



Michael S. Kuenzi, P.E.
Director

MEMORANDUM

TO: Mike Kuenzi, Director
FROM: Ted Kyle, Capacity Program Manager
DATE: April 13, 2007
SUBJECT: Capacity Management Program Status Report

The following is a list of the technical work completed since the program started in January and next steps.

Program Wide

The wastewater demand forecast is complete and anticipates that:

- CCSD 25% larger in 10 yrs
- TCSD 16% larger in 10 yrs

Twelve system wide configurations have been identified and differ in the location, size of treatment facilities and interconnecting pipelines.

Five treatment technology workshops were completed. In addition to conventional secondary treatment system, membrane technology is very promising. Processes that produce EPA Class A (unrestricted) biosolids can be employed prior to, during, and after digestion. The workshop concluded that post digestion processes offer the greatest number of final produce and end uses for our biosolids, offer more marketing options, and can be added easily either on-site or off-site.

A complete review of potential discharge requirements indicate that nutrient control is coming and temperature limits must be considered. Processes that reduce nutrients (nitrogen and phosphorus) are preferred. Temperature control is best achieved by reducing discharge volume, making effluent reuse a key component in meeting standards in the future.

Reliability Standards have been reviewed. The EPA standards adopted for the grant program are still valid. On site power generation should be planned for pumping, disinfection, and life and safety needs in the facility.

Kellogg Plant

The mechanical and structural condition assessment found that the plant was in good shape considering it is 30 years old. Aeration blowers and related air piping are 30 years old and need to be replaced. Other major systems were replaced in the mid 1990s.

The functional assessment of the process units is underway. This assessment will evaluate each unit process for its ability to meet treatment standards into the future.

Peak flows at Kellogg have reached the plant's hydraulic capacity during rain storms. Plant hydraulic modeling, currently being developed, will determine what changes will be needed to pass future peak flows through the plant.

The plant's capacity was evaluated to allow for major process units to be removed from service for maintenance. Some process units have not been shutdown in over five years because the plant cannot handle the shutdown without effluent degradation. The plant should be downloaded from its existing load of 34,000 EDUs to 28,000 to allow for planned shutdowns of major process units. Interim capacity is being sized to take up this additional load.

What's next

Complete the functional and hydraulic assessments discussed above.

Develop short term capital improvement plan for Kellogg.

New Plant

Initial plant sizing has been set. Initially, the new plant will need to be sized for 35,000 EDUs in order to replace Kellogg and have at least five years for growth before additional construction would be required. This assumes that the interim capacity remains in service after the new plant starts operation.

A capacity of 55,000 EDUs will be needed if the flow diversion to Tri-City is shut down when the new plant is started.

Generic plant layouts are being developed so that the Site Steering Committee has a starting place on the size of the site.

Site Steering Committee held its first meeting on April 5, 2007. General background information was presented and they adopted decision making rules. They also selected the third Thursday of the month for their regular meetings.

What's next

Finalize treatment process selection, detailed plant unit loads and sizing.

Develop plant layouts for conventional and advanced treatment technologies like membrane bioreactors.

Interim Capacity

Interim capacity sizing parameters have been established. Unit process sizing is in progress for both conventional and membrane processes. The hydraulic profile is also being developed to determine if in-plant pumping will be needed.

Biosolids facility concepts are being sized and located on the plant site. The foundation issues are being considered in this conceptual design.

The existing plant has been loaded into a three dimensional design model so that major equipment, unit process additions, and systems can be viewed in three dimensions from both outside plant structures and inside process rooms.

What's Next

Finalize layout and select liquids process conceptual design.

Conveyance

Interim diversion pipeline connection concepts have been identified and sized. Long-term pipeline concepts are on hold until plant sites are identified.

What's next

A technical recommendation on interim diversion pump station and pipeline concepts is scheduled in April.