



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

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

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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  
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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  
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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  
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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

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AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1 THROUGH 50  
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ARTESIA.OUT

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
<b>PRECIPITATION</b>						
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
<b>RUNOFF</b>						
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
<b>EVAPOTRANSPIRATION</b>						
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
<b>PERCOLATION/LEAKAGE THROUGH LAYER 4</b>						
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

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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

	ARTESIA.OUT		
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

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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

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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	

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CARLSB.OUT

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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

\*\*\*\*\*  
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.

LAYER 2  
-----

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  
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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

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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  
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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

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AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1 THROUGH 50  
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CARLSB. OUT

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
<b>PRECIPITATION</b>						
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
<b>RUNOFF</b>						
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
<b>EVAPOTRANSPIRATION</b>						
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
<b>PERCOLATION/LEAKAGE THROUGH LAYER 4</b>						
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

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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

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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

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FINAL WATER STORAGE AT END OF YEAR			50
LAYER	(INCHES)	(VOL/VOL)	
1	0.7658	0.1276	
2	5.4203	0.1291	
3	42.5999	0.2840	
4	0.0000	0.0000	
SNOW WATER	0.000		

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

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TIME: 13:31 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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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  
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MALJA.OUT

TYPE 1 - VERTICAL PERCOLATION LAYER

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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  
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NOTE: SCS RUNOFF CURVE NUMBER WAS COMPUTED FROM DEFAULT  
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POOR STAND OF GRASS, A SURFACE SLOPE OF 1.0%  
AND A SLOPE LENGTH OF 75. FEET.

SCS RUNOFF CURVE NUMBER = 83.90  
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AREA PROJECTED ON HORIZONTAL PLANE = 0.500 ACRES  
EVAPORATIVE ZONE DEPTH = 48.0 INCHES  
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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  
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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

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AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1 THROUGH 50

MALJA.OUT

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
<u>PRECIPITATION</u>						
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
<u>RUNOFF</u>						
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
<u>EVAPOTRANSPIRATION</u>						
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
<u>PERCOLATION/LEAKAGE THROUGH LAYER 4</u>						
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

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 AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)  
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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

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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

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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

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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	

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ROSWEL.OUT

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

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

\*\*\*\*\*  
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.

LAYER 2  
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Page 1

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  
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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

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AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1 THROUGH 50

ROSWEL .OUT

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
<u>PRECIPITATION</u>						
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
<u>RUNOFF</u>						
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
<u>EVAPOTRANSPIRATION</u>						
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
<u>PERCOLATION/LEAKAGE THROUGH LAYER 4</u>						
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

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 AVERAGES OF MONTHLY AVERAGED DAILY HEADS (INCHES)  
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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

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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

	ROSWEL .OUT		
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

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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

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FINAL WATER STORAGE AT END OF YEAR 50		
LAYER	(INCHES)	(VOL/VOL)
1	0.6502	0.1084
2	5.2552	0.1251
3	42.5999	0.2840
4	0.0000	0.0000
SNOW WATER	0.000	

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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  
-----

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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  
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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

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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

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  
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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

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AVERAGE MONTHLY VALUES IN INCHES FOR YEARS 1 THROUGH 50



HOBBS.OUT

	JAN/JUL	FEB/AUG	MAR/SEP	APR/OCT	MAY/NOV	JUN/DEC
<b>PRECIPITATION</b>						
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
<b>RUNOFF</b>						
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
<b>EVAPOTRANSPIRATION</b>						
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
<b>PERCOLATION/LEAKAGE THROUGH LAYER 4</b>						
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

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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

	HOBBS,OUT		
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

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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

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FINAL WATER STORAGE AT END OF YEAR 50		
LAYER	(INCHES)	(VOL/VOL)
1	0.8498	0.1416
2	5.5472	0.1321
3	42.6001	0.2840
4	0.0000	0.0000
SNOW WATER	0.000	

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