Appendix B - Lower Eightmile Creek

PEAK DISCHARGES FOR SELECTED FREQUENCIES

Report prepared for: autodelin
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Watershed Name: EIGHTMILE CR

PEAK DISCHARGE CALCULATION BY PREDICTION EQUATION

Peak discharges for the ungaged watershed have been determined from a set of hydrologic prediction equations derived using generalized least squares. The models relate peak discharges to physical watershed characteristics such as area and precipitation. The equations take this form:

```
Q(T)=(10.0^C0(T))*(CHR1^C1(T))* . . . (CHRn^Cn(T))
-------------------------------------------------
   Q(T)  =  Peak Discharge for Return Period T
   Cx(T) =  Coefficient x for Return Period T
   CHR1  =  The First Watershed Characteristic
   CHRn  =  The nth Watershed Characteristic
-------------------------------------------------
   Note: * = multiplication, ^ = exponentiation
```

For this ungaged watershed, peak discharges were estimated using prediction equations for this flood region:

EAST SIDE WATERSHEDS - NORTH CENTRAL

Prediction Equation for East Side Watersheds - North Central

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-----------------------------------------------------------------------
Q(T)=(10.0^C0(T))*(X1^C1(T))*(X2^C2(T)*(X3^C3(T))*(X4^C4(T))*(X5^C5(T))
-----------------------------------------------------------------------
    Q(T)    =  Peak Discharge for Return Period T
    Cx(T)   =  Coefficient x for Return Period T
    X1      =  Drainage area                          (square miles)
    X2      =  Mean January precipitation             (inches)
    X3      =  Mean July precipitation                (inches)
    X4      =  Soil storage capacity                  (inches)
    X5      =
-----------------------------------------------------------------------
              Note: * = multiplication, ^ = exponentiation
```

Prediction Equation Coefficients

Return Period T	C0(T)	C1(T)	C2(T)	C3(T)	C4(T)	C5(T)
2	1.500E+00	7.947E-01	1.335E+00	-5.420E-01	1.337E+00	
5	2.175E+00	7.783E-01	1.037E+00	-7.030E-01	1.615E+00	
10	2.402E+00	7.706E-01	8.967E-01	-8.129E-01	1.622E+00	
20	2.533E+00	7.638E-01	7.993E-01	-9.225E-01	1.574E+00	
25	2.565E+00	7.617E-01	7.737E-01	-9.569E-01	1.556E+00	
50	2.648E+00	7.559E-01	7.050E-01	-1.059E+00	1.499E+00	
100	2.716E+00	7.507E-01	6.468E-01	-1.154E+00	1.445E+00	
500	2.847E+00	7.407E-01	5.300E-01	-1.348E+00	1.330E+00	

Required Watershed Characteristics

Drainage area	(square miles)	4.780
Mean January precipitation	(inches)	9.560

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Mean July precipitation	(inches)	0.900
Soil storage capacity	(inches)	0.140

WARNING: WATERSHED CHARACTERISTICS ARE OUT OF BOUNDS

One or more of the required watershed characteristics is an extrapolation from the set used to develop the regression equations.

PEAK DISCHARGES HAVE BEEN CALCULATED, BUT SHOULD BE USED WITH CAUTION.

EAST SIDE WATERSHEDS - NORTH CENTRAL
Bounds on Required Watershed Characteristics

Drainage area	(square miles)	0.29	to	1630.06
Mean January precipitation	(inches)	1.52	to	7.97
Mean July precipitation	(inches)	0.23	to	1.28
Soil storage capacity	(inches)	0.10	to	0.20

PEAK DISCHARGE ESTIMATES BASED ON PREDICTION EQUATIONS

Return Period years	Peak Flow cfs	95% Confidence Lower Limit cfs	Upper Limit cfs
2	171	52.3	557
5	236	99.5	560
10	287	135	611
20	342	166	703
25	360	175	741
50	418	199	880
100	478	217	1060
500	625	238	1640

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Pour point

Watershed boundary

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Report and output shapefile is avilable for 7 days at:

http://www1.wrd.state.or.us/files/wars/070607.142030.zip

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