Appendix B - Velvet Creek

PEAK DISCHARGES FOR SELECTED FREQUENCIES

Report prepared for: autodelin
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Watershed Name: +

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:

COASTAL WATERSHEDS

Prediction Equation for Coastal Watersheds

```
-----------------------------------------------------------------------
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      =  2-year 24-hour precipitation intensity (inches)
    X3      =  Soil permeability                      (inches/hour)
    X4      =  Mean maximum January temperature       (degrees F)
    X5      =  Soil storage capacity                  (inches)
-----------------------------------------------------------------------
               Note: * = multiplication, ^ = exponentiation
```

Prediction Equation Coefficients

Return Period T	Coefficients C0(T)	C1(T)	C2(T)	C3(T)	C4(T)	C5(T)
2	-1.296E+00	9.489E-01	1.360E+00	-1.576E-01	1.280E+00	-4.421E-01
5	-1.881E+00	9.385E-01	1.272E+00	-2.234E-01	1.738E+00	-5.026E-01
10	-2.095E+00	9.324E-01	1.226E+00	-2.552E-01	1.926E+00	-5.267E-01
20	-2.248E+00	9.273E-01	1.190E+00	-2.812E-01	2.069E+00	-5.438E-01
25	-2.291E+00	9.258E-01	1.179E+00	-2.888E-01	2.109E+00	-5.484E-01
50	-2.410E+00	9.215E-01	1.151E+00	-3.111E-01	2.223E+00	-5.605E-01
100	-2.516E+00	9.176E-01	1.126E+00	-3.319E-01	2.325E+00	-5.701E-01
500	-2.723E+00	9.099E-01	1.078E+00	-3.770E-01	2.527E+00	-5.855E-01

Required Watershed Characteristics

Drainage area	(square miles)	1.810
2-year 24-hour precipitation intensity	(inches)	3.230

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Soil permeability	(inches/hour)	2.680
Mean maximum January temperature	(degrees F)	50.500
Soil storage capacity	(inches)	0.130

PEAK DISCHARGE ESTIMATES BASED ON PREDICTION EQUATIONS

Return Period years	Peak Flow cfs	95% Confidence Lower Limit cfs	Upper Limit cfs
2	140	82.6	236
5	208	127	342
10	256	155	423
20	303	180	510
25	318	189	537
50	366	212	630
100	414	233	734
500	527	279	997

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Report 00-4080, 93 p.

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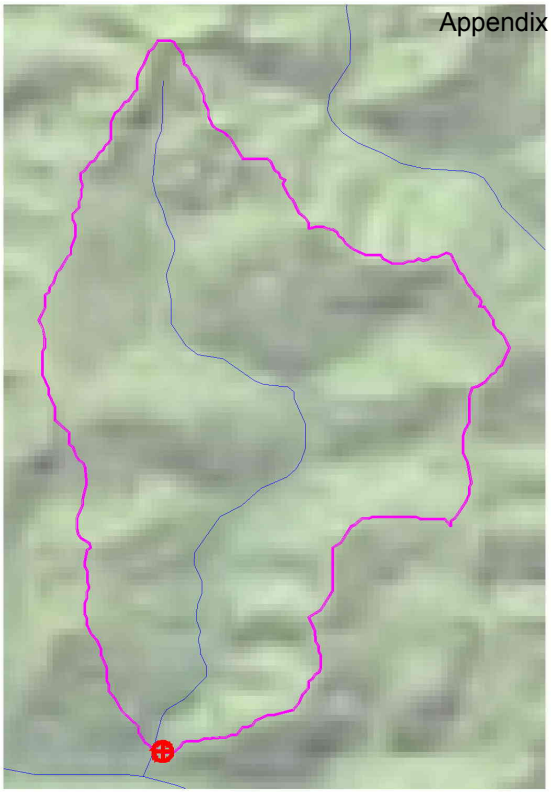
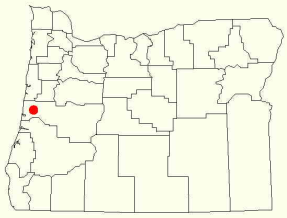


Pour point

Watershed boundary



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