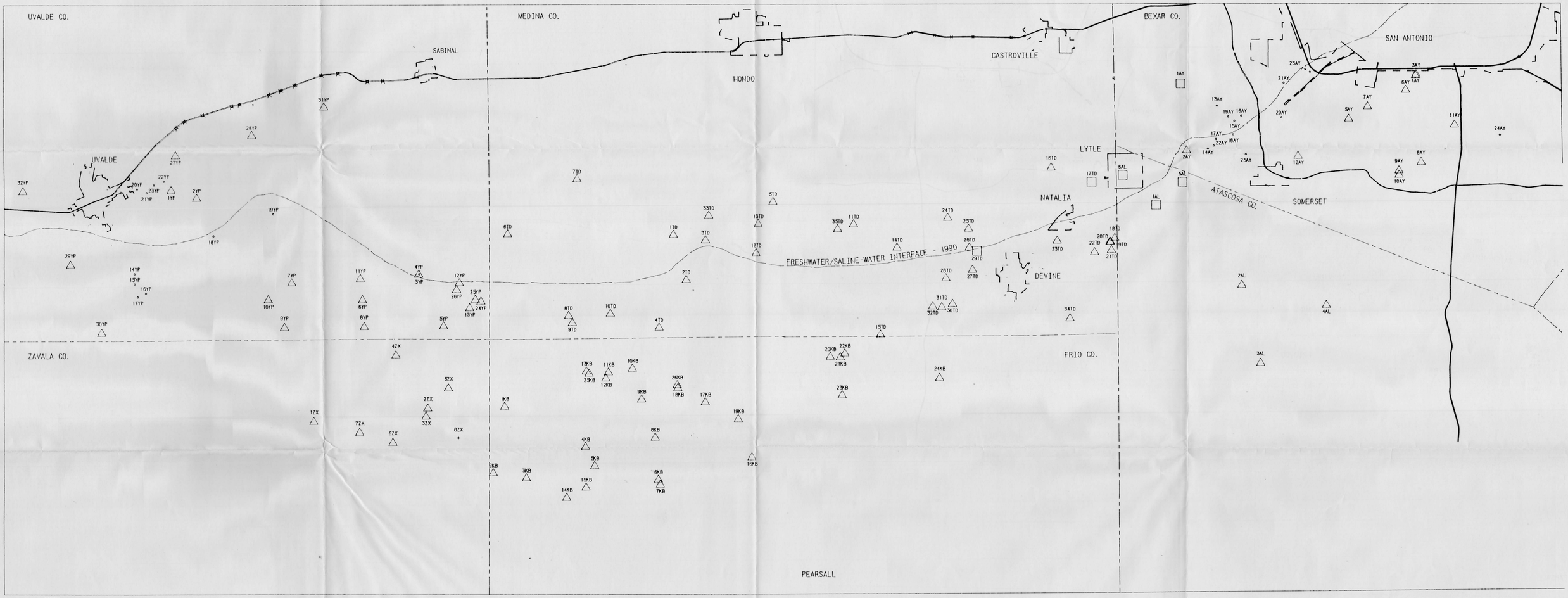
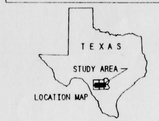
EDWARDS UNDERGROUND
WATER DISTRICT

Report 92-03

Using Geophysical Logs in the Edwards Aquifer to Estimate Water Quality Along the Freshwater/Saline-Water Interface (Uvalde to San Antonio, Texas)

PLATES





N

0 1 5 10 20 MILES

EXPLANATION

□ CONTROL WELL - WELL WITH BOTH MEASURED AND CALCULATED DATA OR VALUES FOR TWO WELLS IN CLOSE PROXIMITY TO ONE ANOTHER (ONE MEASURED, ONE CALCULATED) WHERE THE WATER QUALITY IS BELIEVED TO BE NEARLY EQUAL.

△ WELL WITH DATA CALCULATED.

○ WELL WITH SELECTED MEASURED DATA.

FIGURE 1
3/30/92

PLATE 1.--LOCATION OF STUDY AREA WELLS.

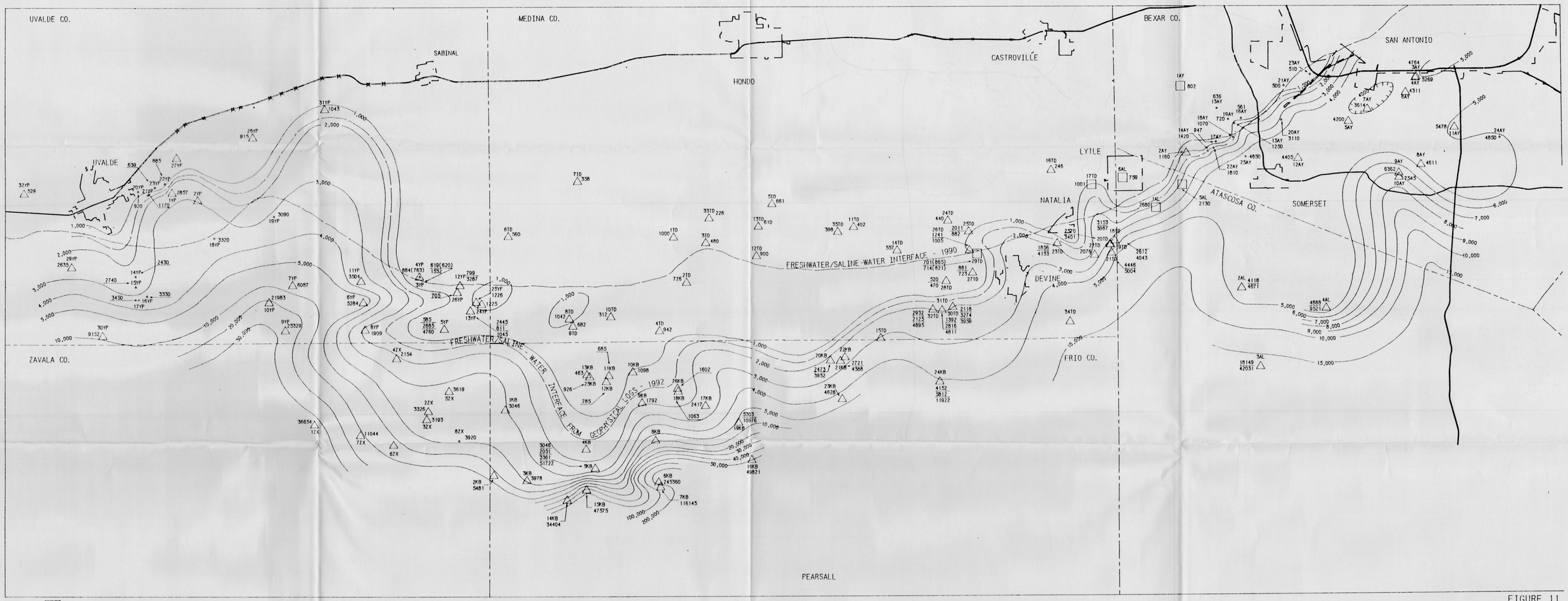


FIGURE 11

3/30/92

PLATE 2.--SPECIFIC CONDUCTANCE FROM GEOPHYSICAL LOGS AND MEASURED WELL DATA.

EXPLANATION

- □ CONTROL WELL - WELL WITH BOTH MEASURED AND CALCULATED SPECIFIC CONDUCTANCE OR VALUES FOR TWO WELLS IN CLOSE PROXIMITY TO ONE ANOTHER (ONE MEASURED, ONE CALCULATED) WHERE THE WATER QUALITY IS BELIEVED TO BE NEARLY EQUAL.
- △ WELL WITH SPECIFIC CONDUCTANCE CALCULATED.
- ○ WELL WITH SPECIFIC CONDUCTANCE MEASURED (SELECTED).
- 1,000 — LINES OF EQUAL SPECIFIC CONDUCTANCE IN MICROMHOS/CM (CONTOUR INTERVAL VARIABLE)
- 701(865) — CALCULATED AND (MEASURED) VALUES FOR SAME WELL.
- △ 1392 / 2816 / 4811 — MULTIPLE ZONE CALCULATIONS (MAP CONSTRUCTED ON LEAST VALUE).

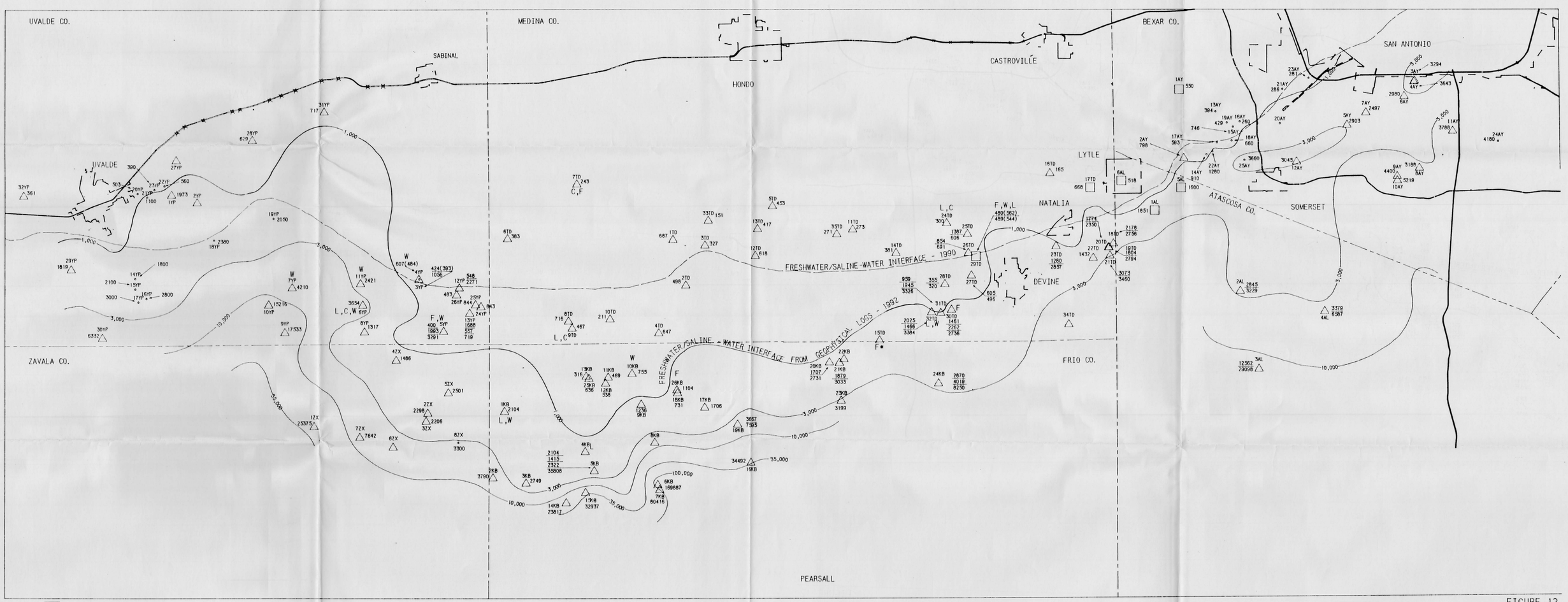


FIGURE 12

N

0 1 5 10 20 MILES

PLATE 3.--TOTAL DISSOLVED SOLIDS CONTOUR MAP

EXPLANATION

- □ CONTROL WELL - WELL WITH BOTH MEASURED AND CALCULATED TOTAL DISSOLVED SOLIDS OR VALUES FOR TWO WELLS IN CLOSE PROXIMITY TO ONE ANOTHER (ONE MEASURED, ONE CALCULATED) WHERE THE WATER QUALITY IS BELIEVED TO BE NEARLY EQUAL.
- △ WELL WITH TOTAL DISSOLVED SOLIDS CALCULATED.
- ○ WELL WITH TOTAL DISSOLVED SOLIDS MEASURED (SELECTED).
- 1,000 LINES OF EQUAL ESTIAMTED TDS IN MG/L (CONTOUR INTERVAL VARIABLE).

- L LOST CIRCULATION REPORTED.
- C CAVERNS REPORTED OR OBSERVED ON LOGS.
- F FRESH WATER REPORTED ON DST - (MAY NOT BE LESS THAN 1000 MG/L TDS)
- F* BRACKISH IN TOP, FRESHER 5' DEEPER.
- W WHITE, CREAM OR TAN SAMPLE DESCRIPTIONS REPORTED IN EDWARDS.

GENERAL CLASSIFICATION OF WATER BASED ON TDS (FROM WINSLOW & KISTER, 1956)

DESCRIPTION	DISSOLVED-SOLIDS CONCENTRATION MG/L
FRESH	LESS THAN 1,000
SLIGHTLY SALINE	1,000 TO 3,000
MODERATELY SALINE	3,000 TO 10,000
VERY SALINE	10,000 TO 35,000
BRINE	GREATER THAN 35,000

TOTAL DISSOLVED SOLIDS CONTOUR MAP

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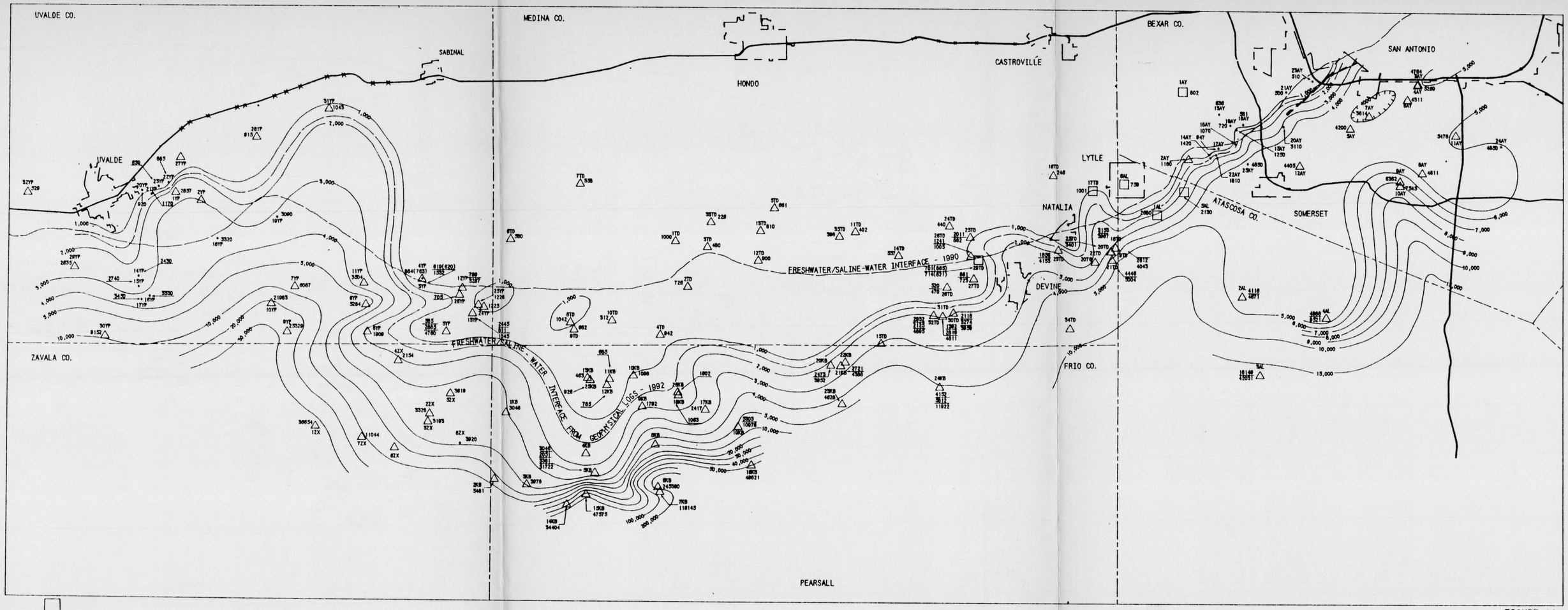
CONTOUR MAP OF MEASURED AND/OR ESTIMATED (*) TOTAL DISSOLVED SOLIDS (IN MG/L).

- * - ESTIMATED FROM GEOPHYSICAL LOGS USING EMPIRICAL DATA (FIGURE 7)
- 480(562) - ESTIMATED (MEASURED) VALUES FOR SAME WELL.
- 1879/3033 - MULTIPLE ZONE VALUES FOR ONE WELL.



N

0 1 5 10 20 MILES

FIGURE 11

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EXPLANATION

- CONTROL WELL - WELL WITH BOTH MEASURED AND CALCULATED SPECIFIC CONDUCTANCE OR VALUES FOR TWO WELLS IN CLOSE PROXIMITY TO ONE ANOTHER (ONE MEASURED, ONE CALCULATED) WHERE THE WATER QUALITY IS BELIEVED TO BE NEARLY EQUAL.
- WELL WITH SPECIFIC CONDUCTANCE CALCULATED.
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- 1,000 — LINES OF EQUAL SPECIFIC CONDUCTANCE IN MICROMHOS/CM (CONTOUR INTERVAL VARIABLE)
- 701(865) — CALCULATED AND (MEASURED) VALUES FOR SAME WELL.
- 1392 2816 4811 — MULTIPLE ZONE CALCULATIONS (MAP CONSTRUCTED ON LEAST VALUE).

FIGURE 11.--SPECIFIC CONDUCTANCE FROM GEOPHYSICAL LOGS AND MEASURED WELL DATA.

SEE PLATE 2 IN BACK COVER

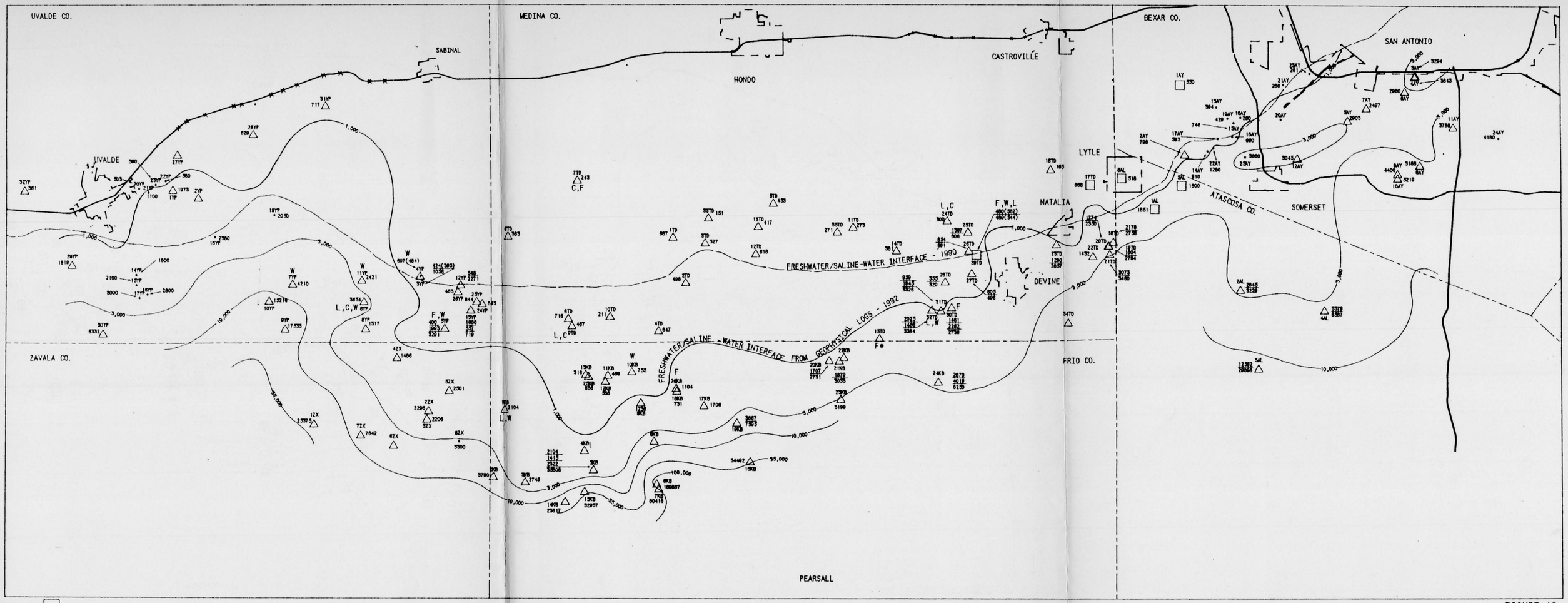
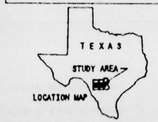


FIGURE 12



N

0 1 5 10 20 MILES

FIGURE 12. --TOTAL DISSOLVED SOLIDS CONTOUR MAP
SEE PLATE 3 IN BACK COVER.

EXPLANATION

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BRINE	GREATER THAN 35,000

TOTAL DISSOLVED SOLIDS CONTOUR MAP

8/30/92

CONTOUR MAP OF MEASURED AND/OR ESTIMATED (•) TOTAL DISSOLVED SOLIDS (IN MG/L).

• - ESTIMATED FROM GEOPHYSICAL LOGS USING EMPIRICAL DATA (FIGURE 7)

460(392) • ESTIMATED (MEASURED) VALUES FOR SAME WELL.

1870/5055 • MULTIPLE ZONE VALUES FOR ONE WELL.