

Division 900's Goals and Objectives for 2020 - 2021

Goal – Increase use of EQ Biosolids within Cook County and 125 community service area of the District

Objective

Increase the utilization of Class A EQ biosolids in the local community

Description

Increase the local market for EQ biosolids to achieve a higher level of sustainability and resource recovery within the District's service area.

Measurability

The percentage of Controlled Solids Distribution goals are as follows:

2020: 20%

2021: 30%

Affect to Production

By identifying potential customers, the District can adjust EQ biosolids production to meet the needs of the market.

Relevant EMS Outcomes

Enhanced marketing and outreach, enhanced public awareness and understanding. Improved relationships with interested parties, environmental performance and quality management practices.

Action Plan

Bid and award Contract 20-RFP-10, Professional Services to Market EQ Biosolids.

M&R Capital Planning Section will study new processes to increase Class A production of biosolids derived products.

M&R Soil Science Section will continue to market EQ biosolids to commercial users, IDOT, and Tollway.

The Public Affairs Section will continue to develop tools to educate potential users in Cook County. Post biosolids content on MWRD's website, social media outlets and distribute brochures at community meetings. Attend community meetings to speak and present audio/video materials and coordinate appearances of expert MWRD biosolids staff. Host press conferences, shoot photos, create press releases and produce audio and video podcasts featuring biosolids staff and soil scientists discussing various aspects of biosolids production and application.

Division 900's Goals and Objectives for 2020 - 2021 (cont.)

Tracking Progress

M&O will track dry ton quantities utilized for Distribution program. The specific Measurability goals will be submitted via report to the EMS Coordinator quarterly.

Year	Class A EQ Local Distribution		Class B Farmland Application		Total Utilization
	Goal: At least 20% of Total Utilization		Goal: At least 80% of Total Utilization		
Month	DT	% of Monthly Total	DT	% of Monthly Total	DT
Jan		NA		NA	0
Feb		NA		NA	0
Mar		NA		NA	0
Apr		NA		NA	0
May		NA		NA	0
Jun		NA		NA	0
Jul		NA		NA	0
Aug		NA		NA	0
Sep		NA		NA	0
Oct		NA		NA	0
Nov		NA		NA	0
Dec		NA		NA	0
TOTALS	0	NA	0	NA	0

Responsible persons

Section 651 Managing Engineer
 Section 652 Principal Engineer
 Section 129 Principal Civil Engineer
 Section 072 Public & Intergovernmental Affairs Officer
 Section 123 Principal Environmental Soil Scientist

Funds/Resources

Have not been identified

Target Date

December 2021

Division 900's Goals and Objectives for 2020

Goal - Improve Digester Gas Production

Objective

- Conversion of Battery A Imhoff Tanks to circular primary tanks will increase West Side plant primary sludge 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 volatile destruction will increase substantially and digester gas production will increase.
- Replacement of Digester gas piping will facilitate transmission of more gas.

Description

- Imhoff Battery A at the West Side facility of the Stickney WRP, consisting of 36 Imhoff tanks, has been demolished and is being replaced with nine circular primary settling tanks.
- New circular gravity concentration tanks and new pre-digestion centrifuges will enhance thickening to the digester complex. The North Side, Southwest preliminary, and waste activated sludges will be treated separately and new centrifuges will have twice the throughput.
- Gas piping for Digesters 1-12 will be replaced.

Measurability

Following the completion of both the new West Side Primary Tanks and Gravity Thickening Tanks:

- The annual Digester gas production will increase 100%.
- The annual average volatile solids content of the Digester feed sludge will increase 50%.
- The annual average volatile solids reduction will increase to 45%.
- The annual average Digester feed sludge will increase to 5.5%.

Effect on Biosolids Production

- The conversion from Imhoff to Primary tanks will provide sludge with higher volatile solids to the digesters. The volatile solids content may 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 final commissioning of the WS Primary Tanks is estimated to be complete by the end of 2020.
- Contract 09-176-3P, "Sludge Thickening Facilities" was completed on June 16, 2016.



- The Digester gas piping replacement will be accomplished under Contract 17-140-3P, "Digester Rehabilitation and Gas Piping Replacement at the Stickney Water Reclamation Plant", scheduled for completion in 2023.

Tracking Progress

The M&O liaison provides a quarterly status of progress.

Responsible Person(s)

Section 931 Managing Engineer and Section 934 COE 2.

Funds/Resources

Funds are currently budgeted via Engineering Department contracts.

Target Date

Contract 04-128-3P: Estimated commissioning complete by the end of 2020.

Contract 09-176-3P: Completed on June 16, 2016.

Contract 17-140-3P: Completion in 2023.

Division 900's Goals and Objectives for 2020

Goal - Improvement of Biological Phosphorous Capture

Objective

Convert two new gravity concentration tanks to primary sludge fermenters to improve the enhanced biological phosphorus removal (EBPR) process and increase phosphorus removal and recovery. In addition, convert existing gravity concentration tanks to a WASSTRIP process in order to increase the phosphorous removing capabilities of the Ostara Nutrient Recovery Facility (NRF).

Description

At present, EBPR can be unstable due to carbon limitations. The use of primary sludge fermenters will increase the available carbon for EBPR resulting in a more stable process allowing for the improved removal and recovery of phosphorus.

The Ostara NRF presently recovers phosphorus from the post-digestion centrifuge centrate, resulting in a theoretical yield of 3,000 tons/yr. The addition of the WASSTRIP process will increase recoverable phosphorus from the pre-digestion centrifuge centrate, resulting in approximately 9,000 tons/yr of recovered product.

Measurability

The annual prill production will triple when WASSTRIP is in service.

Effect on Biosolids Production

The installation of the fermenters will stabilize EBPR, increase the removal of phosphorus, and allow a better recovery in the Ostara NRF.

The installation of the WASSTRIP process will reduce struvite formation in the digesters and post-centrifuge systems allowing a more reliable operation. It should also increase the dewaterability of the biosolids.

The additional recovery of phosphorus from the installation of fermenters and the addition of WASSTRIP will also improve the nitrogen to phosphorus ratio in our biosolids bringing it closer to agronomic needs.

Relevant EMS Outcomes

Better relations with interested parties, Regulatory compliance, Environmental Performance, recovery of a globally limited resource.

Action Plans

Contract 15-124-3P, "Conversion of Two New GCTs to Primary Sludge Fermenters" will convert the new Gravity Thickening Tanks 1 and 2 to primary sludge fermenters and install a pump station to pump the fermentate directly to the West Side primary effluent conduit feeding the Aeration Batteries. This will provide additional carbon to EBPR, stabilizing the process, and increase the reliable removal and recovery of phosphorus.

Contract 15-120-3P, "Conversion of Old GCTs to WASSTRIP Process" will convert Gravity Concentration Tanks 7 and 8 to primary sludge fermenters, 10 through 12 for WAS settling, and



13 through 16 to WASSTRIP reactors, which will provide a more concentrated stream of Ortho-P to the Ostara NRF.

Tracking Progress

The M&O liaison provides a quarterly status of progress.

Responsible Person(s)

Section 931 Managing Engineer and Section 934 COE 2.

Funds/Resources

Funds are currently budgeted via Engineering Department contracts.

Target Date

Contract 15-124-3P: Estimated commissioning complete by the end of 2020.

Contract 15-120-3P: Estimated commissioning complete by the end of 2020.