Appendix B - Cool Creek

PEAK DISCHARGES FOR SELECTED FREQUENCIES

Report prepared for: autodelin
Time: 14:05 Date: 06/07/2007

Watershed Name: COOL 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:

WESTERN INTERIOR WATERSHEDS - > 3125 FEET

WATERSHED ELEVATION = 3530 FEET

For western interior watersheds with mean elevations above 3125 feet, peaks are estimated using the prediction equations for western interior watersheds above 3000 feet.

Prediction Equation for Interior Watersheds > 3000 Feet

```
-----------------------------------------------------------------------
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 watershed slope                   (degrees)
    X3      =  2-year 24-hour precipitation intensity (inches)
    X4      =  Mean minimum January temperature       (degrees F)
    X5      =  Mean maximum January temperature       (degrees F)
-----------------------------------------------------------------------
              Note: * = multiplication, ^ = exponentiation
```

Prediction Equation Coefficients

Return Period T	C0(T)	C1(T)	C2(T)	C3(T)	C4(T)	C5(T)
	Coefficients					
2	-2.506E+00	1.021E+00	8.124E-01	2.050E+00	3.541E+00	-1.867E+00
5	-2.107E+00	1.020E+00	9.022E-01	1.649E+00	3.611E+00	-2.017E+00
10	-1.811E+00	1.021E+00	9.506E-01	1.471E+00	3.620E+00	-2.137E+00
20	-1.551E+00	1.021E+00	9.844E-01	1.352E+00	3.623E+00	-2.246E+00
25	-1.475E+00	1.021E+00	9.930E-01	1.321E+00	3.624E+00	-2.278E+00
50	-1.260E+00	1.022E+00	1.014E+00	1.243E+00	3.624E+00	-2.366E+00
100	-1.071E+00	1.022E+00	1.030E+00	1.182E+00	3.621E+00	-2.440E+00

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500 -7.047E-01 1.023E+00 1.053E+00 1.079E+00 3.601E+00 -2.566E+00

Required Watershed Characteristics

Drainage area	(square miles)	1.700
Mean watershed slope	(degrees)	26.500
2-year 24-hour precipitation intensity	(inches)	2.860
Mean minimum January temperature	(degrees F)	26.600
Mean maximum January temperature	(degrees F)	37.800

PEAK DISCHARGE ESTIMATES BASED ON PREDICTION EQUATIONS

Return Period years	Peak Flow cfs	95% Confidence Lower Limit cfs	Upper Limit cfs
2	83.2	39.3	176
5	134	69.2	260
10	172	90.7	326
20	210	111	398
25	222	117	422
50	262	136	504
100	302	154	595
500	402	192	845

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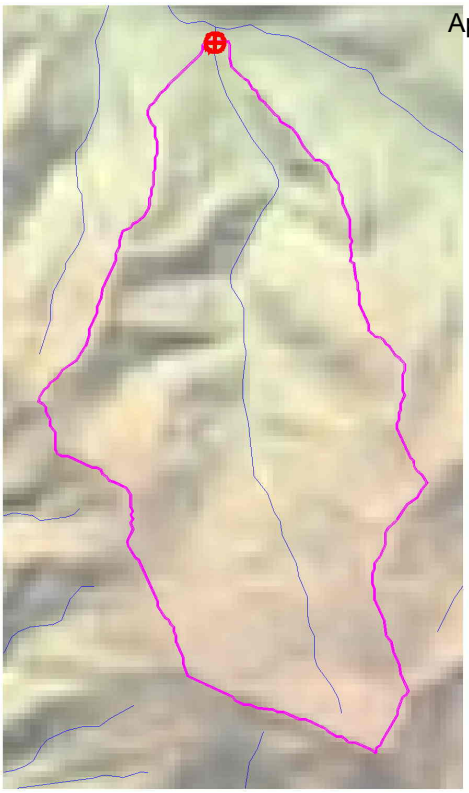
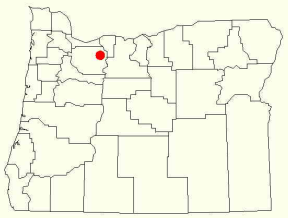


Pour point

Watershed boundary

N



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