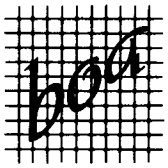
CITY OF RIVIERA BEACH

SUPPLEMENTAL HYDROGEOLIC REPORT
WESTERN WELLFIELD



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DECEMBER 19, 1986

CITY OF RIVIERA BEACH

SUPPLEMENTAL HYDROGEOLIC REPORT
WESTERN WELLFIELD
DECEMBER 19, 1986

I. SCOPE

This Report has been prepared on behalf of the City of Riviera Beach, in response to questions raised at a meeting held by the South Florida Water Management District on December 10, 1986, relative to the effect of the discovery of a former sanitary landfill operation previously operated by the City of West Palm Beach in an area in close proximity to the existing and proposed wells of the City of Riviera Beach in the area west of the Earman River (Canal C-17). This Report investigates the period between March, 1986 and future years with respect to the effect of the subject landfill on aquifer gradients which could induce leachate movements toward the proposed Riviera Beach wells.

II. COMPUTER MODELING

The computer modeling used in this Report utilizes a program which computes the aquitard leakance in accordance with the Jacob-Hantush method for a two-layer leaky artisian aquifer, and computes water level adjustment in the source bed utilizing the Prickett-Lonnquist method. Aquitard elevations were interpolated or extrapolated using all available drilling and electric loggings available. The aquitard is considered as the elevation at which the value of storavity changes from about .20 to some value on the order of .001 or less. Known

conditions of previous investigations indicate an average horizontal permeability of the source bed to be about 450 gpd/sq.ft., which value is used in the model.

Transmissivity in the source bed is computed by the program to be the product of the residual depth of the source bed at any given point in time and location, multiplied by the average horizontal permeability. Transmissivity, storativity and leakance (P'/m') in the partially confined (pumped) zone are based on known well performance and extrapolations of this data for future well sites. The aquifer model is this constructed on the best known data, and may be improved as more test data becomes available. It is considered, however, to be sufficient for the present purpose.

III. PERIODIC SIMULATIONS

Periodic simulations prior to December 10, 1986, are based on well pumpages and observations of record, and appear to agree reasonably well with all known observations, thus lending further credibility to the model calibration. The subsequent simulations are self-explanatory, and denote the probable aquifer reactions to the proposed pumpages noted, which in general consist of pumping each existing and new well (as it comes on the line) not more than 50% of the time, which allows periodic recovery of the source bed such that only its normal eastward vector is maintained.

IV. GENERAL OVERVIEW

Severe pumpage of Wells 851 and 852 during the period of April 25, 1986 to September 10, 1986, indicate the inducement of a northerly vector in the source bed from the landfill area toward these wells, which was counteracted to a great extent by reduced pumpage, after September 10, 1986. The simulations indicate that a short period of pumpage of these two wells at the 33% level, when consumption demand permits, could restore the normal eastward vector of water movements in the source bed.

Is is noted that the radius of influence in the partially confined zone has and will continue to induce leachate movement from the landfill downward through the aquitard, albeit at a minimal rate, and is thus of less consequence that the more rapid water movements in the source bed.

The exigency of immediate water demands by the City of Riviera Beach has precluded further study of probable plume movements from the landfill area toward the existing and proposed wells. Due to the shallow gradients in the source bed and the partially confined zone, it is doubtful that such movement ever will be greater than about 400 feet, provided the following recommendations are needed.

V. RECOMMENDATIONS

The issuance of drilling permits for new wells further West than Wells 851 and 852 is strongly recommended, since wells in that area will be less subject to leachate contamination, and will reduce the demands on Wells 851 and 852 to the point that

reduction of their pumpage rate may be permitted for a short period to restore the normal eastward direction of groundwater movement in the source bed.

VI. SUMMARY

The City has instigated a periodic testing program for organic contaminants in all of its wells, and is currently sponsoring water treatment improvements to include volatile organic contaminant removal, which is expected to be in operation by mid-1987. Under these circumstances, it is doubtful that the quality of the finished, fully treated water produced for public consumption will ever approach or exceed State or Federal contaminant limitations. Due to industrial aquifer contamination in its Eastern Wellfield, as well as the threat of saline intrusion, that source of raw water has been severly diminished. This condition has been promulgated sufficiently in previous reports. It is stated here only to pronounce the necessity for the City to obtain water from the sources under consideration.

The severity of the situation is further pronounced by the fact that the City Water System has been under a restricted use order for well over a year.

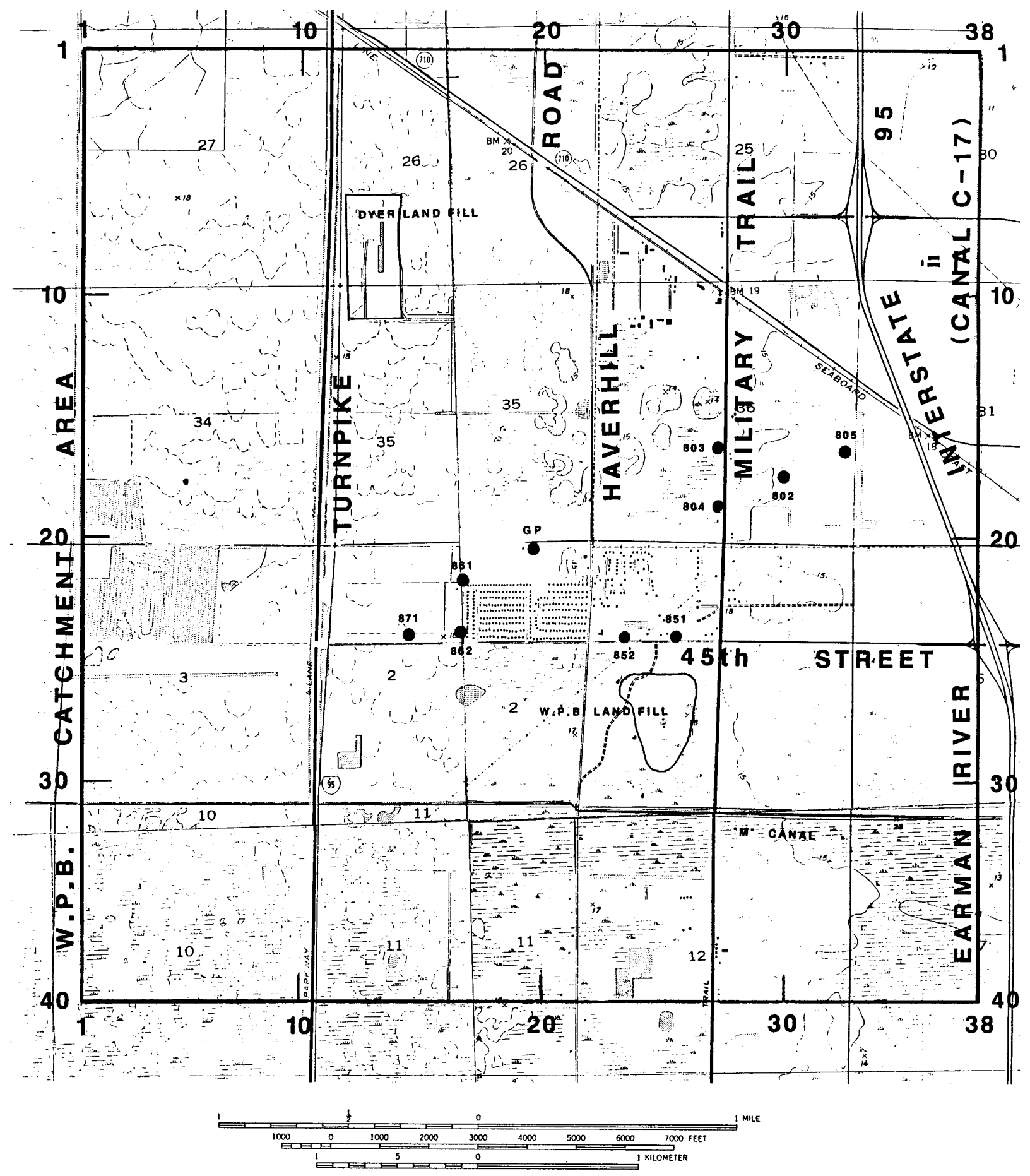

Fig. 1. MODEL AREA

AVERAGE GROUND ELEVATION AT EACH NODE (FEET-NGVD):

R/C	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
1	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
2	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
3	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
4	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
5	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
6	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
7	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
8	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
9	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
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12	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
13	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
14	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
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32	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
33	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
34	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
35	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
36	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
37	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
38	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
39	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0
40	17.3	17.3	17.3	17.3	17.3	17.3	17.2	17.2	17.2	17.2	17.2	17.2	17.1	17.1	17.1	17.1	17.1	17.1	17.0	17.0	17.0	17.0	17.0	17.0	17.0	16.8	16.3	16.0	15.7	15.3	15.0	14.5	14.0	13.7	13.3	13.0	12.5	12.0

Fig. 2. GROUND ELEVATION

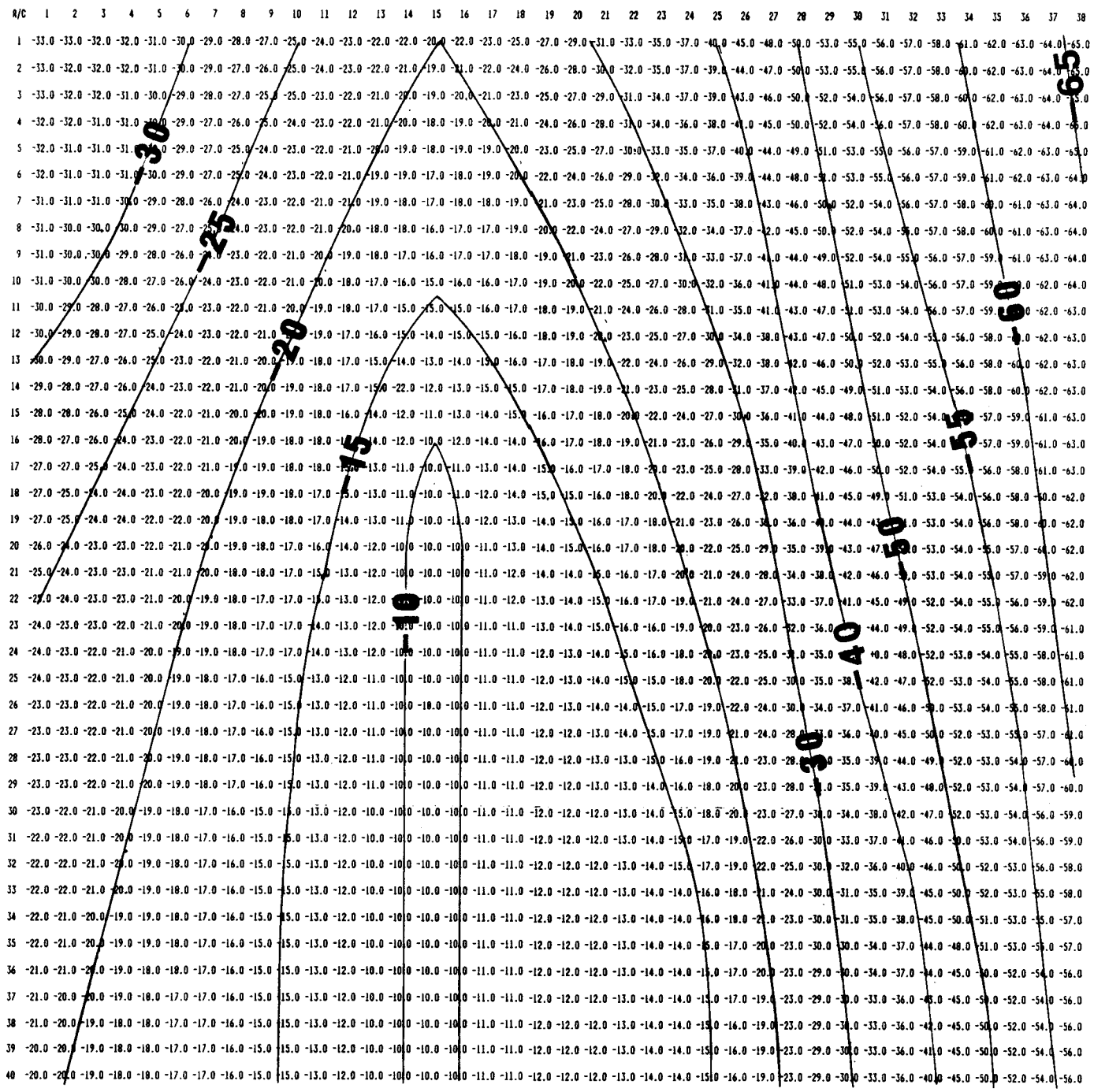
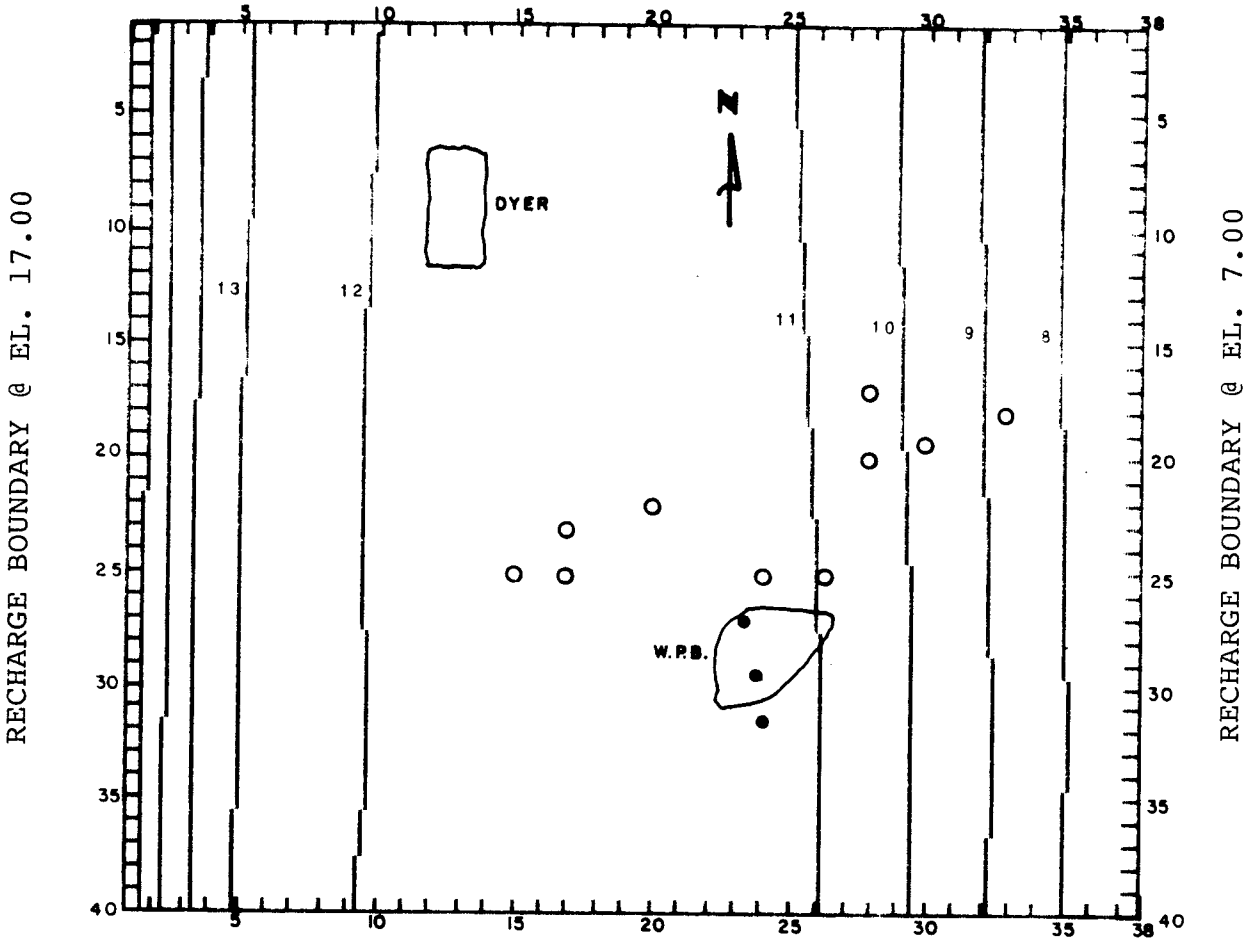


Fig. 3. AQUITARD ELEVATIONS

GRID SPACING: 500 AND 500 FEET BETWEEN COLUMNS AND ROWS, RESPECTIVELY
AVERAGE SOURCE BED PERMEABILITY (GAL/DAY/SQFT): 450

WELL IDENT	COL NO.	ROW NO.	DIA IN.	DISCH (GPM)	TRANSMISSIVITY (GAL/FT/DAY)	STORATIVITY (DECIMAL)	LEAKANCE (GAL/SF/DAY)
805	33	18	24	700	80000	.00050000	0.0070000
802	30	19	24	700	82000	.00040000	0.0060000
803	28	17	24	700	84000	.00040000	0.0090000
804	28	20	12	400	84000	.00040000	0.0090000
851	26	25	24	1200	625000	.00030000	0.0500000
852	24	25	24	1000	150000	.00020000	0.0600000
862	17	25	24	1100	150000	.01300000	0.1200000
871	15	25	24	1100	125000	.01000000	0.1800000
861	17	23	24	1100	150000	.01300000	0.1200000
GP	20	22	12	250	150000	.01300000	0.1200000

Fig. 4. WELL CAPACITIES AND LOCATIONS



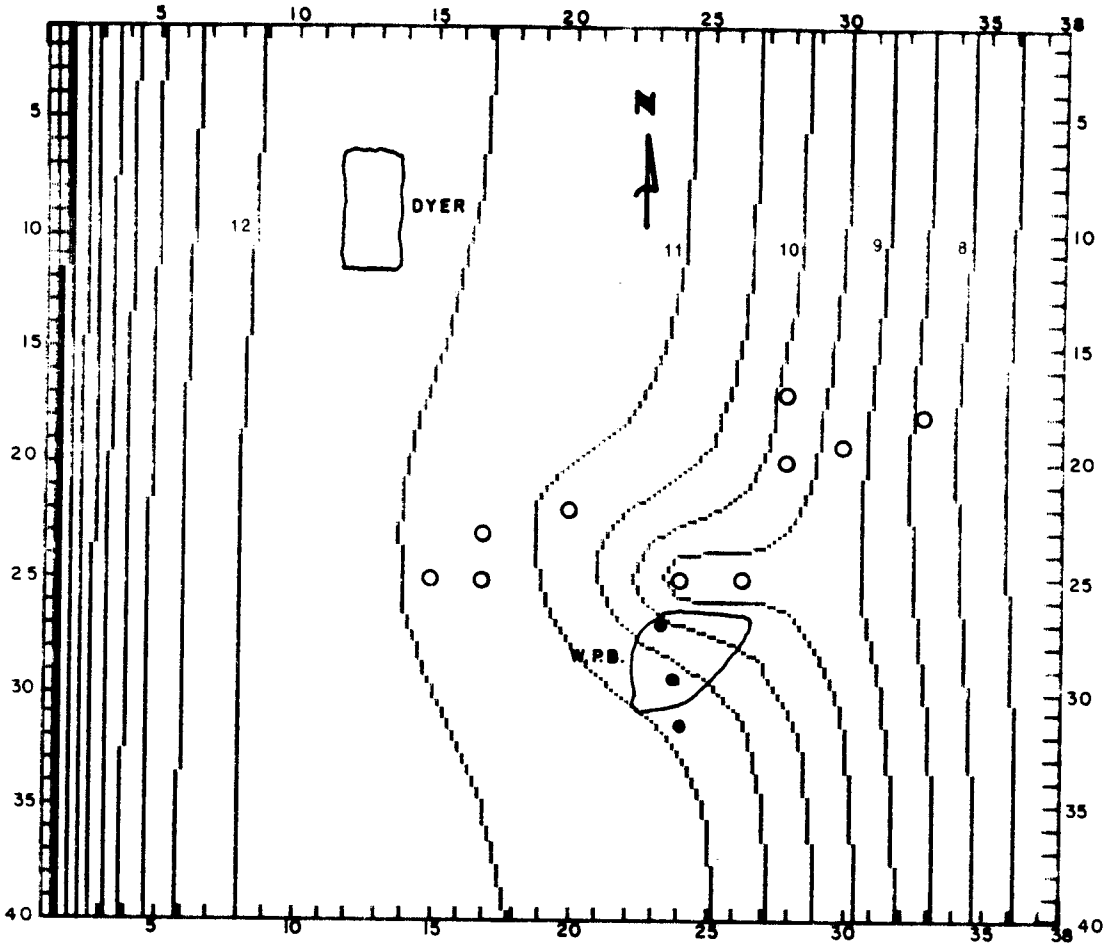
TITLE: 10-YEAR CALIBRATION OF SOURCE BED WATER LEVELS

TIME PERIOD OF SIMULATION: 3650 DAYS
EFFECTIVE RAINFALL RECHARGE DURING PERIOD: 240 INCHES
SURFACE EVAPOTRANSPIRATION DURING PERIOD: 520 INCHES
MAXIMUM DEPTH OF EVAPOTRANSPIRATION: 10 FEET

AVERAGE DAILY WELL PUMPAGES AND DRAWDOWNS:

WELL IDENTITY	COL NO.	ROW NO.	DISCHARGE (GAL/DAY)	MIN. D.T.W. (FEET)
805	33	18	0	10.65
802	30	19	0	11.13
803	28	17	0	11.28
804	28	20	0	11.22
851	26	25	0	11.60
852	24	25	0	11.31
862	17	25	0	10.82
871	15	25	0	10.74
861	17	23	0	10.84
GP	20	22	0	10.84

Fig. 5. SOURCE BED CALIBRATION



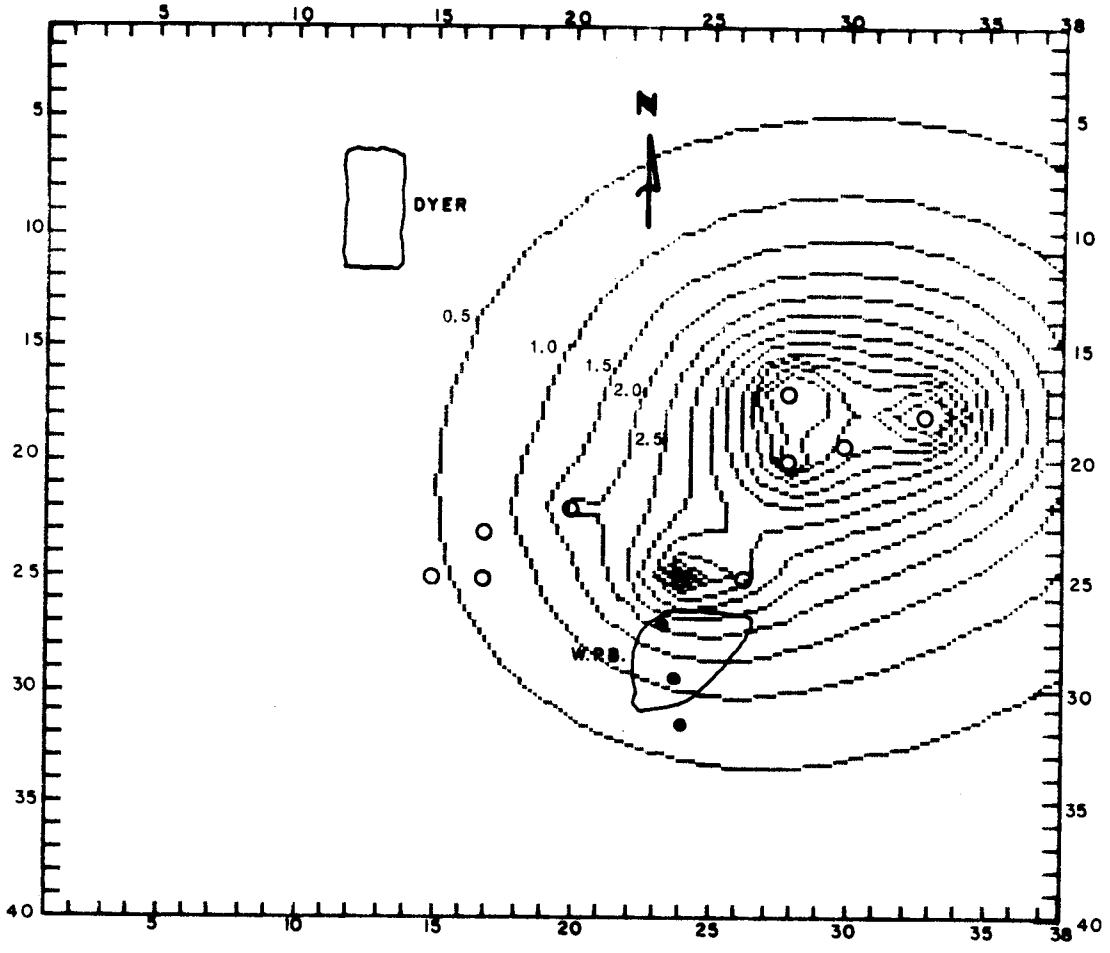
TITLE: PUMPAGE EFFECT ON SOURCE BED (4-25-86 TO 6-20-86)

TIME PERIOD OF SIMULATION: 56 DAYS
EFFECTIVE RAINFALL RECHARGE DURING PERIOD: 3.73 INCHES
SURFACE EVAPOTRANSPIRATION DURING PERIOD: 8.09 INCHES
MAXIMUM DEPTH OF EVAPOTRANSPIRATION: 10 FEET

AVERAGE DAILY WELL PUMPAGES AND DRAWDOWNS:

WELL IDENTITY	COL NO.	ROW NO.	DISCHARGE (GAL/DAY)	MIN. D.T.W. (FEET)
805	33	18	604800	29.57
802	30	19	0	12.13
803	28	17	604800	30.21
804	28	20	230400	25.46
851	26	25	1427328	21.20
852	24	25	1061280	28.76
862	17	25	0	11.65
871	15	25	0	11.33
861	17	23	0	11.69
GP	20	22	216000	16.80

Fig. 6. SOURCE BED, JUNE 20, 1986



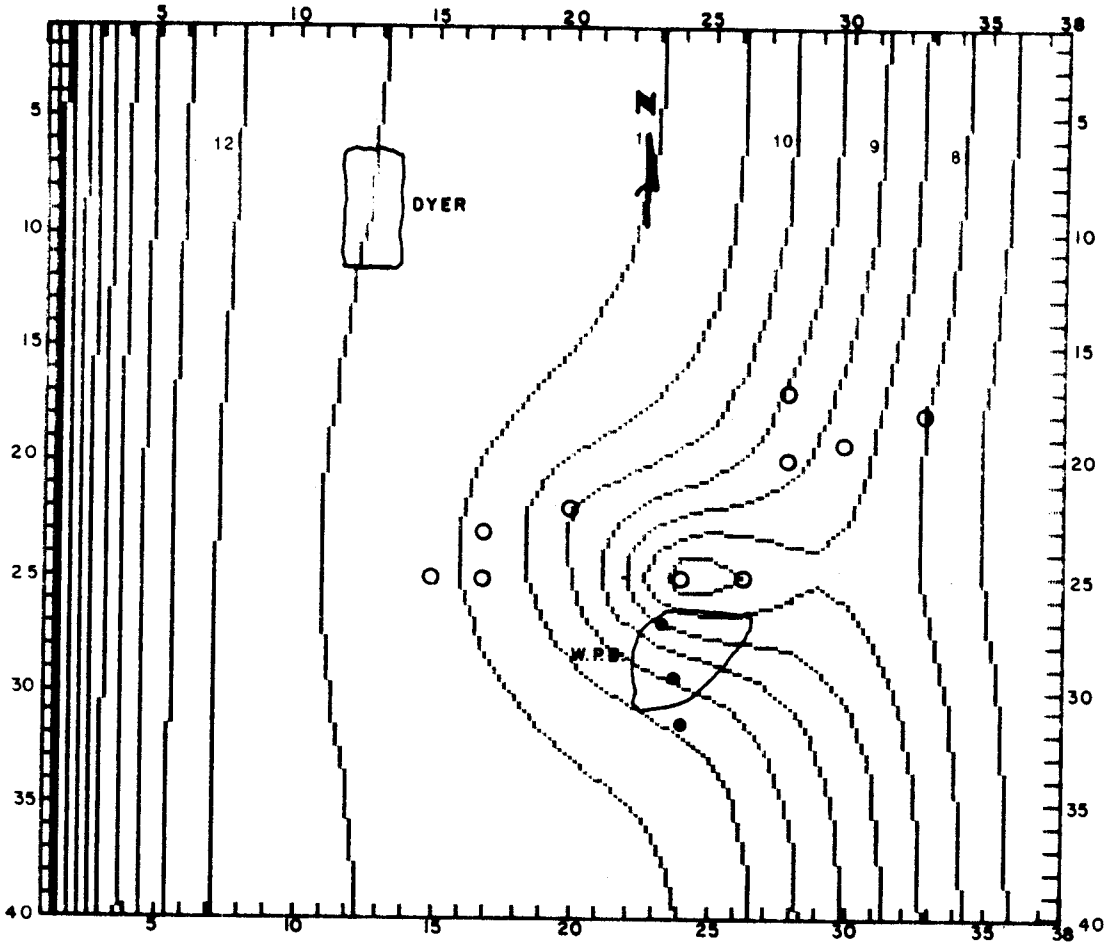
PIEZOMETRIC HEAD IN PUMPED ZONE
(6-20-86)

TIME PERIOD OF SIMULATION: 56 DAYS
EFFECTIVE RAINFALL RECHARGE DURING PERIOD: 3.73 INCHES
SURFACE EVAPOTRANSPIRATION DURING PERIOD: 8.09 INCHES
MAXIMUM DEPTH OF EVAPOTRANSPIRATION: 10 FEET

AVERAGE DAILY WELL PUMPAGES AND DRAWDOWNS:

WELL IDENTITY	COL NO.	ROW NO.	DISCHARGE (GAL/DAY)	MIN. D.T.W. (FEET)
805	33	18	604800	29.57
802	30	19	0	12.13
803	28	17	604800	30.21
804	28	20	230400	25.46
851	26	25	1427328	21.20
852	24	25	1061280	28.76
862	17	25	0	11.65
871	15	25	0	11.33
861	17	23	0	11.69
GP	20	22	216000	16.80

Fig. 7. CONFINED ZONE DRAWDOWNS, JUNE 20, 1986



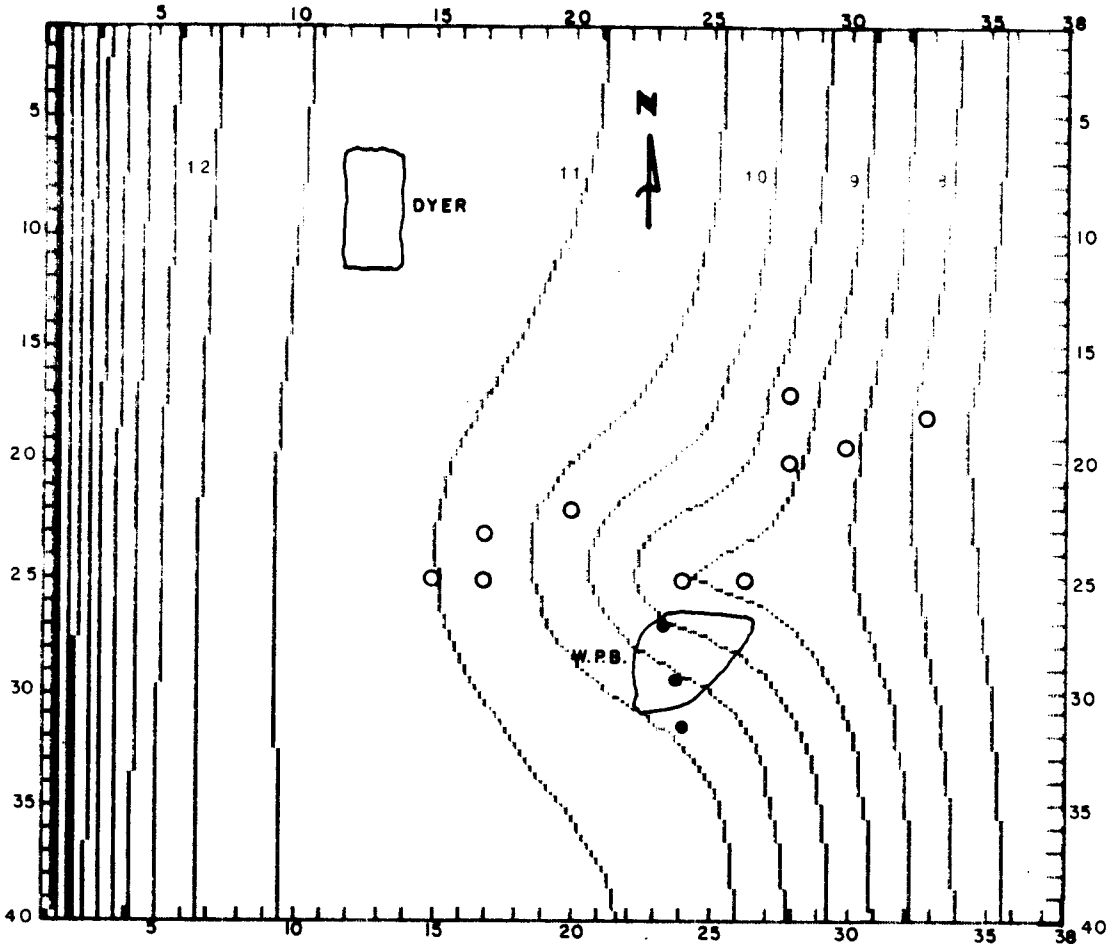
TITLE: PUMPAGE EFFECT ON SOURCE BED (6-20-86 TO 9-10-86)

TIME PERIOD OF SIMULATION: 82 DAYS
EFFECTIVE RAINFALL RECHARGE DURING PERIOD: 5.47 INCHES
SURFACE EVAPOTRANSPIRATION DURING PERIOD: 11.84 INCHES
MAXIMUM DEPTH OF EVAPOTRANSPIRATION: 10 FEET

AVERAGE DAILY WELL PUMPAGES AND DRAWDOWNS:

WELL IDENTITY	COL NO.	ROW NO.	DISCHARGE (GAL/DAY)	MIN. D.T.W. (FEET)
805	33	18	604800	30.25
802	30	19	0	13.12
803	28	17	604800	31.14
804	28	20	230400	26.74
851	26	25	1427328	23.87
852	24	25	1061280	31.81
862	17	25	0	12.51
871	15	25	0	11.93
861	17	23	0	12.55
GP	20	22	216000	18.26

Fig. 8. SOURCE BED, SEPT. 10, 1986



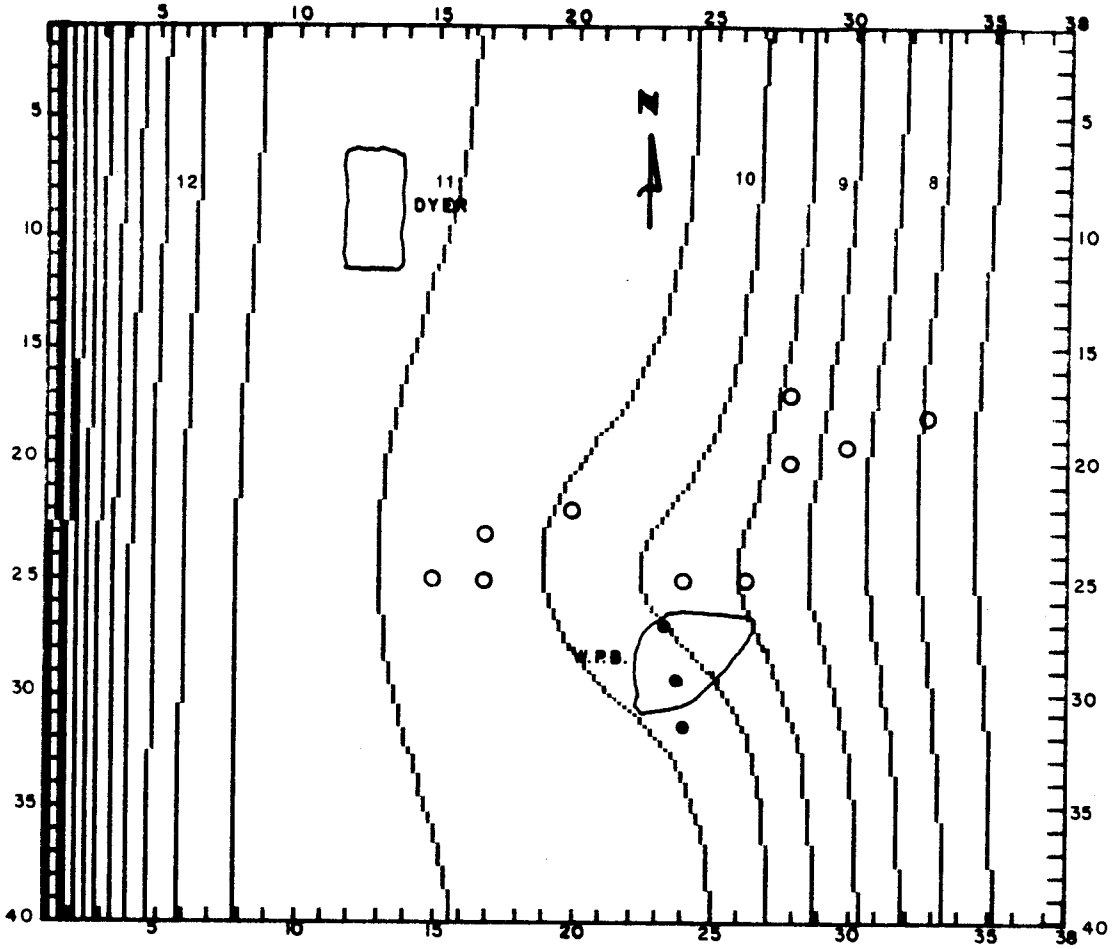
TITLE: PUMPAGE EFFECT ON SOURCE BED (9-10-86 TO 12-10-86)

TIME PERIOD OF SIMULATION: 91 DAYS
EFFECTIVE RAINFALL RECHARGE DURING PERIOD: 5.98 INCHES
SURFACE EVAPOTRANSPIRATION DURING PERIOD: 12.96 INCHES
MAXIMUM DEPTH OF EVAPOTRANSPIRATION: 10 FEET

AVERAGE DAILY WELL PUMPAGES AND DRAWDOWNS:

WELL IDENTITY	COL NO.	ROW NO.	DISCHARGE (GAL/DAY)	MIN. D.T.W. (FEET)
805	33	18	604800	30.52
802	30	19	0	13.34
803	28	17	604800	31.43
804	28	20	230400	26.77
851	26	25	836352	21.96
852	24	25	766080	29.18
862	17	25	0	12.61
871	15	25	0	12.16
861	17	23	0	12.63
GP	20	22	180000	17.74

Fig. 9. SOURCE BED, DEC. 10, 1986



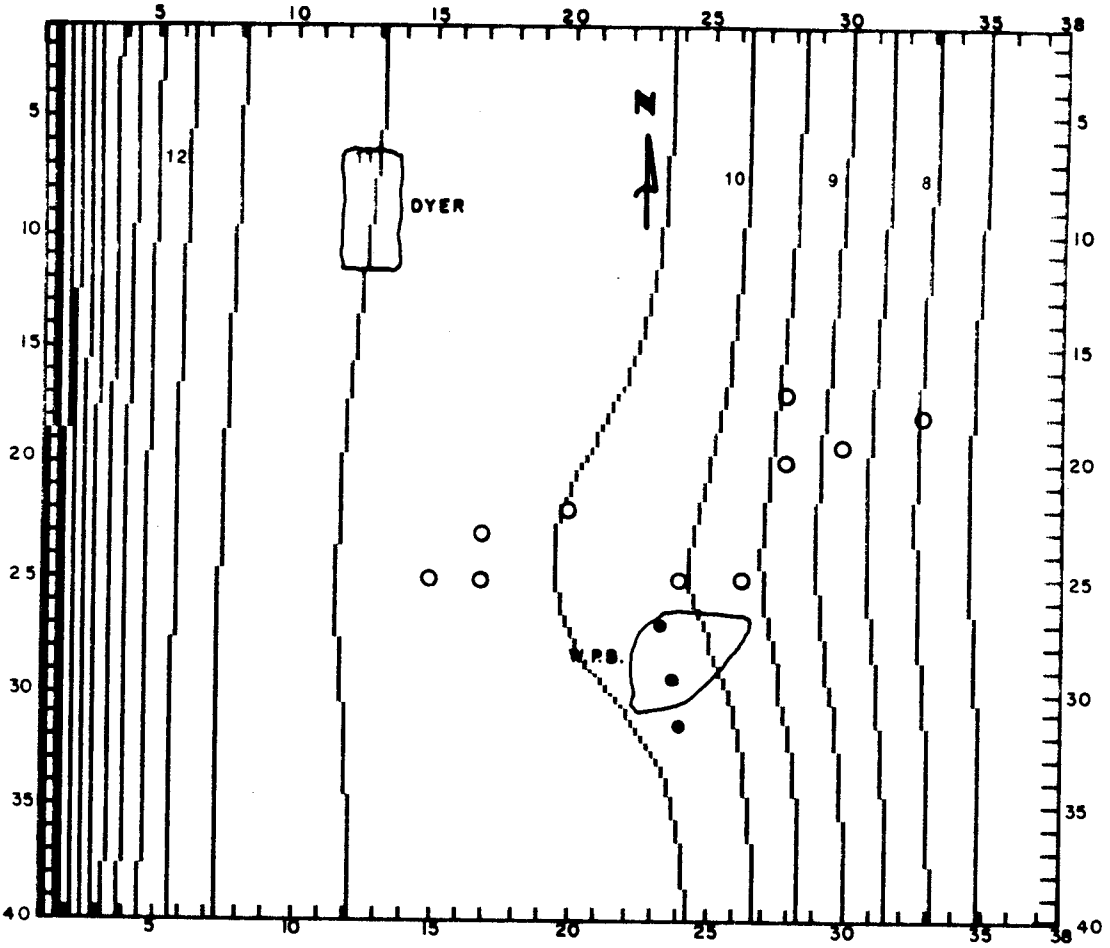
TITLE: PUMPAGE EFFECT ON SOURCE BED (12-10-86 TO 3-31-87)

TIME PERIOD OF SIMULATION: 110 DAYS
EFFECTIVE RAINFALL RECHARGE DURING PERIOD: 7.23 INCHES
SURFACE EVAPOTRANSPIRATION DURING PERIOD: 15.67 INCHES
MAXIMUM DEPTH OF EVAPOTRANSPIRATION: 10 FEET

AVERAGE DAILY WELL PUMPAGES AND DRAWDOWNS:

WELL IDENTITY	COL NO.	ROW NO.	DISCHARGE (GAL/DAY)	MIN. D.T.W. (FEET)
805	33	18	504000	32.42
802	30	19	504000	34.75
803	28	17	504000	33.44
804	28	20	230400	29.11
851	26	25	864000	21.63
852	24	25	720000	28.29
862	17	25	0	12.74
871	15	25	0	12.44
861	17	23	0	12.75
GP	20	22	180000	17.90

Fig. 10. SOURCE BED, MAR. 31, 1987



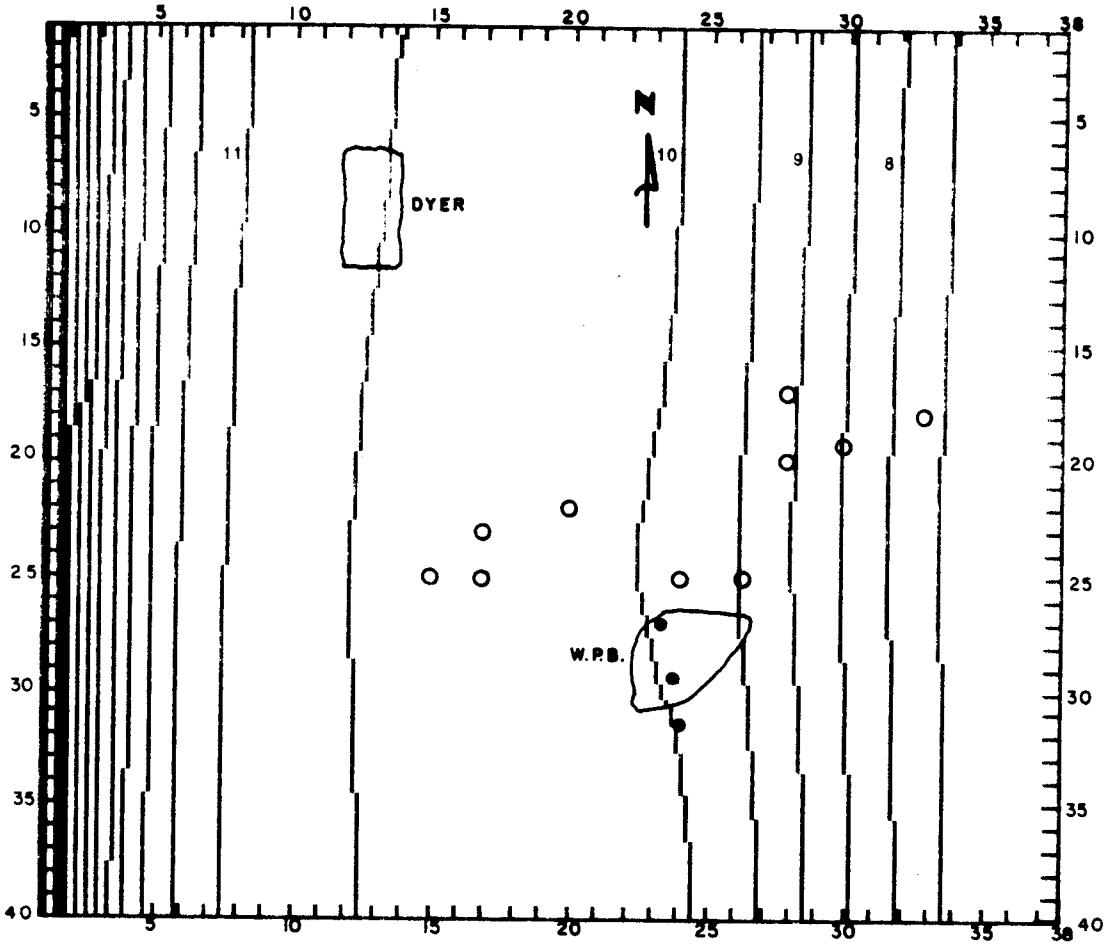
TITLE: PUMPAGE EFFECT ON SOURCE BED (3-31-87 TO 6-30-87)

TIME PERIOD OF SIMULATION: 92 DAYS
EFFECTIVE RAINFALL RECHARGE DURING PERIOD: 6.05 INCHES
SURFACE EVAPOTRANSPIRATION DURING PERIOD: 13.11 INCHES
MAXIMUM DEPTH OF EVAPOTRANSPIRATION: 10 FEET

AVERAGE DAILY WELL PUMPAGES AND DRAWDOWNS:

WELL IDENTITY	COL NO.	ROW NO.	DISCHARGE (GAL/DAY)	MIN. D.T.W. (FEET)
805	33	18	504000	32.38
802	30	19	504000	34.66
803	28	17	504000	33.38
804	28	20	230400	28.95
851	26	25	864000	21.17
852	24	25	720000	27.75
862	17	25	0	12.80
871	15	25	0	12.58
861	17	23	0	12.80
GP	20	22	180000	17.78

Fig. 11. SOURCE BED, JUNE 30, 1987



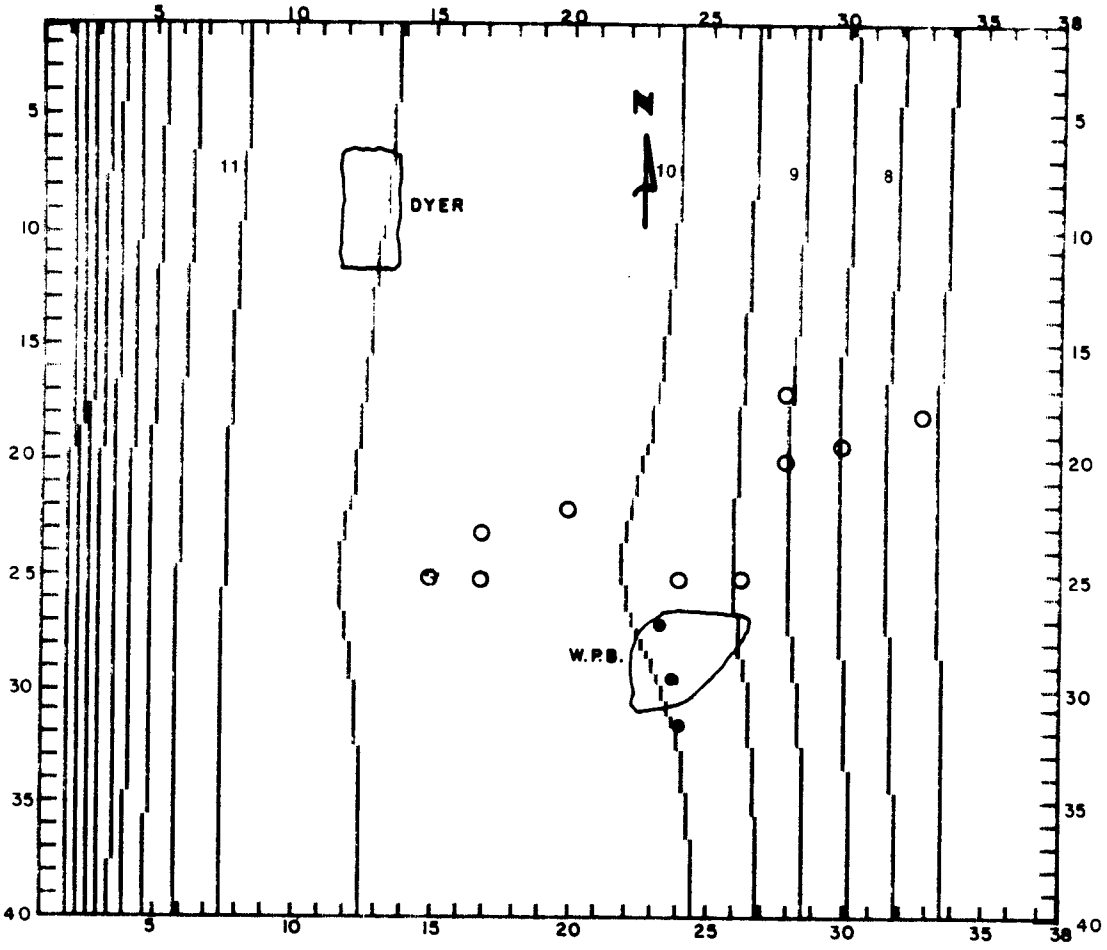
TITLE: PUMPAGE EFFECT ON SOURCE BED (6-30-87 TO 12-31-87)

TIME PERIOD OF SIMULATION: 184 DAYS
EFFECTIVE RAINFALL RECHARGE DURING PERIOD: 12.1 INCHES
SURFACE EVAPOTRANSPIRATION DURING PERIOD: 26.21 INCHES
MAXIMUM DEPTH OF EVAPOTRANSPIRATION: 10 FEET

AVERAGE DAILY WELL PUMPAGES AND DRAWDOWNS:

WELL IDENTITY	COL NO.	ROW NO.	DISCHARGE (GAL/DAY)	MIN. D.T.W. (FEET)
805	33	18	504000	32.93
802	30	19	504000	35.23
803	28	17	504000	34.01
804	28	20	288000	29.50
851	26	25	864000	21.56
852	24	25	720000	28.16
862	17	25	792000	27.69
871	15	25	792000	28.94
861	17	23	792000	27.51
GP	20	22	180000	18.90

Fig. 12. SOURCE BED, DEC. 31, 1987



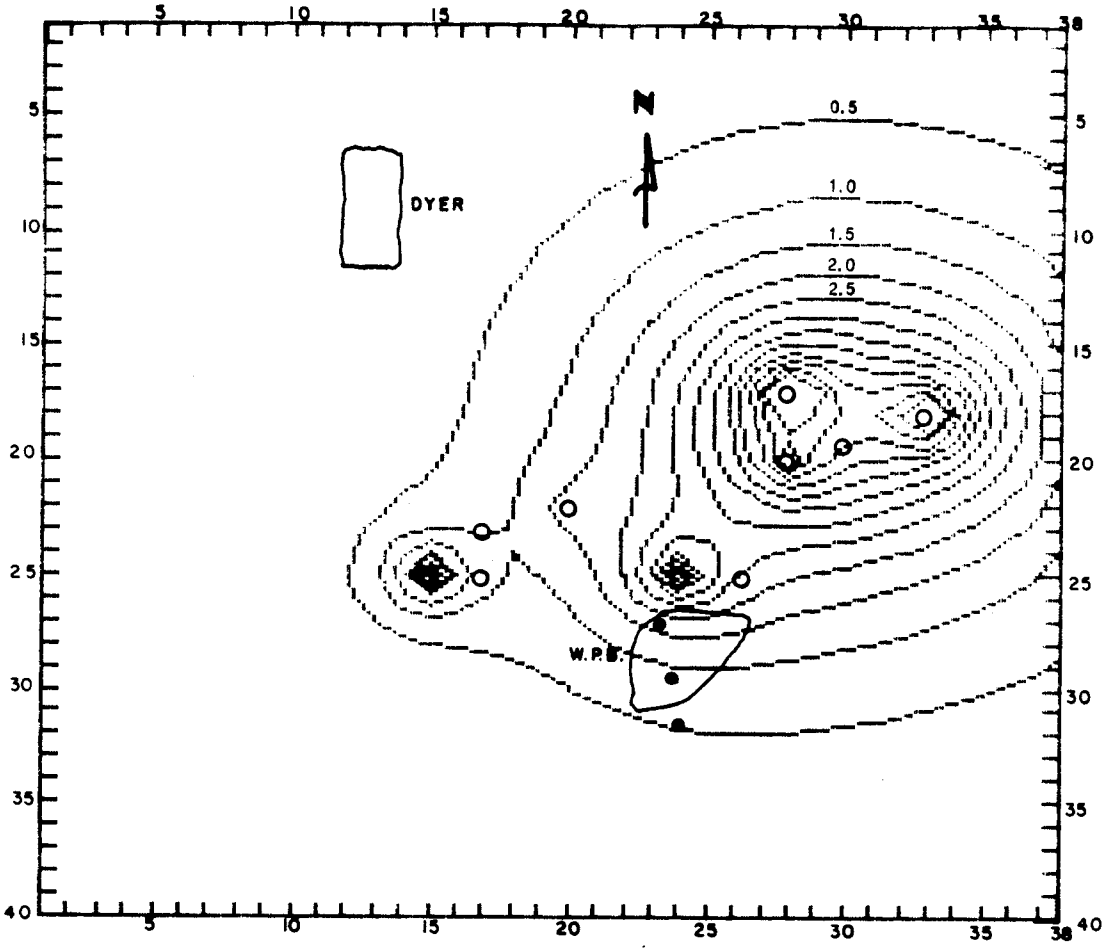
TITLE: 24-HOUR CYCLE -- NUMBER 1

TIME PERIOD OF SIMULATION: 1 DAYS
EFFECTIVE RAINFALL RECHARGE DURING PERIOD: .06 INCHES
SURFACE EVAPOTRANSPIRATION DURING PERIOD: .14 INCHES
MAXIMUM DEPTH OF EVAPOTRANSPIRATION: 10 FEET

AVERAGE DAILY WELL PUMPAGES AND DRAWDOWNS:

WELL IDENTITY	COL NO.	ROW NO.	DISCHARGE (GAL/DAY)	MIN. D.T.W. (FEET)
805	33	18	1008000	30.87
802	30	19	0	13.69
803	28	17	1008000	31.73
804	28	20	576000	26.68
851	26	25	0	14.62
852	24	25	1440000	27.15
862	17	25	0	13.75
871	15	25	1584000	28.40
861	17	23	0	13.67
GP	20	22	180000	17.84

Fig. 13. 1988 SOURCE BED, CYCLE NO. 1



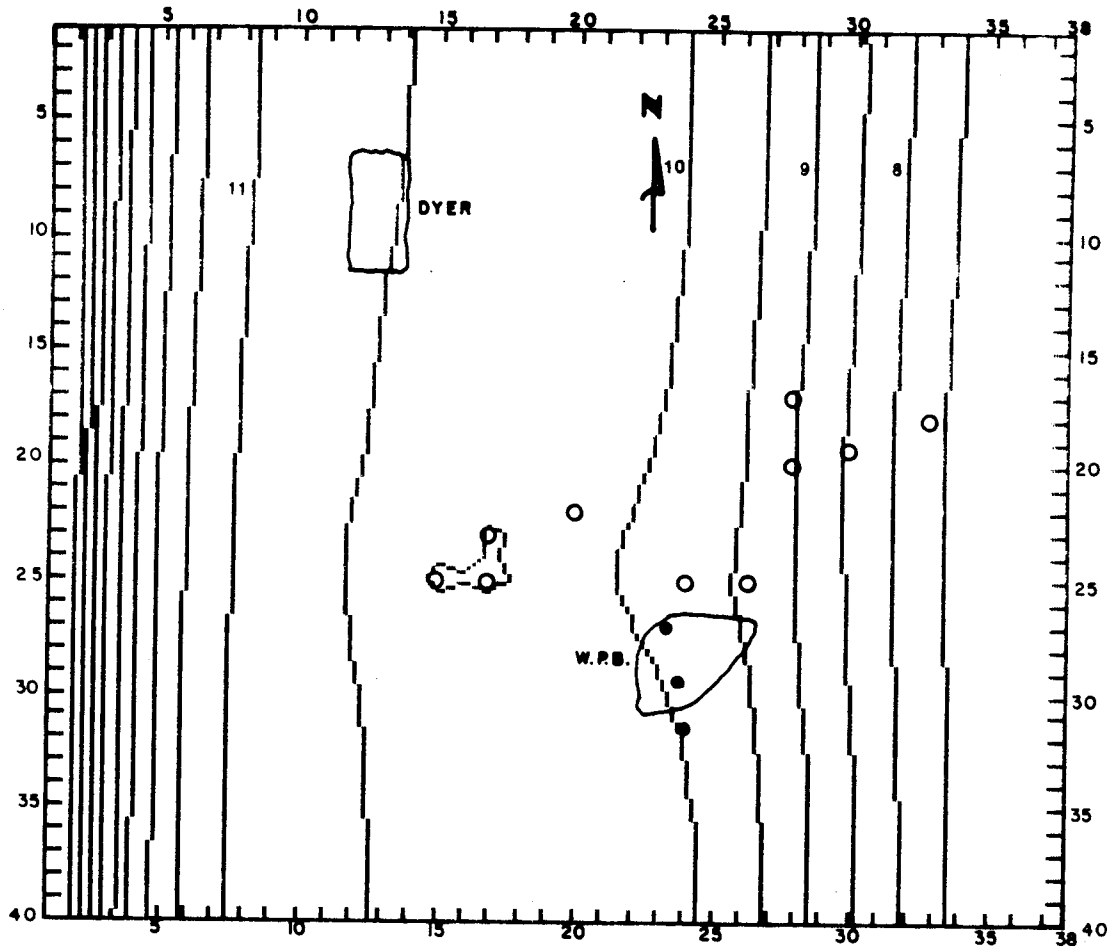
PIEZOMETRIC HEAD IN PUMPED ZONE
CYCLE 1

TIME PERIOD OF SIMULATION: 1 DAYS
EFFECTIVE RAINFALL RECHARGE DURING PERIOD: .06 INCHES
SURFACE EVAPOTRANSPIRATION DURING PERIOD: .14 INCHES
MAXIMUM DEPTH OF EVAPOTRANSPIRATION: 10 FEET

AVERAGE DAILY WELL PUMPAGES AND DRAWDOWNS:

WELL IDENTITY	COL NO.	ROW NO.	DISCHARGE (GAL/DAY)	MIN. D.T.W. (FEET)
805	33	18	1008000	30.87
802	30	19	0	13.69
803	28	17	1008000	31.73
804	28	20	576000	26.68
851	26	25	0	14.62
852	24	25	1440000	27.15
862	17	25	0	13.75
871	15	25	1584000	28.40
861	17	23	0	13.67
GP	20	22	180000	17.84

Fig. 14. 1988 PUMPED ZONE DRAWDOWNS-CYCLE 1



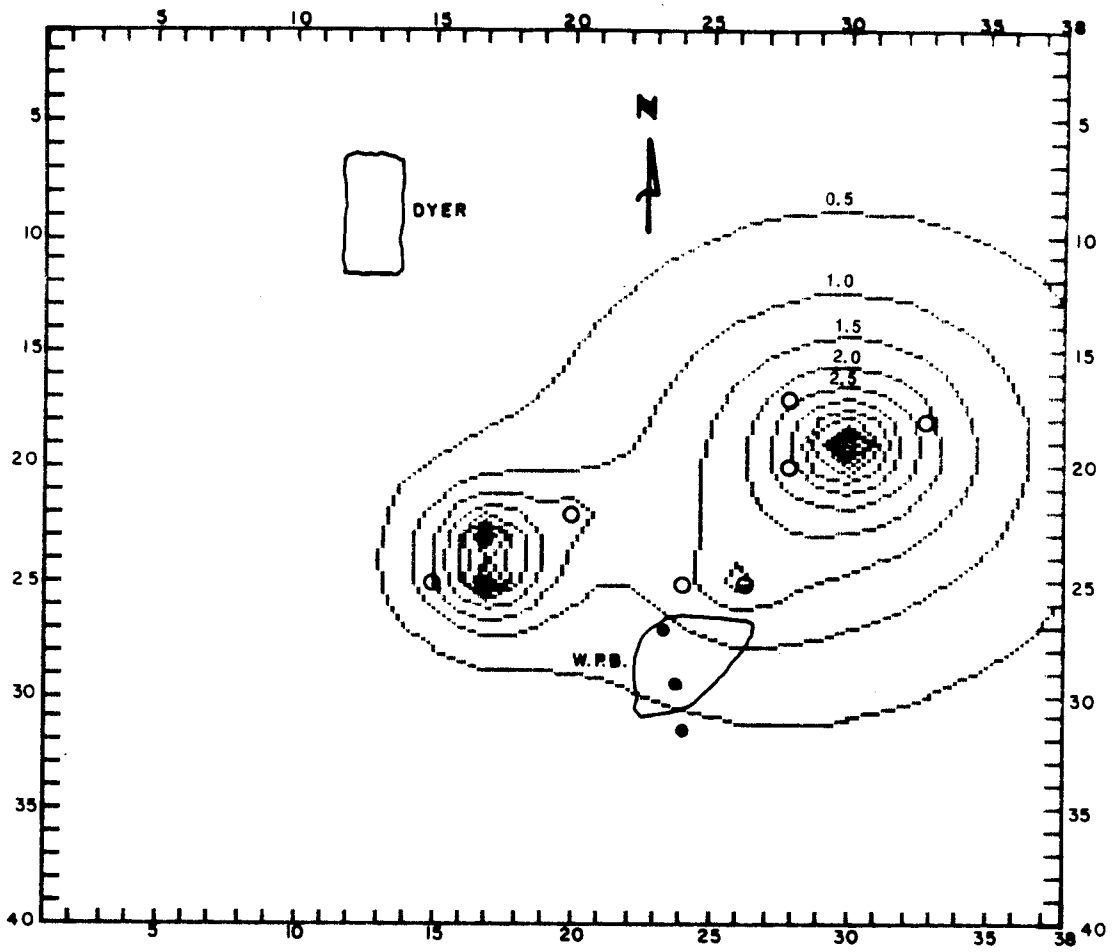
TITLE: 24-HOUR CYCLE -- NUMBER 2

TIME PERIOD OF SIMULATION: 1 DAYS
EFFECTIVE RAINFALL RECHARGE DURING PERIOD: .06 INCHES
SURFACE EVAPOTRANSPIRATION DURING PERIOD: .14 INCHES
MAXIMUM DEPTH OF EVAPOTRANSPIRATION: 10 FEET

AVERAGE DAILY WELL PUMPAGES AND DRAWDOWNS:

WELL IDENTITY	COL NO.	ROW NO.	DISCHARGE (GAL/DAY)	MIN. D.T.W. (FEET)
805	33	18	0	12.83
802	30	19	1008000	30.17
803	28	17	0	13.95
804	28	20	0	14.01
851	26	25	1728000	19.18
852	24	25	0	14.58
862	17	25	1584000	27.36
871	15	25	0	14.43
861	17	23	1584000	27.35
GP	20	22	180000	17.83

Fig. 15. 1988 SOURCE BED, CYCLE NO. 2



PIEZOMETRIC HEAD IN PUMPED ZONE
CYCLE 2

TIME PERIOD OF SIMULATION: 1 DAYS
EFFECTIVE RAINFALL RECHARGE DURING PERIOD: .06 INCHES
SURFACE EVAPOTRANSPIRATION DURING PERIOD: .14 INCHES
MAXIMUM DEPTH OF EVAPOTRANSPIRATION: 10 FEET

AVERAGE DAILY WELL PUMPAGES AND DRAWDOWNS:

WELL IDENTITY	COL NO.	ROW NO.	DISCHARGE (GAL/DAY)	MIN. D.T.W. (FEET)
805	33	18	0	12.83
802	30	19	1008000	30.17
803	28	17	0	13.95
804	28	20	0	14.01
851	26	25	1728000	19.18
852	24	25	0	14.58
862	17	25	1584000	27.36
871	15	25	0	14.43
861	17	23	1584000	27.35
GP	20	22	180000	17.83

Fig. 16. 1988 PUMPED ZONE DRAWDOWNS-CYCLE 2

COEFFICIENT OF STORAGE AT EACH NODE IN SOURCE BED (DECIMAL):

R/C	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
1	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
2	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
3	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
4	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
5	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
6	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
7	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
8	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
9	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
10	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
11	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
12	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
13	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
14	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
15	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
16	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
17	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
18	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
19	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
20	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
21	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
22	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
23	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
24	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
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37	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
38	CONH	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	.2000	CONH
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Fig. 17. MODEL COEFFICIENT OF STORAGE