GREATER LAWRENCE SANITARY DISTRICT

2015-2016 Digester Cleaning

N.E. Digester Roundtable #4

January 6, 2017
GLSD ORGANIZATION

• District Established by Chapter 750 of the Massachusetts Acts of 1968
• Governed by Board of Commissioners
• Operational Since April 1977
• Serves:
  o Lawrence, Methuen, Andover, North Andover, Dracut, MA and Salem, NH
  o Population of over 200,000
  o As Septage disposal location for 40 communities
• Second largest WWTP in Massachusetts
  (52 MGD design flow)
GLSD DIGESTER DESIGN

• GLSD Anaerobic Digesters Installed in 2002
• GLSD has Three (3) Digesters:
  o Floating Gas Holding Covers
  o Digesters - 85 foot in diameter
  o Side Wall Height - 38.5 feet
  o 1.5 million gallon capacity each

• Cleaning Work Tasks:
  o Install gutters along top of concrete walls to collect foam
  o Install a hot water flushing system for the gutters
  o Install a secondary containment wall around each digester
  o Clean the three of accumulated grit
  o Repair damage to the interior piping, as necessary
GLSD DIGESTER CLEANING

• Digester Cleaning: 12/14 – 11/15
• Methuen Construction General Contractor
  o Digester Cleaning
    • Digester 1 - Subcontractor – Mobile Dredging
    • Digester 2 & 3 – Methuen Self Performed
• Total Contract Bid Price - $2,928,000
• Grit Quantities Removed:
  o Digester #1: 772 dry tons @ $1,120 per dry ton (1333 wet tons)
  o Digester #2: 1,408 tons @ $380 per wet ton
  o Digester #3: 1,740 tons @$380 per wet ton
• Unanticipated Work:
  o Additional Quantity of Grit Removed
  o Repair of deteriorated pipe and metals
• Final Cost of Work: $4,424,000
GLSD DIGESTER CLEANING
GLSD DIGESTER CLEANING
DEWATERING EQUIPMENT
GLSD DIGESTER CLEANING

GRIT REMOVAL
GLSD DIGESTER CLEANING

GRIT REMOVAL
DIGESTER MAINTENANCE

• Implement Adequate Grit Removal at WWTP prior to Digester start-up
• Digester Design should include Plenty of Mixing Capacity
• Quickly Repair any Mixers that are out of Service
• Implement a System to Determine the Amount of Accumulated Grit in the Digester
• If Necessary, take the Digester out of Operation to Determine the Quantity of Grit in the Tank
• Plan to Take the Digester out of Operation to Clean out the Grit and Repair any Deteriorated Piping/Equipment, at least every 5 years
QUESTIONS

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