

Knights Creek 16" Sanitary Sewer Trunk Main Overflow/Spill at COV MH No M0222 - 1800 Block of E. Park Ave (Utility Easement Area back in remote area)

Ht of Flow at MH Rim	24in MH (sq ft)	Gal/Min	Gal/LS Cycle	Gal/Hr	*Actual Spill Time/Hr	Cycles/Hr	Duration of Spill 06/06 (Hrs)	Duration of Spill 06/07 (Hrs)	Duration of Spill 06/08 (Hrs)	**Subtotal Hrs	Total Spill Duration Gals
0.5	0.131	3.91952	27.43664	6584.7936	28	4	4	20	15.5	29.5	194251.4112
1	0.262	7.83904	54.87328	13169.5872	28	4					
1.5	0.393	11.75856	82.30992	19754.3808	28	4					

* Actual spill time/hr is based on cycling of the nearby lift station at E. Park Ave - spilling occurred during the pump station run times discharging to the upstream MH.

** Subtotal Hrs are adjusted for minimal flow during off peak hours over-night.

(in seconds) that the SSO occurred. Finally, multiply by 7.48 to determine the volume of the SSO in gallons. The formula is Volume (gallons) = Area (sq. ft.) x Velocity (ft/sec) x Time (in seconds) x 7.48 (gal/cu. ft.).



Example: The measured height of the plume exiting the side ring of a 24-inch manhole is 2 inches. Based upon the data provided in the Area Calculation Chart below, a 2-inch plume from one side of a 24-inch manhole cover provides 0.524 square feet of area. The velocity of the flow is estimated at 4 ft/sec (visual observation) with the assumed duration of the flow lasting for one hour. The total amount of the SSO is estimated at 56,441 gallons (.524 x 4 x 60 x 7.48 = 56,441)

Height of plume	2 inches
Area for 24 inch manhole	0.524 square feet
Estimated velocity	4 ft/sec
Duration of SSO	60 minutes
Conversion from cu. ft. to gallons	7.48
Total estimated SSO volume	56,441 gallons
(0.524 sq. ft. x 4 ft/sec x 60 minutes x 7.48 gal/cu ft = 56,441 gal)	

Height of plume (in)	0.5
Area for 24 inch manhole (SF)	0.131
Estimated velocity (ft/sec)	4
Duration of SSO (min)	28
Conversion from (cf to gals)	7.48
Total estimated SSO volume (gals)	6584.7936
(0.131 sq. ft. x 4 ft/sec x 28 minutes x 60 sec/min x 7.48 gal/cu ft = 56,441 gal)	

Height of Flow	24 Inch Manhole	36 Inch Manhole
5 inches	0.131 sq. ft.	0.195 sq. ft.
1 inches	0.262 sq. ft.	0.391 sq. ft.
1.5 inches	0.393 sq. ft.	0.586 sq. ft.
2 inches	0.524 sq. ft.	0.782 sq. ft.
2.5 inches	0.655 sq. ft.	0.977 sq. ft.
3 inches	0.786 sq. ft.	1.173 sq. ft.
3.5 inches	0.917 sq. ft.	1.368 sq. ft.
4 inches	1.048 sq. ft.	1.564 sq. ft.