

Stickney WRP Goals and Objectives for 2014-2018

Goal – Improve Digesters gas production

Objective

- Conversion of Imhoff tanks (Battery A) to circular primary tanks will increase West Side plant primary volatile solids from approximately 40% to 60%.
- Improve sludge feed to the digesters via new thickening facilities. These improvements will increase solids concentration to the digesters and increase digester detention times.
- It is projected that following the completion of these two projects, SWRP's digester gas production will double.

Description

- Imhoff Battery A at the West Side facility of the Stickney WRP, consisting of 36 Imhoff tanks, will be demolished and replaced with nine circular primary settling tanks.
- New circular gravity concentration tanks and new pre-digestion centrifuges will enhance thickening to the digester complex. At present, North Side, Southwest preliminary, and waste activated sludges are concentrated in an antiquated and high maintenance rectangular tank facility. In addition, the new centrifuges will have twice the throughput.

Affect to Biosolids Production

- The conversion from Imhoff to Primary tanks will provide sludge with higher volatile solids to the digesters. The volatile solids content could increase from 40% to 60% and the volatile solids reduction would increase from 31% to a range of 40% to 50%.
- The sludge concentration tanks and new centrifuges will thicken primary and waste activated sludges more efficiently; with a resulting digester feed concentration of 5.5% as opposed to the present average of 4.0%.

Relevant EMS Outcomes

Better relations with interested parties, Environmental Performance, Quality Management Practices

Action Plans

- The installation of circular primary tanks will be accomplished under Contract 04-128-3P, "West Side Primary Settling Tanks – Battery A Imhoff Replacement." The Contract will be awarded in late 2014.
- Contract 09-176-3P, "Sludge Thickening Facilities" is in progress and an M&O Liaison attends Engineering progress meetings.

Tracking Progress

- Contract 04-128-3P is in the prebid stage and should be awarded in late 2014. An M&O liaison will be assigned when Contract 04-128-3P is awarded.
- Contract 09-176-3P is in progress and a Gantt chart is provided quarterly.
- Following completion of the two Engineering projects, it is expected that digester gas production will increase from 3,500 Mcf/day to 6,700 Mcf/day with a VSR in the 40% to 50% range.

Stickney Goals and Objectives for 2014-2018(Cont.)

Goal – Improve Digesters gas production

Responsible Person(s)

Section 931, ETPO and Section 932, WS AETPO 1

Funds/Resources

Funds are currently budgeted via Engineering Department contracts.

Target Date

Contract 04-128-3P, completion date in Fall of 2018

Contract 09-176-3P, completion date is Fall of 2016

Foot note: Existing and projected values are from Malcom Pirnie's study:

“Digester Gas Utilization and Storage Facilities at SWRP, CWRP and HPWRP
SWRP Preliminary Design Report (FINAL DRAFT)”, Contract: 08-867-3P

Stickney Goals and Objectives for 2015

Goal – Minimize Polymer and Electrical Use at Post-Centrifuge Building

Objective

Continue to minimize polymer and electrical use in 2015 by pumping low solids of approximately 45,000 dt to LASMA lagoons.

Description

SWRP dewaterers digester draw and typically distributes it to the MBM pelletizer facility and to rail cars. When temperatures are below 20°F the solids tend to stick in the railcars and the plant will pump low solids to LASMA. Direct hauling of the biosolids by truck to LASMA sites has been utilized in past years. This type of delivery has been eliminated and replaced by pumping directly to LASMA lagoons throughout the winter months.

Cost of electricity is (per and e-mail from S Evans 8/25/2014): \$4.22/DT

Cost of Polymer is \$51/DT

Cost of CO2 is \$4.94/DT

Therefore the total cost per DT is \$4.22 + \$51/DT + \$4.94/DT = \$60.16/DT

Quarter	Solids pumped (DT)	Savings (\$)
1 st 2014	26,626	1,601,820
2 nd 2014	23,517	1,414,782
3 rd 2014	20,200	1,215,232
4 th 2014	5,644	339,543

Affect to Biosolids Production

The reduced need for dewatering via centrifuges will decrease polymer and electrical use. The cost per dt is expected to be less in 2014. The savings in electricity and polymer per DT is \$60.16. Therefore, for every 1,000 DT pumped to LASMA, the District would save \$60,160/DT. Following are the low solids pumped to LASMA in the past three years: 2011 – 38,203 DT, 2012 -29,663 DT, 2013 – 47,904 DT, 2014 – 75,987 DT.

Relevant EMS Outcomes

Better relations with interested parties, Environmental Performance, Quality Management Practices

Action Plans

SWRP staff will work with LASMA staff to coordinate pumping events to maximize output.

Tracking Progress

Treatment Operations will maintain a table of low solids pumping.

Responsible Person(s)

Section 931, ETPO and COE 2

Funds/Resources

NA

Target Date

December 31, 2015