

Plant Profile: City of Twin Falls, Idaho WWTP

Operated by CH2M HILL OMI Inc.



Service Population: 42,000

System Type:

Class IV, Activated Sludge

Twin Falls WWTP currently treats all wastewater through the activated sludge system with the aid of an in line bio-tower.

The facility treats waste discharged from seven major industries plus all domestic flows. The City's major industrial user, Conagra Specialty Products effluent flow is pretreated by an UASB (Upflow Anaerobic Sludge Bed) prior to entering into the WWTP. The UASB utilizes two high rate anaerobic digesters (HDT 6 hours) to remove BOD from the industry's 2.5 MGD waste flow.

The Twin Falls waste treatment facility treats an averaged daily wastewater flow of 7.1MGD. Screening and grit removal precede two primary clarifiers. The primary clarifiers remove solids (HDT 2.0 hours at present flows of 3.55 MGD ea.). Primary effluent proceeds to the bio-tower wet well where three 75 hp pumps lift the flow to the top of the tower where it is distributed onto the media by a series of fixed distribution pipes and nozzles (HLWR 9.8 GPM/SqFt.).

The flow then proceeds into four aeration basins (3.3 MGD Ave. ea.), where it is combined with (6.0 MGD Ave.) RAS and enters into the basins in the plug flow mode. Ammonia conversion is achieved in the aeration basins in order to meet NPDES permit limits. Air is supplied to the basins by three 500 hp blowers. Each basin contains over 1,900 fine bubble diffusers. The system is operated at an F/M ratio of 0.20 during the summer months to a ratio of 0.15 during the winter. Solids inventories range from 50,000 lbs. of volatile matter in the summer to 75,000 lbs. volatile matter in the winter.

Aeration basin effluent flows to three secondary clarifiers. The two original plant clarifiers (4.2 MGD Ave. ea.) utilize draft tubes for removal of settled sludge from the clarifier bottom. The recently constructed third clarifier (4.7 MGD Ave.) utilizes the Clarifier Optimization Package (COP) system for sludge removal. NEFCO Stamford baffles are utilized on all three clarifiers. The baffles help reduce solid loss to the effluent by redirecting clarifier flow back toward the center of the clarifier, resulting in better settling of the solids. RAS is pumped back to the aeration basins by four 60 hp pumps. The effluent from the secondary clarifiers (7.1 MGD Ave combined) proceeds to the Trojan UV 4000 system which uses ultraviolet light to disinfect and destroy disease causing bacteria that survived previous treatment processes.

Waste solids from both the primary and secondary system are co-thickened with a Gravity Belt Thickener. Solids are thickened to 6-8%. The concentrated solids (0.044 MGD Ave.) are pumped to the anaerobic digesters. The facility utilizes two anaerobic digesters and one

sludge holding tank to digest the solids and meet volatile solids reduction criteria. The solids are pumped to two 2-meter filter belt presses for dewatering. The facility produces Class B biosolids. The biosolids are land applied to agricultural land in Twin Falls County, in cake form at 14-15% solids by four Knight Bed side slinger trucks. Application Sites are setup using GPS for setbacks, boundaries, etc., with detailed maps printed out. Detailed records are kept of all biosolids applications.

A Supervisory Control and Data Acquisition system (SCADA) is utilized to monitor all process units and provide an alarm call-out system when the facility is unmanned.

In the event of a power outage all essential plant processes are powered by two emergency generators (1,400 kW combined).

An extensive Industrial Pretreatment Program is in place. Currently, the Twin Falls IPP oversees seven industries and one city, Kimberly that discharges into the collection system. Approximately 2,400 samples are collected yearly from the industries and Kimberly and tested for different pollutants by the wastewater treatment plant lab.

Flows

Peak Design Flow: 10.92 MGD; Average Daily Design Flow: 8.56 MGD.

Expansions/Upgrades

2001 saw completion of Phase I of a three phase upgrade. The upgrade consisted of a new aeration basin, secondary clarifier, gravity belt thickener, retro fit of blowers to 500 hp, W-3 utility water system for wash water at the GBT and belt presses plus facility irrigation and a Supervisory Control and Data Acquisition system. Phase II will bring a selector for biological nutrient removal, an additional aeration basin and secondary clarifier. Phase III will bring an additional aeration basin and secondary clarifier.

Plant Personnel

John M. Keady, 30 years, IV WW, IV WWC, I DWD, Jeri Pierson, 20 years, Shawn Moffitt, 10 years, IV WW, I WWC, II DWD, WWTLA, Jack Bennion, 21 years, IV WW, II WWC, II DWD, I DWT, WWTLA, Mark Kerley, 11 years, II WW, WWTLA, I DWD, I WWC, Claudia Spaulding, 4 years, I WW, I DWD, Jeremy Langley, 2 years, OIT WWC, DWD I, I WW, Aaron Weighall, 1 year, OIT, Dustin Raney, 1 year, OIT, Susie Buck, 31 years, III WWL, I DWT, Lupe Jarvis, 12 years, II WW, I WWL, Brenda Wickham, 4 years, I WW, John Waynetska, 11 years, III WW, III WWC, Lory Dudley, 1 year, OIT, Scott Fuller, 13 years, II WW, II WWC, Harry Stites, 14 years, II WW, II WWC