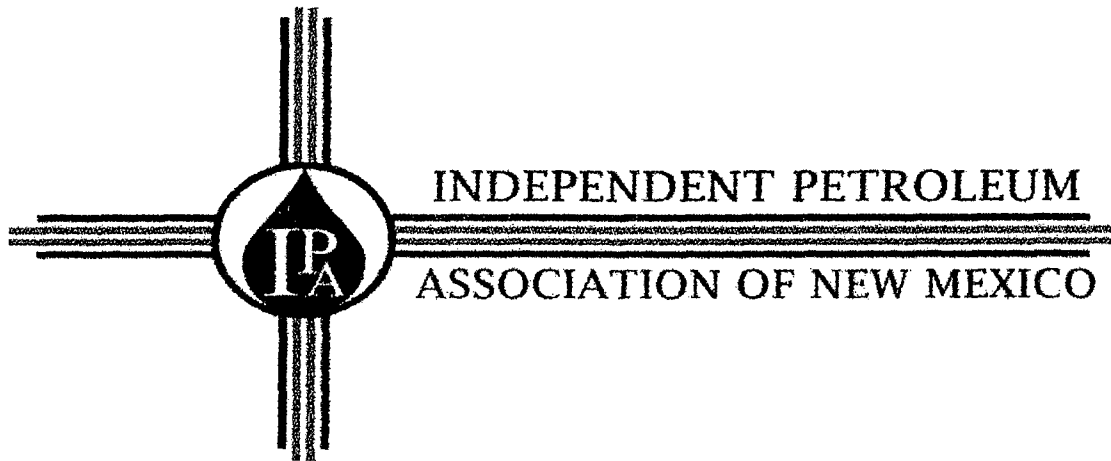




OCD CASE NOS. 14784 AND 14785

IPANM Petition to amend Title 19, Chapter 15,
part 17 (The PIT Rule)

May 14 – 18, 2012

IPANM exhibit 7
HELP Models Runs
- Twenty-Five (25) pages -

ARTESIA.OUT

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 8

THICKNESS	=	42.00	INCHES
POROSITY	=	0.4630	VOL/VOL
FIELD CAPACITY	=	0.2320	VOL/VOL
WILTING POINT	=	0.1160	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.1450	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.369999994000E-03	CM/SEC

LAYER 3

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 9

THICKNESS	=	150.00	INCHES
POROSITY	=	0.5010	VOL/VOL
FIELD CAPACITY	=	0.2840	VOL/VOL
WILTING POINT	=	0.1350	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.2840	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.190000006000E-03	CM/SEC

LAYER 4

TYPE 4 - FLEXIBLE MEMBRANE LINER
MATERIAL TEXTURE NUMBER 36

THICKNESS	=	0.02	INCHES
POROSITY	=	0.0000	VOL/VOL
FIELD CAPACITY	=	0.0000	VOL/VOL
WILTING POINT	=	0.0000	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.0000	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.399999993000E-12	CM/SEC
FML PINHOLE DENSITY	=	1.00	HOLES/ACRE
FML INSTALLATION DEFECTS	=	4.00	HOLES/ACRE
FML PLACEMENT QUALITY	=	3	- GOOD

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT
SOIL DATA BASE USING SOIL TEXTURE # 7 WITH A
POOR STAND OF GRASS, A SURFACE SLOPE OF 1.0%
AND A SLOPE LENGTH OF 75. FEET.

SCS RUNOFF CURVE NUMBER	=	83.90	
FRACTION OF AREA ALLOWING RUNOFF	=	100.0	PERCENT
AREA PROJECTED ON HORIZONTAL PLANE	=	0.500	ACRES
EVAPORATIVE ZONE DEPTH	=	48.0	INCHES
INITIAL WATER IN EVAPORATIVE ZONE	=	6.891	INCHES
UPPER LIMIT OF EVAPORATIVE STORAGE	=	22.284	INCHES
LOWER LIMIT OF EVAPORATIVE STORAGE	=	5.496	INCHES
INITIAL SNOW WATER	=	0.000	INCHES

ARTESIA.OUT

INITIAL WATER IN LAYER MATERIALS	=	49.491	INCHES
TOTAL INITIAL WATER	=	49.491	INCHES
TOTAL SUBSURFACE INFLOW	=	0.00	INCHES/YEAR

EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM
ARTESIA NEW MEXICO

STATION LATITUDE	=	32.85 DEGREES
MAXIMUM LEAF AREA INDEX	=	1.60
START OF GROWING SEASON (JULIAN DATE)	=	76
END OF GROWING SEASON (JULIAN DATE)	=	310
EVAPORATIVE ZONE DEPTH	=	48.0 INCHES
AVERAGE ANNUAL WIND SPEED	=	8.70 MPH
AVERAGE 1ST QUARTER RELATIVE HUMIDITY	=	49.00 %
AVERAGE 2ND QUARTER RELATIVE HUMIDITY	=	40.00 %
AVERAGE 3RD QUARTER RELATIVE HUMIDITY	=	53.00 %
AVERAGE 4TH QUARTER RELATIVE HUMIDITY	=	52.00 %

NOTE: PRECIPITATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR ROSWELL NEW MEXICO

NORMAL MEAN MONTHLY PRECIPITATION (INCHES)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
0.39	0.43	0.28	0.51	1.22	1.85
1.38	2.20	2.52	1.30	0.71	0.55

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR ROSWELL NEW MEXICO

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
41.40	45.90	52.80	61.90	70.30	79.00
81.40	79.20	72.30	61.70	49.10	42.50

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR ROSWELL NEW MEXICO
AND STATION LATITUDE = 32.85 DEGREES

AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1 THROUGH 50

ARTESIA.OUT						
	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC

PRECIPITATION						

TOTALS	0.43 1.37	0.45 2.04	0.25 2.40	0.49 1.69	1.16 0.92	1.67 0.60
STD. DEVIATIONS	0.43 0.83	0.35 1.56	0.25 1.51	0.55 1.46	1.04 1.06	1.22 0.55
RUNOFF						

TOTALS	0.000 0.002	0.000 0.010	0.000 0.064	0.001 0.022	0.011 0.011	0.029 0.004
STD. DEVIATIONS	0.000 0.010	0.000 0.041	0.000 0.126	0.003 0.047	0.038 0.043	0.067 0.021
EVAPOTRANSPIRATION						

TOTALS	0.559 1.631	0.745 1.825	0.755 1.766	0.650 1.101	1.528 0.638	1.619 0.487
STD. DEVIATIONS	0.197 1.089	0.248 1.359	0.423 0.903	0.447 0.410	1.013 0.228	1.100 0.203
PERCOLATION/LEAKAGE THROUGH LAYER 4						

TOTALS	0.0029 0.0044	0.0026 0.0042	0.0031 0.0038	0.0032 0.0036	0.0039 0.0032	0.0042 0.0031
STD. DEVIATIONS	0.0131 0.0188	0.0112 0.0180	0.0122 0.0163	0.0126 0.0159	0.0151 0.0144	0.0169 0.0140

 AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)

DAILY AVERAGE HEAD ON TOP OF LAYER 4

AVERAGES	0.1479 0.2418	0.1397 0.2259	0.1518 0.2082	0.1687 0.1913	0.2009 0.1756	0.2294 0.1613
STD. DEVIATIONS	0.7454 1.1584	0.6897 1.0950	0.6622 1.0163	0.6975 0.9424	0.8548 0.8729	1.0380 0.8076

AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1 THROUGH 50

	INCHES		CU. FEET	PERCENT
	-----		-----	-----
PRECIPITATION	13.48	(3.036)	24461.5	100.00
RUNOFF	0.152	(0.1655)	275.97	1.128

EVAPOTRANSPIRATION	13.304 (2.8563)	24146.67	98.713
PERCOLATION/LEAKAGE THROUGH LAYER 4	0.04210 (0.16515)	76.406	0.31235
AVERAGE HEAD ON TOP OF LAYER 4	0.187 (0.801)		
CHANGE IN WATER STORAGE	-0.021 (1.9594)	-37.56	-0.154

□

	PEAK DAILY VALUES FOR YEARS 1 THROUGH 50	
	(INCHES)	(CU. FT.)
PRECIPITATION	3.02	5481.300
RUNOFF	0.582	1055.7036
PERCOLATION/LEAKAGE THROUGH LAYER 4	0.003952	7.17204
AVERAGE HEAD ON TOP OF LAYER 4	7.829	
SNOW WATER	1.42	2576.4106
MAXIMUM VEG. SOIL WATER (VOL/VOL)		0.2742
MINIMUM VEG. SOIL WATER (VOL/VOL)		0.1145

□

FINAL WATER STORAGE AT END OF YEAR 50		
LAYER	(INCHES)	(VOL/VOL)
1	0.6408	0.1068
2	5.2154	0.1242
3	42.5999	0.2840
4	0.0000	0.0000
SNOW WATER	0.000	

CARLSB.OUT

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*****
**
**
**      HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE
**      HELP MODEL VERSION 3.07 (1 NOVEMBER 1997)
**      DEVELOPED BY ENVIRONMENTAL LABORATORY
**      USAE WATERWAYS EXPERIMENT STATION
**      FOR USEPA RISK REDUCTION ENGINEERING LABORATORY
**
*****
*****

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PRECIPITATION DATA FILE: C:\HELP3\EXAMPLES\CARLSB.D4
TEMPERATURE DATA FILE:  C:\HELP3\EXAMPLES\CARLSB.D7
SOLAR RADIATION DATA FILE: C:\HELP3\EXAMPLES\CARLSB.D13
EVAPOTRANSPIRATION DATA:  C:\HELP3\EXAMPLES\CARLSB.D11
SOIL AND DESIGN DATA FILE: C:\HELP3\EXAMPLES\LINER.D10
OUTPUT DATA FILE:        C:\HELP3\EXAMPLES\CARLSB.OUT

```

TIME: 13:30 DATE: 3/ 5/2012

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*****
TITLE:  4'COVER, LINER, 48" EVAP ZONE, SE NEW MEXICO
*****

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NOTE: INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER WERE SPECIFIED BY THE USER.

LAYER 1

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-----
TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 7
THICKNESS           = 6.00 INCHES
POROSITY             = 0.4730 VOL/VOL
FIELD CAPACITY       = 0.2220 VOL/VOL
WILTING POINT       = 0.1040 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.1335 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.520000001000E-03 CM/SEC
NOTE: SATURATED HYDRAULIC CONDUCTIVITY IS MULTIPLIED BY 2.49
      FOR ROOT CHANNELS IN TOP HALF OF EVAPORATIVE ZONE.

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LAYER 2

Page 1

CARLSB.OUT

TYPE 1 - VERTICAL PERCOLATION LAYER

MATERIAL TEXTURE NUMBER 8

THICKNESS = 42.00 INCHES
POROSITY = 0.4630 VOL/VOL
FIELD CAPACITY = 0.2320 VOL/VOL
WILTING POINT = 0.1160 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.1450 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.369999994000E-03 CM/SEC

LAYER 3

TYPE 1 - VERTICAL PERCOLATION LAYER

MATERIAL TEXTURE NUMBER 9

THICKNESS = 150.00 INCHES
POROSITY = 0.5010 VOL/VOL
FIELD CAPACITY = 0.2840 VOL/VOL
WILTING POINT = 0.1350 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.2840 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.190000006000E-03 CM/SEC

LAYER 4

TYPE 4 - FLEXIBLE MEMBRANE LINER

MATERIAL TEXTURE NUMBER 36

THICKNESS = 0.02 INCHES
POROSITY = 0.0000 VOL/VOL
FIELD CAPACITY = 0.0000 VOL/VOL
WILTING POINT = 0.0000 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.0000 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.399999993000E-12 CM/SEC
FML PINHOLE DENSITY = 1.00 HOLES/ACRE
FML INSTALLATION DEFECTS = 4.00 HOLES/ACRE
FML PLACEMENT QUALITY = 3 - GOOD

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT
SOIL DATA BASE USING SOIL TEXTURE # 7 WITH A
POOR STAND OF GRASS, A SURFACE SLOPE OF 1.0%
AND A SLOPE LENGTH OF 75. FEET.

SCS RUNOFF CURVE NUMBER = 83.90
FRACTION OF AREA ALLOWING RUNOFF = 100.0 PERCENT
AREA PROJECTED ON HORIZONTAL PLANE = 0.500 ACRES
EVAPORATIVE ZONE DEPTH = 48.0 INCHES
INITIAL WATER IN EVAPORATIVE ZONE = 6.891 INCHES
UPPER LIMIT OF EVAPORATIVE STORAGE = 22.284 INCHES
LOWER LIMIT OF EVAPORATIVE STORAGE = 5.496 INCHES
INITIAL SNOW WATER = 0.000 INCHES

CARLSB.OUT

INITIAL WATER IN LAYER MATERIALS	=	49.491	INCHES
TOTAL INITIAL WATER	=	49.491	INCHES
TOTAL SUBSURFACE INFLOW	=	0.00	INCHES/YEAR

EVAPOTRANSPIRATION AND WEATHER DATA -----

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM
CARLSBAD NEW MEXICO

STATION LATITUDE	=	33.42 DEGREES
MAXIMUM LEAF AREA INDEX	=	1.60
START OF GROWING SEASON (JULIAN DATE)	=	76
END OF GROWING SEASON (JULIAN DATE)	=	310
EVAPORATIVE ZONE DEPTH	=	48.0 INCHES
AVERAGE ANNUAL WIND SPEED	=	8.70 MPH
AVERAGE 1ST QUARTER RELATIVE HUMIDITY	=	49.00 %
AVERAGE 2ND QUARTER RELATIVE HUMIDITY	=	40.00 %
AVERAGE 3RD QUARTER RELATIVE HUMIDITY	=	53.00 %
AVERAGE 4TH QUARTER RELATIVE HUMIDITY	=	52.00 %

NOTE: PRECIPITATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR ROSWELL NEW MEXICO

NORMAL MEAN MONTHLY PRECIPITATION (INCHES)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
-----	-----	-----	-----	-----	-----
0.43	0.51	0.24	0.55	1.26	1.65
1.77	2.05	2.91	1.38	0.75	0.63

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR ROSWELL NEW MEXICO

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
-----	-----	-----	-----	-----	-----
41.40	45.90	52.80	61.90	70.30	79.00
81.40	79.20	72.30	61.70	49.10	42.50

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR ROSWELL NEW MEXICO
AND STATION LATITUDE = 32.42 DEGREES

AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1 THROUGH 50

CARLSB.OUT

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
PRECIPITATION						
TOTALS	0.47 1.73	0.54 1.90	0.22 2.77	0.53 1.80	1.20 0.97	1.50 0.69
STD. DEVIATIONS	0.48 1.06	0.41 1.46	0.22 1.75	0.59 1.55	1.07 1.12	1.09 0.63
RUNOFF						
TOTALS	0.000 0.003	0.000 0.006	0.000 0.110	0.001 0.030	0.012 0.014	0.017 0.007
STD. DEVIATIONS	0.000 0.010	0.000 0.031	0.000 0.194	0.006 0.062	0.042 0.053	0.043 0.035
EVAPOTRANSPIRATION						
TOTALS	0.588 1.878	0.769 1.804	0.827 1.815	0.738 1.201	1.746 0.669	1.547 0.500
STD. DEVIATIONS	0.230 1.185	0.226 1.330	0.442 0.947	0.499 0.430	1.127 0.273	1.068 0.207
PERCOLATION/LEAKAGE THROUGH LAYER 4						
TOTALS	0.0042 0.0060	0.0039 0.0059	0.0046 0.0053	0.0048 0.0052	0.0055 0.0047	0.0057 0.0045
STD. DEVIATIONS	0.0186 0.0248	0.0161 0.0251	0.0178 0.0229	0.0184 0.0223	0.0214 0.0204	0.0225 0.0198

AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)

DAILY AVERAGE HEAD ON TOP OF LAYER 4

AVERAGES	0.2351 0.3510	0.2342 0.3470	0.2507 0.3216	0.2774 0.2976	0.3132 0.2750	0.3366 0.2540
STD. DEVIATIONS	1.1445 1.6046	1.0692 1.6362	1.0445 1.5273	1.1164 1.4233	1.3019 1.3253	1.4610 1.2330

AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1 THROUGH 50

	INCHES		CU. FEET	PERCENT
PRECIPITATION	14.33	(3.153)	26003.5	100.00
RUNOFF	0.200	(0.2257)	363.58	1.398

	CARLSB. OUT		
EVAPOTRANSPIRATION	14.080 (3.0099)	25555.95	98.279
PERCOLATION/LEAKAGE THROUGH LAYER 4	0.06037 (0.23385)	109.567	0.42135
AVERAGE HEAD ON TOP OF LAYER 4	0.291 (1.217)		
CHANGE IN WATER STORAGE	-0.014 (2.2571)	-25.59	-0.098

□

PEAK DAILY VALUES FOR YEARS	1 THROUGH	50
	(INCHES)	(CU. FT.)
PRECIPITATION	3.49	6334.350
RUNOFF	0.828	1503.3167
PERCOLATION/LEAKAGE THROUGH LAYER 4	0.005243	9.51571
AVERAGE HEAD ON TOP OF LAYER 4	10.987	
SNOW WATER	1.66	3013.5054
MAXIMUM VEG. SOIL WATER (VOL/VOL)		0.2939
MINIMUM VEG. SOIL WATER (VOL/VOL)		0.1145

□

FINAL WATER STORAGE AT END OF YEAR	50
LAYER	(INCHES)
	(VOL/VOL)
1	0.7658
2	5.4203
3	42.5999
4	0.0000
SNOW WATER	0.000

MALJA.OUT

TYPE 1 - VERTICAL PERCOLATION LAYER

MATERIAL TEXTURE NUMBER 8

THICKNESS = 42.00 INCHES
 POROSITY = 0.4630 VOL/VOL
 FIELD CAPACITY = 0.2320 VOL/VOL
 WILTING POINT = 0.1160 VOL/VOL
 INITIAL SOIL WATER CONTENT = 0.1450 VOL/VOL
 EFFECTIVE SAT. HYD. COND. = 0.369999994000E-03 CM/SEC

LAYER 3

TYPE 1 - VERTICAL PERCOLATION LAYER

MATERIAL TEXTURE NUMBER 9

THICKNESS = 150.00 INCHES
 POROSITY = 0.5010 VOL/VOL
 FIELD CAPACITY = 0.2840 VOL/VOL
 WILTING POINT = 0.1350 VOL/VOL
 INITIAL SOIL WATER CONTENT = 0.2840 VOL/VOL
 EFFECTIVE SAT. HYD. COND. = 0.190000006000E-03 CM/SEC

LAYER 4

TYPE 4 - FLEXIBLE MEMBRANE LINER

MATERIAL TEXTURE NUMBER 36

THICKNESS = 0.02 INCHES
 POROSITY = 0.0000 VOL/VOL
 FIELD CAPACITY = 0.0000 VOL/VOL
 WILTING POINT = 0.0000 VOL/VOL
 INITIAL SOIL WATER CONTENT = 0.0000 VOL/VOL
 EFFECTIVE SAT. HYD. COND. = 0.399999993000E-12 CM/SEC
 FML PINHOLE DENSITY = 1.00 HOLES/ACRE
 FML INSTALLATION DEFECTS = 4.00 HOLES/ACRE
 FML PLACEMENT QUALITY = 3 - GOOD

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT
 SOIL DATA BASE USING SOIL TEXTURE # 7 WITH A
 POOR STAND OF GRASS, A SURFACE SLOPE OF 1%
 AND A SLOPE LENGTH OF 75. FEET.

SCS RUNOFF CURVE NUMBER = 83.90
 FRACTION OF AREA ALLOWING RUNOFF = 100.0 PERCENT
 AREA PROJECTED ON HORIZONTAL PLANE = 0.500 ACRES
 EVAPORATIVE ZONE DEPTH = 48.0 INCHES
 INITIAL WATER IN EVAPORATIVE ZONE = 6.891 INCHES
 UPPER LIMIT OF EVAPORATIVE STORAGE = 22.284 INCHES
 LOWER LIMIT OF EVAPORATIVE STORAGE = 5.496 INCHES
 INITIAL SNOW WATER = 0.000 INCHES

MALJA.OUT

INITIAL WATER IN LAYER MATERIALS	=	49.491	INCHES
TOTAL INITIAL WATER	=	49.491	INCHES
TOTAL SUBSURFACE INFLOW	=	0.00	INCHES/YEAR

EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM
MALJAMAR NEW MEXICO

STATION LATITUDE	=	32.85 DEGREES
MAXIMUM LEAF AREA INDEX	=	1.60
START OF GROWING SEASON (JULIAN DATE)	=	76
END OF GROWING SEASON (JULIAN DATE)	=	310
EVAPORATIVE ZONE DEPTH	=	48.0 INCHES
AVERAGE ANNUAL WIND SPEED	=	8.70 MPH
AVERAGE 1ST QUARTER RELATIVE HUMIDITY	=	49.00 %
AVERAGE 2ND QUARTER RELATIVE HUMIDITY	=	40.00 %
AVERAGE 3RD QUARTER RELATIVE HUMIDITY	=	53.00 %
AVERAGE 4TH QUARTER RELATIVE HUMIDITY	=	52.00 %

NOTE: PRECIPITATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR ROSWELL NEW MEXICO

NORMAL MEAN MONTHLY PRECIPITATION (INCHES)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
0.43	0.47	0.39	0.51	1.81	1.77
2.28	2.80	3.07	1.18	0.67	0.67

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR ROSWELL NEW MEXICO

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
41.40	45.90	52.80	61.90	70.30	79.00
81.40	79.20	72.30	61.70	49.10	42.50

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR ROSWELL NEW MEXICO
AND STATION LATITUDE = 32.85 DEGREES

AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1 THROUGH 50

MALJA.OUT

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC

PRECIPITATION						

TOTALS	0.47 2.22	0.50 2.60	0.34 2.92	0.49 1.55	1.71 0.87	1.62 0.73
STD. DEVIATIONS	0.48 1.35	0.38 1.99	0.35 1.84	0.55 1.34	1.54 1.00	1.18 0.67
RUNOFF						

TOTALS	0.000 0.012	0.000 0.035	0.000 0.134	0.001 0.015	0.057 0.007	0.025 0.009
STD. DEVIATIONS	0.000 0.031	0.000 0.100	0.000 0.226	0.003 0.036	0.156 0.030	0.058 0.044
EVAPOTRANSPIRATION						

TOTALS	0.558 2.342	0.758 2.282	0.891 2.072	0.724 1.201	1.942 0.644	1.851 0.482
STD. DEVIATIONS	0.211 1.445	0.229 1.499	0.448 1.033	0.477 0.432	1.197 0.250	1.274 0.164
PERCOLATION/LEAKAGE THROUGH LAYER 4						

TOTALS	0.0013 0.0021	0.0012 0.0019	0.0014 0.0017	0.0017 0.0016	0.0022 0.0014	0.0022 0.0013
STD. DEVIATIONS	0.0059 0.0091	0.0051 0.0084	0.0057 0.0076	0.0072 0.0073	0.0099 0.0066	0.0094 0.0063

AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)						

DAILY AVERAGE HEAD ON TOP OF LAYER 4						

AVERAGES	0.0539 0.0936	0.0523 0.0847	0.0550 0.0765	0.0769 0.0689	0.1033 0.0620	0.1024 0.0556
STD. DEVIATIONS	0.2728 0.4714	0.2521 0.4313	0.2462 0.3947	0.3511 0.3606	0.5254 0.3289	0.5138 0.2993

AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1 THROUGH 50				
	INCHES		CU. FEET	PERCENT
PRECIPITATION	16.04	(3.625)	29114.1	100.00
RUNOFF	0.294	(0.2952)	534.10	1.835

	MALJA.OUT		
EVAPOTRANSPIRATION	15.747 (3.3935)	28580.05	98.166
PERCOLATION/LEAKAGE THROUGH LAYER 4	0.02004 (0.08337)	36.367	0.12491
AVERAGE HEAD ON TOP OF LAYER 4	0.074 (0.344)		
CHANGE IN WATER STORAGE	-0.020 (2.0264)	-36.47	-0.125

□

	PEAK DAILY VALUES FOR YEARS	1 THROUGH	50
		(INCHES)	(CU. FT.)
PRECIPITATION		3.68	6679.200
RUNOFF		0.936	1698.3551
PERCOLATION/LEAKAGE THROUGH LAYER 4		0.002187	3.96892
AVERAGE HEAD ON TOP OF LAYER 4		3.763	
SNOW WATER		1.78	3229.8108
MAXIMUM VEG. SOIL WATER (VOL/VOL)			0.2549
MINIMUM VEG. SOIL WATER (VOL/VOL)			0.1145

□

	FINAL WATER STORAGE AT END OF YEAR	50
LAYER	(INCHES)	(VOL/VOL)
1	0.6557	0.1093
2	5.2306	0.1245
3	42.5999	0.2840
4	0.0000	0.0000
SNOW WATER	0.000	

ROSWEL.OUT

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 8

THICKNESS	=	42.00	INCHES
POROSITY	=	0.4630	VOL/VOL
FIELD CAPACITY	=	0.2320	VOL/VOL
WILTING POINT	=	0.1160	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.1450	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.369999994000E-03	CM/SEC

LAYER 3

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 9

THICKNESS	=	150.00	INCHES
POROSITY	=	0.5010	VOL/VOL
FIELD CAPACITY	=	0.2840	VOL/VOL
WILTING POINT	=	0.1350	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.2840	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.190000006000E-03	CM/SEC

LAYER 4

TYPE 4 - FLEXIBLE MEMBRANE LINER
MATERIAL TEXTURE NUMBER 36

THICKNESS	=	0.02	INCHES
POROSITY	=	0.0000	VOL/VOL
FIELD CAPACITY	=	0.0000	VOL/VOL
WILTING POINT	=	0.0000	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.0000	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.399999993000E-12	CM/SEC
FML PINHOLE DENSITY	=	1.00	HOLES/ACRE
FML INSTALLATION DEFECTS	=	4.00	HOLES/ACRE
FML PLACEMENT QUALITY	=	3	- GOOD

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT
SOIL DATA BASE USING SOIL TEXTURE # 7 WITH A
POOR STAND OF GRASS, A SURFACE SLOPE OF 1.0%
AND A SLOPE LENGTH OF 75. FEET.

SCS RUNOFF CURVE NUMBER	=	83.90	
FRACTION OF AREA ALLOWING RUNOFF	=	100.0	PERCENT
AREA PROJECTED ON HORIZONTAL PLANE	=	0.500	ACRES
EVAPORATIVE ZONE DEPTH	=	48.0	INCHES
INITIAL WATER IN EVAPORATIVE ZONE	=	6.891	INCHES
UPPER LIMIT OF EVAPORATIVE STORAGE	=	22.284	INCHES
LOWER LIMIT OF EVAPORATIVE STORAGE	=	5.496	INCHES
INITIAL SNOW WATER	=	0.000	INCHES

ROSWEL.OUT
 INITIAL WATER IN LAYER MATERIALS = 49.491 INCHES
 TOTAL INITIAL WATER = 49.491 INCHES
 TOTAL SUBSURFACE INFLOW = 0.00 INCHES/YEAR

EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM
 ROSWELL NEW MEXICO

STATION LATITUDE = 33.30 DEGREES
 MAXIMUM LEAF AREA INDEX = 1.60
 START OF GROWING SEASON (JULIAN DATE) = 76
 END OF GROWING SEASON (JULIAN DATE) = 310
 EVAPORATIVE ZONE DEPTH = 48.0 INCHES
 AVERAGE ANNUAL WIND SPEED = 8.70 MPH
 AVERAGE 1ST QUARTER RELATIVE HUMIDITY = 49.00 %
 AVERAGE 2ND QUARTER RELATIVE HUMIDITY = 40.00 %
 AVERAGE 3RD QUARTER RELATIVE HUMIDITY = 53.00 %
 AVERAGE 4TH QUARTER RELATIVE HUMIDITY = 52.00 %

NOTE: PRECIPITATION DATA WAS SYNTHETICALLY GENERATED USING
 COEFFICIENTS FOR ROSWELL NEW MEXICO

NORMAL MEAN MONTHLY PRECIPITATION (INCHES)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
0.39	0.43	0.28	0.51	1.22	1.85
1.38	2.20	2.52	1.30	0.71	0.55

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
 COEFFICIENTS FOR ROSWELL NEW MEXICO

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
41.40	45.90	52.80	61.90	70.30	79.00
81.40	79.20	72.30	61.70	49.10	42.50

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING
 COEFFICIENTS FOR ROSWELL NEW MEXICO
 AND STATION LATITUDE = 33.30 DEGREES

AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1 THROUGH 50

ROSWEL .OUT

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC

PRECIPITATION						

TOTALS	0.43 1.37	0.45 2.04	0.25 2.40	0.49 1.69	1.16 0.92	1.67 0.60
STD. DEVIATIONS	0.43 0.83	0.35 1.56	0.25 1.51	0.55 1.46	1.04 1.06	1.22 0.55
RUNOFF						

TOTALS	0.000 0.002	0.000 0.010	0.000 0.064	0.001 0.022	0.011 0.011	0.029 0.004
STD. DEVIATIONS	0.000 0.010	0.000 0.041	0.000 0.126	0.003 0.047	0.038 0.043	0.067 0.021
EVAPOTRANSPIRATION						

TOTALS	0.549 1.629	0.745 1.825	0.780 1.762	0.663 1.095	1.539 0.625	1.614 0.473
STD. DEVIATIONS	0.196 1.089	0.245 1.362	0.429 0.899	0.454 0.404	1.015 0.226	1.096 0.202
PERCOLATION/LEAKAGE THROUGH LAYER 4						

TOTALS	0.0033 0.0046	0.0029 0.0046	0.0034 0.0042	0.0036 0.0040	0.0041 0.0036	0.0043 0.0035
STD. DEVIATIONS	0.0146 0.0195	0.0125 0.0199	0.0135 0.0182	0.0136 0.0176	0.0160 0.0161	0.0172 0.0156

AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)

DAILY AVERAGE HEAD ON TOP OF LAYER 4

AVERAGES	0.1722 0.2586	0.1625 0.2591	0.1738 0.2397	0.1891 0.2210	0.2185 0.2034	0.2421 0.1873
STD. DEVIATIONS	0.8496 1.1915	0.7873 1.2381	0.7516 1.1511	0.7723 1.0689	0.9078 0.9916	1.0508 0.9189

AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1 THROUGH 50

	INCHES		CU. FEET	PERCENT
PRECIPITATION	13.48	(3.036)	24461.5	100.00
RUNOFF	0.152	(0.1656)	276.03	1.128

EVAPOTRANSPIRATION	13.299 (2.8547)	24137.44	98.675
PERCOLATION/LEAKAGE THROUGH LAYER 4	0.04617 (0.18014)	83.791	0.34254
AVERAGE HEAD ON TOP OF LAYER 4	0.211 (0.885)		
CHANGE IN WATER STORAGE	-0.020 (1.9657)	-35.78	-0.146

0

PEAK DAILY VALUES FOR YEARS	1 THROUGH	50
	(INCHES)	(CU. FT.)
PRECIPITATION	3.02	5481.300
RUNOFF	0.582	1055.7036
PERCOLATION/LEAKAGE THROUGH LAYER 4	0.004172	7.57157
AVERAGE HEAD ON TOP OF LAYER 4	8.360	
SNOW WATER	1.42	2577.6738
MAXIMUM VEG. SOIL WATER (VOL/VOL)		0.2748
MINIMUM VEG. SOIL WATER (VOL/VOL)		0.1145

0

FINAL WATER STORAGE AT END OF YEAR	50
LAYER	(INCHES)
	(VOL/VOL)
1	0.6502
2	5.2552
3	42.5999
4	0.0000
SNOW WATER	0.000

HOBBS.OUT

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**
**
**      HYDROLOGIC EVALUATION OF LANDFILL PERFORMANCE
**      HELP MODEL VERSION 3.07 (1 NOVEMBER 1997)
**      DEVELOPED BY ENVIRONMENTAL LABORATORY
**      USAE WATERWAYS EXPERIMENT STATION
**      FOR USEPA RISK REDUCTION ENGINEERING LABORATORY
**
*****
*****

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PRECIPITATION DATA FILE:  C:\HELP3\EXAMPLES\HOBBS.D4
TEMPERATURE DATA FILE:   C:\HELP3\EXAMPLES\HOBBS.D7
SOLAR RADIATION DATA FILE: C:\HELP3\EXAMPLES\HOBBS.D13
EVAPOTRANSPIRATION DATA:  C:\HELP3\EXAMPLES\HOBBS.D11
SOIL AND DESIGN DATA FILE: C:\HELP3\EXAMPLES\LINER.D10
OUTPUT DATA FILE:        C:\HELP3\EXAMPLES\HOBBS.OUT

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TIME: 13:32 DATE: 3/ 5/2012

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*****
TITLE:  4'COVER, LINER, 48" EVAP ZONE, SE NEW MEXICO
*****

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NOTE: INITIAL MOISTURE CONTENT OF THE LAYERS AND SNOW WATER WERE SPECIFIED BY THE USER.

LAYER 1

TYPE 1 - VERTICAL PERCOLATION LAYER
MATERIAL TEXTURE NUMBER 7

```

THICKNESS           = 6.00 INCHES
POROSITY             = 0.4730 VOL/VOL
FIELD CAPACITY       = 0.2220 VOL/VOL
WILTING POINT        = 0.1040 VOL/VOL
INITIAL SOIL WATER CONTENT = 0.1335 VOL/VOL
EFFECTIVE SAT. HYD. COND. = 0.520000001000E-03 CM/SEC
NOTE: SATURATED HYDRAULIC CONDUCTIVITY IS MULTIPLIED BY 2.49
      FOR ROOT CHANNELS IN TOP HALF OF EVAPORATIVE ZONE.

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LAYER 2

HOBBS.OUT

TYPE 1 - VERTICAL PERCOLATION LAYER

MATERIAL TEXTURE NUMBER 8

THICKNESS	=	42.00	INCHES
POROSITY	=	0.4630	VOL/VOL
FIELD CAPACITY	=	0.2320	VOL/VOL
WILTING POINT	=	0.1160	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.1450	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.369999994000E-03	CM/SEC

LAYER 3

TYPE 1 - VERTICAL PERCOLATION LAYER

MATERIAL TEXTURE NUMBER 9

THICKNESS	=	150.00	INCHES
POROSITY	=	0.5010	VOL/VOL
FIELD CAPACITY	=	0.2840	VOL/VOL
WILTING POINT	=	0.1350	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.2840	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.190000006000E-03	CM/SEC

LAYER 4

TYPE 4 - FLEXIBLE MEMBRANE LINER

MATERIAL TEXTURE NUMBER 36

THICKNESS	=	0.02	INCHES
POROSITY	=	0.0000	VOL/VOL
FIELD CAPACITY	=	0.0000	VOL/VOL
WILTING POINT	=	0.0000	VOL/VOL
INITIAL SOIL WATER CONTENT	=	0.0000	VOL/VOL
EFFECTIVE SAT. HYD. COND.	=	0.399999993000E-12	CM/SEC
FML PINHOLE DENSITY	=	1.00	HOLES/ACRE
FML INSTALLATION DEFECTS	=	4.00	HOLES/ACRE
FML PLACEMENT QUALITY	=	3	- GOOD

GENERAL DESIGN AND EVAPORATIVE ZONE DATA

NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT SOIL DATA BASE USING SOIL TEXTURE # 7 WITH A POOR STAND OF GRASS, A SURFACE SLOPE OF 1.% AND A SLOPE LENGTH OF 75. FEET.

SCS RUNOFF CURVE NUMBER	=	83.90	
FRACTION OF AREA ALLOWING RUNOFF	=	100.0	PERCENT
AREA PROJECTED ON HORIZONTAL PLANE	=	0.500	ACRES
EVAPORATIVE ZONE DEPTH	=	48.0	INCHES
INITIAL WATER IN EVAPORATIVE ZONE	=	6.891	INCHES
UPPER LIMIT OF EVAPORATIVE STORAGE	=	22.284	INCHES
LOWER LIMIT OF EVAPORATIVE STORAGE	=	5.496	INCHES
INITIAL SNOW WATER	=	0.000	INCHES

HOBBS.OUT

INITIAL WATER IN LAYER MATERIALS	=	49.491	INCHES
TOTAL INITIAL WATER	=	49.491	INCHES
TOTAL SUBSURFACE INFLOW	=	0.00	INCHES/YEAR

EVAPOTRANSPIRATION AND WEATHER DATA

NOTE: EVAPOTRANSPIRATION DATA WAS OBTAINED FROM
HOBBS NEW MEXICO

STATION LATITUDE	=	32.72 DEGREES
MAXIMUM LEAF AREA INDEX	=	1.60
START OF GROWING SEASON (JULIAN DATE)	=	76
END OF GROWING SEASON (JULIAN DATE)	=	310
EVAPORATIVE ZONE DEPTH	=	48.0 INCHES
AVERAGE ANNUAL WIND SPEED	=	8.70 MPH
AVERAGE 1ST QUARTER RELATIVE HUMIDITY	=	49.00 %
AVERAGE 2ND QUARTER RELATIVE HUMIDITY	=	40.00 %
AVERAGE 3RD QUARTER RELATIVE HUMIDITY	=	53.00 %
AVERAGE 4TH QUARTER RELATIVE HUMIDITY	=	52.00 %

NOTE: PRECIPITATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR ROSWELL NEW MEXICO

NORMAL MEAN MONTHLY PRECIPITATION (INCHES)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
0.51	0.67	0.47	0.79	2.60	2.05
2.40	2.52	3.15	1.46	0.87	0.71

NOTE: TEMPERATURE DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR ROSWELL NEW MEXICO

NORMAL MEAN MONTHLY TEMPERATURE (DEGREES FAHRENHEIT)

JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
41.40	45.90	52.80	61.90	70.30	79.00
81.40	79.20	72.30	61.70	49.10	42.50

NOTE: SOLAR RADIATION DATA WAS SYNTHETICALLY GENERATED USING
COEFFICIENTS FOR ROSWELL NEW MEXICO
AND STATION LATITUDE = 32.72 DEGREES

AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1 THROUGH 50

HOBBS.OUT

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC

PRECIPITATION						

TOTALS	0.56 2.35	0.71 2.35	0.42 3.00	0.76 1.91	2.46 1.12	1.89 0.77
STD. DEVIATIONS	0.57 1.43	0.55 1.80	0.42 1.89	0.85 1.65	2.22 1.29	1.39 0.71
RUNOFF						

TOTALS	0.000 0.017	0.000 0.020	0.000 0.146	0.014 0.038	0.193 0.024	0.049 0.012
STD. DEVIATIONS	0.001 0.040	0.000 0.068	0.001 0.242	0.043 0.079	0.432 0.079	0.099 0.053
EVAPOTRANSPIRATION						

TOTALS	0.631 2.476	0.830 2.176	1.011 2.036	0.908 1.279	2.651 0.734	2.466 0.548
STD. DEVIATIONS	0.221 1.511	0.295 1.502	0.464 1.042	0.587 0.474	1.480 0.302	1.690 0.260
PERCOLATION/LEAKAGE THROUGH LAYER 4						

TOTALS	0.0036 0.0060	0.0032 0.0056	0.0039 0.0050	0.0046 0.0048	0.0053 0.0042	0.0057 0.0040
STD. DEVIATIONS	0.0124 0.0182	0.0106 0.0171	0.0118 0.0155	0.0131 0.0151	0.0161 0.0137	0.0175 0.0132

AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)

DAILY AVERAGE HEAD ON TOP OF LAYER 4

AVERAGES	0.1623 0.2889	0.1543 0.2652	0.1702 0.2411	0.2154 0.2188	0.2534 0.1982	0.2848 0.1797
STD. DEVIATIONS	0.6904 1.1004	0.6392 1.0205	0.6261 0.9460	0.7301 0.8761	0.9201 0.8105	1.0911 0.7489

AVERAGE ANNUAL TOTALS & (STD. DEVIATIONS) FOR YEARS 1 THROUGH 50

	INCHES		CU. FEET	PERCENT
PRECIPITATION	18.30	(4.137)	33222.9	100.00
RUNOFF	0.513	(0.5070)	930.31	2.800

EVAPOTRANSPIRATION	17.746 (3.7837)	32209.00	96.948
PERCOLATION/LEAKAGE THROUGH LAYER 4	0.05590 (0.16092)	101.452	0.30537
AVERAGE HEAD ON TOP OF LAYER 4	0.219 (0.776)		
CHANGE IN WATER STORAGE	-0.010 (2.3981)	-17.92	-0.054

□

PEAK DAILY VALUES FOR YEARS	1 THROUGH	50
	(INCHES)	(CU. FT.)
PRECIPITATION	4.06	7368.900
RUNOFF	1.742	3162.2058
PERCOLATION/LEAKAGE THROUGH LAYER 4	0.003859	7.00470
AVERAGE HEAD ON TOP OF LAYER 4	7.607	
SNOW WATER	1.93	3510.3135
MAXIMUM VEG. SOIL WATER (VOL/VOL)		0.2778
MINIMUM VEG. SOIL WATER (VOL/VOL)		0.1145

□

FINAL WATER STORAGE AT END OF YEAR	50
LAYER	(INCHES)
1	0.8498
2	5.5472
3	42.6001
4	0.0000
SNOW WATER	0.000
