

**ATTACHMENT A**

**REQUIREMENTS FOR  
WATER BALANCE UPDATE AND CALIBRATION**

At a minimum, the items described in this document must be considered in all water balance updates and calibrations. All facilities are required to have sufficient treatment, storage, and disposal capacity to accommodate allowable wastewater flow, design seasonal precipitation, and ancillary inflow and infiltration during the winter months. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns. If the resulting water balance shows that the facility does not have the capacity to meet these requirements a workplan to reduce influent flow or a workplan to increase facility capacity must be submitted along with the water balance. All water balances and applicable related reports must be prepared under the direction of, and signed by, a registered geologist or civil engineer licensed by the State of California.

**SECTION 1 -Collection and Conveyance Systems and Influent Data**

The assessment and associated calculations related to the influent flow and I&I should be take into account the following:

- A. Design wastewater flow rates. For POTWs and private domestic wastewater facilities, include initial baseline influent and I/I flows as well as baseline influent and I/I flows at full build out with an aging sewer system.
- B. Estimates of Inflow and Infiltration (I&I) should take into account storm surge from intense storms, not just monthly averages.
- C. Sanitary Sewer Management Plans and the associated inspection, maintenance, and repair records should be reviewed to determine and verify I&I estimates.

**SECTION 2 – Storage and Containment Structures**

The normal operations and maintenance of containment structures should be considered. Operations and Maintenance Manuals (O&M Manuals) should be referenced as well as historical monitoring data (i.e. freeboard measurements). Specific conditions of the WDRs should also be taken into account.

- A. A minimum of two feet of freeboard in each pond at all times (unless a registered civil engineer determines that a lower freeboard level will not cause overtopping or berm failure).
- B. Historical local evapotranspiration, pan evaporation, and lake evaporation data (monthly average values).
- C. Projected long-term percolation rates (including consideration of percolation from unlined ponds and the effects of solids plugging on all ponds).

- D. Reduced capacity of ponds and over containment structures due to sludge build up should be taken into account when estimating reduced pond capacity. Worst case scenarios based on historical data, O&M manuals, and WDRs requirements should be used.

### **SECTION 3 – Treatment System**

- A. Operation hours, staffing, and O&M Manuals, and downtime should all be taken into account when calculating treatment capacity.
- B. Run on to the treatment system as well as direct precipitation should be considered.

### **SECTION 4 – Disposal System**

- C. Proposed recycling area/land application area/disposal system hydraulic loading rates distributed monthly in accordance with expected seasonal variations based on crop evapotranspiration rates.
- D. The distribution of precipitation over time is not taken into account (i.e. storm intensity, light rain over a lot of days or heavy rain over a few days), as well as other factors such as wind and saturated conditions must be taken into account when determining the number of days a disposal system can be operated each month. The most reliable way to estimate this is based off of historical records from a water years of intensity similar to that which is being modeled.
- E. It should be specified whether the tailwater is returned to the sprayfields directly or to one of the ponds.
- F. If applicable, storm water runoff is not accounted for in the tailwater return calculations.
- G. Maximum disposal capacity of land application areas should be based on soil studies, percolation studies, and/or operator notes.

### **SECTION 5 – General Requirements**

- A. All water balances start on 1 October.
- B. Local precipitation data with the 100-year return period annual total distributed monthly in accordance with mean monthly precipitation patterns. However, periods of high intensity storms should also be considered in the calculations.
- C. All water balance should be based on all available data, including new and historical data. All data should also be quality controlled and used with discretion.
- D. For each wastewater treatment, storage, or disposal pond and containment structure, provide the following information:
  - a. Identification (name) and function of the pond.
  - b. Surface area, depth, and volumetric capacity at two feet of freeboard.

- c. Height (relative to surrounding grade), crest width, interior slope, and exterior slope of each berm or levee.
- d. Materials used to construct each berm or levee.
- e. Description of engineered liner, if any. Include a copy of the Construction Quality Assurance (CQA) Report if one was prepared.
- f. Estimated steady state percolation rate for each unlined pond.
- g. Depth to shallow groundwater below the base and pond inverts.
- h. Overfilling/overflow prevention features.
- i. Operation and maintenance procedures.