
Agri-Cycle Talmo, Georgia

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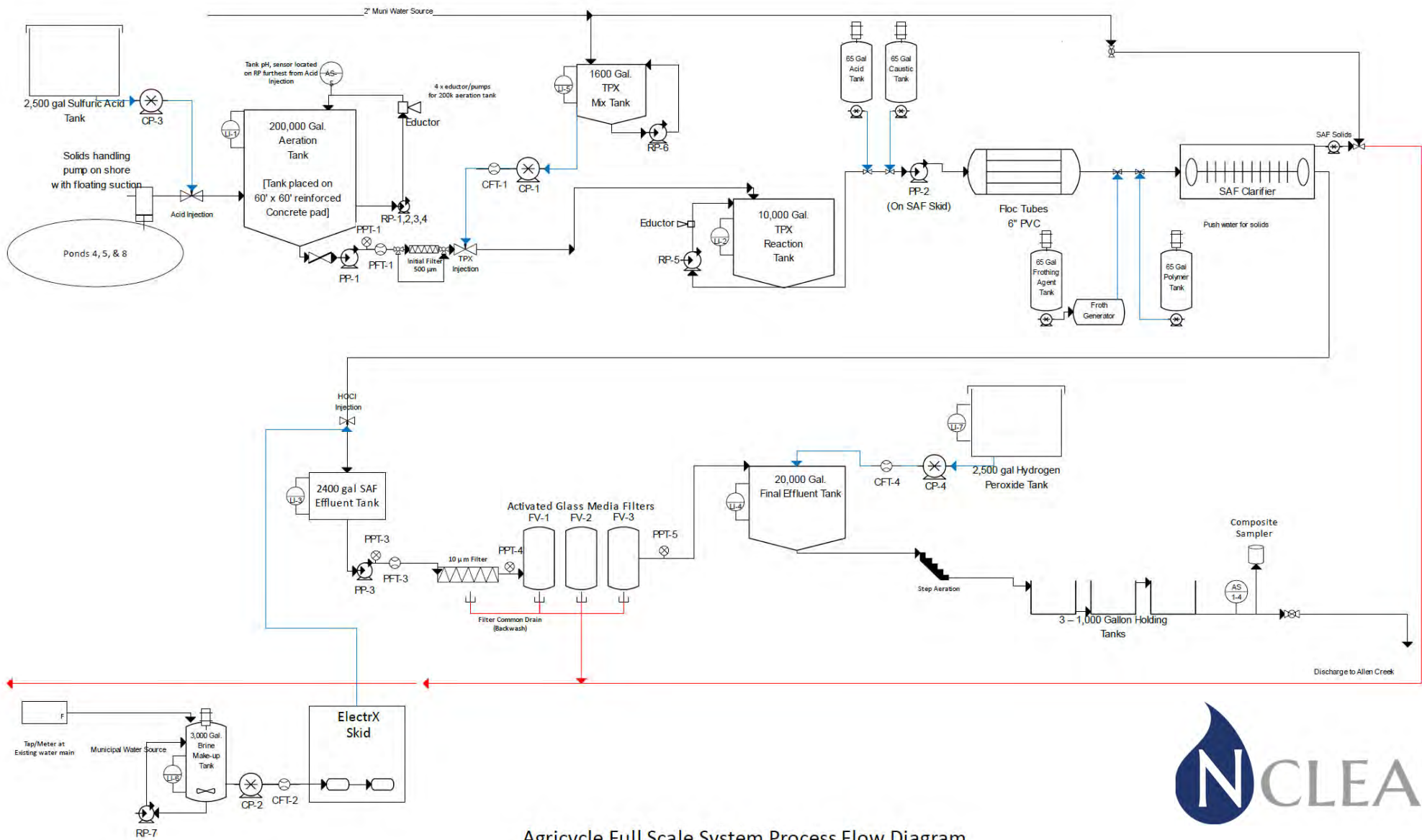
- Nclear has recently constructed a plant nearly identical to what would be constructed at Piney Point
- After evaluating numerous potential solutions, the Georgia Environmental Protection Division (GEPD) selected Nclear to provide a turnkey treatment system utilizing our TPX™ and ElectrX™ technologies



Agri-Cycle

- GEPD took over responsibility for cleanup of this privately-owned site with a series of contaminated ponds
 - On Hazardous Site Inventory list
 - Designated Class 1 cleanup priority
- Site owner in bankruptcy and unable to remediate site
- Ponds have high concentrations of P, NH₄-N, Pb, BOD and other contaminants

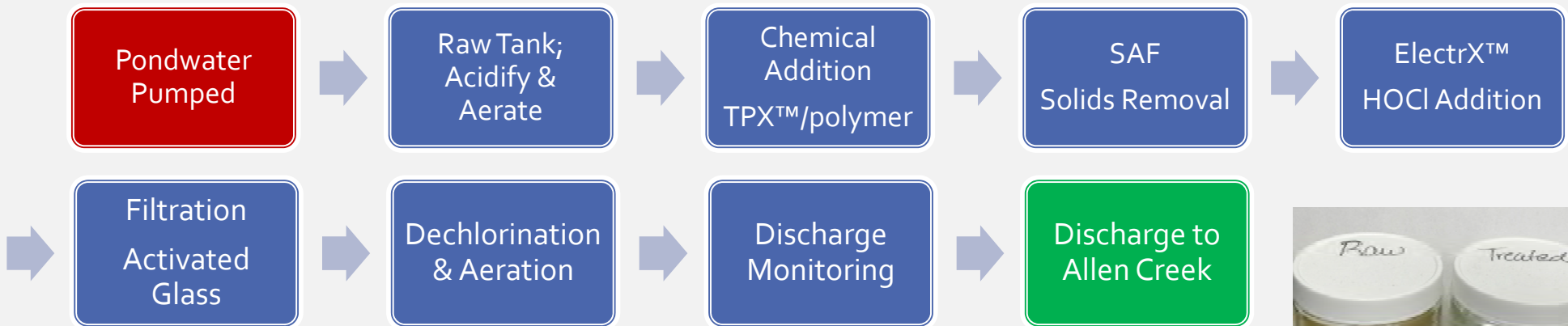




Agricycle Full Scale System Process Flow Diagram



Agri-Cycle Process Flow Diagram



Raw and Treated Pond 5 Water Sample

Agri-Cycle Pond 5 Treatment Result



Raw and Treated Pond 5 Water Sample

Pond 5	TP	NH ₃ -N
Permit Limit	0.8 mg/L	11.0 mg/L
Raw Sample	59.3 mg/L	199.0 mg/L
Treated Effluent	0.5 mg/L	0.2 mg/L
Percent Removal	99.2%	99.9%



Estimated Treatment Costs

Purpose

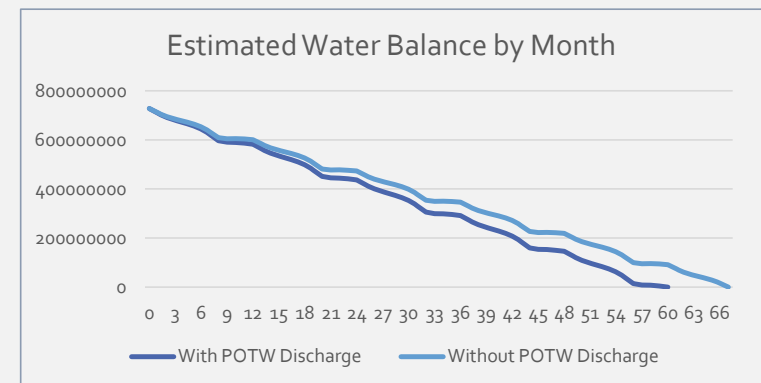
- This estimate is intended to be used for budgetary purposes only
- This estimate covers the treatment of ponded water in the two existing gyp stacks (NGS-S and NGS-N)
- It includes all infrastructure, chemicals and supplies to treat pond water with our TPX™ and ElectrX™ technologies
- It does not include other costs, including but not limited to:
 - Treatment of the ongoing seepage and existing LPWS water
 - Costs for site remediation and closure
 - Costs for any possible nitrogen credit through the Tampa Bay NMC
 - External lab testing and compliance reporting
 - Permitting and licensing (if necessary)
 - Treatment of HRK stormwater discharge (can be quoted separately)

Additional Analyses

- Any definitive cost proposal can only be delivered after updated testing on-site and development of an engineering design
- We recommend updated analysis of pond water chemistry, and updated testing, which could be conducted during Q1/Q2 2021
 - The cost for on-site treatment and analysis is \$40k per week for our pilot system and all required staffing
 - Estimated treatment time would be 2-3 weeks
 - Based on updated analytical results, we can prepare a definitive engineering design; estimated cost is \$50-75k

Primary Assumptions

- Treatment of blended NGS-S and NGS-N ponds in a ratio of 65:35
- No separate treatment of LPWS pondwater
- Pond water chemistry is the same as Nclear’s pilot period in 2017 and remains consistent throughout treatment period
- Treatment volume of 400k gallons per day (GPD)
- Additional discharges to POTW of 50k GPD
- Approximately 5.0 years to treat
- Total volume of water treated 728M gallons
- Discharge limits of 10 mg/L (TP) & 2 mg/L (NH₄-N)
 - Estimated results are TP < 3 mg/L and TN < 1.5 mg/L



Additional Model Assumptions

- Current pond volumes: NGS-S - 488 M gallons; NGS-N - 240M gallons
- Assumes plant start up of 1/1/2022 and redeployment of Nclear system
- Discharge to POTW of 50k GPD will offset average daily loading
- Plant operational for 24 x 7 (implied flow rate = 278 gpm)
- Power costs = \$0.068/kW
- No solids disposal costs (can be re-processed for P recovery)

Operating Scenarios

Scenario A – HRK Operated

- Nclear provides engineering design, proprietary technologies and bill of materials and its mobile treatment system
- HRK procures and owns all other materials, structures and equipment
- HRK operates the plant, with technical support provided by Nclear

Scenario B – Nclear Turnkey

- Nclear provides turnkey system and all plant operations based on a flat rate per 1,000 gal treated

Estimated Costs

Scenario	HRK Operated	Nclear Turnkey
Initial Cost / Capital Expenditure	\$2.1 million	\$1.0 million
Annual Operating Costs	\$1.92 million (1)	\$2.48 million (2)
Total Project Costs (3)	\$11.89 million	\$13.48 million
Total Cost per 1,000 gal	\$16.33	\$18.38

- 1 Includes Chemicals, Power, Incremental Labor (beyond current HRK staffing), O&M, Equipment Rental, Technology License & Support
- 2 Includes all costs on a turnkey basis billed at \$17.00 per 1000 gal
- 3 Estimated cost to treat NGS-S and NGS-N ponds; ongoing treatment required for LPWS and continuing seepage

Total Yearly Cost Estimates for Project Duration



Estimates for Blended Treatment 65:35 NGS-S:NGS-N

HRK Owns and Operates	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Operating Costs	\$0	-\$1,917,164	-\$1,917,164	-\$1,917,164	-\$1,917,164	-\$1,916,649	\$0
Capex / Infrastructure	-\$2,077,500	-\$25,000	-\$25,000	-\$25,000	-\$25,000	-\$24,993	-\$100,000
Total Costs	-\$2,077,500	-\$1,942,164	-\$1,942,164	-\$1,942,164	-\$1,942,164	-\$1,941,642	-\$100,000
Cumulative Costs		-\$4,019,664	-\$5,961,828	-\$7,903,992	-\$9,846,156	-\$11,787,797	-\$11,887,797

Nuclear Turnkey	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Operating Costs	\$0	-\$2,495,742	-\$2,495,742	-\$2,495,742	-\$2,495,742	-\$2,495,071	\$0
Initial Deployment Cost	-\$1,000,000	\$0	\$0	\$0	\$0	\$0	\$0
Total Costs	-\$1,000,000	-\$2,495,742	-\$2,495,742	-\$2,495,742	-\$2,495,742	-\$2,495,071	\$0
Cumulative Costs		-\$3,495,742	-\$5,991,484	-\$8,487,227	-\$10,982,969	-\$13,478,040	-\$13,478,040

Note: These estimates are preliminary and subject to the indicated assumptions and notes.

Questions?





Thank You

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