RO reject/concentrate, boiler blowdowns, cooling towers blowdowns, and the domestic use of showers, sinks, and toilets. These sources may generate solids.

Wastewater collection and discharge is the primary function of the wastewater system. Although it does not generate wastewater itself, this equipment is designed to collect, transport, and discharge wastewater to the POTW. A schematic diagram of the wastewater system is attached as Figure 1, BAM-2 Water Balance PFD.

RO: Reverse Osmosis is the treatment method used to provide high purity make-up water for the waste heat recovery boiler. The RO is supplied with potable city water, which is pressurized via a booster pump. The booster pump distributes the water through a series of semi-permeable membranes, where pure water (permeate) exits through the center of the membrane while the concentrated water stream (concentrate or reject wastewater) passes on the outside of the membranes and is discharged to drain, which goes to the wastewater collection tank. Typically, the concentrate stream is approximately 25-30% of the total raw water flow, and the permeate is 70-75% of the total raw water flow.

Cooling Tower: The cooling tower is used to cool water utilizing evaporative cooling to remove heat. This heat transfer evaporates the cooling water, which leaves the water impurities behind. The impurities collect in the cooling tower sump. To avoid these impurities forming scale on the cooling tower, cooling water conductivity is measured, and an automatic blowdown control maintains acceptable levels. This blowdown stream goes to the wastewater collection tank.

Boiler: The boilers produce heated water and vapor for facility operations. As the concentration of dissolved solids increases, the boilers will require blowdown to remain within guidelines for conductivity. A conductivity probe is used to send an output signal to an automatic valve that modulates to maintain the conductivity setpoint. This waste stream of high pressure boiler water is discharged to a blowdown tank that operates at a lower pressure than the boiler. The