

## **Plant Profile:**

City of Caldwell Idaho WWTP – Operated by USFILTER OPS Services

## **Service Population:**

30,000

## **System Type:**

### **Class IV: BNR SYSTEM**

The Caldwell WWTP is currently treating all of its wastewater through the activated sludge system. We are at this time bypassing both the trickling filter and the bio-tower. We do have the flexibility at any time to reincorporate these systems if the need should arise.

The Caldwell treatment facility treats wastewater (6.0 mgd. avg.) by screening and grit removal; two primary clarifiers accomplish solids removal (HDT 2-2.5 hours at present flows) we are currently bypassing the trickling filter and bio-tower). The effluent from the clarifiers proceeds to the intermediate pump station, there, three 100-hp pumps are available to lift the wastewater up to the new facilities. An organic treatment and nitrification system comprised of a selector basin with four individual cells, in the first cell of the selector basin we are currently denitrifying even though our current permit does not require it. The reasons to denitrify are many. Denitrification provides us the opportunity to recoup oxygen and alkalinity used during nitrification the conditions in the selector basin also inhibit the growth of filaments. The remaining three cells are currently being utilized for biological phosphorus removal. The flow from the selector basin then proceeds to two aeration basins (HDT 4.5 hours apiece) where nitrification then takes place (removal of ammonia) the basins are operated in the plug flow mode. The basins are equipped with over 1,500 fine bubble diffusers in each basin. Air to the basins is supplied by any of three 250-hp aeration blowers. Depending on the time of year we operate the system with SRTs from five days in the summer up to eleven days during the winter months. The solids inventories range from 20,000-lbs. volatile in the summer to 40,000-lbs. volatile during winter operation. Flows from the aeration basins then proceed to two Westec final clarifiers, which incorporate the COP package (Clarifier Optimization Package) this consists of a new mechanical scraper system, which continuously moves the sludge towards the hopper resulting in a fresher and denser sludge. RAS pumps then return this sludge back to the activated sludge system. The effluent from the final clarifiers (HDT 5.5 hours apiece) then proceeds to the new UV System which uses ultra violet light to disinfect and destroy disease causing bacteria that survive previous treatment processes.

Thickening of waste solids is accomplished with a DAF unit; currently solids are being thickened to 45% with an efficiency of over 99%. The concentrated solids are then pumped to the anaerobic digesters. Improvements have been made to digester #2 which include a heat pump, mixing pump, heat exchanger and associated piping. To ensure that the system will continue to operate in the event of a power failure a new emergency power generator (1500 kW) was installed to supply power to all essential processes. A new central computerized monitoring system (SCADA) for the new facility is located at the new operations building, we also have the capability to monitor and make changes to the system from home with a laptop computer

The solids removed during the treatment process are digested in three anaerobic digesters and are stored and thickened in two sludge storage lagoons. The facility produces Class B biosolids which are applied to agricultural land in Canyon County, in liquid form with two 3,000-gal sludge trucks. As per the 503 regulations for disposal of sludge, detailed records are kept of bio-solids applications

### **Flows:**

Peak Flow Design – 18.5 (mgd)  
Average Daily Flow – 5.50 (mgd)

### **Expansions/Upgrades:**

Currently in the planning stages of Phase III WWTP Improvements – New Headworks design. Includes the following:

New septage receiving station  
Three screw pumps  
Influent screen – fine screens  
Vortex grit chamber  
Grit cyclone/Classifier  
Automatic refrigerated samplers

Currently in the planning stages of Phase III WWTP Improvements – Digester addition

### **Industrial Dischargers:**

West Farm Foods – SIU – Milk processor  
Fibre-Guide – CIU – Fiber-Optic assembly, nickel electroplating

### **Plant Personnel:** (including position and years of service.)

Gilbert Sanchez            27yrs.            IV WW III collections

Shane Jeff	13	IV
James Bell	7	IV WW IV collections
Sandra Aujero	12	II distribut ion
Richard Baumgardner	10	II WW
William Reininger	4	I WW
Bruce Butler	2.5	IWW
Lyndee Conway	.5	A/A
Doug Tague	1.5	OIT
Chris Johnson	.2	Bio-solids