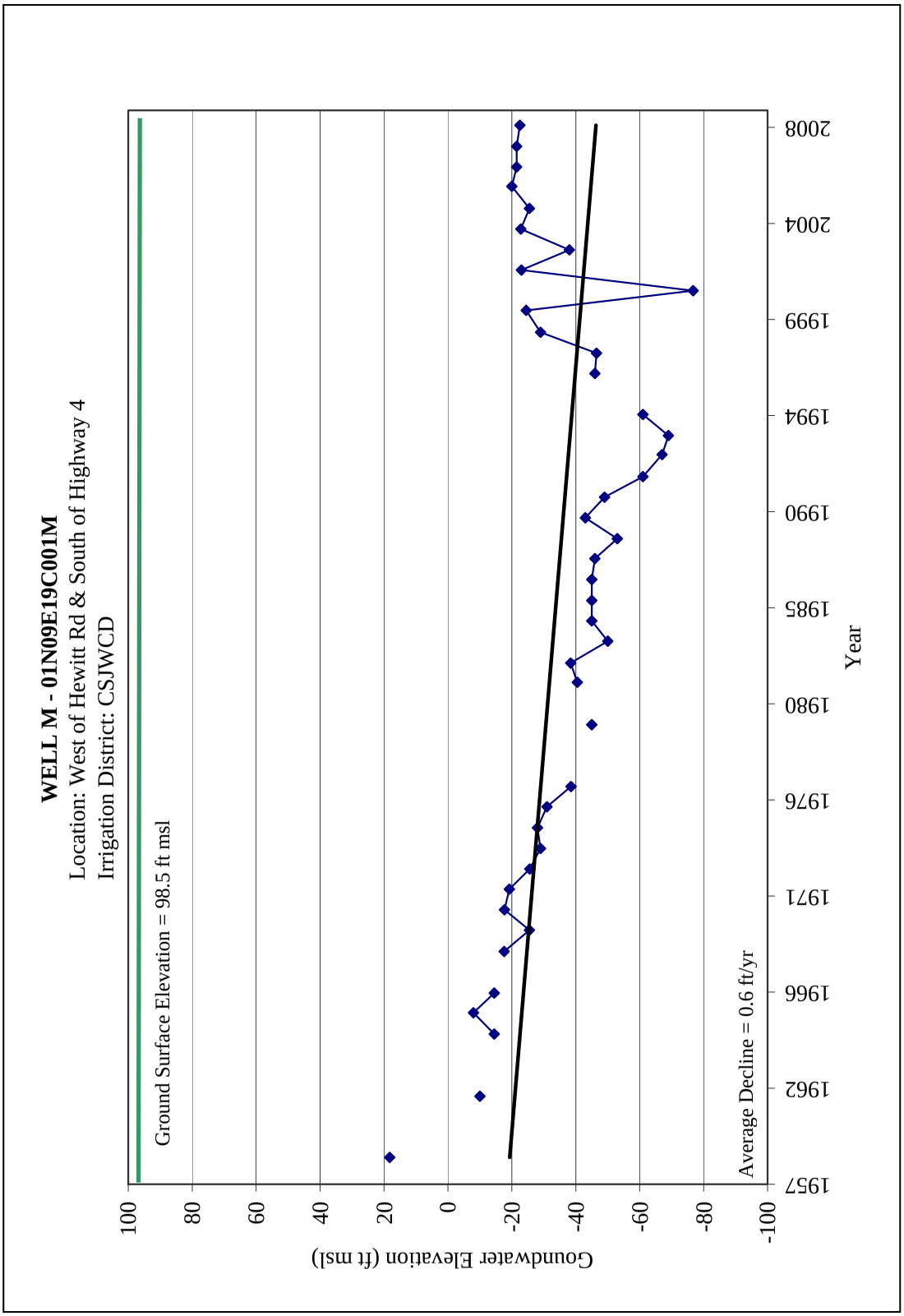

Figure 3-14: Fall Hydrograph Well M

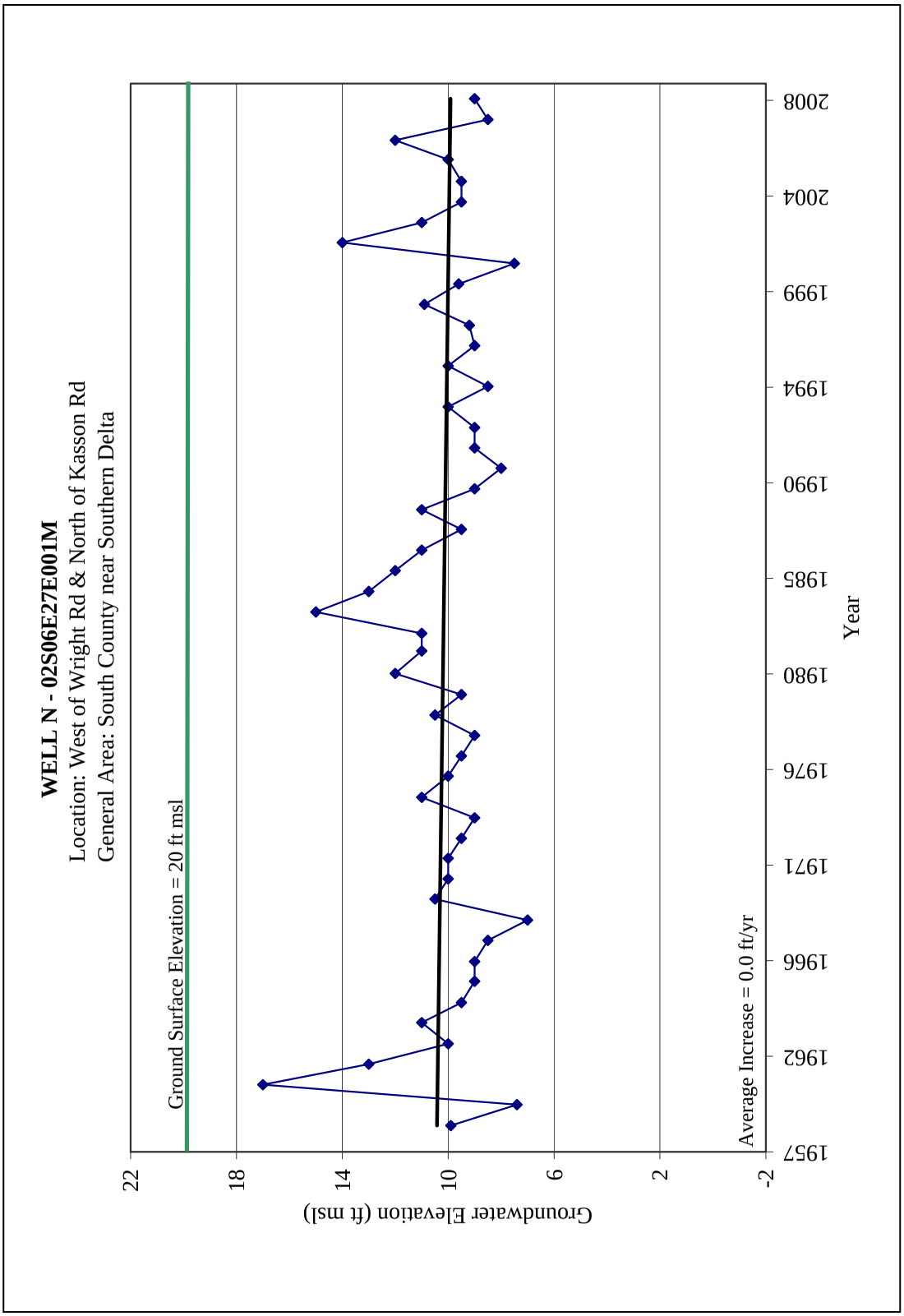

Figure 3-15: Fall Hydrograph Well N

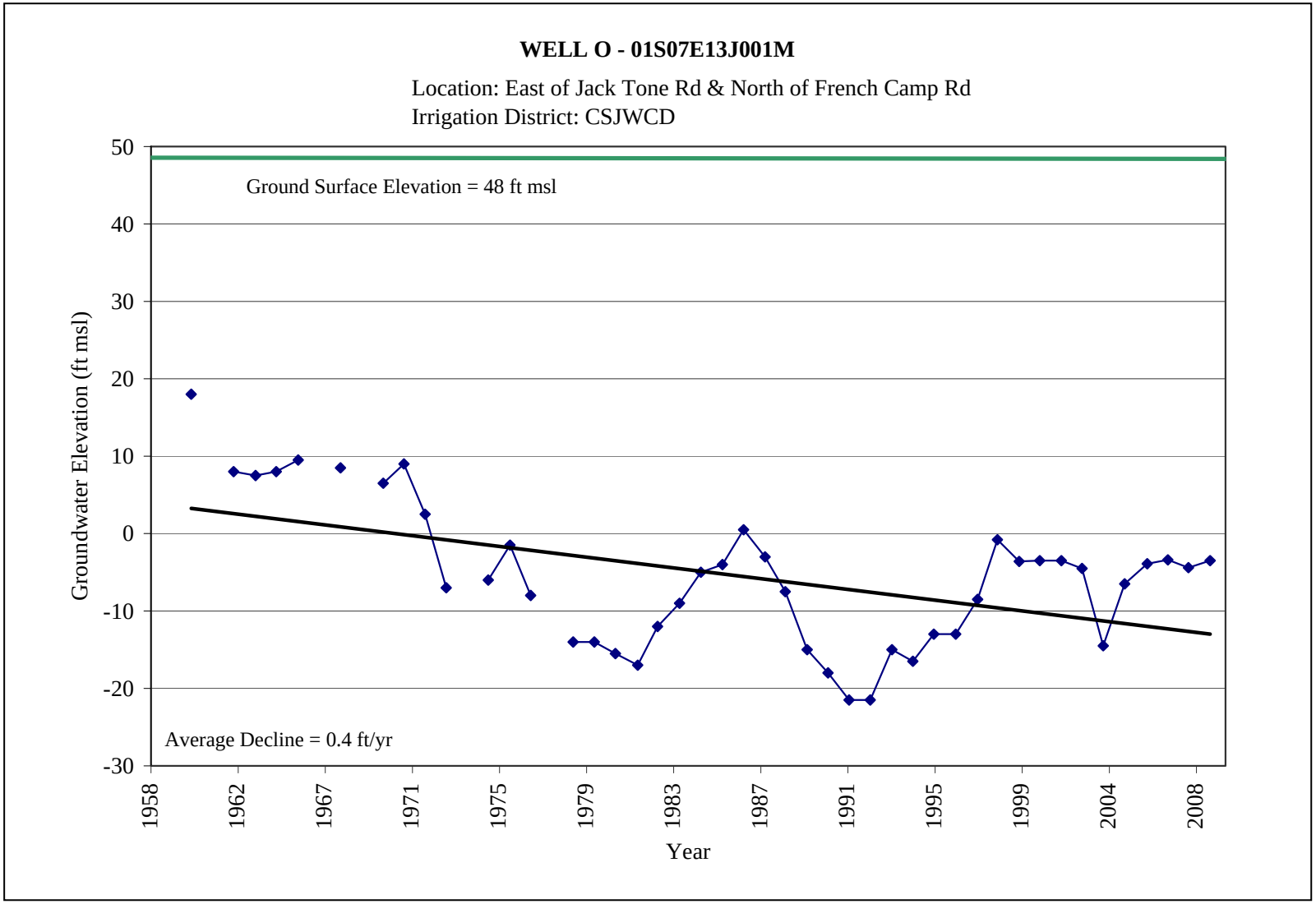

Figure 3-16: Fall Hydrograph Well O

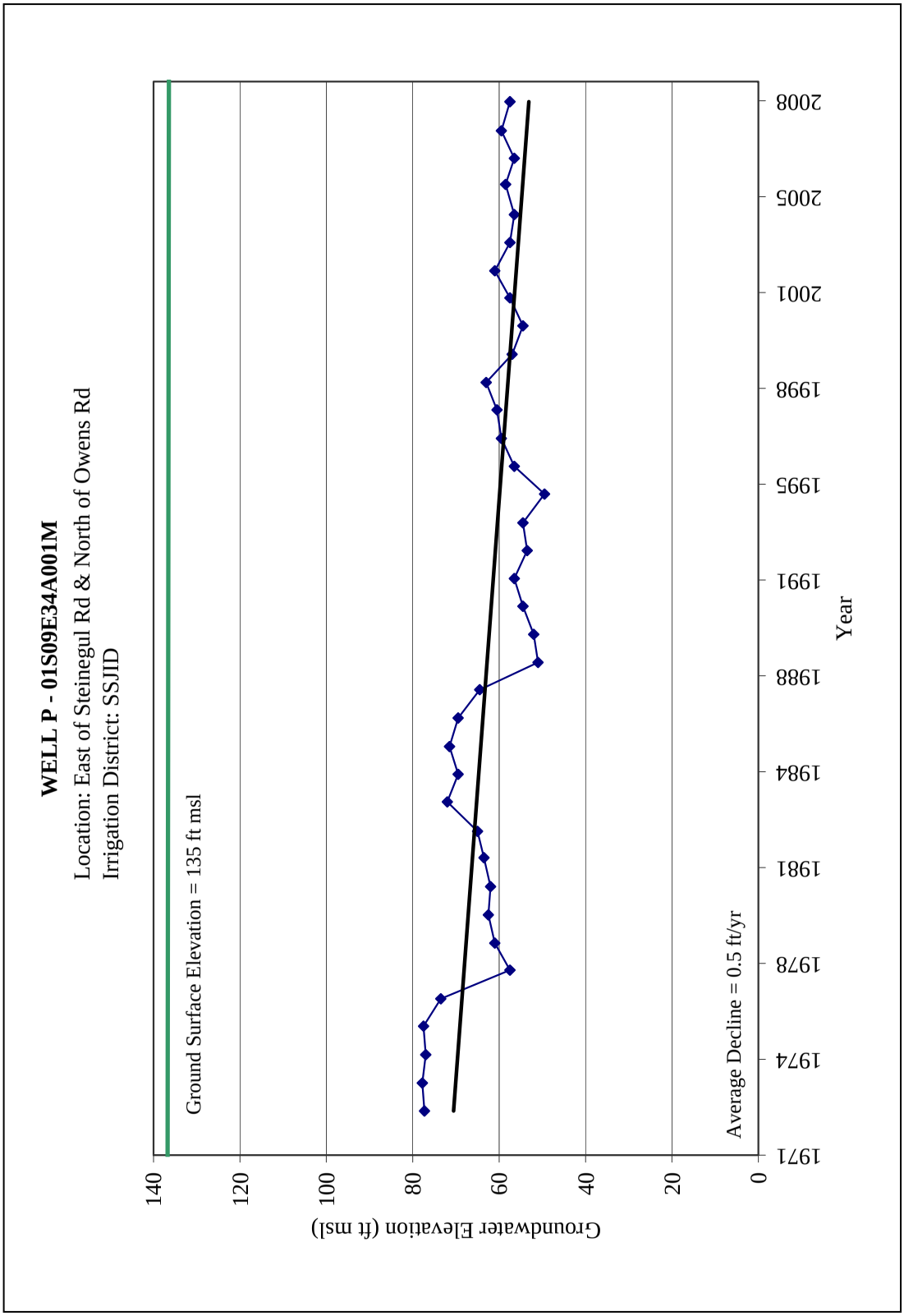

Figure 3-17: Fall Hydrograph Well P

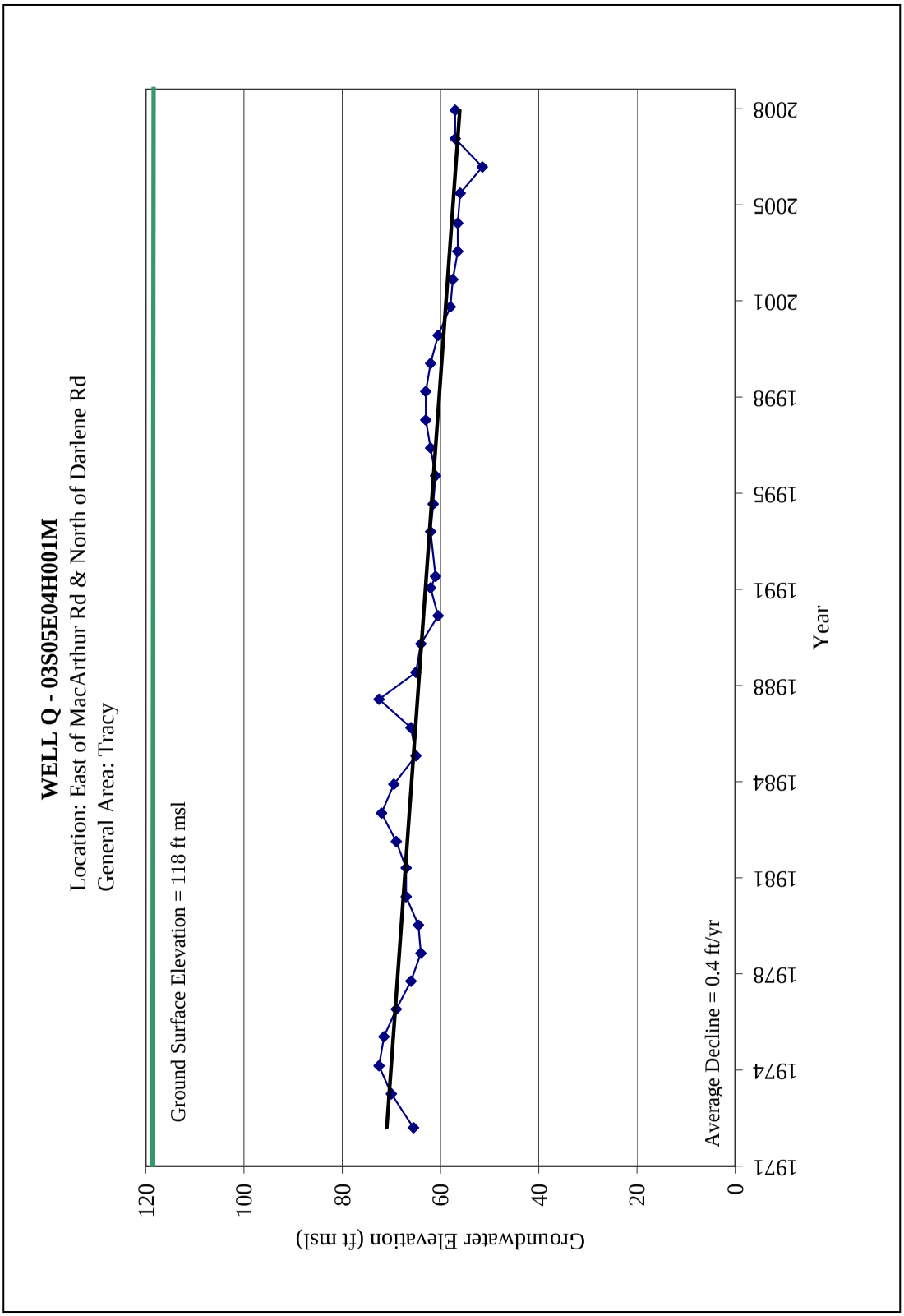

Figure 3-18: Fall Hydrograph Well Q

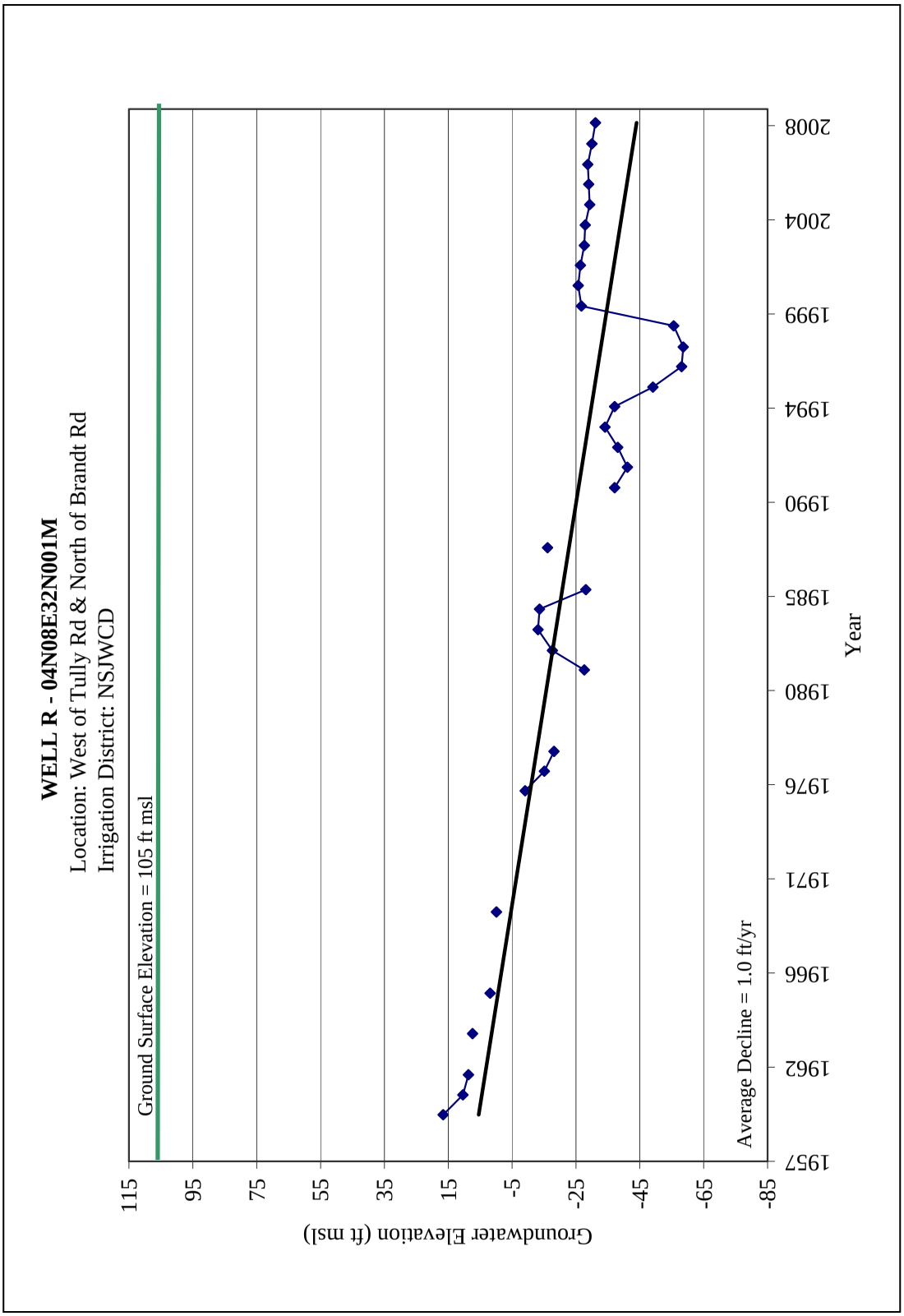

Figure 3-19: Fall Hydrograph Well R

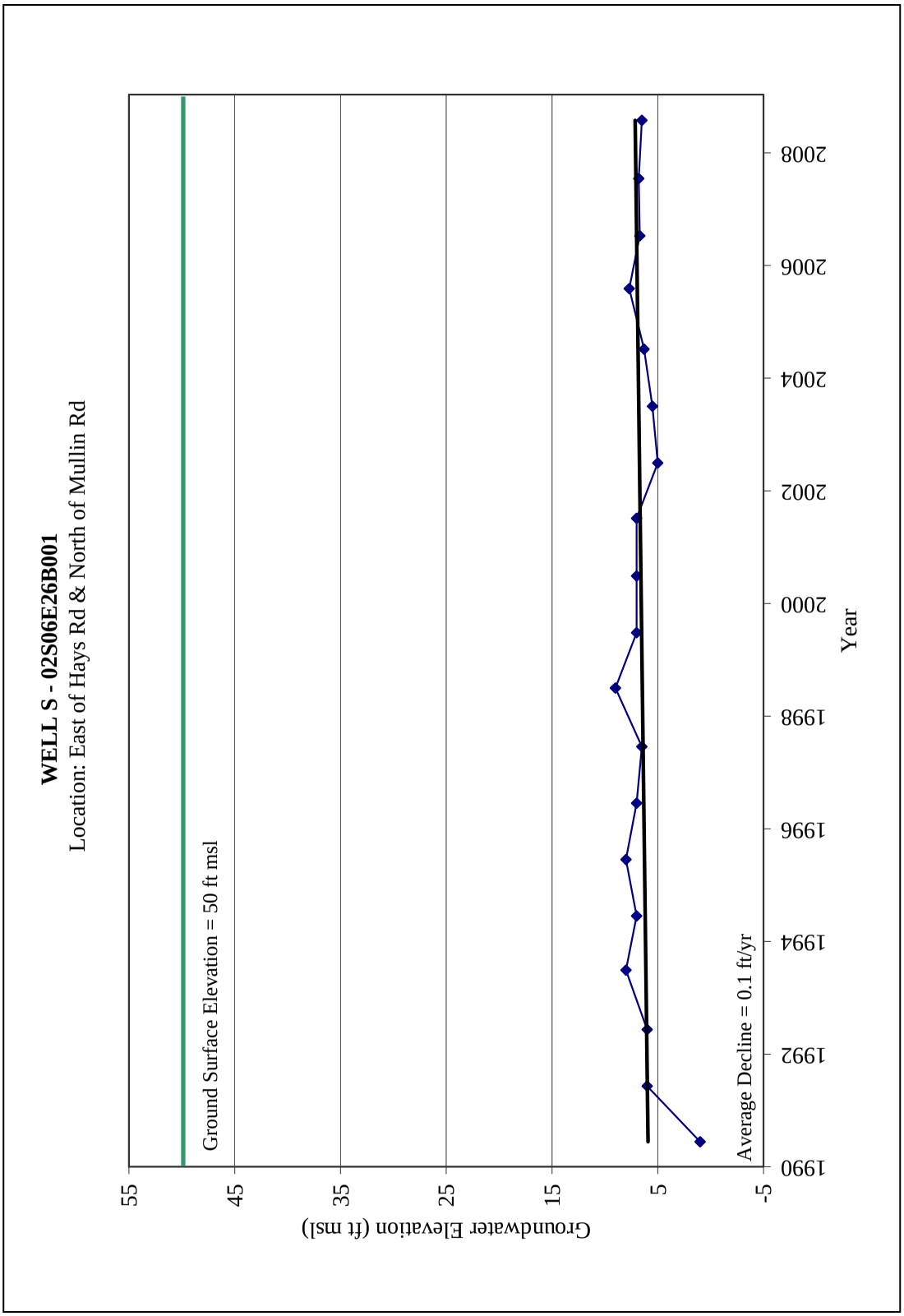

Figure 3-20: Fall Hydrograph Well S

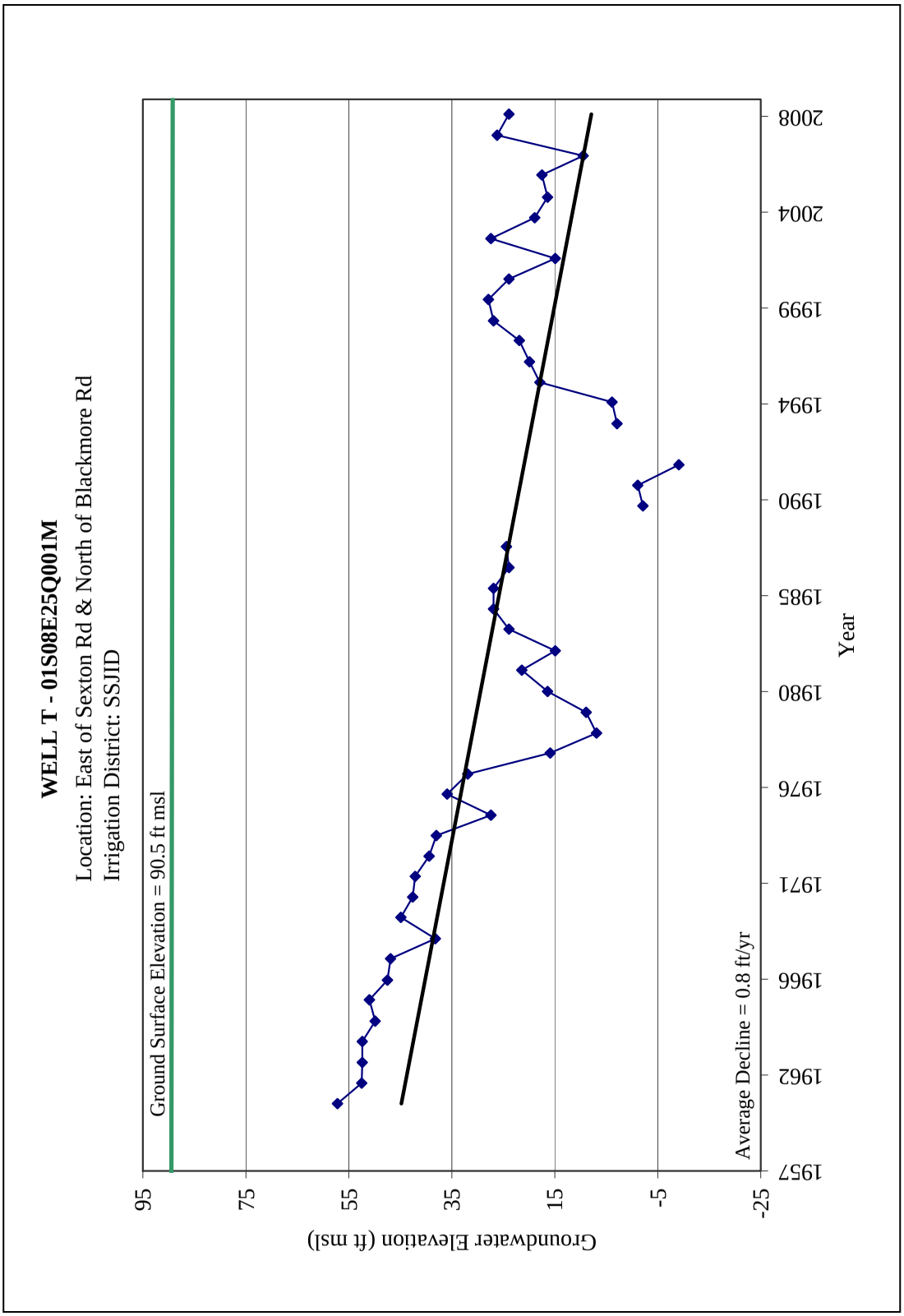

Figure 3-21: Fall Hydrograph Well T

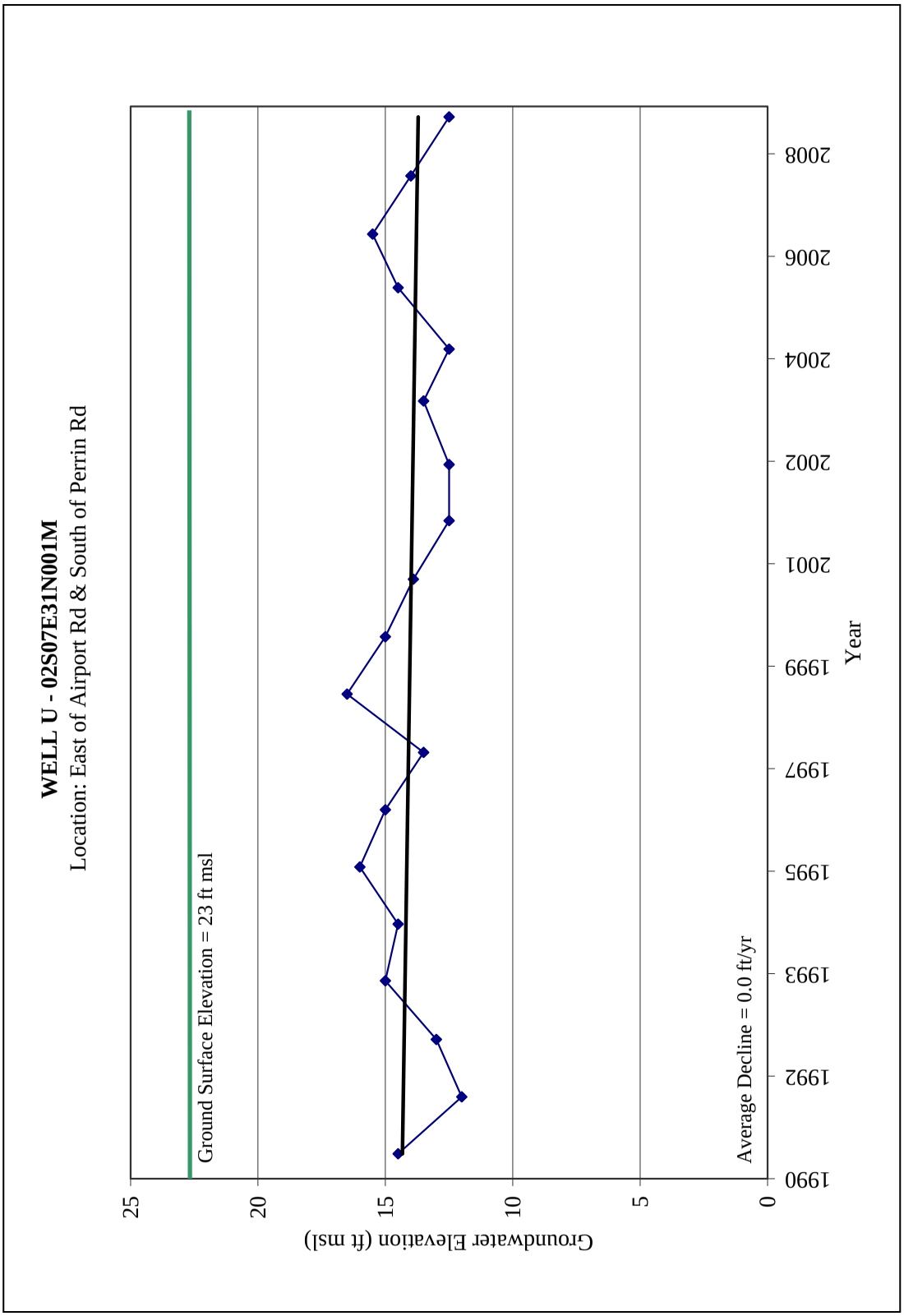

Figure 3-22: Fall Hydrograph Well U

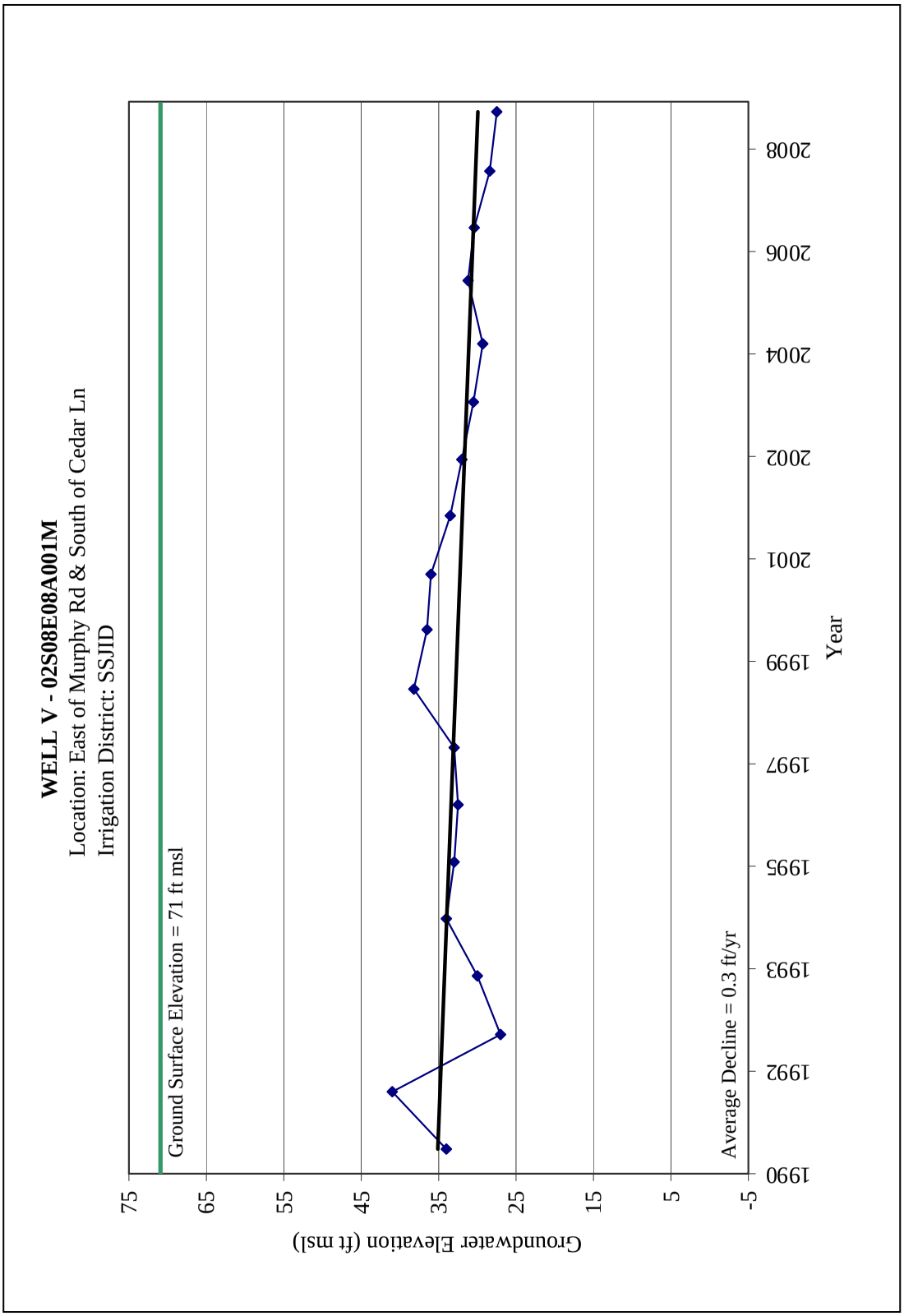

Figure 3-23: Fall Hydrograph Well V

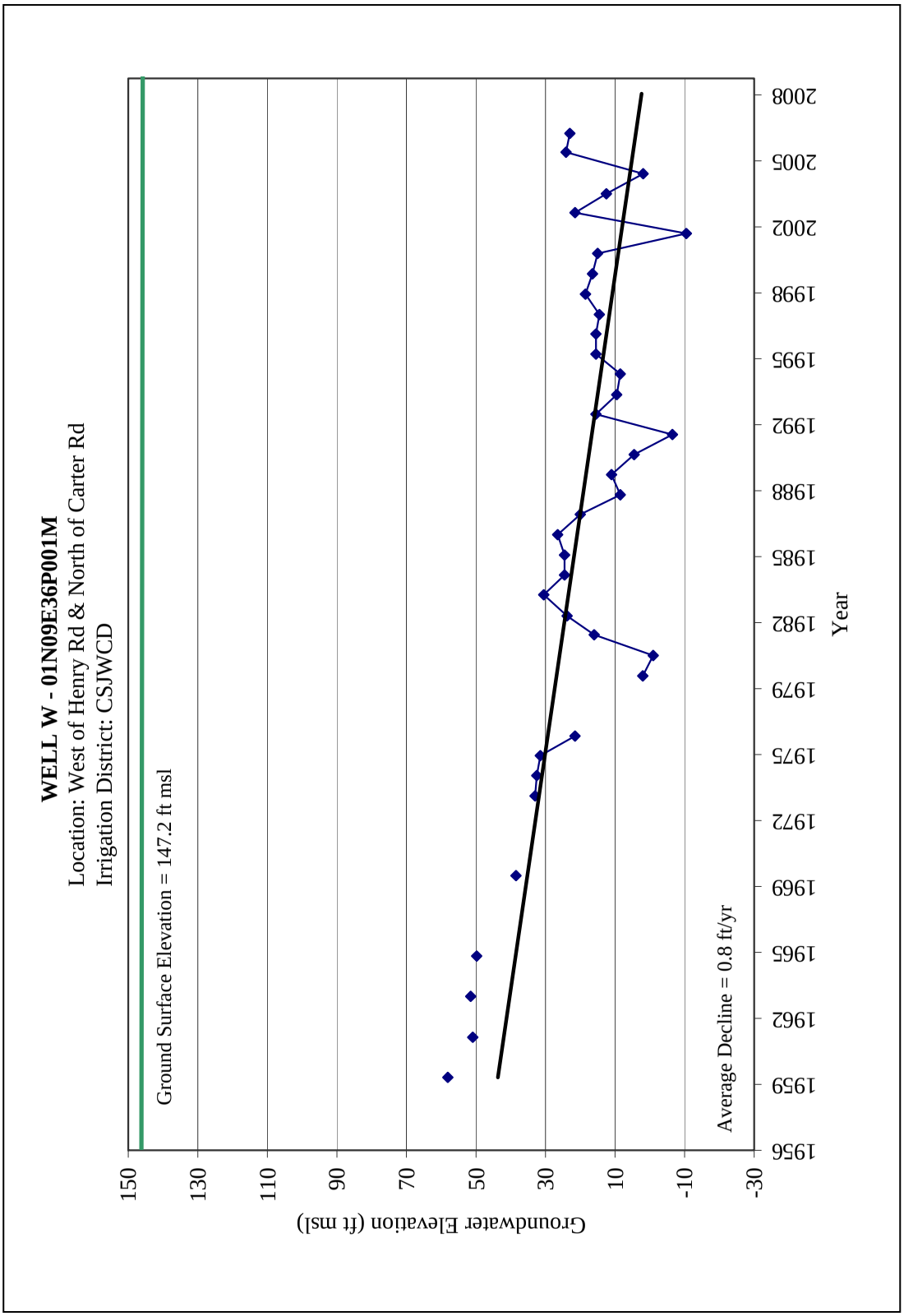

Figure 3-24: Fall Hydrograph Well W

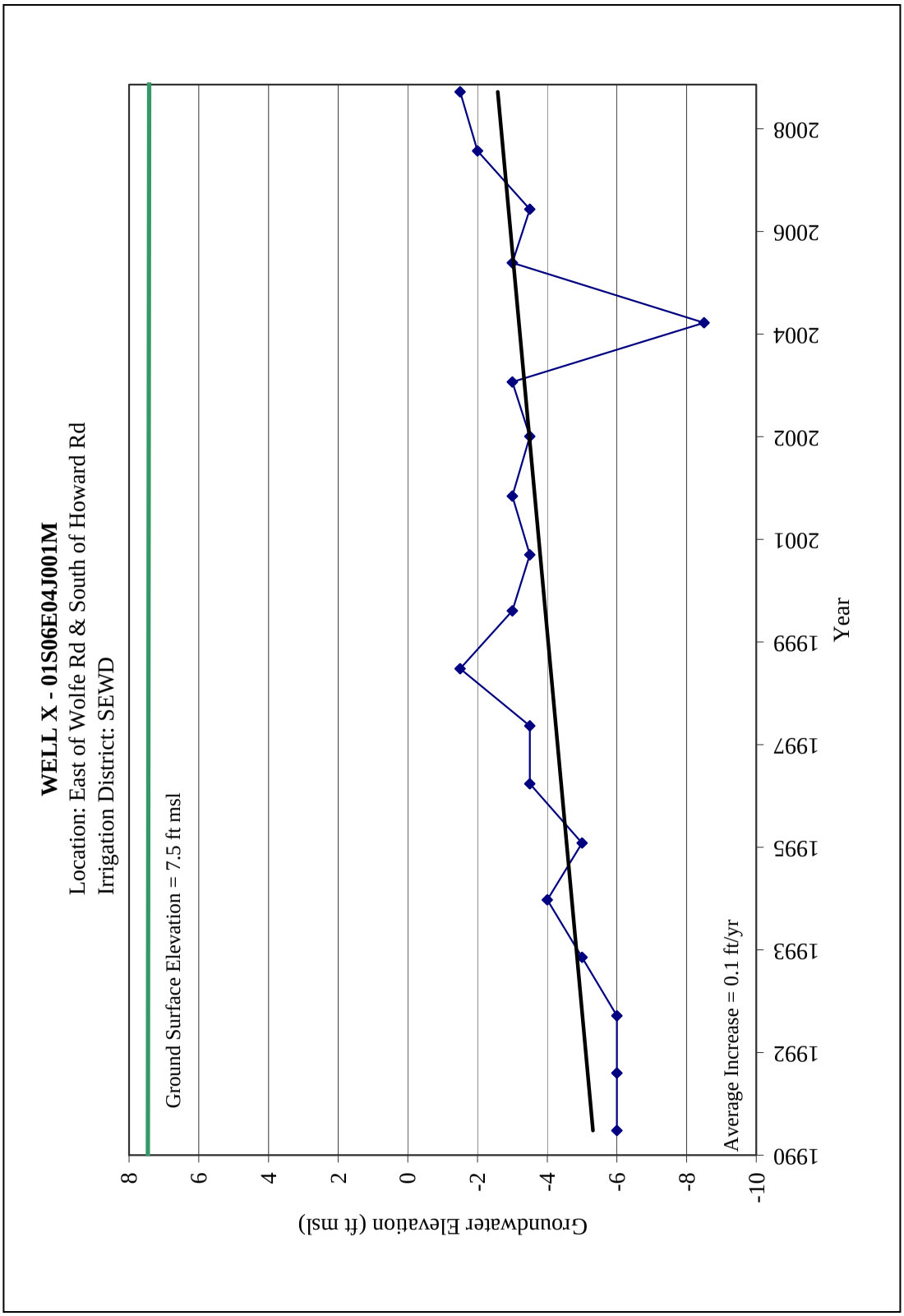

Figure 3-25: Fall Hydrograph Well X

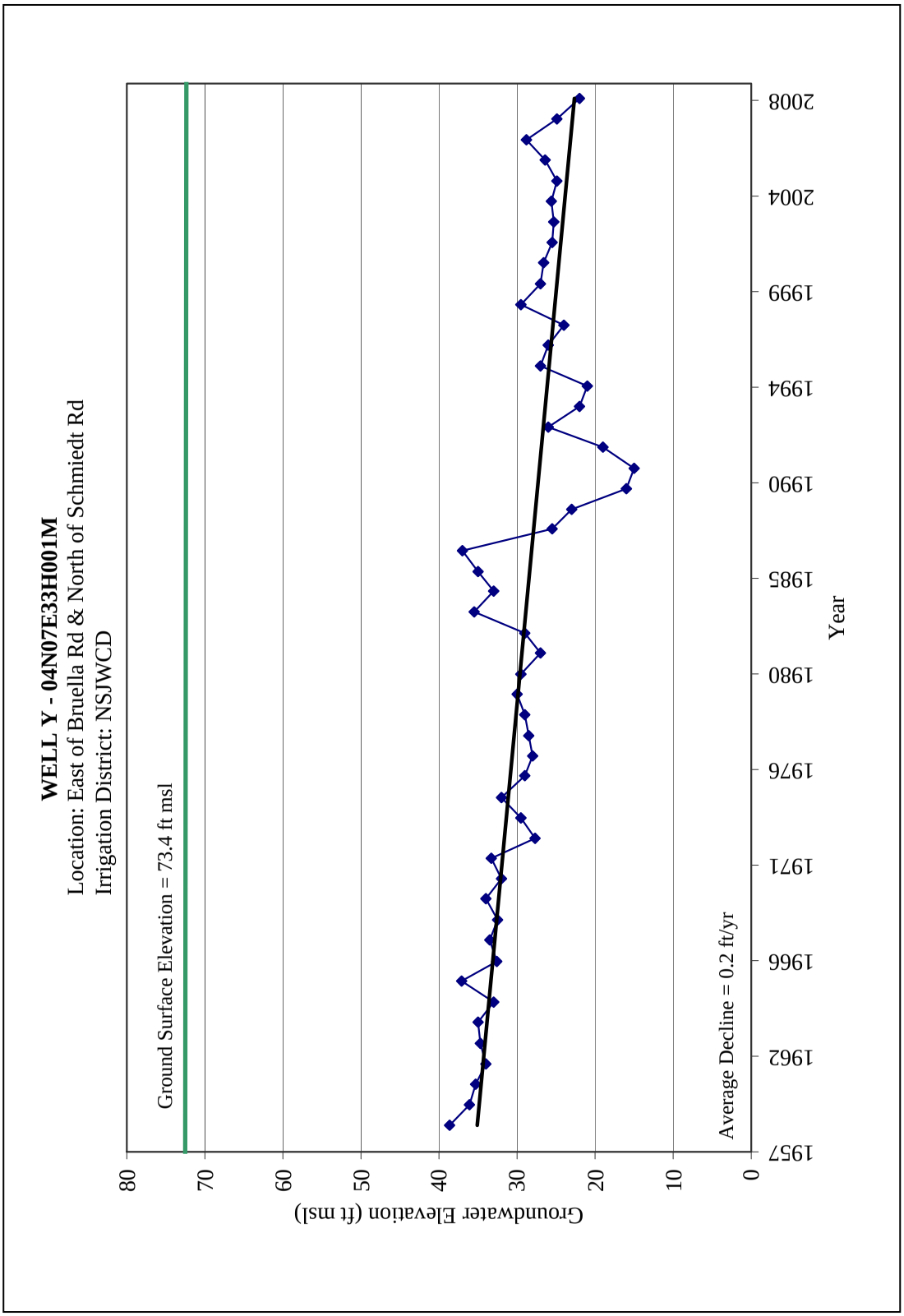

Figure 3-26: Fall Hydrograph Well Y

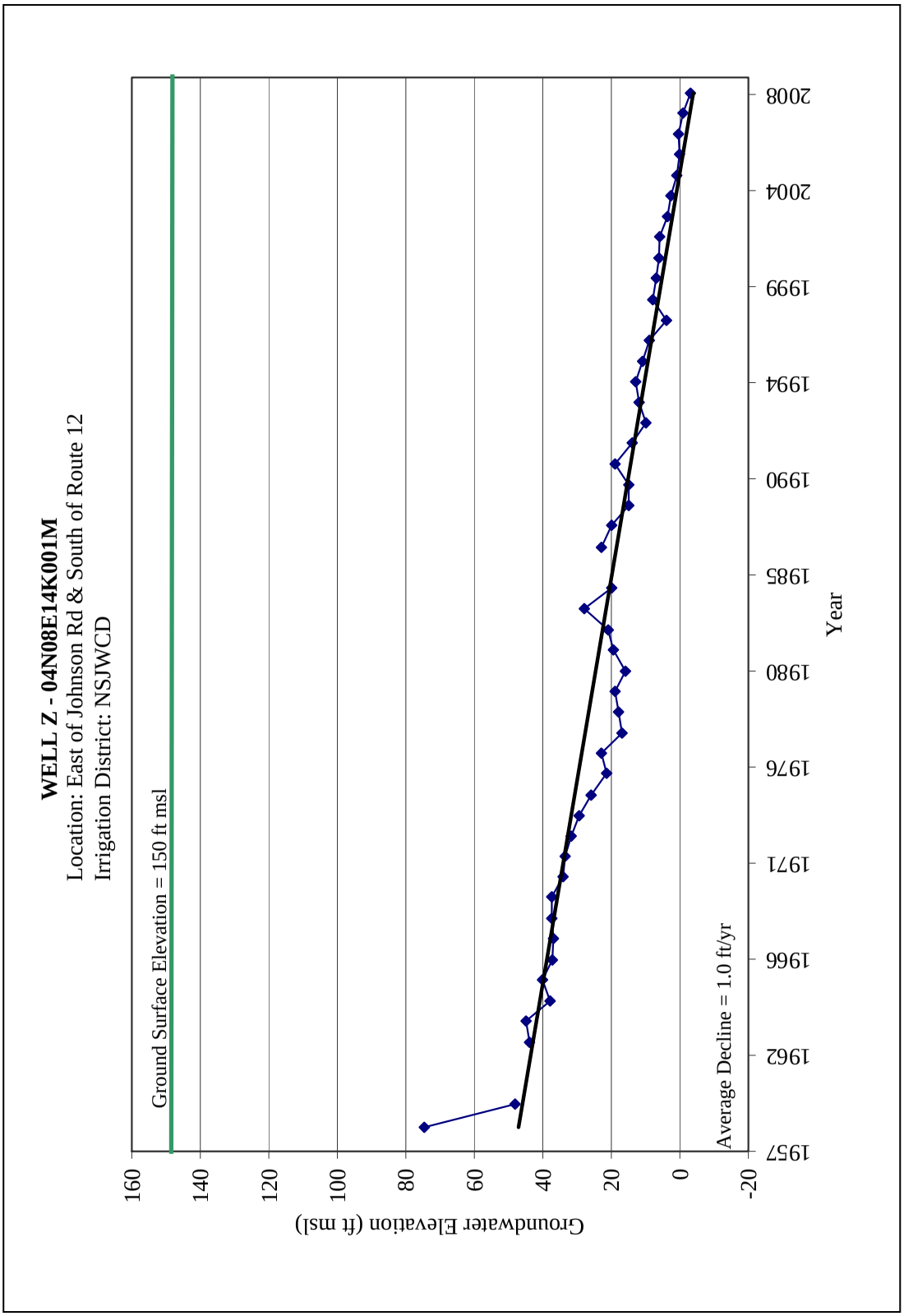

Figure 3-27: Fall Hydrograph Well Z

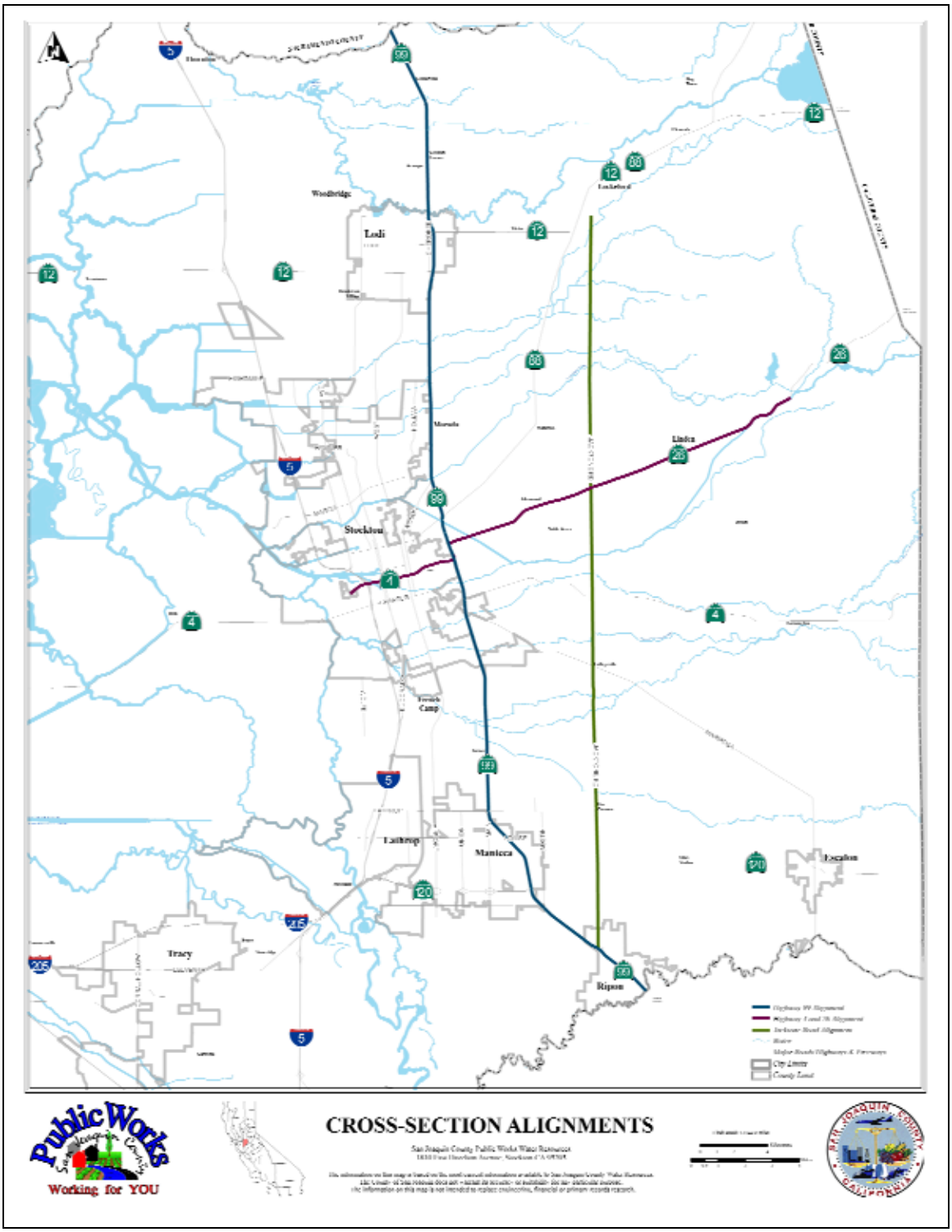

Figure 3-28: Cross Section Alignments

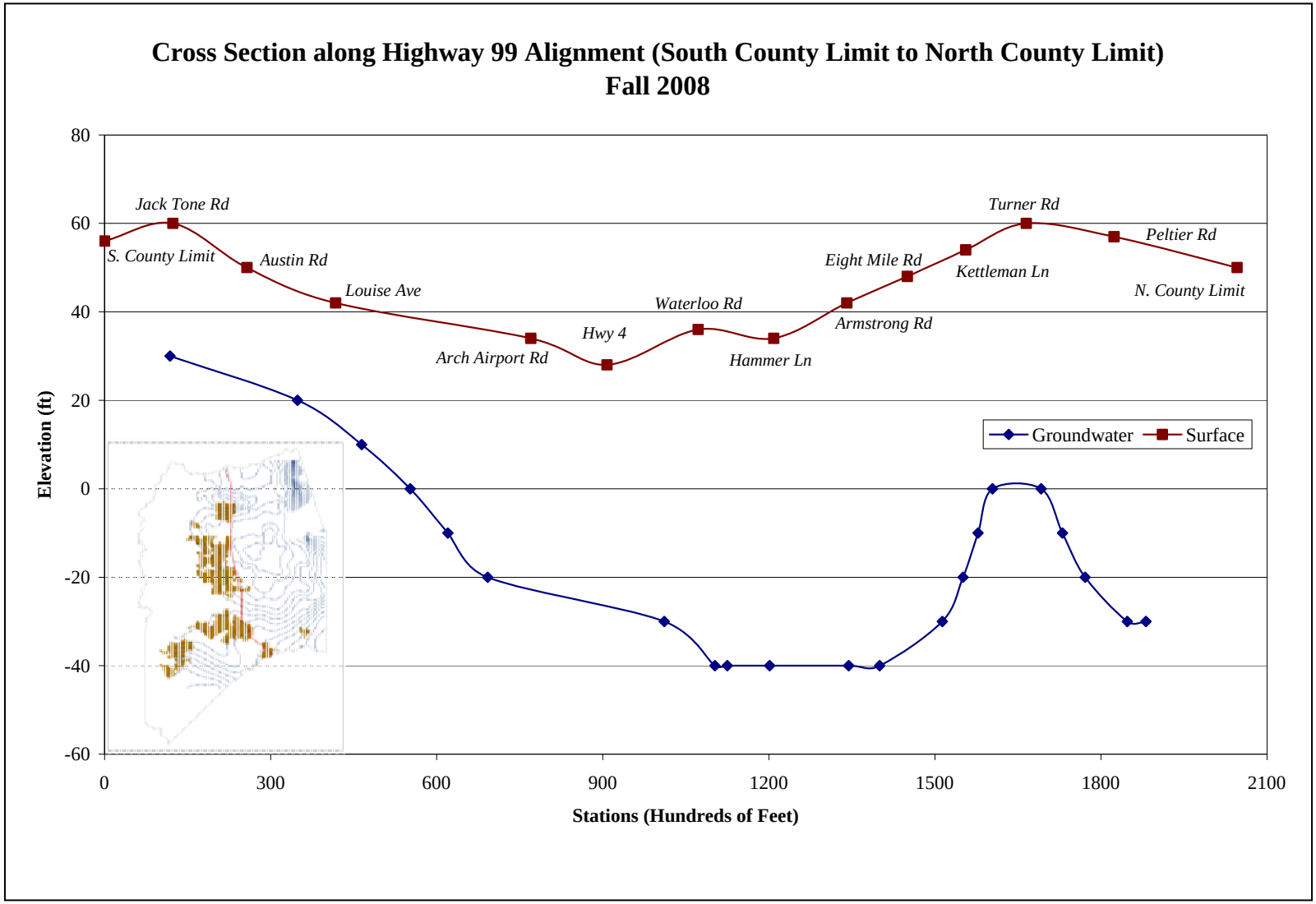

Figure 3-29: Highway 99 Cross Section Fall 2008

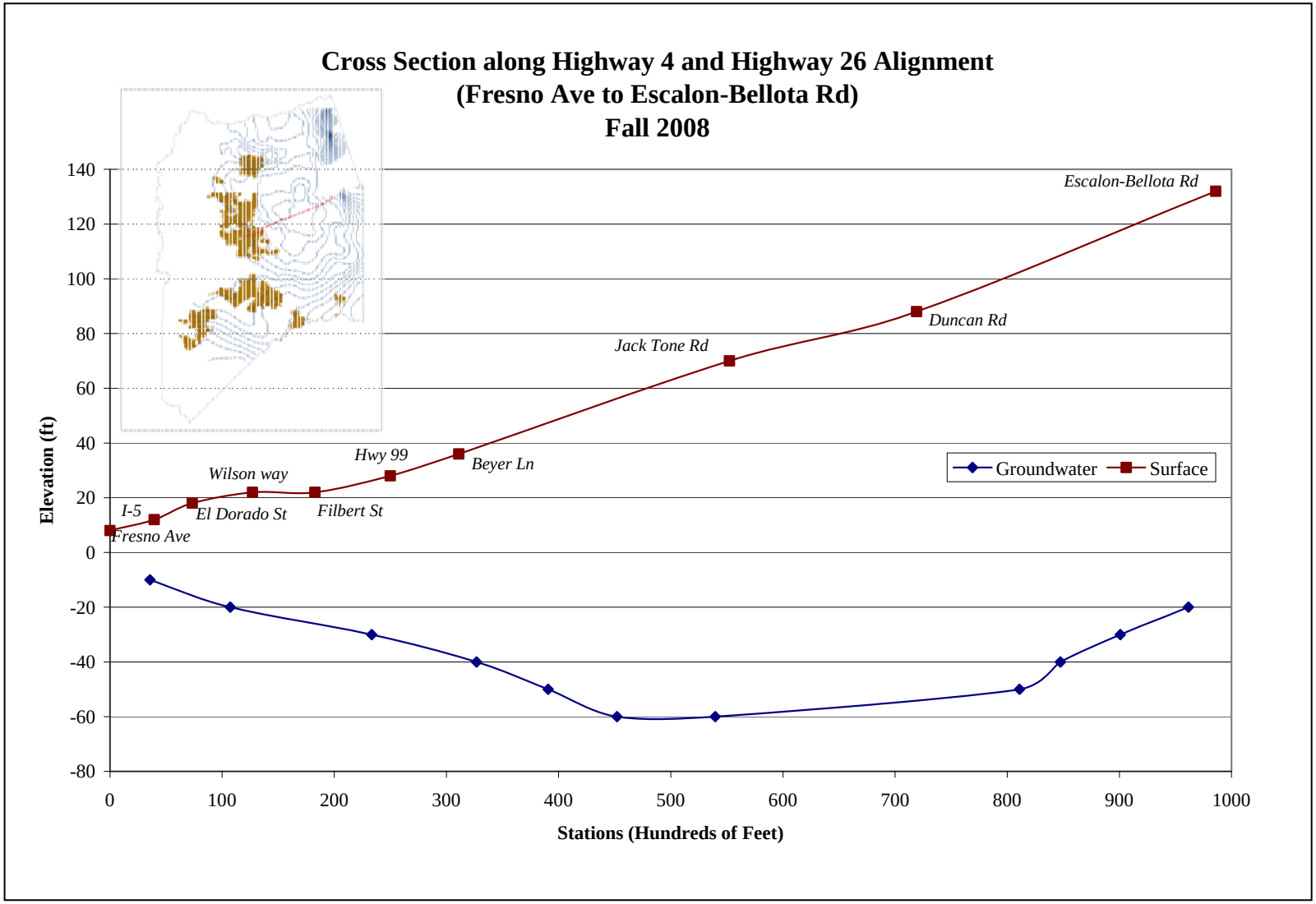

Figure 3-30: Highway 4 & Highway 26 Cross Section Fall 2008

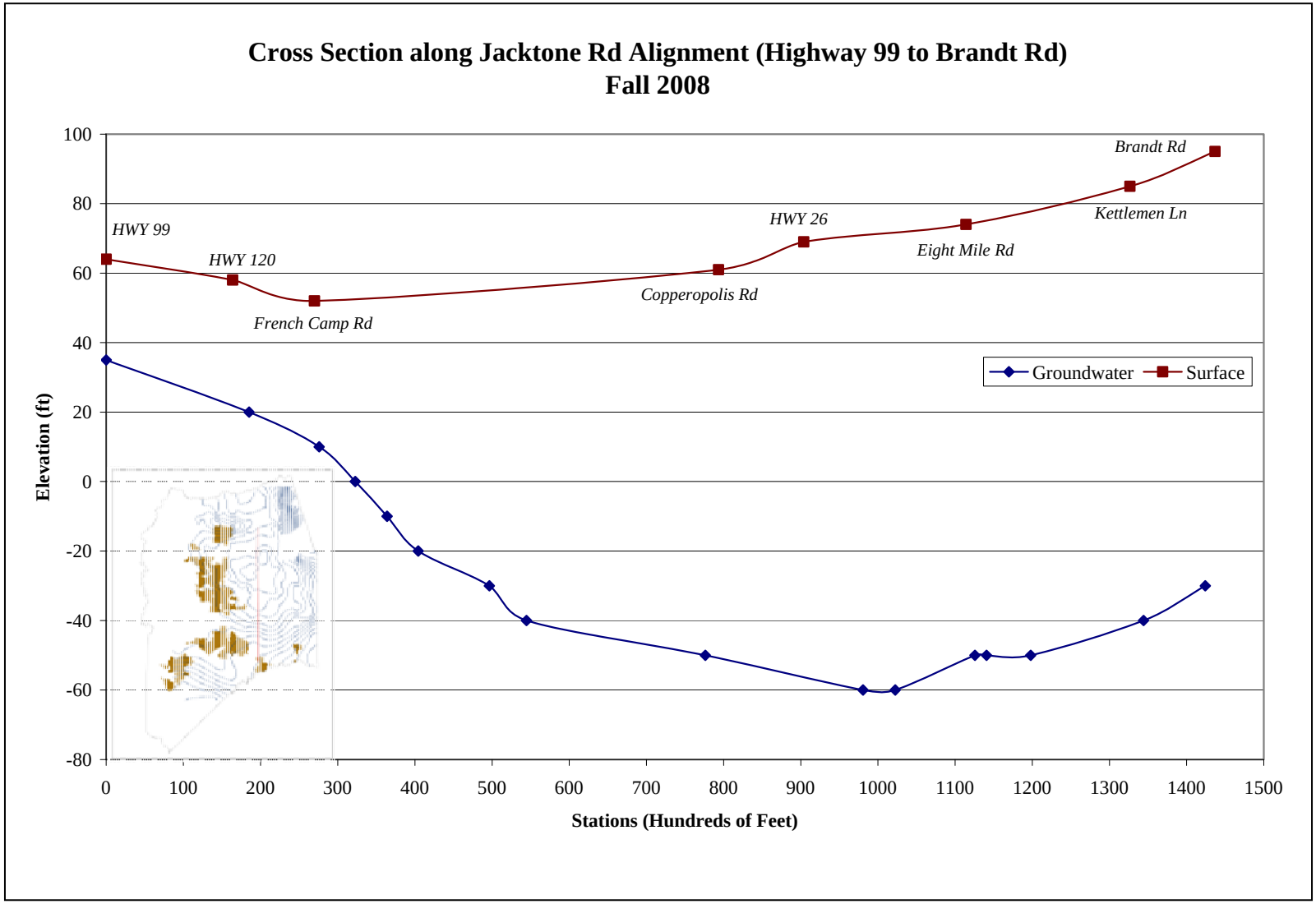

Figure 3-31: Jacktone Rd Cross Section Fall 2008

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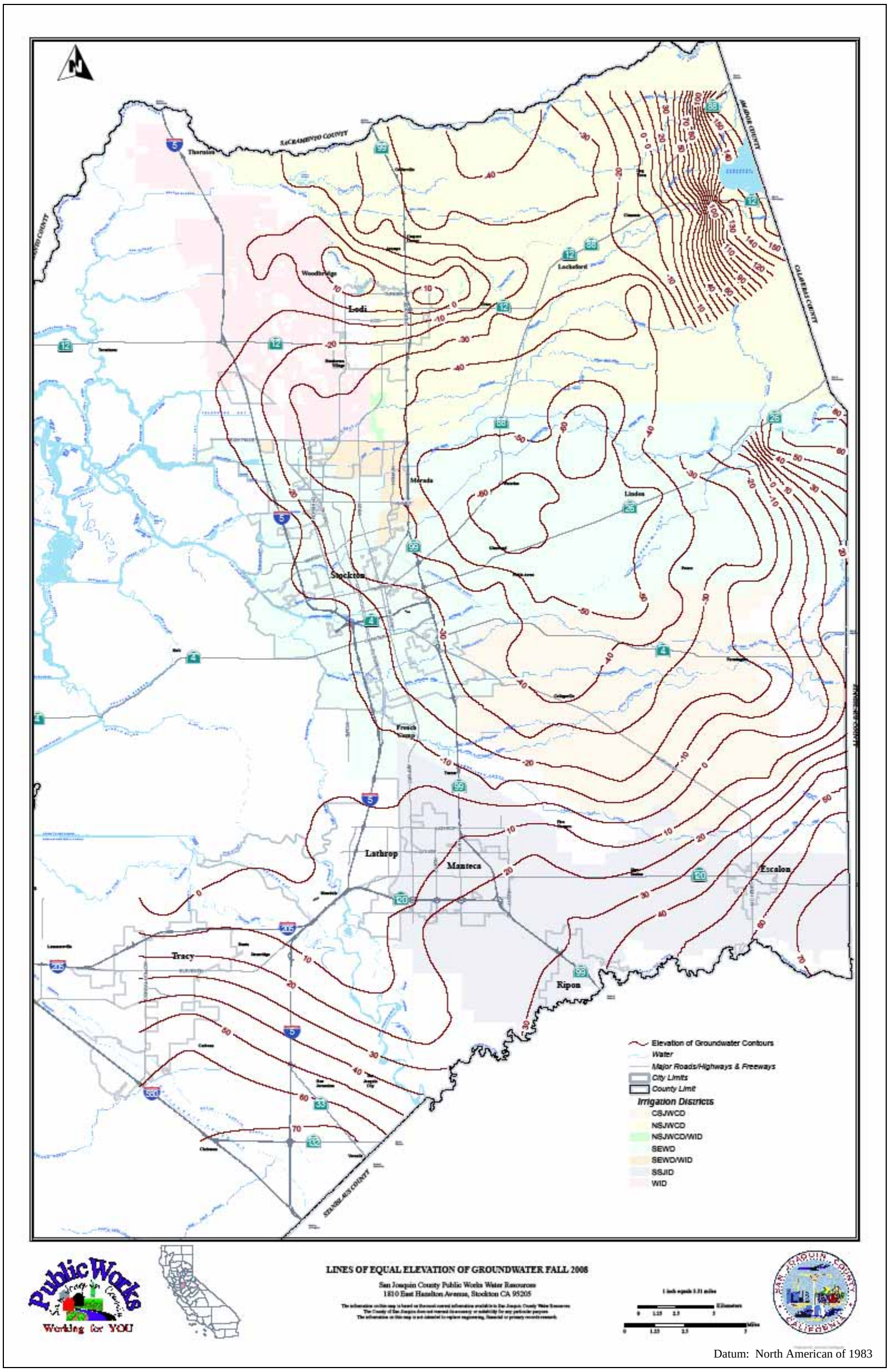

Figure 3-32: Lines of Equal Elevation of Groundwater Fall 2008

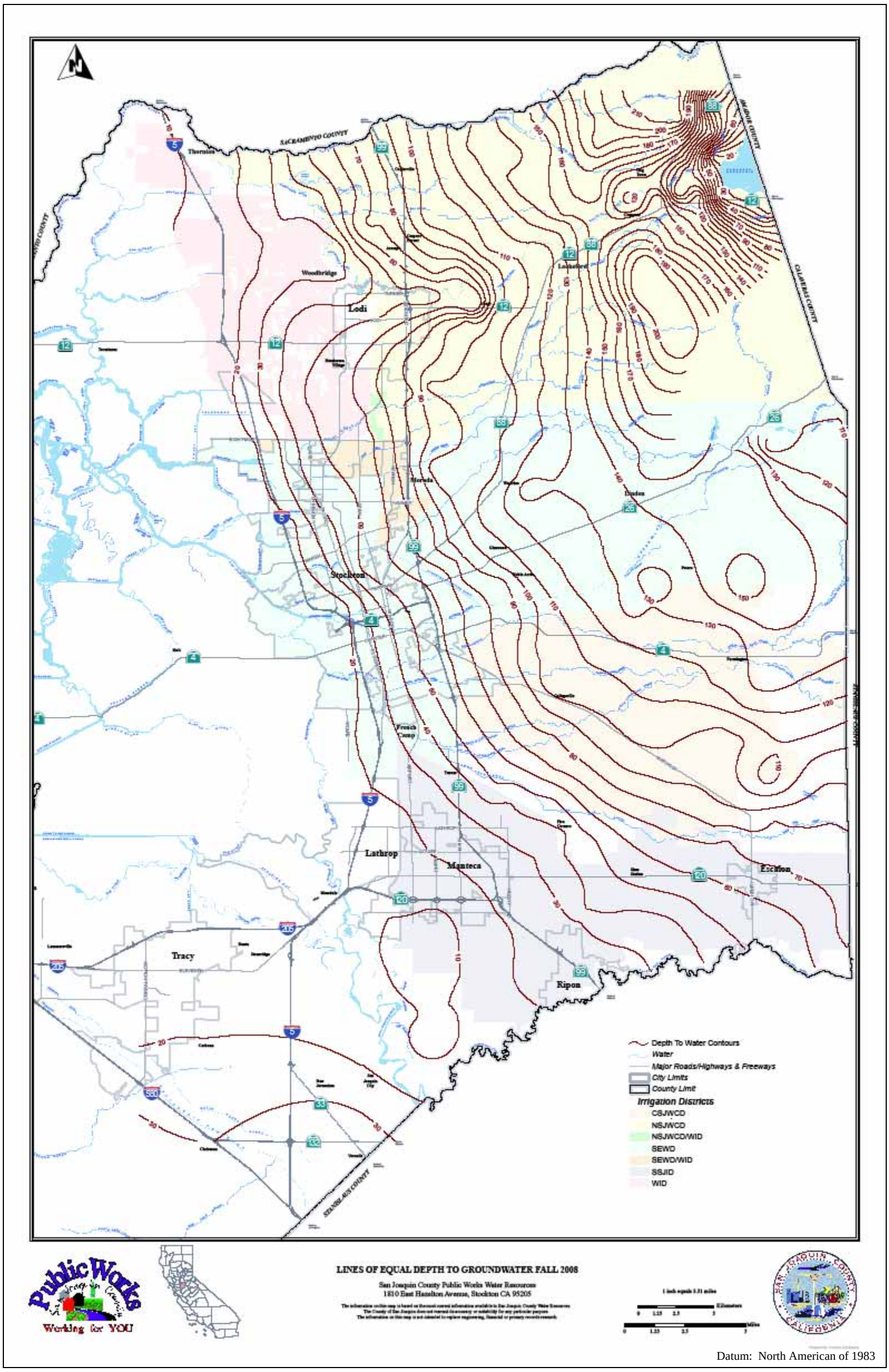

Figure 3-33: Lines of Equal Depth to Groundwater Fall 2008