

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

DIGITAL-COMPUTER MODEL OF THE PRINCIPAL
GROUND-WATER RESERVOIR IN BEAR-ENTERPRISE
AREA, ESCALANTE DESERT, UTAH

By R. W. Mower and S. D. Bartholoma

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ILLUSTRATION

[Plate is in pocket]

Plate 1. Map showing rectangular grid used with the digital-computer of the ground-water reservoir in the Beryl-Enterprise area, Utah.

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METRIC CONVERSIONS

<u>Multiply inch-pound unit</u>	<u>by</u>	<u>to obtain metric unit</u>
Foot (ft)	0.3048	Meter
Mile (mi)	1.609	Kilometer
Foot per second (ft/s)	0.3048	Meter per second
Cubic foot per second (ft ³ /s)	0.02832	Cubic meter per second

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INTRODUCTION

The computer model presented in this report was used to simulate the principal ground-water reservoir in the Beryl-Enterprise area, Escalante Desert, Beaver, Iron, and Washington Counties, Utah (Mower, 1981). The details of the formulation of the model, testing of its validity, and the results of predictions are discussed in the cited report. This report was prepared as part of a cooperative program with the Utah Department of Natural Resources, Division of Water Rights, to investigate the water resources of the State. It is an addendum to the principal interpretive report, and it is presented in order to make the model available to anyone desiring to use it for additional predictions.

The main program used was the finite-difference model for aquifer simulation in two dimensions documented by Trescott, Pinder, and Larson, (1976). Minor modifications were made to adapt the program to the principal ground-water reservoir in the Beryl-Enterprise area. All the modifications are listed at the top of table 1, and were related to parameter input and output, thus none of the computational subroutines were affected. The parameter arrays (table 1) and map of the area with a grid overlay (pl. 1) are given on following pages.

The model simulates an aquifer under water-table conditions, mostly composed of unconsolidated basin-fill deposits. The boundaries of the modeled area (pl. 1) generally coincide with the boundaries of the saturated basin fill. However, in the southwest-central part of the model, permeable consolidated rock is included; and that part of the northern boundary between the Black and Wah Wah Mountains is an arbitrary boundary in basin fill between the Beryl-Enterprise area and the Milford area that lies to the northeast. The ignimbrite at Table Butte also was included in the active part of the model. The model includes simulation of discharge by evapotranspiration from phreatophytes.

The areal recharge array was used to simulate recharge entering the modeled area at its boundaries and from stream infiltration in the southern corner near Enterprise. In addition, this array included discharge by wells operated during the period simulated as being under steady-state conditions (virtually 1937), and discharging wells simulating flow of water northeast to the Milford area. These wells also were included in the transient-state simulation (1937-77), although any changes in this discharge were modeled using the pumpage array (Group IV, table 1). The wells simulating outflow to the Milford area are shown on plate 1, but the wells pumping in 1937 are not shown unless they also were pumped during 1937-77.

The pumpage array was used to simulate: (1) Discharge from wells, (2) discharge after 1977 from a mine in the southwest-central part of the model and recharge resulting from the mine discharge (pl. 1), and (3) changes in discharge in wells operated during the steady-state period. Recharge from irrigation was simulated by reducing pumpage from nodes where irrigation

occurs. Discharge from all wells was reduced by 5 percent by multiplying all pumpage by 0.95 in the computer program. North of Newcastle, in T. 35 S., R. 15 W., pumpage was reduced by 35 percent because surface materials are very permeable.

APPLICATION OF PROGRAM

The existing model and computer program may be used for predictive purposes for 1978-91. This period is equal in length to the preceding historical period for which reliable discharge data are available (1964-77). Changes in discharge during 1978-91 probably will be small enough so that predictions of their effects probably will be reliable. Beyond 1991, the results may become increasingly less reliable. Predictions may be least reliable beyond 2008, when water levels at some locations may be near the base of the aquifer, and when the discharge and disposition of water from the mine is difficult to estimate. When using the model, only changes in recharge or discharge related to pumping from wells are appropriate. Any other changes may affect the calibration of the model, therefore, the model would have to be verified and calibrated once again before any model results could be considered reliable.

The sample data presented in table 1 are for a transient-state simulation for 1937-77. The overall period is divided into pumping periods representing 1937-45, 1946-49, 1950-64, 1965-68, and 1969-77.

The program was run on an IBM 370/155¹ computer, but it may not be compatible with some other computers and compilers. The compatibility needs to be tested with a trial run before any large-scale analyses are made.

REFERENCES CITED

- Mower, R. W., 1981, Hydrology of the Beryl-Enterprise area, Escalante Desert, Utah, with emphasis on ground water; Utah Department of Natural Resources Technical Publication 73 (in press).
- Trescott, P. C., Pinder, G. F., and Larson, S. P., 1976, Finite-difference model for aquifer simulation in two dimensions with results of numerical experiments: U.S. Geological Survey Techniques of Water-Resources Investigations, Book 7, Chapter C1, 116 p.

¹ The use of named products in this report is for identification only and does not imply endorsement by the U.S. Geological Survey.

Table 1.--Listing of the model data for the 1937-77 transient-state calibration

To run the model using the card deck listed in table 1, the following changes must be made to subroutine DATA1 as listed in Trescott, Pinder, and Larson (1976):

```

1) Change DAT1950 to:
   READ (R,490) KP,KPM1,NWEL,TMAX,NUMT,CDLT,DELT,PERCNT
2) Insert the following cards in their proper sequence:
   PERCNT=PERCNT/100.0
   IF (PERCNT.EQ.0.0) PERCNT=1.0
   IF (WELL(I,J).LT.0.0) WELL(I,J)=WELL(I,J)*PERCNT

```

DAT1950
DAT1953
DAT1956
DAT2315

This change allows the modeler to change the pumping rate of all discharge wells. The value of well discharge coded on the input cards is multiplied by PERCNT/100.0 before being used by the model. PERCNT is coded on card 1 of the group IV. input cards in columns 71 to 80. (Trescott, Pinder, and Larson, 1976, p. 54). If this field is left blank, PERCNT is set to 100 percent.

CARD
NUMBER

GROUP 1: TITLE, SIMULATION OPTIONS, AND PROBLEM DIMENSIONS

1	GROUND WATER MODEL OF HERYL-ENTERPRISE VALLEY, UTAM	
2	TRANSIENT SOLUTION BY REED MOWER	
3	EVAP RECH SIP	CHEC
4		

HEAD

58

49

70

CARD
NUMBER

CARD
NUMBER

5 6 7 8 9 10

5-1

201

0.031

0.03

80-305

11

101.

GROUP II: SCALAR PARAMETERS

CARD
NUMBER

6

GROUP III: ARRAY DATA (CONT)
STARTING HEAD MATRIX (CONT)
1937 STEADY STATE VALUES FOR INITIAL HEADS
(FT)

CARD
NUMBER

66	5142.5210	5144.9733	0.0	0.0	0.0	0.0	0.0	0.0	0.0
67	0.0	0.0	5103.8949	5093.5179	5088.6380	5087.3718	5087.5628	5087.5807	0.0
68	0.0	0.0	5088.3848	5088.8155	5089.4567	5090.0633	5090.6308	5091.3010	0.0
69	5087.7393	5088.0312	5088.3848	5088.8155	5089.4567	5090.0633	5090.6308	5091.3010	0.0
70	5087.7393	5088.0312	5088.3848	5088.8155	5089.4567	5090.0633	5090.6308	5091.3010	0.0
71	5087.7393	5088.0312	5088.3848	5088.8155	5089.4567	5090.0633	5090.6308	5091.3010	0.0
72	5122.6804	5125.5928	5128.9311	5132.9353	5137.7298	5142.2129	5146.2448	5150.1400	0.0
73	5153.7758	5158.2976	0.0	0.0	0.0	0.0	0.0	0.0	0.0
74	0.0	0.0	5122.4138	5110.9495	5102.4918	5098.2705	5096.4087	5095.6018	5095.2974
75	0.0	0.0	5095.1180	5095.0200	5095.0348	5095.2119	5095.5659	5096.2858	5097.2659
76	5098.5627	5100.2079	5102.1335	5103.9521	5105.5886	5107.1038	5108.5728	5110.0825	0.0
77	5111.7195	5113.4973	5115.4222	5117.5882	5120.0703	5122.8440	0.0	0.0	0.0
78	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
79	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
81	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82	0.0	0.0	5126.3229	5116.4472	5108.5375	5104.4030	5102.0680	5101.1362	5100.9454
83	5101.0032	5101.1652	5101.3213	5101.5604	5101.9374	5102.4803	5103.2194	5104.1343	0.0
84	5105.1396	5106.2649	5107.3314	5108.4276	5109.4819	5111.1658	5112.2996	5113.4764	0.0
85	5114.7201	5115.8099	5116.9744	5118.2695	5119.9230	5122.4502	0.0	0.0	0.0
86	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
88	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89	0.0	0.0	5128.9982	5120.3793	5113.0072	5108.9404	5106.6686	5105.5719	5105.2760
90	5105.3050	5105.4603	5105.7095	5106.0696	5106.5519	5107.1489	5107.8397	5108.5955	0.0
91	5109.4433	5110.3608	5111.3012	5112.3080	5113.2862	5114.2697	5115.4559	5116.6481	0.0
92	5117.5149	5118.1588	5118.7697	5119.3293	5119.8656	5121.1116	0.0	0.0	0.0
93	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
94	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
96	0.0	0.0	5130.9669	5123.1243	5116.3577	5112.3159	5110.0158	5108.8822	5108.6294
97	5108.6656	5108.8640	5109.1509	5109.4996	5109.9505	5110.5349	5111.1993	5111.9527	0.0
98	5112.8061	5113.6977	5114.7083	5115.7538	5116.7247	5117.7395	5118.8338	5119.8308	0.0
99	5120.7038	5121.4679	5122.1743	5122.7806	5123.7236	5125.4173	5127.9266	0.0	0.0
100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
101	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
102	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
103	0.0	0.0	5132.4089	5125.0272	5118.4639	5114.4642	5111.9303	5110.8454	5110.8471
104	5111.0032	5111.2658	5111.5785	5111.9411	5112.4035	5112.9877	5113.6640	5114.4374	0.0
105	5115.2978	5116.2138	5117.1846	5118.1037	5119.0380	5120.0616	5121.0582	5121.9861	0.0
106	5122.8163	5123.4605	5124.0327	5124.7502	5125.8482	5127.0877	5128.7917	5132.9785	0.0
107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
108	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
109	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
110	0.0	0.0	5133.6004	5126.6208	5120.2420	5116.1894	5113.4663	5112.5713	5112.6705
111	5112.9033	5113.2348	5113.5416	5113.9182	5114.4040	5114.9815	5115.6382	5116.3689	0.0
112	5117.1664	5118.0222	5118.9334	5119.8731	5120.8444	5121.8571	5122.7711	5123.6257	0.0
113	5124.3103	5124.7693	5125.1190	5125.8121	5127.0022	5128.0183	5129.3201	5131.3393	0.0
114	5135.0013	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
115	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
116	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
117	0.0	0.0	5134.7012	5128.1711	5122.1239	5117.9553	5115.0998	5114.2310	5114.4297
118	5114.7834	5115.1528	5115.4525	5115.8526	5116.3463	5116.9125	5117.5432	5118.2350	0.0
119	5118.9783	5119.7877	5120.6777	5121.6369	5122.5861	5123.4232	5124.2322	5124.9251	0.0
120	5125.5024	5126.0393	5126.5490	5127.1120	5128.2758	5129.1648	5130.2921	5131.7707	0.0

GROUP III: ARRAY DATA (CONT)
 STARTING HEAD MATRIX (CONT)
 1937 STEADY STATE VALUES FOR INITIAL HEADS
 (FT)

CARD
 NUMBER

121	5133.8915	5136.4471	5141.0251	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
122	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
123	0.0										
124	0.0	5135.0448	5129.5370	5123.8319	5119.6126	5116.7200	5115.8756	5116.1674			
125	5116.5568	5116.9060	5117.2449	5117.6676	5118.1718	5118.7131	5119.3118	5119.9745			
126	5120.7	5121.4	5122.2	5123.1	5124.0	5124.8	5125.5	5126.1			
127	5126.7	5127.4	5128.1	5128.8	5129.7	5130.5	5131.5	5132.7			
128	5134.3	5136.1	5138.3	5141.8	0.0	0.0	0.0	0.0			
129	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
130	0.0										
131	0.0	5136.5	5130.7	5125.3	5121.1	5118.0	5117.4	5117.9			
132	5118.2370	5118.5751	5118.9266	5119.3580	5119.8437	5120.3828	5120.9643	5121.5959			
133	5122.2662	5122.9844	5123.7447	5124.5883	5125.3783	5126.0396	5126.6904	5127.3781			
134	5128.0491	5128.7135	5129.4236	5130.2863	5131.0472	5131.8714	5132.7777	5133.8305			
135	5134.9089	5135.9670	5137.5490	5139.8331	5143.3752	0.0	0.0	0.0			
136	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
137	0.0										
138	0.0	5137.3432	5131.8799	5126.7591	5122.5343	5119.4187	5118.9631	5119.5038			
139	5119.8409	5120.2345	5120.5440	5121.0237	5121.5140	5122.0563	5122.6289	5123.2416			
140	5123.8860	5124.5727	5125.2818	5126.0241	5126.7093	5127.3261	5127.9847	5128.6497			
141	5129.3014	5129.9778	5130.6503	5131.4401	5132.2444	5133.0784	5133.9270	5134.8004			
142	5135.7275	5136.6780	5137.7440	5139.2426	5141.3874	5144.5740	0.0	0.0			
143	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
144	0.0										
145	0.0	5138.1593	5133.1300	5128.1643	5124.1343	5121.1657	5120.6616	5121.0929			
146	5121.5711	5121.9425	5122.2905	5122.7233	5123.2146	5123.7489	5124.3163	5124.9129			
147	5125.3357	5126.1826	5126.8451	5127.5115	5128.1307	5128.7288	5129.3566	5130.0034			
148	5130.6639	5131.3389	5132.0639	5132.8111	5133.5735	5134.3460	5135.1146	5135.8977			
149	5136.7238	5137.5990	5138.5738	5139.7781	5141.1917	5143.0150	5146.9680	0.0			
150	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
151	0.0										
152	0.0	5138.9192	5134.2549	5129.6069	5125.7597	5123.2203	5122.5882	5122.9647			
153	5123.3618	5123.7062	5124.0610	5124.4795	5124.9567	5125.4875	5126.0403	5126.6114			
154	5127.2029	5127.8142	5128.4422	5129.0898	5129.6956	5130.2713	5130.8766	5131.5176			
155	5132.1726	5132.8463	5133.5440	5134.2421	5134.9407	5135.6410	5136.3796	5137.1271			
156	5137.8702	5138.6698	5139.5712	5140.6419	5141.7925	5143.1248	5145.1171	5149.0053			
157	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
158	0.0										
159	0.0	5139.4561	5135.0606	5130.4780	5127.2951	5124.7889	5124.3146	5124.5476			
160	5124.8889	5125.2234	5125.5592	5125.9581	5126.4165	5126.9166	5127.4473	5127.9947			
161	5128.5611	5129.1488	5129.7505	5130.3889	5130.9783	5131.5426	5132.1350	5132.7554			
162	5133.3958	5134.0550	5134.7344	5135.4298	5136.0887	5136.7813	5137.4715	5138.1193			
163	5138.8004	5139.5948	5140.4677	5141.4284	5142.4329	5143.6114	5145.3753	5149.2679			
164	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
165	0.0										
166	0.0	5139.8304	5135.5954	5131.8573	5128.5663	5126.0493	5125.6036	5125.8501			
167	5126.1545	5126.4540	5126.7647	5127.1403	5127.5727	5128.0498	5128.5601	5129.0865			
168	5129.6308	5130.1989	5130.7440	5131.4195	5131.9784	5132.5338	5133.1173	5133.7263			
169	5134.3551	5135.0005	5135.6678	5136.3147	5136.9382	5137.5926	5138.2084	5138.8355			
170	5139.5457	5140.3373	5141.1622	5142.0519	5143.0058	5144.1308	5145.5478	5147.4919			
171	5150.0163	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
172	0.0										
173	0.0	5140.2419	5136.0676	5132.6555	5129.6518	5127.3205	5126.8902	5127.1155			
174	5127.3602	5127.6672	5127.9603	5128.3090	5128.7167	5129.1720	5129.6603	5130.1641			
175	5130.6805	5131.2243	5131.8047	5132.3809	5132.9331	5133.4986	5134.0751	5134.6775			

CARD
NUMBER

9

GROUP III: ARRAY DATA (CONT)
STARTING HEAD MATRIX (CONT)
1937 STEADY STATE VALUES FOR INITIAL HEADS
(FT)

CARD
NUMBER

231	5137.5338	5137.9443	5138.4264	5138.9380	5139.4678	5140.0095	5140.5666	5141.0937
232	5141.5812	5142.0761	5142.5724	5143.1003	5143.6288	5144.1651	5144.7087	5145.2330
233	5145.7330	5146.2521	5146.7908	5147.3090	5147.8012	5148.3212	5148.8932	5149.5027
234	5150.1599	5151.1927	5153.4580	5157.3606	0.0	0.0	0.0	0.0
235	0.0	0.0	5144.8446	5141.0528	5138.5672	5137.4500	5136.9878	5136.5390
236	0.0	5136.4453	5136.4427	5136.4833	5136.5862	5136.7557	5137.0190	5137.3426
237	5138.0703	5138.4871	5138.9607	5139.4810	5140.0338	5140.5759	5141.1227	5141.6321
238	5142.1247	5142.6293	5143.1425	5143.6650	5144.1988	5144.7381	5145.2782	5145.7911
239	5146.2723	5146.7708	5147.2776	5147.7673	5148.2355	5148.7235	5149.2297	5149.7461
240	5150.4205	5151.3813	5153.5411	5157.4418	0.0	0.0	0.0	0.0
241	0.0	0.0	5145.2127	5141.6319	5139.1725	5138.0189	5137.5108	5137.2433
242	0.0	5137.0384	5137.0353	5137.0852	5137.1918	5137.3601	5137.5946	5137.8786
243	5138.5660	5138.9726	5139.4475	5139.9911	5140.5028	5141.0922	5141.6268	5142.1428
244	5142.6585	5143.1748	5143.6916	5144.2144	5144.7578	5145.3032	5145.8414	5146.3490
245	5146.8187	5147.3065	5147.7926	5148.2609	5148.7121	5149.1600	5149.6225	5150.1713
246	5150.8051	5151.7463	5153.8390	5157.7429	0.0	0.0	0.0	0.0
247	0.0	0.0	5145.4874	5142.1983	5139.7773	5138.5918	5138.0262	5137.7687
248	0.0	5137.6169	5137.6143	5137.6631	5137.7664	5137.9243	5138.1344	5138.3895
249	5139.0374	5139.4446	5139.9203	5140.4784	5141.0352	5141.5587	5142.1062	5142.6555
250	5143.1931	5143.7183	5144.2307	5144.7893	5145.3623	5145.9247	5146.4589	5146.9474
251	5147.4042	5147.8729	5148.3282	5148.7770	5149.2083	5149.6390	5150.0967	5150.6123
252	5151.2027	5152.1039	5154.1945	5158.2409	0.0	0.0	0.0	0.0
253	0.0	0.0	5145.7178	5142.7546	5140.3842	5139.1796	5138.5743	5138.3139
254	5138.2007	5138.7505	5138.2521	5138.3516	5138.4976	5138.6952	5138.9433	5139.2452
255	5139.5935	5139.9921	5140.4560	5141.0000	5141.5471	5142.0957	5142.6654	5143.2374
256	5143.7925	5144.3257	5144.8218	5145.4444	5146.0234	5146.5661	5147.0745	5147.5344
257	5147.9817	5148.4287	5148.8762	5149.3164	5149.7324	5150.1442	5150.5744	5151.0695
258	5151.6248	5152.4451	5154.4919	5158.7056	0.0	0.0	0.0	0.0
259	0.0	0.0	5145.9638	5143.2977	5141.0189	5139.7613	5139.1257	5138.8445
260	5138.7607	5138.7505	5138.8038	5138.8983	5139.0489	5139.2533	5139.5140	5139.8326
261	5140.1930	5140.5823	5141.0311	5141.5520	5142.1004	5142.6591	5143.2387	5143.8341
262	5144.4083	5144.9008	5145.5053	5146.0674	5146.6115	5147.1312	5147.6295	5148.0823
263	5148.5340	5148.9839	5149.4321	5149.8567	5150.2583	5150.6544	5151.0745	5151.5418
264	5152.0610	5152.8814	5154.7140	5158.0392	5163.0389	0.0	0.0	0.0
265	0.0	0.0	5146.2227	5143.8353	5141.7627	5140.4872	5139.8010	5139.4748
266	5139.3242	5139.3048	5139.3227	5139.4131	5139.5845	5139.7996	5140.0738	5140.4261
267	5140.8460	5141.2358	5141.6829	5142.1787	5142.7235	5143.2665	5143.8432	5144.4367
268	5145.0029	5145.5542	5146.0920	5146.6450	5147.1759	5147.6914	5148.1778	5148.6367
269	5149.0944	5149.5474	5149.9879	5150.3953	5150.7855	5151.1734	5151.5891	5152.0446
270	5152.5950	5153.3755	5154.9699	5158.0089	5163.5328	0.0	0.0	0.0
271	0.0	0.0	5146.5370	5144.3703	5142.4906	5141.3290	5140.5732	5140.2525
272	5139.9967	5139.9618	5139.9731	5140.0593	5140.2346	5140.4761	5140.7681	5141.1490
273	5141.5469	5141.9260	5142.3704	5142.8665	5143.3806	5143.9218	5144.5259	5145.0928
274	5145.6555	5146.1787	5146.7165	5147.2503	5147.7551	5148.2591	5148.7333	5149.1985
275	5149.6662	5150.1295	5150.5540	5150.9537	5151.3370	5151.7229	5152.1348	5152.6020
276	5153.1699	5153.9459	5155.3675	5158.2062	5164.2773	0.0	0.0	0.0
277	0.0	0.0	5146.9115	5144.9220	5143.1575	5142.0697	5141.3220	5140.9808
278	0.0	0.0	5146.9115	5144.9220	5143.1575	5142.0697	5141.3220	5140.9808
279	5139.9967	5139.9618	5139.9731	5140.0593	5140.2346	5140.4761	5140.7681	5141.1490
280	5141.5469	5141.9260	5142.3704	5142.8665	5143.3806	5143.9218	5144.5259	5145.0928
281	5145.6555	5146.1787	5146.7165	5147.2503	5147.7551	5148.2591	5148.7333	5149.1985
282	5149.6662	5150.1295	5150.5540	5150.9537	5151.3370	5151.7229	5152.1348	5152.6020
283	5153.1699	5153.9459	5155.3675	5158.2062	5164.2773	0.0	0.0	0.0
284	0.0	0.0	5146.9115	5144.9220	5143.1575	5142.0697	5141.3220	5140.9808
285	0.0	0.0	5146.9115	5144.9220	5143.1575	5142.0697	5141.3220	5140.9808

286	5140.7446	5140.7208	5140.7708	5140.8636	5141.0055	5141.7300	5141.5041	5141.5661
287	5142.0877	5142.4557	5142.8905	5143.3760	5143.9839	5144.6199	5145.2250	5145.7712
288	5146.2922	5146.7932	5147.3186	5147.8149	5148.3092	5148.8036	5149.2798	5149.7648
289	5150.2489	5150.7074	5151.1194	5151.5220	5151.9069	5152.3030	5152.7118	5153.1818
290	5153.7782	5154.5681	5156.0006	5158.6502	5165.0252	0.0	0.0	0.0
291	0.0							
292	0.0	5147.3134	5145.4783	5143.8819	5142.7869	5142.0701	5141.6783	5141.5464
293	5141.4971	5141.5090	5141.5554	5141.6544	5141.7985	5141.9782	5142.1829	5142.3697
294	5142.6354	5143.0041	5143.4548	5144.0050	5144.6308	5145.1977	5145.8148	5146.3706
295	5146.8704	5147.3656	5147.8607	5148.3422	5148.8308	5149.3312	5149.8250	5150.3388
296	5150.8137	5151.2508	5151.6809	5152.0651	5152.4768	5152.8830	5153.3140	5153.8313
297	5154.4436	5155.2797	5156.7955	5159.2662	5165.4223	0.0	0.0	0.0
298	0.0							
299	0.0	5147.6937	5145.9426	5144.4418	5143.3666	5142.7085	5142.3584	5142.2484
300	5142.2229	5142.2454	5142.2861	5142.3849	5142.5235	5142.6219	5142.7910	5143.0556
301	5143.3992	5143.7962	5144.2509	5144.7828	5145.3170	5145.9101	5146.4759	5147.0341
302	5147.5290	5148.0074	5148.4723	5148.9536	5149.4445	5149.9408	5150.4254	5150.9074
303	5151.3420	5151.7599	5152.1739	5152.6053	5153.0542	5153.5070	5154.0300	5154.6056
304	5155.2665	5156.2460	5157.7432	5159.9121	5165.8154	0.0	0.0	0.0
305	0.0							
306	0.0	5148.0626	5146.3027	5144.7325	5143.7637	5143.2356	5142.9908	5142.8885
307	5142.8805	5142.9051	5142.9704	5143.0735	5143.1792	5143.3204	5143.5494	5143.8722
308	5144.2473	5144.6740	5145.1528	5145.6840	5146.2025	5146.7453	5147.2698	5147.8139
309	5148.2582	5148.7476	5149.2146	5149.6859	5150.1448	5150.5857	5151.0278	5151.4608
310	5151.8758	5152.2945	5152.7390	5153.2196	5153.7231	5154.2743	5154.8593	5155.5115
311	5156.2658	5157.2995	5158.7155	5160.5910	5164.4653	5170.4171	0.0	0.0
312	0.0							
313	0.0	5148.4520	5146.6146	5145.0633	5144.1770	5143.7533	5143.6016	5143.5352
314	5143.5335	5143.5868	5143.6468	5143.7621	5143.8967	5144.1153	5144.3241	5144.6389
315	5145.0468	5145.5016	5146.0042	5146.5291	5147.0610	5147.5929	5148.1134	5148.5172
316	5148.9383	5149.5091	5150.0039	5150.4303	5150.8416	5151.2567	5151.6747	5152.0608
317	5152.4699	5152.9227	5153.4173	5153.8634	5154.3576	5154.8436	5155.3299	5155.8139
318	5157.4268	5158.5652	5159.8192	5161.7280	5165.4686	5170.5869	0.0	0.0
319	0.0							
320	0.0	5148.8099	5146.8933	5145.3945	5144.6184	5144.2864	5144.1913	5144.1778
321	5144.1914	5144.2394	5144.3293	5144.4556	5144.6158	5144.8246	5145.0815	5145.4295
322	5145.8631	5146.3484	5146.8615	5147.3930	5147.9427	5148.4739	5148.9678	5149.3621
323	5149.8629	5150.3462	5150.8215	5151.2632	5151.6674	5152.0363	5152.3840	5152.7511
324	5153.1860	5153.6741	5154.2420	5154.8982	5155.6187	5156.3662	5157.1438	5157.9526
325	5158.9191	5160.1041	5161.4173	5163.3134	5166.5226	5170.8832	0.0	0.0
326	0.0							
327	0.0	5149.0960	5147.1635	5145.7204	5145.0468	5144.8249	5144.7780	5144.7912
328	5144.8102	5144.8662	5144.9720	5145.1120	5145.2615	5145.5251	5145.7992	5146.1963
329	5146.6923	5147.2109	5147.7438	5148.3047	5148.8661	5149.4141	5149.9435	5150.4368
330	5150.9357	5151.3187	5151.7729	5152.1348	5152.5307	5152.8828	5153.2033	5153.6052
331	5154.0983	5154.6439	5155.2899	5156.0501	5156.8358	5157.6553	5158.5394	5159.4543
332	5160.6013	5161.8884	5163.3348	5165.0725	5168.3352	5171.8033	0.0	0.0
333	0.0							
334	0.0	5149.4357	5147.4477	5146.0509	5145.4476	5145.2831	5145.2678	5145.3049
335	5145.3513	5145.4445	5145.5764	5145.7352	5145.9286	5146.1136	5146.4504	5146.9641
336	5147.5001	5148.0592	5148.6367	5149.2284	5149.8158	5150.4139	5151.0007	5151.5566
337	5152.0722	5152.5038	5152.7832	5153.0998	5153.5709	5154.9343	5154.3272	5154.7749
338	5155.2763	5155.8892	5156.5440	5157.3544	5158.1751	5159.1334	5160.1202	5161.2098
339	5162.6538	5164.1057	5165.5033	5167.7504	5171.8499	5172.8273	0.0	0.0
340	0.0							

GROUP III: ARRAY DATA (CONT)
STARTING HEAD MATRIX (CONT)
1937 STEADY STATE VALUES FOR INITIAL HEADS
(FT)

CARD
NUMBER

341	0.0	5149.8086	5147.7607	5146.3682	5145.8041	5145.6490	5145.6607	5145.7262	
342	5145.8164	5145.9529	5146.1131	5146.2993	5146.5003	5146.7605	5147.2422	5147.7844	
343	5148.3635	5148.9714	5149.6019	5150.2460	5150.8931	5151.5750	5152.2514	5152.8929	
344	5153.4797	5153.9695	5154.2970	5154.6817	5155.0356	5155.4114	5155.9158	5156.4426	
345	5156.9387	5157.5705	5158.3513	5159.2551	5160.2911	5161.3656	5162.4298	5163.7028	
346	5165.3917	5166.9678	5168.8077	5171.9419	5178.0957	0.0	0.0	0.0	
347	0.0								
348	0.0	5150.2433	5148.1036	5145.6722	5146.1110	5145.9751	5146.0220	5146.1206	
349	5146.2414	5146.4018	5146.5905	5146.8013	5147.0674	5147.4927	5148.0445	5148.6407	
350	5149.2750	5149.9432	5150.6404	5151.3502	5152.0908	5152.8961	5153.6892	5154.4486	
351	5155.1591	5155.7898	5156.3082	5156.7293	5156.9776	5157.3959	5157.9119	5158.5981	
352	5159.3257	5160.0621	5161.1749	5162.4915	5163.6074	5164.6922	5165.9329	5167.2073	
353	5168.7296	5170.8033	5174.1593	5178.6503	5186.6954	0.0	0.0	0.0	
354	0.0								
355	0.0	5150.6821	5148.4413	5146.9752	5146.3978	5146.2784	5146.3570	5146.4853	
356	5146.6365	5146.8255	5147.0487	5147.3250	5147.6768	5148.1834	5148.8008	5149.4567	
357	5150.1518	5150.8854	5151.6631	5152.4574	5153.3881	5154.3660	5155.3280	5156.2507	
358	5157.1371	5157.9636	5158.7142	5159.4011	5159.8384	5160.5227	5161.4104	5162.5325	
359	5164.1878	5165.5187	5166.5574	5167.4643	5168.4441	5169.6564	5171.1623	5173.0997	
360	5174.9794	5177.8298	5182.6376	5188.7191	5196.6257	0.0	0.0	0.0	
361	0.0								
362	0.0	5151.0877	5148.7582	5147.2519	5146.6920	5146.6066	5146.7192	5146.8781	
363	5147.0566	5147.2786	5147.5481	5147.8720	5148.2634	5148.8716	5149.5175	5150.2330	
364	5150.9884	5151.8252	5152.7146	5153.7273	5154.8853	5156.0309	5157.1474	5158.2486	
365	5159.3531	5160.4376	5161.4661	5162.6208	5164.0146	5165.5362	5167.3131	5169.2685	
366	5171.3268	5172.9252	5173.9301	5174.6701	5175.9728	5177.9616	5179.8483	5182.2927	
367	5185.0239	5189.1171	5194.7360	5201.4190	5210.0847	0.0	0.0	0.0	
368	0.0								
369	0.0	5151.4741	5149.0656	5147.5399	5147.0337	5147.0267	5147.1902	5147.3924	
370	5147.6069	5147.8705	5148.1658	5148.5683	5149.0959	5149.7660	5150.4350	5151.2140	
371	5152.1997	5153.2113	5154.2632	5155.5070	5156.8410	5158.1663	5159.4891	5160.8603	
372	5162.2797	5163.7417	5165.4052	5167.3187	5169.6277	5171.8193	5174.2356	5176.7501	
373	5178.9311	5181.2083	5182.9872	5184.6184	5187.3520	5189.7713	5191.2613	5192.9943	
374	5196.8748	5202.4106	5208.9962	5216.3284	5227.1795	0.0	0.0	0.0	
375	0.0								
376	0.0	5151.8961	5149.3976	5147.9269	5147.4338	5147.4870	5147.7145	5147.9655	
377	5148.2271	5148.5457	5148.9238	5149.4303	5150.0918	5150.8501	5151.7005	5152.7654	
378	5153.8988	5155.0802	5156.3911	5157.8532	5159.3346	5160.8821	5162.5163	5164.2404	
379	5166.0753	5168.0672	5170.3545	5172.7184	5175.2625	5177.9413	5180.9029	5184.0161	
380	5187.2644	5190.9480	5194.0693	5196.9079	5200.1944	5202.6219	5204.9464	5207.5206	
381	5212.3356	5217.8145	5224.3396	5233.0108	5244.8030	0.0	0.0	0.0	
382	0.0								
383	0.0	5152.3768	5149.7788	5148.3755	5147.8940	5148.0044	5148.3029	5148.6042	
384	5148.9282	5149.3339	5149.8426	5150.4497	5151.2670	5152.1291	5153.2285	5154.4913	
385	5155.7881	5157.1786	5158.7317	5160.3655	5162.1289	5164.0427	5166.0438	5168.1627	
386	5170.4359	5172.6923	5175.4751	5178.1956	5181.1108	5184.2563	5187.7040	5191.3461	
387	5195.4636	5199.8950	5204.0884	5208.4944	5212.3724	5216.1309	5221.1836	5226.3140	
388	5231.8165	5236.5594	5243.2075	5253.0053	5266.9794	0.0	0.0	0.0	
389	0.0								
390	0.0	5152.9699	5150.2258	5148.8351	5148.4475	5148.6994	5149.0662	5149.4051	
391	5149.8093	5150.3504	5150.9948	5151.7653	5152.6713	5153.6069	5154.8249	5156.1451	
392	5157.5437	5159.0714	5160.7706	5162.7365	5164.9700	5167.2351	5169.5835	5172.0712	
393	5174.7617	5177.7379	5180.6820	5183.7305	5186.8664	5190.1979	5193.9307	5197.8492	
394	5202.2175	5206.7337	5211.9561	5217.7118	5223.1529	5228.7057	5235.2624	5241.5577	
395	5248.4395	5254.2686	5262.7907	5272.7714	5283.8129	0.0	0.0	0.0	

GROUP III: ARRAY DATA (CONT)
 STARTING HEAD MATRIX (CONT)
 1937 STEADY STATE VALUES FOR INITIAL HEADS
 (FT)

CARD NUMBER	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417
	0.0	0.0	5153.7485	5150.9456	5149.5944	5149.3334	5149.8809	5150.3349	5150.8336													
	5151.3820	5151.9806	5152.8312	5153.7576	5154.8679	5156.0000	5157.2458	5158.6697														
	5160.2719	5162.0794	5164.2617	5166.9692	5169.6806	5172.3622	5175.1419	5178.0728														
	5181.2362	5184.4364	5187.6548	5190.6807	5193.7092	5197.0185	5200.5498	5204.4243														
	5209.1434	5214.6658	5220.7699	5227.3404	5234.0629	5241.9884	5250.1175	5258.1555														
	5265.8982	5276.3407	5286.9186	5299.1250	5322.0000	0.0	0.0	0.0														
	0.0	0.0	5153.7408	5153.6853	5152.8767	5152.3903	5152.3223	5152.8255	5153.4457													
	5154.0767	5154.9536	5155.8648	5156.8325	5157.9869	5159.2634	5160.9432	5162.8768														
	5165.0205	5167.7906	5171.4264	5174.9869	5178.4973	5181.8077	5185.1467	5188.5594														
	5192.0042	5195.2243	5197.9594	5200.3638	5202.8761	5205.4479	5208.5163	5212.5279														
	5217.6819	5224.0858	5231.8912	5240.1713	5249.8886	5261.9511	5274.6269	5287.0029														
	5297.6792	5308.0867	5316.6201	5323.8030	5338.0000	0.0	0.0	0.0														
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0														
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0														
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0														
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0														
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0														
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0														
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0														

GROUP III: ARPA DATA (CONT)
STORAGE COEFFICIENT MATRIX
(DIMENSIONLESS)

CARD
NUMBER
418 I

CARD
NUMBER

[illegible]

CARD
NUMBER

474	0	40	35	30	30	40	60	40	100	100	100	100	100	100	100	100	100	100
475	150	150	150	150	150	150	120	100	100	100	90	80	60	50	40	0	0	0
476	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
477	0	50	40	30	30	40	60	40	100	100	100	100	100	100	100	100	100	100
478	120	120	120	120	120	120	120	100	100	100	90	80	70	60	50	40	0	0
479	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
480	0	50	40	35	30	30	40	65	100	100	100	100	100	100	100	100	100	100
481	120	120	120	120	120	120	120	100	100	100	90	80	70	60	50	40	0	0
482	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
483	0	60	50	40	35	30	40	60	100	100	100	100	100	100	100	100	100	100
484	120	120	120	120	120	120	120	100	100	100	100	100	100	90	80	70	60	50
485	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
486	0	60	60	40	35	30	40	60	100	100	100	100	100	100	100	100	100	100
487	120	120	120	120	120	120	150	150	150	120	100	100	100	100	90	80	70	60
488	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
489	0	60	60	50	40	35	30	40	60	100	100	100	100	100	100	100	100	100
490	120	120	120	120	120	120	120	120	120	120	120	100	100	100	100	100	100	100
491	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
492	0	60	60	50	40	35	30	40	60	100	100	100	100	100	100	100	100	100
493	120	120	120	120	120	120	120	120	120	120	120	100	100	100	100	100	100	100
494	100	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
495	0	60	60	50	35	30	40	60	100	100	100	100	100	100	100	100	100	100
496	120	120	120	120	120	120	120	120	120	120	120	100	100	100	100	100	100	100
497	120	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
498	0	60	60	50	35	30	40	50	70	100	100	100	110	100	100	100	100	100
499	120	120	120	120	120	120	120	120	120	120	120	100	100	100	100	100	100	100
500	120	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
501	0	50	40	30	30	40	50	80	100	120	120	120	125	125	120	120	120	120
502	120	120	120	150	150	150	150	180	180	180	180	150	120	100	100	100	100	100
503	120	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
504	0	50	40	30	30	40	50	80	100	120	120	120	120	120	120	120	120	120
505	120	120	120	120	150	150	180	180	180	180	180	150	120	100	100	100	100	100
506	120	100	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
507	0	50	40	30	30	40	50	70	100	100	120	125	120	120	120	100	100	100
508	120	120	120	150	180	180	180	180	180	180	180	150	120	100	100	100	100	100
509	100	100	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
510	0	50	40	30	30	40	60	80	100	100	120	120	120	120	150	150	150	150
511	150	150	150	180	180	180	180	180	180	180	200	180	180	180	150	150	150	150
512	180	120	100	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0
513	0	50	40	40	40	50	70	100	100	120	120	120	120	150	150	150	150	150
514	150	150	150	180	180	180	180	180	180	180	200	180	180	180	150	150	150	150
515	180	120	100	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0
516	0	50	40	40	50	70	100	100	120	120	120	120	120	150	150	150	150	150
517	150	150	150	180	180	180	180	180	180	180	200	180	180	180	150	150	150	150
518	180	120	100	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0
519	0	50	40	40	60	90	100	100	120	125	125	120	128	120	150	150	150	150
520	180	180	180	180	180	180	180	180	180	180	200	180	180	180	180	150	150	150
521	120	120	100	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0
522	0	50	40	40	60	90	100	100	120	120	120	120	120	120	120	120	120	120
523	180	180	180	180	180	180	150	150	150	150	160	160	160	180	180	180	180	180
524	150	120	100	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0
525	0	50	40	40	60	90	100	100	120	120	120	120	120	120	120	120	120	120
526	150	150	150	150	150	150	150	150	180	180	200	200	180	180	180	180	180	180
527	160	150	100	80	0	0	0	0	0	0	0	0	0	0	0	0	0	0
528	0	50	40	50	70	100	120	120	120	150	150	150	150	150	150	150	150	150

CARD
NUMBER

529	180	180	180	180	180	180	180	186	180	180	200	200	200	200	200	200	200	200	200
530	180	120	100	100	80	0	0	0	0										
531	0	50	50	40	40	50	70	100	120	121	150	150	150	150	150	150	150	150	150
532	180	180	180	180	180	180	180	180	200	200	200	200	200	200	200	200	200	200	200
533	180	150	120	100	80	0	0	0	0										
534	0	40	50	40	40	60	70	90	100	100	100	120	120	120	150	200	200	200	150
535	180	180	180	180	180	180	150	180	180	180	200	200	200	200	200	200	200	200	200
536	180	150	120	100	80	0	0	0	0										
537	0	40	50	40	50	60	90	100	100	100	100	120	150	150	200	200	200	200	200
538	150	150	200	200	200	200	200	200	200	200	200	200	220	220	220	200	200	200	200
539	180	150	120	100	80	0	0	0	0										
540	0	40	50	40	50	70	90	100	100	100	120	120	150	150	100	100	100	100	100
541	180	180	180	180	180	180	200	200	200	200	200	220	250	250	220	220	200	180	180
542	150	120	100	100	80	0	0	0	0										
543	0	50	70	100	100	100	100	120	120	120	120	150	199	200	70	70	70	70	60
544	70	70	150	150	150	150	150	150	180	180	220	220	250	250	250	220	200	180	180
545	150	120	100	100	80	0	0	0	0										
546	0	60	80	100	100	100	120	120	120	120	150	100	70	70	70	70	70	70	70
547	70	70	150	150	150	150	150	150	180	180	220	220	220	220	220	200	200	180	180
548	150	120	100	120	100	80	0	0	0										
549	0	80	100	100	100	100	110	120	120	120	120	120	100	70	70	70	70	70	70
550	70	70	150	150	150	150	150	150	180	180	200	200	200	200	200	200	200	200	200
551	150	120	100	100	100	100	0	0	0										
552	0	100	100	100	100	100	110	120	120	120	120	120	60	60	60	60	60	60	60
553	60	60	60	60	60	150	150	150	150	150	180	180	180	180	180	180	200	200	200
554	180	150	100	100	100	100	0	0	0										
555	0	100	100	100	100	100	110	120	120	120	120	120	100	60	60	60	60	60	60
556	60	60	60	60	60	60	100	150	150	150	170	170	170	170	170	200	250	250	200
557	180	180	150	150	100	100	0	0	0										
558	0	100	100	100	100	120	120	120	120	120	120	100	100	60	60	60	60	60	60
559	60	60	60	60	60	60	100	100	120	120	150	150	150	180	180	200	180	180	180
560	180	180	200	120	100	100	0	0	0										
561	0	100	100	100	100	120	120	120	120	120	120	120	50	50	50	50	50	50	50
562	50	50	50	50	50	50	50	50	50	50	100	100	100	120	120	120	150	150	150
563	180	180	150	120	100	0	0	0	0										
564	0	100	100	100	110	120	120	120	120	120	100	50	50	50	50	50	50	50	50
565	50	50	50	50	50	50	50	50	60	70	80	80	80	80	80	100	120	120	120
566	180	150	120	100	100	0	0	0	0										
567	0	100	100	100	110	120	120	120	120	120	100	100	50	50	50	50	50	50	50
568	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	50	80	90	80
569	100	120	100	100	100	0	0	0	0										
570	0	120	110	110	100	100	100	100	100	100	100	100	50	50	50	50	50	50	40
571	40	40	40	40	40	40	40	40	30	30	30	30	40	40	40	50	60	80	90
572	100	100	100	100	100	0	0	0	0										
573	0	120	110	100	100	100	100	100	100	100	80	60	40	30	30	30	30	30	30
574	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	50	60	80
575	100	100	100	100	100	0	0	0	0										
576	0	120	110	90	90	90	90	90	90	90	80	70	50	30	30	30	30	30	30
577	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	40	60	90	90
578	100	100	100	100	100	0	0	0	0										
579	0	100	100	90	90	90	85	85	85	90	80	80	50	30	30	30	30	30	30
580	30	30	30	30	30	30	30	30	30	30	30	30	30	30	40	40	50	60	70
581	90	80	90	100	100	0	0	0	0										
582	0	100	90	90	80	80	80	80	80	80	80	80	40	40	40	40	40	40	40
583	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	50	60	60	60

GROUP III: ARRAY DATA (CONT)

CARD

[illegible]

CARD
NUMBER

[illegible]

CARD
NUMBER

[illegible]

CARD
NUMBER

[illegible]

CARD
NUMBER

22

CARD
NUMBER

[illegible]

**CARD
NUMBER**

24

CARD
NUMBER

[illegible]

GROUP III: ARRAY DATA (CONT)
SPECIFIC YIELD (CONT)
(DIMENSIONLESS)

CARD
NUMBER

[illegible]

CARD
NUMBER

[illegible]

CAHD
NUMBER

28

CARD
NUMBER

29

CARD
NUMBER

30

GROUP III: ARRAY DATA (CONT)

RECHARGE RATE

(FT/S)

CARD
NUMBER

1119	1.0E-10	1	1	
1120				
1121				
1122		10	25	32
1123			50	45
1124				
1125				
1126			50	40
1127			20	25
1128			28	
1129				
1130	130			
1131				
1132	2			
1133				
1134				
1135	16			
1136				
1137				
1138	24			
1139				
1140	118			
1141				
1142	60			
1143				
1144				
1145				
1146	80			
1147	OK 7.5			
1148				
1149				
1150	25			
1151				
1152				
1153	27			
1154				
1155	30			
1156				
1157				
1158				
1159				
1160	30			
1161				
1162	28			
1163				
1164				
1165				
1166	28			
1167				
1168	30			
1169				
1170				
1171	35			
1172				
1173				

184

118

155

190

164

248

510

521

794

600

605

CARD
NUMBER

32

GROUP III: ARRAY DATA (CONT)
RECHARGE RATE (CONT)
(FT/S)

CARD
NUMBER

1229		
1230	456	
1231	37	
1232		
1233	568	
1234	26	
1235		
1236	637	
1237	18	
1238		
1239	904	
1240	20	
1241		
1242	797	
1243	10	
1244		
1245	960	
1246		
1247		
1248	210	
1249		
1250		
1251	250	
1252	52	
1253		
1254	170	
1255		
1256		
1257	130	
1258		
1259		
1260	140	
1261	31	
1262		
1263	350	
1264		
1265		
1266	300	
1267	54	
1268		
1269	300	
1270	70	
1271		
1272	330	
1273	66	
1274		
1275	300	
1276		
1277	49	
1278	300	
1279	57	
1280		
1281	1300	
1282	65	
1283		

GROUP III:ARRAY DATA (CONT)
 RECHARGE RATE (CONT)
 (FT/S)

CARD
 NUMBER

1284	300	200	100	1200	
1285		80			
1286					300
1287	300	200		2387	
1288		55	52	55	
1289	280	280	300	330	350
1290	1400	1000	1004	341	901
1291					
1292					
1293					

GROUP III: ARRAY DATA (CONT)
GRID SPACING IN THE A DIRECTION
(FT)

CARD
NUMBER

1294	100	1	110	90	1	45	30	20
1295	100	100	20	20	65	20	20	20
1296	20	20	20	20	20	20	20	20
1297	20	20	20	20	20	20	20	20
1298	20	20	20	20	20	20	20	20
1299	20	20	20	20	20	20	20	20
1300	20	20	20	20	30	40	60	80
1301	90	20	20	20	30	40	60	80

GROUP III: ARRAY DATA (CONT)
GRID SPACING IN THE Y DIRECTION
(FT)

CARD NUMBER	100	1	60	110	150	150	150	150	150
1302	100	1	60	110	150	150	150	150	150
1303	40	60	110	65	45	30	30	30	30
1304	150	110	30	30	30	20	20	20	20
1305	30	30	20	20	20	20	20	20	20
1306	20	20	20	20	20	20	20	20	20
1307	20	20	20	20	20	20	20	20	20
1308	20	20	20	20	20	20	20	20	20
1309	20	20	20	20	20	20	20	20	20
1310	45	65							

GROUP IV: PARAMETERS THAT CHANGE WITH THE PUMPING PERIOD

PUMPING PERIOD NUMBER 1 - 1937 TO 1945

DISCHARGE (-) AND RECHARGE (+) IN FT³/S
PUMPING PERIOD IN DAYS INITIAL TIME STEP IN HOURS

CARD
NUMBER

CARD NUMBER	1	0	33	3287	7	2	622	951
1311	1	0	33	3287	7	2	622	951
1312	14	26	-.06					
1313	15	27	-.32					
1314	16	27	-.42					
1315	24	9	-.18					
1316	25	18	-.08					
1317	27	14	-.02					
1318	27	23	-.21					
1319	29	10	-.05					
1320	30	10	-.04					
1321	30	18	-.05					
1322	31	17	-.26					
1323	33	13	-.30					
1324	35	12	-.04					
1325	35	15	-.22					
1326	36	27	-.24					
1327	37	14	-.29					
1328	37	26	-.01					
1329	38	26	-.28					
1330	38	27	-.04					
1331	39	20	-.09					
1332	39	25	-.05					
1333	39	28	-.04					
1334	39	31	-.01					
1335	40	35	-.01					
1336	42	37	-.01					
1337	49	36	-.02					
1338	50	37	-.01					
1339	52	40	-.01					
1340	53	40	-.02					
1341	55	40	-.14					
1342	55	41	-.04					
1343	57	41	-.04					
1344	57	43	-.02					

GROUP IV: PARAMETERS THAT CHANGE WITH THE PUMPING PERIOD (CONT)

PUMPING PERIOD NUMBER 2 - 1946 TO 1949

DISCHARGE (-) AND RECHARGE (+) IN FT3/S

PUMPING PERIOD IN DAYS INITIAL TIME STEP IN HOURS

CARD NUMBER	2	1	129	1461	6	2	557	951
1345	08	04	-0.08					
1346	12	3	-0.01					
1347	13	3	-0.14					
1348	13	5	-0.04					
1349	15	26	-0.27					
1350	15	27	-0.90					
1351	16	27	-0.57					
1352	17	29	-0.03					
1353	17	2	-0.14					
1354	19	33	-0.16					
1355	20	23	-0.02					
1356	20	32	-0.33					
1357	21	2	-0.07					
1358	23	38	-0.18					
1359	24	9	-0.30					
1360	24	11	-0.34					
1361	25	18	-0.37					
1362	25	23	-0.12					
1363	26	17	-0.24					
1364	26	20	-0.03					
1365	27	8	-0.17					
1366	27	9	-0.33					
1367	27	14	-0.16					
1368	27	19	-0.36					
1369	27	23	-0.40					
1370	27	24	-0.29					
1371	27	5	-0.11					
1372	28	8	-0.34					
1373	28	11	-0.06					
1374	28	20	-0.05					
1375	28	5	-0.04					
1376	29	18	-0.18					
1377	29	19	-0.12					
1378	29	20	-0.03					
1379	29	23	-0.12					
1380	29	38	-0.27					
1381	30	10	-0.78					
1382	30	18	-0.45					
1383	30	19	-0.10					
1384	30	20	-0.47					
1385	30	21	-0.14					
1386	30	23	-0.16					
1387	31	8	-0.10					
1388	31	9	-0.18					
1389	31	10	-0.05					
1390	31	17	-0.60					
1391	31	20	-0.59					
1392	31	21	-0.26					
1393	31	13	-0.37					
1394	32	18	-0.16					
1395	32	23	-0.46					
1396	33	9	-0.09					
1397	33	11	-0.16					
1398	33	13	-1.37					
1399								

GROUP IV: PARAMETERS THAT CHANGE WITH THE PUMPING PERIOD (CONT)
 PUMPING PERIOD NUMBER 2 - 1946 TO 1949 (CONT)

DISCHARGE (-) AND RECHARGE (+) IN FT³/S
 PUMPING PERIOD IN DAYS INITIAL TIME STEP IN HOURS

CARD
 NUMBER

1400	33	24	-.19
1401	33	40	-.18
1402	34	11	-.15
1403	34	12	-.27
1404	34	14	-.37
1405	34	22	-.61
1406	34	25	-.30
1407	35	10	-.21
1408	35	12	-.16
1409	35	15	-1.02
1410	35	16	-.84
1411	35	22	-.04
1412	35	23	-.22
1413	35	26	-.17
1414	35	33	-.94
1415	36	24	-.61
1416	36	25	-.09
1417	36	27	-.62
1418	36	28	-.15
1419	36	31	-.07
1420	37	14	-.63
1421	37	15	-.01
1422	37	22	-.30
1423	37	24	-.62
1424	37	26	-.35
1425	37	33	-.36
1426	38	5	-.01
1427	38	22	-.10
1428	38	23	-.19
1429	38	24	-.16
1430	38	26	-.65
1431	38	27	-.29
1432	38	32	-.35
1433	39	6	-.14
1434	39	15	-.22
1435	39	20	-.40
1436	39	22	-.22
1437	39	23	-.28
1438	39	25	-.41
1439	39	28	-.65
1440	39	31	-.55
1441	39	36	-.04
1442	40	7	-.09
1443	40	22	-.09
1444	40	35	-.40
1445	42	13	-.19
1446	42	33	-.11
1447	42	37	-.22
1448	43	34	-.14
1449	43	35	-.10
1450	44	6	-.16
1451	44	38	-.48
1452	45	32	-.10
1453	45	36	-.20
1454	45	39	-.50

GROUP IV: PARAMETERS THAT CHANGE WITH THE PUMPING PERIOD (CONT)			
PUMPING PERIOD NUMBER 2 - 1946 TO 1949 (CONT)			
DISCHARGE (-) AND RECHARGE (+) IN FT ³ /S			
CARD NUMBER	PUMPING PERIOD IN DAYS	INITIAL TIME STEP IN HOURS	
1455	46	35	-0.17
1456	47	34	-0.19
1457	47	36	-0.57
1458	48	35	-0.46
1459	48	37	-0.64
1460	48	38	-0.94
1461	49	36	-0.84
1462	49	38	-0.63
1463	50	37	-1.05
1464	50	38	-0.31
1465	51	37	-0.02
1466	51	40	-0.07
1467	52	40	-1.09
1468	53	40	-0.48
1469	54	41	-0.08
1470	55	40	-0.41
1471	55	41	-0.45
1472	57	41	-0.61
1473	57	43	-0.17
1474	39	13	-0.13

GROUP IV: PARAMETERS THAT CHANGE WITH THE PUMPING PERIOD (CONT)
PUMPING PERIOD NUMBER 3 ~ 1950 TO 1964
DISCHARGE (-) AND RECHARGE (+) IN FT3/S
PUMPING PERIOD IN DAYS INITIAL TIME STEP IN HOURS

CARD NUMBER	3	2	175	5479	8	2	516	951
1475	8	4	-0.02					
1476	12	3	-0.06					
1477	13	3	-0.56					
1478	14	26	-0.27					
1479	14	28	-0.29					
1480	15	26	-0.33					
1481	15	27	-0.95					
1482	15	28	-0.25					
1483	16	5	-0.03					
1484	16	27	-0.56					
1485	17	29	-0.05					
1486	17	33	-0.20					
1487	19	2	-0.42					
1488	19	33	-0.33					
1489	20	32	-0.14					
1490	20	33	-0.04					
1491	21	2	-0.17					
1492	21	36	-0.19					
1493	22	36	-0.25					
1494	23	38	-0.39					
1495	24	9	-0.49					
1496	24	11	-0.67					
1497	25	10	-0.15					
1498	25	17	-1.07					
1499	25	18	-0.41					
1500	25	22	-0.05					
1501	25	23	-0.39					
1502	26	9	-0.10					
1503	26	15	-0.36					
1504	26	17	-1.02					
1505	26	20	-0.27					
1506	26	22	-0.09					
1507	27	8	-0.01					
1508	27	9	-0.57					
1509	27	12	-0.14					
1510	27	14	-0.16					
1511	27	18	-0.13					
1512	27	19	-0.53					
1513	27	23	-0.35					
1514	27	24	-0.53					
1515	27	38	-0.18					
1516	28	5	-0.23					
1517	28	8	-0.45					
1518	28	10	-0.28					
1519	28	11	-1.16					
1520	28	17	-0.62					
1521	28	20	-0.60					
1522	29	5	-0.24					
1523	29	10	-0.13					
1524	29	18	-0.25					
1525	29	19	-0.34					
1526	29	20	-0.41					
1527	29	23	-0.36					
1528	29	37	-0.39					
1529	29							

GROUP IV: PARAMETERS THAT CHANGE WITH THE PUMPING PERIOD (CONT)
PUMPING PERIOD NUMBER 3 - 1950 TO 1964 (CONT)

DISCHARGE (-) AND RECHARGE (+) IN FT³/SI
PUMPING PERIOD IN DAYS INITIAL TIME STEP IN HOURS

1530	29	38	-.65
1531	30	10	-.86
1532	30	18	-.28
1533	30	19	-.24
1534	30	20	-.54
1535	30	21	-.15
1536	30	23	-.16
1537	31	6	-.07
1538	31	9	-.26
1539	31	10	-.60
1540	31	12	-.11
1541	31	13	-.13
1542	31	17	-.61
1543	31	20	-.58
1544	31	21	-.73
1545	32	9	-.04
1546	32	10	-.10
1547	32	13	-.06
1548	32	18	-.48
1549	32	21	-.14
1550	32	23	-.91
1551	32	36	-.27
1552	33	9	-.02
1553	33	10	-1.00
1554	33	13	-.22
1555	33	21	-.61
1556	33	24	-.51
1557	33	40	-.55
1558	34	11	-.62
1559	34	12	-.25
1560	34	14	-.89
1561	34	22	-.99
1562	34	23	-.20
1563	34	25	-.36
1564	34	35	-.24
1565	34	36	-.31
1566	35	10	-.33
1567	35	12	-.77
1568	35	15	-1.02
1569	35	16	-.82
1570	35	22	-.57
1571	35	23	-.33
1572	35	26	-.22
1573	35	33	-.33
1574	36	24	-1.22
1575	36	25	-.33
1576	36	27	-.24
1577	36	28	-.20
1578	36	31	-.04
1579	37	14	-.37
1580	37	15	-.35
1581	37	21	-.27
1582	37	22	-.49
1583	37	24	-1.30
1584	37	25	-.36

GROUP IV: PARAMETERS THAT CHANGE WITH THE PUMPING PERIOD (CONT)

PUMPING PERIOD NUMBER 3 - 1950 TO 1964 (CONT)

DISCHARGE (-) AND RECHARGE (+) IN FT³/S

PUMPING PERIOD IN DAYS: INITIAL TIME STEP IN HOURS

CARD
NUMBER

1585	37	26	-.44
1586	37	30	-.51
1587	37	33	-.90
1588	38	5	-.28
1589	38	22	-.24
1590	38	23	-.41
1591	38	24	-.56
1592	38	26	-1.07
1593	38	27	-.38
1594	38	32	-.67
1595	39	6	-.32
1596	39	15	-.42
1597	39	20	-.61
1598	39	22	-.55
1599	39	23	-.09
1600	39	25	-.78
1601	39	28	-1.60
1602	39	31	-.72
1603	39	33	-.11
1604	40	7	-.24
1605	40	22	-.42
1606	40	32	-.13
1607	40	34	-.01
1608	40	35	-.57
1609	41	25	-1.36
1610	41	31	-.04
1611	41	33	-.23
1612	42	13	-.36
1613	42	27	-.20
1614	42	33	-.82
1615	42	34	-.20
1616	42	37	-.48
1617	42	41	-.03
1618	43	12	-.31
1619	43	26	-.80
1620	43	31	-.32
1621	43	34	-.77
1622	43	35	-.53
1623	43	39	-.10
1624	44	6	-.28
1625	44	38	-.56
1626	44	41	-.23
1627	45	32	-.71
1628	45	36	-.68
1629	45	39	-.40
1630	46	35	-.61
1631	47	34	-.84
1632	47	36	-.75
1633	48	35	-.93
1634	48	37	-.59
1635	48	38	-1.08
1636	49	36	-1.14
1637	49	38	-.67
1638	50	37	-.41
1639	50	38	-.49

GROUP IV: PARAMETERS THAT CHANGE WITH THE PUMPING PERIOD (CONT)
 PUMPING PERIOD NUMBER 3 - 1950 TO 1964 (CONT)

CARD NUMBER	DISCHARGE (-) AND RECHARGE (+) IN FT ³ /S	PUMPING PERIOD IN DAYS	INITIAL TIME STEP IN HOURS
1640	51	37	-.14
1641	51	40	-.53
1642	52	40	-.42
1643	53	40	-.72
1644	54	41	-.52
1645	55	40	-.32
1646	55	41	-.19
1647	57	41	-.56
1648	57	43	-.05
1649	39	13	-.61
1650	42	35	-.34

GROUP IV: PARAMETERS THAT CHANGE WITH THE PUMPING PERIOD (CONT)

PUMPING PERIOD NUMBER 4 - 1965 TO 1968

DISCHARGE (-) AND RECHARGE (+) IN FT³/S

PUMPING PERIOD IN DAYS; INITIAL TIME STEP IN HOURS

CARD NUMBER	4	3	171	1461	6	2	557	951
1651	12	3	-12					
1652	13	3	-58					
1653	14	26	-20					
1654	15	28	-42					
1655	16	26	-27					
1656	17	27	-78					
1657	18	28	-24					
1658	19	27	-45					
1659	20	27	-95					
1660	21	29	-46					
1661	22	33	-41					
1662	23	2	-76					
1663	24	33	-38					
1664	25	32	-56					
1665	26	33	-60					
1666	27	2	-27					
1667	28	36	-40					
1668	29	37	-27					
1669	30	38	-03					
1670	31	9	-87					
1671	32	11	-78					
1672	33	10	-70					
1673	34	17	-59					
1674	35	18	-91					
1675	36	22	-40					
1676	37	23	-45					
1677	38	38	-47					
1678	39	9	-20					
1679	40	15	-74					
1680	41	17	-1.25					
1681	42	20	-50					
1682	43	22	-02					
1683	44	8	-10					
1684	45	9	-84					
1685	46	12	-59					
1686	47	14	-03					
1687	48	18	-41					
1688	49	19	-69					
1689	50	24	-67					
1690	51	38	-49					
1691	52	8	-37					
1692	53	10	-44					
1693	54	11	-1.56					
1694	55	17	-75					
1695	56	19	-30					
1696	57	20	-70					
1697	58	5	-23					
1698	59	18	-36					
1699	60	19	-44					
1700	61	20	-43					
1701	62	22	-12					
1702	63	23	-82					
1703	64	37	-44					
1704	65	38	-77					
1705	66							

GROUP IV: PARAMETERS THAT CHANGE WITH THE PUMPING PERIOD (CONT)

PUMPING PERIOD NUMBER 4 - 1965 TO 1968 (CONT)

DISCHARGE (-) AND RECHARGE (+) IN FT³/SI

PUMPING PERIOD IN DAYS: INITIAL TIME STEP IN HOURS

CARD
NUMBER

1706	30	10	-.65
1707	30	18	-.22
1708	30	19	-.29
1709	30	20	-.60
1710	30	21	-.34
1711	30	23	-.96
1712	30	38	-.34
1713	31	9	-.31
1714	31	10	-.42
1715	31	12	-.40
1716	31	13	-.23
1717	31	17	-.88
1718	31	20	-.46
1719	31	21	-1.39
1720	32	9	-.08
1721	32	10	-.49
1722	32	12	-.21
1723	32	18	-.26
1724	32	21	-.32
1725	32	23	-.78
1726	32	36	-.12
1727	33	11	-1.00
1728	33	21	-.42
1729	33	24	-.66
1730	33	40	-.36
1731	34	11	-.70
1732	34	12	-.23
1733	34	14	-.97
1734	34	22	-1.12
1735	34	23	-.44
1736	34	25	-.46
1737	34	35	-.39
1738	34	36	-.44
1739	35	12	-.79
1740	35	15	-1.10
1741	35	16	-.65
1742	35	22	-.49
1743	35	23	-.33
1744	35	26	-.26
1745	35	33	-.94
1746	36	24	-1.24
1747	36	25	-.38
1748	36	27	-1.24
1749	36	28	-.30
1750	36	31	-.39
1751	37	14	-.07
1752	37	15	-.45
1753	37	21	-.71
1754	37	22	-.28
1755	37	24	-.86
1756	37	25	-.44
1757	37	26	-.45
1758	37	30	-.53
1759	37	33	-1.23
1760	38	5	-.65

GROUP IV: PARAMETERS THAT CHANGE WITH THE PUMPING PERIOD (CONT)

PUMPING PERIOD NUMBER 4 - 1965 TO 1968 (CONT)

DISCHARGE (-) AND RECHARGE (+) IN FI3/S;
PUMPING PERIOD IN DAYS; INITIAL TIME STEP IN HOURS

CARD
NUMBER

1761	38	22	-.30
1762	38	23	-.65
1763	38	24	-.73
1764	38	26	-.97
1765	38	27	-.40
1766	38	32	-.68
1767	39	6	-.25
1768	39	13	-.98
1769	39	15	-.54
1770	39	20	-.76
1771	39	22	-.67
1772	39	23	-.38
1773	39	25	-.95
1774	39	28	-2.12
1775	39	29	-.60
1776	39	31	-1.04
1777	39	33	-.41
1778	40	22	-.59
1779	40	32	-.43
1780	40	34	-.83
1781	40	35	-.22
1782	41	25	-1.49
1783	41	31	-.62
1784	41	33	-.63
1785	42	13	-.17
1786	42	27	-.43
1787	42	33	-.60
1788	42	34	-.43
1789	42	35	-1.03
1790	42	37	-.28
1791	42	41	-.32
1792	43	12	-.51
1793	43	26	-.87
1794	43	34	-.49
1795	43	35	-.51
1796	43	39	-.30
1797	44	6	-.50
1798	44	37	-.37
1799	44	38	-.40
1800	44	41	-.66
1801	45	32	-.80
1802	45	36	-.38
1803	45	39	-.35
1804	46	35	-.36
1805	46	38	-.15
1806	47	34	-.62
1807	47	36	-.36
1808	48	35	-.57
1809	48	37	-.70
1810	48	38	-1.32
1811	49	36	-1.02
1812	49	38	-.59
1813	50	37	-.23
1814	50	38	-.83
1815	51	37	-.04

GROUP IV: PARAMETERS THAT CHANGE WITH THE PUMPING PERIOD (CONT)

PUMPING PERIOD NUMBER 4 - 1965 TO 1968 (CONT)

DISCHARGE (-) AND RECHARGE (+) IN FT³/S

PUMPING PERIOD IN DAYS: INITIAL TIME STEP IN HOURS

CARD
NUMBER

1816	51	40	-.42
1817	52	40	-.23
1818	53	40	-.92
1819	54	41	-.52
1820	55	40	-.15
1821	57	41	-.48
1822	57	43	-.20

GROUP IV: PARAMETERS THAT CHANGE WITH THE PUMPING PERIOD (CONT)

PUMPING PERIOD NUMBER 5 - 1969 TO 1977

DISCHARGE (-) AND RECHARGE (+) IN FT³/SI

PUMPING PERIOD IN DAYS INITIAL TIME STEP IN HOURS

CARD NUMBER	5	4	190	3287	7	2	622	951
1823	5	5	-0.02					
1824	12	3	-0.31					
1825	13	3	-0.39					
1826	14	26	-0.30					
1827	14	27	-0.15					
1828	14	28	-0.31					
1829	15	26	-0.34					
1830	15	27	-0.69					
1831	15	27	-0.32					
1832	16	27	-0.41					
1833	17	23	-0.22					
1834	17	29	-0.48					
1835	17	33	-0.38					
1836	17	2	-0.93					
1837	19	33	-0.29					
1838	20	32	-0.61					
1839	20	33	-0.61					
1840	21	2	-0.52					
1841	22	36	-0.05					
1842	22	37	-0.32					
1843	23	38	-0.32					
1844	24	9	-0.69					
1845	24	11	-0.79					
1846	24	40	-0.55					
1847	25	10	-0.81					
1848	25	17	-0.92					
1849	25	18	-1.04					
1850	25	22	-0.44					
1851	25	23	-0.39					
1852	25	38	-0.75					
1853	26	9	-0.17					
1854	26	15	-1.22					
1855	26	17	-1.45					
1856	26	20	-0.55					
1857	26	22	-0.10					
1858	27	8	-0.04					
1859	27	9	-0.69					
1860	27	12	-0.48					
1861	27	18	-0.45					
1862	27	19	-0.95					
1863	27	24	-0.54					
1864	27	38	-0.56					
1865	28	8	-0.38					
1866	28	10	-0.20					
1867	28	11	-0.68					
1868	28	17	-0.76					
1869	28	19	-0.43					
1870	28	20	-0.84					
1871	29	5	-0.13					
1872	29	10	-0.10					
1873	29	18	-0.32					
1874	29	19	-0.59					
1875	29	20	-0.40					
1876	29	22	-0.77					
1877								

GROUP IV: PARAMETERS THAT CHANGE WITH THE PUMPING PERIOD (CONT)
PUMPING PERIOD NUMBER 5 - 1969 TO 1977 (CONT)

DISCHARGE (-) AND RECHARGE (+) IN FT³/S
PUMPING PERIOD IN DAYS: INITIAL TIME STEP IN HOURS

CARD NUMBER	29	23	-0.80
1878	29	37	-0.54
1879	29	38	-1.08
1880	29	41	-0.11
1881	29	10	-0.70
1882	30	18	-0.02
1883	30	19	-0.19
1884	30	20	-0.41
1885	30	21	-0.20
1886	30	23	-0.76
1887	30	38	-0.77
1888	30	9	-0.21
1889	31	10	-0.47
1890	31	12	-0.45
1891	31	13	-0.36
1892	31	17	-0.55
1893	31	20	-0.57
1894	31	21	-1.25
1895	31	25	-0.05
1896	31	9	-0.06
1897	32	10	-0.52
1898	32	18	-0.77
1899	32	21	-0.47
1900	32	23	-1.05
1901	32	36	-0.47
1902	32	11	-1.21
1903	33	13	-0.22
1904	33	21	-0.41
1905	33	23	-0.30
1906	33	24	-0.58
1907	33	40	-0.66
1908	33	11	-0.74
1909	34	12	-0.35
1910	34	14	-1.09
1911	34	22	-1.33
1912	34	23	-0.41
1913	34	25	-0.53
1914	34	35	-0.45
1915	34	36	-0.33
1916	34	12	-0.75
1917	35	15	-1.20
1918	35	16	-0.94
1919	35	22	-0.56
1920	35	23	-0.48
1921	35	26	-0.29
1922	35	33	-1.36
1923	35	24	-1.52
1924	36	25	-0.31
1925	36	27	-1.11
1926	36	31	-0.80
1927	36	14	-0.36
1928	37	15	-0.46
1929	37	21	-0.67
1930	37	22	-0.26
1931	37	24	-0.89
1932	37		

GROUP IV: PARAMETERS THAT CHANGE WITH THE PUMPING PERIOD (CONT)

PUMPING PERIOD NUMBER 5 - 1959 TO 1977 (CONT)
DISCHARGE (-) AND RECHARGE (+) IN FT³/SI
PUMPING PERIOD IN DAYS: INITIAL TIME STEP IN HOURS

1933	37	25	-.41
1934	37	26	-.39
1935	37	30	-.57
1936	37	33	-1.33
1937	38	5	-.65
1938	38	22	-.22
1939	38	23	-.55
1940	38	24	-.74
1941	38	26	-1.27
1942	38	27	-.34
1943	38	32	-.57
1944	39	6	-.38
1945	39	13	-.87
1946	39	15	-.48
1947	39	20	-.44
1948	39	22	-.65
1949	39	23	-.54
1950	39	25	-1.34
1951	39	28	-2.17
1952	39	29	-.78
1953	39	31	-.94
1954	39	33	-.89
1955	39	40	-.64
1956	40	21	-.36
1957	40	22	-.53
1958	40	30	-.28
1959	40	32	-.65
1960	40	34	-.63
1961	40	35	-.30
1962	41	25	-1.46
1963	41	29	-.14
1964	41	30	-.32
1965	41	31	-.48
1966	41	33	-.66
1967	42	13	-.27
1968	42	27	-.52
1969	42	33	-.72
1970	42	34	-.48
1971	42	35	-.85
1972	42	37	-.39
1973	42	41	-.50
1974	43	12	-.51
1975	43	26	-1.02
1976	43	30	-.02
1977	43	31	-.32
1978	43	32	-.41
1979	43	33	-.64
1980	43	34	-.47
1981	43	35	-.58
1982	43	36	-.49
1983	43	37	-.10
1984	43	39	-.23
1985	44	6	-.61
1986	44	37	-.57
1987	44	38	-.27

GROUP IV: PARAMETERS THAT CHANGE WITH THE PUMPING PERIOD (CONT)
PUMPING PERIOD NUMBER 5 - 1969 TO 1977 (CONT)
DISCHARGE (-) AND RECHARGE (+) IN FT³/SI
PUMPING PERIOD IN DAYS: INITIAL TIME STEP IN HOURS

CARD			
NUMBER			
1988	44	41	-.59
1989	45	32	-.93
1990	45	34	-.67
1991	45	36	-.42
1992	45	39	-.37
1993	46	35	-.57
1994	46	38	-.59
1995	46	43	-.07
1996	47	34	-.49
1997	47	36	-.38
1998	48	36	-.42
1999	48	37	-.41
2000	48	38	-.79
2001	49	36	-1.14
2002	49	38	-.56
2003	50	37	-.33
2004	50	38	-.90
2005	51	37	-.28
2006	51	40	-.45
2007	52	39	-.53
2008	52	40	-.27
2009	53	40	-.88
2010	54	41	-.36
2011	55	40	-.26
2012	57	41	-.66
2013	57	43	-.27