Appendix B - Youngs Creek

PEAK DISCHARGES FOR SELECTED FREQUENCIES

Report prepared for: autodelin
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Watershed Name: YOUNGS 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 = 3680 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

Page 1 of 4

Appendix B - Youngs Creek

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)	2.920
Mean watershed slope	(degrees)	16.900
2-year 24-hour precipitation intensity	(inches)	2.590
Mean minimum January temperature	(degrees F)	28.700
Mean maximum January temperature	(degrees F)	42.800

PEAK DISCHARGE ESTIMATES BASED ON PREDICTION EQUATIONS

Return Period years	Peak Flow cfs	95% Confidence Lower Limit cfs	Upper Limit cfs
2	85.0	40.3	179
5	135	70.0	260
10	170	90.1	320
20	204	109	384
25	215	114	406
50	250	131	479
100	286	147	558
500	374	180	779

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Appendix B - Youngs Creek

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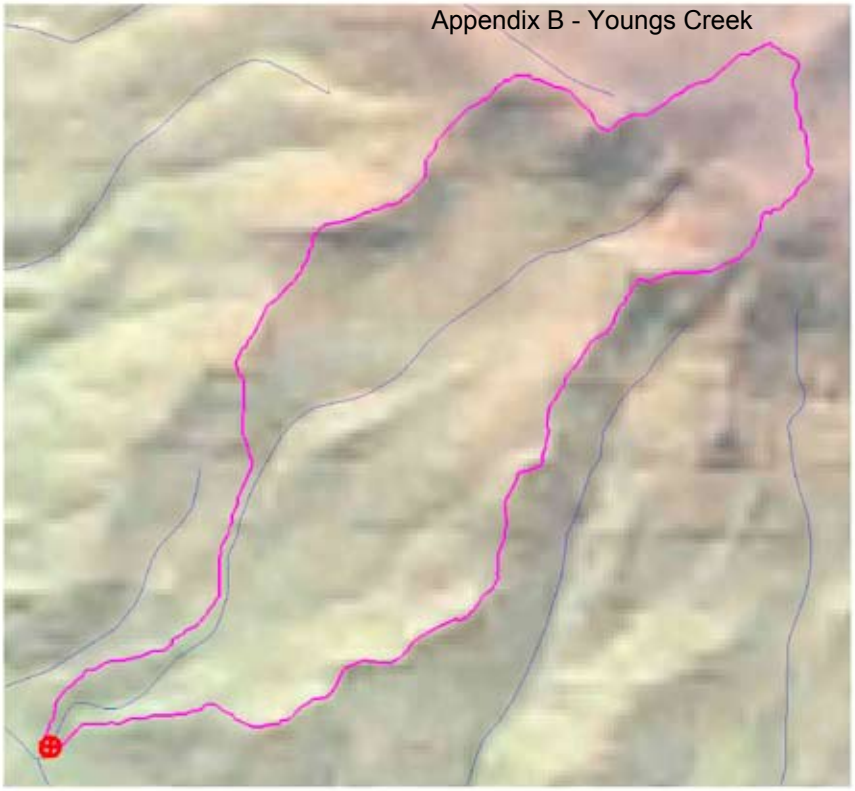

Pour point

Watershed boundary

N

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Report and output shapefile is avilable for 7 days at:

http://www1.wrd.state.or.us/files/wars/070607.105819.zip

Page 4 of 4