

Task 61

MIXING ZONE ANALYSIS  
3<sup>RD</sup> RUNWAY NORTH DISCHARGE TO MILLER CREEK  
(BASIN SDW-1)

Method

- Design Storm using Waterworks
- Hyetographs: Unit hydrographs
  - 2yr/2-hr: DSS Tech Note 3 Appendix C, Table C3a
  - 2yr/72hr: DSS Tech Note 3 Appendix C, Table C3
- Design precipitations:
  - 2yr/2hr: DSS Tech Note 3 Figure A4
  - 2yr/24hr: DSS Tech Note 3 Figure A2 (from NOAA)
  - 2yr/72hr: 24hr x 1.23 (from Figure 8f, Characteristics of Extreme Precipitation Events in Wash State)
  - 3yr/72hr: 2yr/24hr x 1.30 (from Figure 8f, Characteristics of Extreme Precipitation Events in Wash State)

Design Flows for Effluent

- For acute criterion, use the maximum of:
  - Average flow from 2yr/2hr event, or
  - Peak flow from 2yr/72hr event — use intensity curve
- For chronic criterion, use:
  - Average flow from 3yr/72hr event — use volume curve

Basin Parameters: SDW-1

- Pervious area: 90.9 acres
- Impervious area: 37.0 acres
- Route through detention pond (see attached storage-discharge rating curve)
- Flow rates based on detention pond outflow

$X_c = 6 \text{ min}$

•  $CN \text{ pervious} = 86$

•  $T_c = 7.6 \text{ min}$

AR 024556

Efflow 6/7

FTABLE 47  
 ROWS COLS \*\*\*  
 SDW-1: MILLER CREEK \*\*\*LEVEL 2  
 22 4

DEPTH (ft)	AREA	VOLUME a-ft	OUTFLOW cfs
.00	1.00	.00	.00
.42	1.00	.61	1.75
.83	1.00	1.21	2.48
1.46	1.00	2.14	3.28
2.09	1.00	3.10	3.92
2.72	1.00	4.07	4.47
3.34	1.00	5.05	4.96
3.97	1.00	6.06	5.40
4.60	1.00	7.09	5.82
5.16	1.00	8.03	6.27
5.78	1.00	9.08	9.05
6.10	1.00	9.63	13.97
6.41	1.00	10.16	15.12
6.66	1.00	10.60	16.13
6.97	1.00	11.15	17.87
7.28	1.00	11.70	19.76
7.60	1.00	12.27	21.67
7.91	1.00	12.83	23.52
8.10	1.00	13.18	25.19
8.30	1.00	13.54	29.55
8.50	1.00	13.91	35.55
8.70	1.00	14.28	42.79

\*\*\* Volume of =  $V * \frac{2,323,200}{53.33}$

END FTABLE 47

**MIXING ZONE ANALYSIS**  
**3<sup>RD</sup> RUNWAY NORTH DISCHARGE TO MILLER CREEK**  
**(BASIN SDW-1)**

Method

- Design Storm using Waterworks
- Hyetographs:
  - 2yr/2-hr: DSS Tech Note 3 Appendix C, Table C3a
  - 2yr/72hr: DSS Tech Note 3 Appendix C, Table C3
- Design precipitations:
  - 2yr/2hr: DSS Tech Note 3 Figure A4
  - 2yr/24hr: DSS Tech Note 3 Figure A2 (from NOAA)
  - 2yr/72hr: 24hr x 1.23 (from Figure 8f, Characteristics of Extreme Precipitation Events in Wash State)
  - 3yr/72hr: 2yr/24hr x 1.30 (from Figure 8f, Characteristics of Extreme Precipitation Events in Wash State)

Design Flows for Effluent

- For acute criterion, use the maximum of:
  - Average flow from 2yr/2hr event, or
  - Peak flow from 2yr/72hr event
- For chronic criterion, use:
  - Average flow from 3yr/72hr event

Basin Parameters: SDW-1

- Pervious area: 90.9 acres
- Impervious area: 37.0 acres
- Route through detention pond (see attached storage-discharge rating curve)
- Flow rates based on detention pond outflow

FTABLE 47  
ROWS COLS \*\*\*  
SDW-1: MILLER CREEK \*\*\*LEVEL 2  
22 4

DEPTH	AREA	VOLUME	OUTFLOW	***
.00	1.00	.00	.00	
.42	1.00	.61	1.75	
.83	1.00	1.21	2.48	
1.46	1.00	2.14	3.28	
2.09	1.00	3.10	3.92	
2.72	1.00	4.07	4.47	
3.34	1.00	5.05	4.96	
3.97	1.00	6.06	5.40	
4.60	1.00	7.09	5.82	
5.16	1.00	8.03	6.27	
5.78	1.00	9.08	9.05	
6.10	1.00	9.63	13.97	
6.41	1.00	10.16	15.12	
6.66	1.00	10.60	16.13	
6.97	1.00	11.15	17.87	
7.28	1.00	11.70	19.76	
7.60	1.00	12.27	21.67	
7.91	1.00	12.83	23.52	
8.10	1.00	13.18	25.19	
8.30	1.00	13.54	29.55	
8.50	1.00	13.91	35.55	
8.70	1.00	14.28	42.79	

END FTABLE 47

AR 024559