



BEAR CREEK RESERVOIR

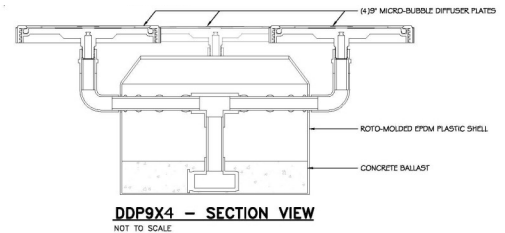
Fact Sheet 47 2014 BCR Aeration System
November 2014, Updated May 2019

The Bear Creek Watershed Association protects and restores water and environmental quality within the Bear Creek Watershed from the effects of land use.

Clear Creek County
Jefferson County
City of Lakewood
Town of Morrison
Aspen Park Metropolitan District
Conifer Sanitation Association
Conifer Metropolitan District
Denver Water Department
Evergreen Metropolitan District
Forrest Hills Metropolitan District
Genesee Sanitation & Water District
Geneva Glen
Jefferson County School District
Kittredge Water & Sanitation District
Tiny Town Foundation, Inc.
West Jefferson County Metropolitan District
Evergreen Trout Unlimited
U.S. Army Corps of Engineers

The September 2013 flood event used Bear Creek Reservoir as a major flood control structure, which caused displacement and reduced efficiency of the in-reservoir aeration system as installed by the City of Lakewood and monitored by the BCWA (*BCWA Fact Sheet 6 Aeration BCR*). A video survey was completed on the BCR aeration system on April 30, 2014 (*BCWA TM2014.01 BCR Video Survey Aerators*). The survey demonstrated air supply line damage (kinks and holes), aeration pan displacement, overturned aeration pans, reduced function, and some losses, which reduced the overall system efficiency by 40-70%. The BCWA established that an in-reservoir aeration system is a necessary long-term *smart management practice* to protect and enhance the reservoir fishery (*BCWA Policy 8 BCR Aeration*).

Since FEMA requires *like-kind* replacement, Lakewood determined it would be more cost effective to upgrade and replace the aeration system using Lakewood funding. The BCWA assisted with new aeration configuration, system requirements and replacement options. BCWA and Lakewood staff removed most of the old aeration system and recycled these materials. The company *Underwater Repairs Specialist* installed 6 Quad Duraplate Diffusers (DDP9X4 Keeton Industries) and weighted line in November 2014 with assistance of Lakewood staff that corresponds to the pattern shown below. This was the minimum number of aerators predicted to meet reservoir oxygen standards. The system was designed for 10-12 Quad Diffusers. The diffusers are fine bubble (air supplied by a 15 hp variable compressor) and will increase the dissolved oxygen transfer into the reservoir water column on the eastern end of the reservoir. Lakewood and BCWA will conduct an evaluation on the effectiveness and efficiency of the replacement aeration system in the spring/summer growing season from 2015-2018.



Line	Transect	Installed Line (ft)	Depth (ft)
Line 1	Pelican	850	35.8
Line 2	Bear Creek	1,300	36.1
Line 3	Turkey	600	18.9
Line 4	Turkey	900	31.9
Line 5	Bear Creek	1,650	28.9
Line 6	Pelican	1,500	32.8
	Total	6,800	

