Outline of South Cross Bayou WRF Optimization Program
(Major Processes shown on Figure 1901-2)

**DIRECT COSTS**
(Identify Major & Prioritize ROI)

Energy: Is Net-Zero Consumption Feasible? (electricity and natural gas)
- Reduce current consumption
- Supplement Energy in-house
- Identify Major Energy Consuming Processes (1901-2)
- Identify Most Practical Choices
- Increase Biogas Production
- Equipment Replacement
- Plant Process Equip Modification
- Process Mods (Acid Phase, etc)
- Add'l Organic Wastes
- Utilize Alternative Energy
  - Solar/Wind
  - Heat Pumps
  - Recovery Turbines

**Biosolids Management**
- Optimize Current Process Alternatives
- Plant Operation Optimization
- Chemicals
- Control Integration
- Plant Process Operational Modifications

**REGULATORY CONSTRAINTS**
(Identify Most Likely & Timetable)

- Nutrients
  - Advanced Removal
  - Recovery
  - Others
  - Safe Disposal

- Pharmaceuticals, Copper, Cyanide, etc.
  - Remove from effluent
  - Remove from sludge

- Surface Water Discharge
  - 100% Reuse
  - Indirect Potable
  - Direct Potable
  - Revenue?

- Site Location & Size
- Natural Disaster Impacts
- Potential Sea Level Rise Impacts
- Regional Consolidation Possibilities
- Community Impacts
- Wet Weather Events (I & I-public/private)

**PHYSICAL CONSTRAINTS**
(Identify Controllable & Timetable)

- Recovery Turbines
- Scrubbed Biogas
- Unscrubbed Biogas
- Co-Generation
- Pelletizer
- Utilize Alternative Energy

**OPTIMIZATION CONSULTANT**

- Assign Priority to each block, based on: ROI, Maintenance Requirements, Operator Skills, Future Regulations, etc.

- Issue & Manage Design WA to Sub-Consultant for individual blocks.

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Optimization Study (as it initially relates to SCBWRF)
December 9, 2013
OS-01