

8224

OCD

Exh. #18

4/23/1985

## AQUIFER PARAMETERS

	Lower Limit	Upper Limit	FLORA VISTA
K	25 FT/day (Textbook)	2500 FT/day (McMahon #1)	100 FT/day (REPORT FROM Sp. Cap.)
Thick. b'	25 (Assumed)	25'	15' (Logs)
$T = Kb \times 7.48$	4675 gpd/ft	467500	11220
S (Alluvial)	0.1	0.1	0.1
n (Sands & Gravels)	0.25	0.25	0.25
Dispersivity x	50 FT	50	50
Disper. y	10 FT	10	10

(From Thomas Prickett & Assoc., Consultants)

Regional Flow =  $\frac{Ki}{n}$  (Grid oriented X = Reg. Flow Direction)

i (gradient)	0.0024	0.0024	0.0041
	0.24 FT/day	24 FT/day	1.64 FT/day

Coefficient: 7 FT (From Tab 5, Meridian Exh.,  
1% organic carbon)

### Concentrations

Particle Mass depends on concentration and flow rate and  
# particles chosen for each simulation

For  $C = 14 \frac{\text{mg}}{\text{L}}$  Benzene at 210 gal/day:

Pollutant Load = PL

$$PL = \frac{14 \text{ Lbs B}}{10^6 \text{ lbs H}_2\text{O}} \times \frac{210 \text{ gal}}{\text{day}} \times \frac{\text{ft}^3}{7.48 \text{ gal}} \times \frac{62.4 \text{ lbs H}_2\text{O}}{\text{ft}^3}$$
$$= 0.02453 \text{ Lbs Benz/day}$$

For 20 Particles/day:

$$\text{Particle Mass} = \frac{PL}{N. \text{ Part}} = \frac{0.02453 \text{ lbs}}{20} = 0.0012 \text{ lbs}$$

INPUT Mixing zone:

Wetted area Radius = 2 Feet,  $h = 25 \text{ sat.}$   
 $V = \pi r^2 h n = 78.5 \text{ ft}^3$  porosity  $n = 0.25$

Output concentrations calculation:

$$\text{Grid size} = X * Y \text{ ft}^2$$

$$\text{conc (ppm)} = \frac{\text{PM} \times N. \text{ Particles} \times 10^6}{X * Y \times n \times b \times 62.4}$$



CIRCLE RADIUS = 2 FT  
NUMBER OF PARTICLES = 100

TOTAL SYSTEM PARTICLES = 600

////////////////////////////////////  
PRESENT SIMULATION TIME = 25 DAYS  
INCREMENTAL SIMULATION TIME = 5 DAYS

DMAX = 1 FT

NF= 600

CONCENTRATION IN PUMPED WELL NUMBER 1 , IN PPM, IS= 0

ACCUMULATED TIME = 30 DAYS PARTICLES= 600  
CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
COORDINATES ARE IN FEET

25		+	+	+	+	+	+	+	+	+	+
20		+	+	+	+	+	+	+	+	+	+
15		+	+	+	+	18	18	18	18	+	+
10		+	+	18	162	216	252	72	144	+	+
5		+	54	198	541	901	270	198	54	18	18
0		36	72	487	1514	I	523	162	72	90	+
-5		+	18	144	523	847	324	198	108	18	+
-10		18	+	36	36	234	144	90	36	+	+
-15		+	+	+	+	+	36	+	+	18	+
-20		+	+	+	+	+	+	+	+	+	+
-25		+	+	+	+	+	+	+	+	+	+
-----											
		-	-	-	-						
		2	1	1	5	0	5	1	1	2	2
		0	5	0				0	5	0	5
											3
											0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

////////////////////////////////////PARTICLES\\

PARTICLES ON A CIRCLE

CIRCLE NUMBER 1

CIRCLE CENTER COORDINATES (X,Y) = 0 , 0 FT

CIRCLE RADIUS = 2 FT

NUMBER OF PARTICLES = 100

TOTAL SYSTEM PARTICLES = 700

////////////////////////////////////  
PRESENT SIMULATION TIME = 30 DAYS  
INCREMENTAL SIMULATION TIME = 5 DAYS

DMAX = 1 FT

NF= 700

CONCENTRATION IN PUMPED WELL NUMBER 1 , IN PPM, IS= 0

1.2

PARTICLE MAP (P SIGNIFIES PUMP LOCATION, I SIGNIFIES LOCATION OF INJECTION)  
 CONCENTRATION MAP IN PPM (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
 COORDINATES ARE IN FEET  
 -----

25	+	+	+	+	+	+	+	+	+	+	+
20	+	+	+	+	+	1	+	+	+	+	+
15	+	+	1	1	2	6	5	2	1	1	1
10	+	1	6	9	19	26	17	5	2	1	+
5	+	4	6	14	43	80	39	25	7	1	+
0	+	2	13	34	129	1	40	27	10	3	2
-5	+	3	3	18	54	61	30	18	10	2	1
-10	+	+	1	4	12	20	23	13	8	1	3
-15	+	+	+	1	2	2	5	1	1	+	1
-20	+	+	+	+	+	+	+	+	+	+	+
-25	+	+	+	+	+	+	+	+	+	1	+
	-	-	-	-							
	2	1	1	5	0	5	1	1	2	2	3
	0	5	0				0	5	0	5	0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

ACCUMULATED TIME = 50 DAYS PARTICLES= 1000  
 CONCENTRATION MAP IN PFB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
 COORDINATES ARE IN FEET  
 -----

25	+	+	+	+	+	+	+	+	+	+	+
20	+	+	+	+	+	18	+	+	+	+	+
15	+	+	18	18	36	108	90	36	18	18	+
10	+	18	108	162	343	469	306	90	36	18	+
5	+	72	108	252	775	1442	703	451	126	18	+
0	+	36	234	613	2325	1947	721	487	180	54	36
-5	+	54	54	324	973	1100	541	324	180	36	18
-10	+	+	18	72	216	361	415	234	144	18	54
-15	+	+	+	18	36	36	90	18	18	+	18
-20	+	+	+	+	+	+	+	+	+	+	+
-25	+	+	+	+	+	+	+	+	+	18	+
	-	-	-	-							
	2	1	1	5	0	5	1	1	2	2	3
	0	5	0				0	5	0	5	0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

PARTICLE MAP (P SIGNIFIES PUMP LOCATION, I SIGNIFIES LOCATION OF INJECTION)  
 CONCENTRATION MAP IN PFB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
 COORDINATES ARE IN FEET  
 -----

10	+	2	1	1	1	3	4	5	6	3	8
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ACCUMULATED TIME = 360 DAYS      PARTICLES= 1000  
 CONCENTRATION MAP IN FPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
 COORDINATES ARE IN FEET  
 -----

50	:	+	+	5	+	+	+	+	+	+	+
40	:	14	5	9	18	9	+	5	+	+	5
30	:	5	23	27	27	27	14	27	23	5	+
20	:	59	32	59	63	90	72	63	27	18	36
10	:	59	113	99	99	90	68	50	54	36	32
0	:	95	104	135	140	158	122	72	72	77	23
-10	:	54	104	104	140	63	77	86	63	27	9
-20	:	63	45	68	59	50	59	27	23	27	+
-30	:	23	5	5	32	32	18	18	18	+	+
-40	:	5	+	9	+	14	+	+	5	+	+
-50	:	+	+	+	+	+	+	+	5	+	+
-----											
		-	-								
		2	1	0	1	2	3	4	5	6	7
		0	0		0	0	0	0	0	0	0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.

ACCUMULATED TIME = 360 DAYS      PARTICLES= 1000  
 CONCENTRATION MAP IN FPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
 COORDINATES ARE IN FEET  
 -----

100	:	+	+	+	+	+	+	+	+	+	+
80	:	+	+	+	+	+	+	+	+	+	+
60	:	+	1	+	+	+	+	+	+	+	+
40	:	7	7	10	6	2	+	1	+	+	+
20	:	48	54	65	51	15	20	1	+	+	+
0	:	89	116	121	70	52	11	2	+	+	+
-20	:	48	60	64	43	20	3	1	1	+	+
-40	:	1	5	6	3	2	+	+	+	+	+
-60	:	+	+	+	+	+	+	+	+	+	+
-80	:	+	+	+	+	+	+	+	+	+	+
-100	:	+	+	+	+	+	+	+	+	+	+
-----											
		-									
		2	0	2	4	6	8	1	1	1	1
		0		0	0	0	0	0	2	4	6
								0	0	0	0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.  
 INCREMENTAL SIMULATION TIME = 360 DAYS  
 DMAX = 20 FT

NP= 1000

**ILLEGIBLE**

PARTICLE MAP (P SIGNIFIES PUMP LOCATION, I SIGNIFIES LOCATION OF INJECTION)  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
 COORDINATES ARE IN FEET  
 -----

100		+	+	+	+	+	+	+	+	+	+	+
80		+	+	+	+	+	+	+	+	+	+	+
60		+	5	4	3	+	1	3	+	+	+	+
40		10	9	9	14	10	10	1	1	+	+	1
20		30	34	41	48	37	19	22	4	6	+	+
0		42	49	59	58	49	19	14	5	2	3	1
-20		26	35	37	28	23	15	8	6	3	+	+
-40		8	8	13	11	5	8	5	3	+	+	+
-60		+	1	1	2	5	+	+	1	+	1	+
-80		+	+	+	+	1	+	+	+	+	+	+
-100		+	+	+	+	+	+	+	+	+	+	+

-		2	0	2	4	6	8	1	1	1	1	1
		0		0	0	0	0	0	2	4	6	8
								0	0	0	0	0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.

ACCUMULATED TIME = 720 DAYS PARTICLES= 1000  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
 COORDINATES ARE IN FEET  
 -----

100		+	+	+	+	+	+	+	+	+	+	+
80		+	+	+	+	+	+	+	+	+	+	+
60		+	6	5	3	+	1	3	+	+	+	+
40		11	10	10	16	11	11	1	1	+	+	1
20		34	38	46	54	42	21	25	5	7	+	+
0		47	55	66	65	55	21	16	6	2	3	1
-20		29	39	42	32	26	17	9	7	3	+	+
-40		9	9	15	12	6	9	6	3	+	+	+
-60		+	1	1	2	6	+	+	1	+	1	+
-80		+	+	+	+	1	+	+	+	+	+	+
-100		+	+	+	+	+	+	+	+	+	+	+

-		2	0	2	4	6	8	1	1	1	1	1
		0		0	0	0	0	0	2	4	6	8
								0	0	0	0	0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.

ACCUMULATED TIME = 720 DAYS PARTICLES= 1000  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)





TOTAL SYSTEM PARTICLES = 360  
 //////////////////////////////////////  
 PRESENT SIMULATION TIME = 270 DAYS  
 INCREMENTAL SIMULATION TIME = 90 DAYS  
 DMAX = 4 FT  
 NP= 360  
 CONCENTRATION IN PUMPED WELL NUMBER 1 , IN PPM, IS= 0

ACCUMULATED TIME = 360 DAYS PARTICLES= 360  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
 COORDINATES ARE IN FEET  
 -----

50	+	+	+	+	+	+	+	+	+	+	+
40	+	+	+	+	+	+	+	+	+	+	+
30	18	+	+	18	18	54	+	+	+	+	+
20	18	54	36	72	90	90	72	+	+	18	+
10	72	198	144	252	162	216	108	126	18	54	+
0	72	198	359	I	359	270	198	72	126	+	+
-10	144	198	162	216	198	180	144	126	36	36	72
-20	18	36	36	36	126	90	36	90	+	+	+
-30	+	18	18	18	18	18	18	+	+	+	+
-40	+	+	+	+	+	18	+	+	+	+	+
-50	+	+	+	+	+	+	+	+	+	+	+
-----											
	-	-	-								
	3	2	1	0	1	2	3	4	5	6	7
	0	0	0		0	0	0	0	0	0	0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

////////////////////////////////PARTICLES\\\\\\\\\\\\\\\\\\\\

PARTICLES ON A CIRCLE  
 CIRCLE NUMBER 1  
 CIRCLE CENTER COORDINATES (X,Y) = 0 , 0 FT  
 CIRCLE RADIUS = 2 FT  
 NUMBER OF PARTICLES = 90

TOTAL SYSTEM PARTICLES = 450  
 //////////////////////////////////////  
 PRESENT SIMULATION TIME = 360 DAYS  
 INCREMENTAL SIMULATION TIME = 90 DAYS  
 DMAX = 10 FT  
 NP= 450  
 CONCENTRATION IN PUMPED WELL NUMBER 1 , IN PPM, IS= 0

-80	+	+	+	+	+	+	+	+	+	+	+
-100	+	+	+	+	+	+	+	+	+	+	+
-----											
	-	-	-								
	6	4	2	0	2	4	6	8	1	1	1
	0	0	0		0	0	0	0	0	2	4
									0	0	0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

ACCUMULATED TIME = 720 DAYS      PARTICLES= 720  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----

COORDINATES ARE IN FEET

-----

100	+	+	+	+	+	+	+	+	+	+	+
80	+	+	+	+	+	+	+	+	+	+	+
60	+	+	+	+	+	+	+	+	+	+	+
40	+	9	18	27	36	27	9	9	+	+	+
20	27	36	117	148	171	135	58	22	18	4	+
0	40	121	332	395	306	198	117	31	18	22	4
-20	22	31	94	112	126	153	40	4	13	+	4
-40	9	13	13	27	18	27	9	4	+	+	4
-60	+	+	+	+	4	+	9	+	+	+	+
-80	+	+	+	+	+	+	+	+	+	+	+
-100	+	+	+	+	+	+	+	+	+	+	+
-----											
	-	-	-								
	6	4	2	0	2	4	6	8	1	1	1
	0	0	0		0	0	0	0	0	2	4
									0	0	0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

ACCUMULATED TIME = 720 DAYS      PARTICLES= 720  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----

COORDINATES ARE IN FEET

-----

50	+	18	+	+	18	+	+	+	18	+	+
40	+	18	+	+	54	18	54	18	18	+	+
30	18	36	36	72	+	54	90	72	54	18	18
20	72	36	108	126	162	126	162	126	180	180	36
10	108	162	252	395	288	377	377	288	162	144	54
0	54	198	395	449	431	341	252	288	162	162	108
-10	54	180	198	180	323	216	359	234	234	198	54
-20	+	36	72	90	144	108	108	162	126	72	+
-30	36	36	72	36	36	54	18	72	18	54	36
-40	18	18	18	18	18	+	18	36	36	36	+
-50	+	+	+	+	+	+	+	18	+	+	36
-----											
	-	-	-	-							
	4	3	2	1	0	1	2	3	4	5	6
	0	0	0	0		0	0	0	0	0	0

1 8 6 4 2 0 2 4 6 8 1  
0 0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

-----GROUNDWATER QUALITY MODEL FOR ABBOTT LABORATORIES-----

//////////BASIC TRANSPORT COEFFICIENTS\\////////

TRANSMISSIVITY (GPD/FT) = 4675 GPD/FT  
STORAGE COEFFICIENT = .1  
HYDRAULIC CONDUCTIVITY = 187 GPD/SQ.FT.  
POROSITY = .25  
LONGITUDINAL DISPERSIVITY= 50  
TRANSVERSE DISPERSIVITY (FT)= 10  
RETARDATION COEFFICIENT = 7 FT  
REGIONAL X FLOW (FT/DAY) = .24  
REGIONAL Y FLOW (FT/DAY)= 0  
PARTICLE MASS (LBS) = .002453

//////////SINK INFORMATION\\////////

NO. OF SINKS = 1

SINK/SOURCE NUMBER 1  
COORDINATE OF SINK (X,Y)= 0 , 0  
SINK/SOURCE STRENGTH = -21 GPD  
TIME SINK/SOURCE ACTIVE = 0 DAYS

//////////PARTICLES\\////////

PARTICLES ON A CIRCLE  
CIRCLE NUMBER 1  
CIRCLE CENTER COORDINATES (X,Y) = 0 , 0 FT  
CIRCLE RADIUS = 2 FT  
NUMBER OF PARTICLES = 10

TOTAL SYSTEM PARTICLES = 10  
PRESENT SIMULATION TIME = 0 DAYS  
INCREMENTAL SIMULATION TIME = 10 DAYS

DMax = 1 FT

NP= 10

1.10





ACCUMULATED TIME = 720 DAYS      PARTICLES= 720  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
 COORDINATES ARE IN FEET  
 -----

50		+	+	+	+	18	+	+	+	+	+	+
40		+	+	+	18	18	+	+	+	9	9	27
30		27	9	36	9	36	27	27	9	18	18	9
20		63	72	72	81	108	72	54	36	45	18	63
10		72	144	99	126	270	171	171	108	27	45	72
0		90	117	252	207	207	207	99	81	90	45	27
-10		27	117	153	171	144	189	126	81	36	36	27
-20		54	36	45	81	27	45	54	54	9	36	9
-30		9	18	27	36	+	54	9	27	+	9	36
-40		+	+	18	9	+	+	+	9	+	9	9
-50		9	+	+	+	+	+	9	+	+	+	+
-----												
		-	-	-								
		3	2	1	0	1	2	3	4	5	6	7
		0	0	0		0	0	0	0	0	0	0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

ACCUMULATED TIME = 720 DAYS      PARTICLES= 720  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
 COORDINATES ARE IN FEET  
 -----

100		+	+	+	+	+	+	+	+	+	+	+
80		+	+	+	+	+	+	+	+	+	+	+
60		+	+	+	+	4	+	2	+	+	+	+
40		2	+	7	13	11	7	9	4	2	+	+
20		13	38	63	83	92	47	38	22	4	2	+
0		13	56	130	204	198	79	47	13	13	4	+
-20		11	27	49	56	65	58	31	11	7	2	+
-40		+	9	2	13	7	2	7	4	4	+	+
-60		+	+	4	+	+	2	+	+	+	+	+
-80		+	+	+	+	+	+	+	+	+	+	+
-100		+	+	+	+	+	+	+	+	+	+	+
-----												
		-	-	-								
		6	4	2	0	2	4	6	8	1	1	1
		0	0	0		0	0	0	0	0	2	4
										0	0	0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

PRESENT SIMULATION TIME = 720 DAYS  
 INCREMENTAL SIMULATION TIME = 180 DAYS  
 DMAX = 9 FT  
 NP= 720





40		+	+	1	1	1	2	3	1	+	1	+
20		1	1	3	5	7	9	6	3	1	1	+
0		1	2	8	15	27	25	17	6	3	1	1
-20		1	2	1	4	7	6	8	2	1	1	+
-40		+	1	1	1	1	1	1	1	+	+	+
-60		+	+	+	+	+	1	+	+	+	+	+
-80		+	+	+	+	+	+	+	+	+	+	+
-100		+	+	+	+	+	+	+	+	+	+	+

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-	-	-	-									
8	6	4	2	0	2	4	6	8	1	1		
0	0	0	0		0	0	0	0	0	0	2	
									0	0		

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

ACCUMULATED TIME = 730 DAYS      PARTICLES= 730  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

COORDINATES ARE IN FEET

100		+	+	+	+	+	+	+	+	+	+	+
80		+	+	+	+	+	+	+	+	+	+	+
60		+	+	+	+	+	+	+	+	+	+	+
40		+	+	1	1	1	2	3	1	+	1	+
20		1	1	3	5	7	9	6	3	1	1	+
0		1	2	8	15	27	25	17	6	3	1	1
-20		1	2	1	4	7	6	8	2	1	1	+
-40		+	1	1	1	1	1	1	1	+	+	+
-60		+	+	+	+	+	1	+	+	+	+	+
-80		+	+	+	+	+	+	+	+	+	+	+
-100		+	+	+	+	+	+	+	+	+	+	+

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-	-	-	-									
8	6	4	2	0	2	4	6	8	1	1		
0	0	0	0		0	0	0	0	0	0	2	
									0	0		

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

PRESENT SIMULATION TIME = 730 DAYS  
 INCREMENTAL SIMULATION TIME = 180 DAYS  
 DMAX = 8 FT  
 NP= 730

ACCUMULATED TIME = 910 DAYS      PARTICLES= 730  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

COORDINATES ARE IN FEET

1.16





ACCUMULATED TIME = 360 DAYS PARTICLES= 360  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

COORDINATES ARE IN FEET

250	+	+	+	+	+	4	+	+	+	+	+
200	+	+	4	+	+	4	+	+	+	4	+
150	+	+	4	+	4	+	4	+	7	11	7
100	+	7	+	11	14	4	+	+	14	18	+
50	+	4	7	18	18	+	7	+	7	7	25
0	18	7	14	29	7	22	18	18	11	7	32
-50	+	14	14	11	11	4	14	7	14	11	11
-100	4	4	+	7	+	11	4	4	4	11	4
-150	4	+	+	+	4	+	4	4	11	4	4
-200	4	+	+	4	+	+	+	4	+	+	4
-250	+	+	+	+	+	+	+	+	+	+	+

  

1	1	2	2	3	3	4	4	5	5	6
0	5	0	5	0	5	0	5	0	5	0
0	0	0	0	0	0	0	0	0	0	0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.

ACCUMULATED TIME = 360 DAYS PARTICLES= 360  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

COORDINATES ARE IN FEET

250	+	+	+	+	+	+	4	4	+	11	4
200	+	4	+	4	7	4	+	+	+	+	+
150	7	11	7	4	4	4	7	7	7	4	4
100	14	18	+	11	7	11	4	+	7	4	4
50	7	7	25	14	11	11	+	11	4	4	14
0	11	7	32	11	29	4	7	7	7	14	+
-50	14	11	11	14	7	4	7	11	7	+	7
-100	4	11	4	7	11	7	4	14	11	4	4
-150	11	4	4	+	11	4	4	+	+	4	7
-200	+	+	4	+	4	4	+	4	+	7	+
-250	+	+	+	7	+	4	+	4	+	+	4

  

5	5	6	6	7	7	8	8	9	9	1
0	5	0	5	0	5	0	5	0	5	0
0	0	0	0	0	0	0	0	0	0	0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.

ACCUMULATED TIME = 360 DAYS PARTICLES= 360  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

COORDINATES ARE IN FEET

250	+	+	+	+	+	+	+	+	+	+	+
200	+	+	+	+	+	+	+	+	4	+	+
150	+	+	+	+	+	+	+	+	+	+	+

ACCUMULATED TIME = 360 DAYS      PARTICLES= 360  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
 COORDINATES ARE IN FEET  
 -----

250		+	+	+	+	+	+	+	+	+	+
200		+	+	+	+	+	+	+	4	+	+
150		+	+	+	+	+	+	+	+	+	+
100		+	+	+	+	+	+	4	+	7	+
50		+	+	+	+	+	+	+	7	11	+
0		+	+	+	+	+	+	4	1	+	18
-50		+	+	+	+	+	+	4	+	7	+
-100		+	+	+	+	+	+	+	4	+	4
-150		+	+	+	+	+	+	+	+	4	4
-200		+	+	+	+	+	+	4	+	+	4
-250		+	+	+	+	+	+	+	+	+	+

-	-	-	-	-	-	-	-	-	-	-	-
4	3	3	2	2	1	1	5	0	5	1	
0	5	0	5	0	5	0	0		0	0	
0	0	0	0	0	0	0				0	

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

ACCUMULATED TIME = 360 DAYS      PARTICLES= 360  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
 COORDINATES ARE IN FEET  
 -----

500		+	+	+	+	+	+	+	+	+	+
400		+	+	+	+	+	+	+	+	+	+
300		+	1	+	+	+	1	+	+	+	1
200		1	+	1	+	3	2	1	4	4	4
100		3	4	3	6	2	12	13	8	5	5
0		1	8	13	18	15	10	18	13	5	10
-100		3	4	4	4	4	8	4	9	6	6
-200		+	2	+	1	1	1	2	4	+	3
-300		+	+	+	+	+	+	1	1	+	1
-400		+	+	+	+	+	+	+	+	+	+
-500		+	+	+	+	+	+	+	+	+	+

0	1	2	3	4	5	6	7	8	9	1	
	0	0	0	0	0	0	0	0	0	0	0
		0	0	0	0	0	0	0	0	0	0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

//////////////////////////////////PARTICLES\\////////////////////////////////

PARTICLES ON A CIRCLE  
 CIRCLE NUMBER 1  
 CIRCLE CENTER COORDINATES (X,Y) = 0 , 0 FT  
 CIRCLE RADIUS = 2 FT  
 NUMBER OF PARTICLES = 90

TOTAL SYSTEM PARTICLES = 450

ACCUMULATED TIME = 730 DAYS      PARTICLES= 730  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

COORDINATES ARE IN FEET

500	+	+	+	+	+	+	+	+	+	+	+
400	+	+	+	+	+	+	+	+	+	+	1
300	+	+	1	+	+	+	2	+	+	+	+
200	+	2	+	+	+	+	+	6	1	2	4
100	1	3	4	7	5	6	6	4	6	10	4
0	1	8	13	14	9	12	7	10	4	13	6
-100	+	2	6	4	4	7	4	5	11	3	3
-200	+	+	2	+	+	+	+	1	3	4	+
-300	+	+	+	+	2	+	1	+	2	+	+
-400	+	+	+	+	+	+	+	+	+	1	+
-500	+	+	+	+	+	+	+	+	+	+	+

  

0	1	2	3	4	5	6	7	8	9	1
	0	0	0	0	0	0	0	0	0	0
	0	0	0	0	0	0	0	0	0	0
										0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

ACCUMULATED TIME = 730 DAYS      PARTICLES= 730  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

COORDINATES ARE IN FEET

500	+	+	+	+	+	1	+	+	+	+	+
400	1	+	+	1	+	+	+	1	1	2	1
300	+	2	5	3	2	5	4	4	3	3	3
200	4	3	2	1	4	7	4	4	4	3	4
100	4	4	4	7	7	5	10	4	4	4	4
0	6	9	7	6	4	7	4	3	7	4	6
-100	3	4	4	7	4	6	4	4	2	6	7
-200	+	4	4	4	+	2	3	6	3	2	2
-300	+	+	+	2	1	3	3	2	2	1	3
-400	+	+	+	+	1	2	1	+	+	1	+
-500	+	+	+	+	+	+	1	+	+	+	+

  

1	1	1	1	1	1	1	1	1	1	1	2
0	1	2	3	4	5	6	7	8	9	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

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

ACCUMULATED TIME = 730 DAYS      PARTICLES= 730  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

COORDINATES ARE IN FEET

500	+	+	+	+	+	+	+	+	+	+	+
400	1	+	1	1	1	2	1	+	1	+	1
300	3	1	2	+	1	1	3	2	+	+	+

2.5



```

-----
      4  4  5  5  6  6  7  7  8  8  9
      0  5  0  5  0  5  0  5  0  5  0
      0  0  0  0  0  0  0  0  0  0  0

```

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

ACCUMULATED TIME = 360 DAYS          PARTICLES= 360  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
 COORDINATES ARE IN FEET  
 -----

```

250 | + + + + + + + 1 + + 1
200 | + + + + + + + 1 + + +
150 | + + 1 1 1 + + 1 + + +
100 | + + + + 1 1 2 2 1 1 1
 50 | + 1 + 1 1 3 2 1 2 4 1
  0 | 1 1 1 + 4 1 1 2 5 1 1
-50 | 1 1 2 1 + 3 5 2 2 1 2
-100| + + 1 + 2 2 + 1 + + 1
-150| + 1 1 + 1 + + + + + 1
-200| + 1 + + + + 1 + 1 1 +
-250| + + + + + + + + + + +

```

```

-----
      -
      5  0  5  1  1  2  2  3  3  4  4
      0  0  0  0  5  0  5  0  5  0  5
          0  0  0  0  0  0  0  0  0  0

```

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

ACCUMULATED TIME = 360 DAYS          PARTICLES= 360  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
 COORDINATES ARE IN FEET  
 -----

```

500 | + + + + + + + + + + +
400 | + + + + + + + + + + +
300 | + + + + + + + + + + +
200 | + + + 1 + 1 1 + 1 1 +
100 | + 1 1 1 1 1 1 1 2 1 1
  0 | 1 1 2 3 3 1 1 2 2 1 1
-100| 1 1 1 1 1 1 2 1 2 1 1
-200| + + + + + + 1 + + 1 +
-300| + + + + + + + + + + +
-400| + + + + + + + + + + +
-500| + + + + + + + + + + +

```

```

-----
      0  1  2  3  4  5  6  7  8  9  1
          0  0  0  0  0  0  0  0  0  0  0
          0  0  0  0  0  0  0  0  0  0  0

```

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

2.7







CONCENTRATION IN PUMPED WELL NUMBER 1 , IN PPM, IS= 0

ACCUMULATED TIME = 730 DAYS      PARTICLES= 730  
CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
COORDINATES ARE IN FEET  
-----

250		+	+	+	+	+	+	+	+	+	+	+
200		+	+	+	+	+	+	+	+	+	+	+
150		+	+	+	+	+	6	+	6	+	6	6
100		+	6	12	30	60	18	30	18	6	6	+
50		36	78	114	240	150	78	84	78	36	18	+
0		78	240	1	419	354	228	132	120	72	12	+
-50		18	60	126	228	216	168	90	48	30	6	6
-100		+	6	18	30	12	30	18	30	12	+	6
-150		+	6	+	+	+	+	+	+	+	+	+
-200		+	+	+	+	+	+	+	+	+	+	+
-250		+	+	+	+	+	+	+	+	+	+	+

-----  
-      -  
1    5    0    5    1    1    2    2    3    3    4  
0    0            0    0    5    0    5    0    5    0  
0                    0    0    0    0    0    0    0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

PRESENT SIMULATION TIME = 730 DAYS  
INCREMENTAL SIMULATION TIME = 183 DAYS  
DMAX = 140 FT

NP= 730  
CONCENTRATION IN PUMPED WELL NUMBER 1 , IN PPM, IS= 0

PRESENT SIMULATION TIME = 913 DAYS  
INCREMENTAL SIMULATION TIME = 182 DAYS  
DMAX = 150 FT

NP= 730





ACCUMULATED TIME = 730 DAYS      PARTICLES= 730  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
 COORDINATES ARE IN FEET  
 -----

100	:	+	7	15	+	+	+	+	+	7	7	
80	:	7	+	+	7	+	+	30	22	15	22	15
60	:	+	7	+	15	15	7	22	30	30	22	22
40	:	+	+	30	22	22	37	30	22	45	22	75
20	:	7	+	30	37	82	67	60	82	90	75	60
0	:	7	7	45	82	67	1	67	105	150	45	52
-20	:	+	15	22	45	60	60	112	97	60	75	75
-40	:	7	15	7	45	30	52	52	37	30	52	22
-60	:	+	7	7	15	7	+	30	15	30	22	22
-80	:	+	+	+	7	+	7	+	+	45	15	7
-100	:	+	7	+	+	+	+	7	7	+	+	7
-----												
		-	-	-	-	-						
		1	8	6	4	2	0	2	4	6	8	1
		0	0	0	0	0		0	0	0	0	0
		0										0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

ACCUMULATED TIME = 730 DAYS      PARTICLES= 730  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
 COORDINATES ARE IN FEET  
 -----

100	:	7	+	7	+	+	7	+	15	+	7	+
80	:	15	15	+	7	7	+	7	7	+	+	+
60	:	22	22	7	22	22	7	7	15	7	+	+
40	:	75	45	15	37	15	30	+	15	+	7	7
20	:	60	37	67	67	7	22	15	7	7	15	+
0	:	52	75	105	67	30	15	60	52	7	22	+
-20	:	75	37	37	52	37	30	30	15	37	30	7
-40	:	22	45	52	15	45	30	37	+	22	7	+
-60	:	22	15	7	7	+	22	30	15	15	7	+
-80	:	7	7	15	+	15	+	+	+	+	7	+
-100	:	7	7	+	7	+	15	+	+	+	+	+
-----												
		1	1	1	1	1	2	2	2	2	2	3
		0	2	4	6	8	0	2	4	6	8	0
		0	0	0	0	0	0	0	0	0	0	0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?





-100	+	+	+	+	+	+	+	4	4	4	+
	-	-	-	-	-						
	1	8	6	4	2	0	2	4	6	8	1
	0	0	0	0	0		0	0	0	0	0
	0										0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

ACCUMULATED TIME = 730 DAYS      PARTICLES= 730  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

COORDINATES ARE IN FEET

250	+	+	+	+	+	+	+	+	+	+	+
200	+	+	+	+	+	+	+	+	+	+	+
150	+	+	1	+	+	+	+	+	+	+	+
100	+	1	1	2	2	3	5	1	1	1	1
50	1	2	5	15	22	13	14	10	5	2	2
0	1	5	16	43	54	32	27	20	11	6	2
-50	1	4	7	15	20	12	8	11	8	4	2
-100	1	+	2	2	2	3	1	2	+	1	+
-150	+	1	+	+	1	+	1	1	1	+	+
-200	+	+	+	+	+	+	+	+	+	+	+
-250	+	+	+	+	+	+	+	+	+	+	+
	-	-	-								
	1	1	5	0	5	1	1	2	2	3	3
	5	0	0		0	0	5	0	5	0	5
	0	0				0	0	0	0	0	0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?





BEFORE THE  
OIL CONSERVATION COMMISSION  
Sandoz Co., New Mexico

Case No. 8224 E. O. No. 18

Submitted by Division

Hearing Date 4-23-85

ACCUMULATED TIME = 730 DAYS      PARTICLES= 730  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
 COORDINATES ARE IN FEET  
 -----

100	+	+	+	+	+	+	+	+	+	+	+
80	+	+	1	1	+	+	+	+	1	1	1
60	+	+	+	1	1	1	+	+	1	1	1
40	+	+	2	1	2	2	3	4	2	1	2
20	+	1	3	2	5	8	5	6	4	7	4
0	1	+	+	6	4	3	5	6	8	5	5
-20	1	2	1	1	3	5	3	6	4	2	4
-40	+	+	1	1	+	1	3	3	2	4	3
-60	+	+	+	+	+	3	1	1	2	1	2
-80	+	+	+	+	+	1	1	+	1	1	1
-100	+	+	+	+	+	+	1	+	1	+	+
-----											
	-	-	-	-	-						
	1	8	6	4	2	0	2	4	6	8	1
	0	0	0	0	0		0	0	0	0	0
	0										0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

ACCUMULATED TIME = 730 DAYS      PARTICLES= 730  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
 COORDINATES ARE IN FEET  
 -----

100	+	+	+	+	+	+	+	1	+	+	+
80	1	+	+	1	+	+	+	+	+	1	+
60	1	2	1	1	1	+	1	+	+	+	+
40	2	2	2	2	1	+	2	4	+	1	1
20	4	4	3	1	4	2	1	+	1	1	+
0	5	4	2	3	+	+	+	2	+	2	+
-20	4	5	4	3	3	2	1	+	+	1	1
-40	3	3	2	+	1	+	+	+	1	2	+
-60	2	+	1	2	2	1	1	+	1	+	1
-80	1	1	+	+	2	+	1	+	+	+	+
-100	+	+	+	+	+	+	+	1	+	+	+
-----											
	1	1	1	1	1	2	2	2	2	2	3
	0	2	4	6	8	0	2	4	6	8	0
	0	0	0	0	0	0	0	0	0	0	0

DO A SCREEN PRINT NOW OR PRESS <RETURN> TO GO BACK TO THE MENU.?

ACCUMULATED TIME = 730 DAYS      PARTICLES= 730  
 CONCENTRATION MAP IN PPB (P SIGNIFIES PUMPAGE, I SIGNIFIES INJECTION)

-----  
 COORDINATES ARE IN FEET  
 -----

BEFORE THE  
OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico

Case No. 8224 Sub. No. 18

Submitted by Division

Hearing Date 4-23-85