

Engineering Evaluation for the Charles A. Black Wellfields and Water Treatment Facilities



**WITHLACOOCHEE
REGIONAL
WATER
SUPPLY
AUTHORITY**

JONES
EDMUNDS®

Jones Edmunds Project Team

John Horvath, PE - Project Manager

Harold Bridges, PhD, PE - Lead Engineer

Anthony Holmes, PE - Project Engineer

Doug Young, PE - Project Engineer

Samantha Kufirin - Design Engineer



WITHLACOOCHEE
REGIONAL
WATER
SUPPLY
AUTHORITY



Project Scope

- Review available documents
 - Description of the existing facilities.
 - Flow records and compliance with Southwest Florida Water Management District(SWFWMD) and Florida Department of Environmental Protection (FDEP) permit requirements.
- Perform site visit
 - Condition assessment of the existing aboveground assets at the Charles A. Black (CAB) wellfields and water treatment facilities.



Project Scope

- Engineering Evaluation Report Update
- R&R Fund Cost Analysis
 - Major equipment R&R schedules and associated costs based on existing conditions, R&R Annual Reports, available maintenance records, and typical useful life.
 - Projected R&R balance and recommendations for a revised annual R&R fund contribution and minimum and maximum fund balances.





CHARLES A. BLACK
WATER TREATMENT
PLANT 1

CHARLES A. BLACK
WATER TREATMENT
PLANT 2

WELL 1

WEST NORVELL BRYANT HWY

N LECANTO HWY

WELL 3

WELL 4

WELL 5

WELL 6

WELL 7

WELL 2

W GULF TO LAKE HWY

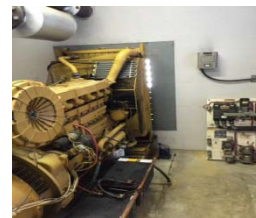
CAB-1 Facilities

- 5 wells – Nos, 3,4,5,6, and 7
- Disinfection System- Liquid NaOCl_2
- Two 4 MG Pre-stressed Concrete Tanks
- 4 High Service Pumps
- Booster Pump Station with 2 pumps
- Emergency Power System
- Electrical, Instrumentation, and Control System
- Operations Building



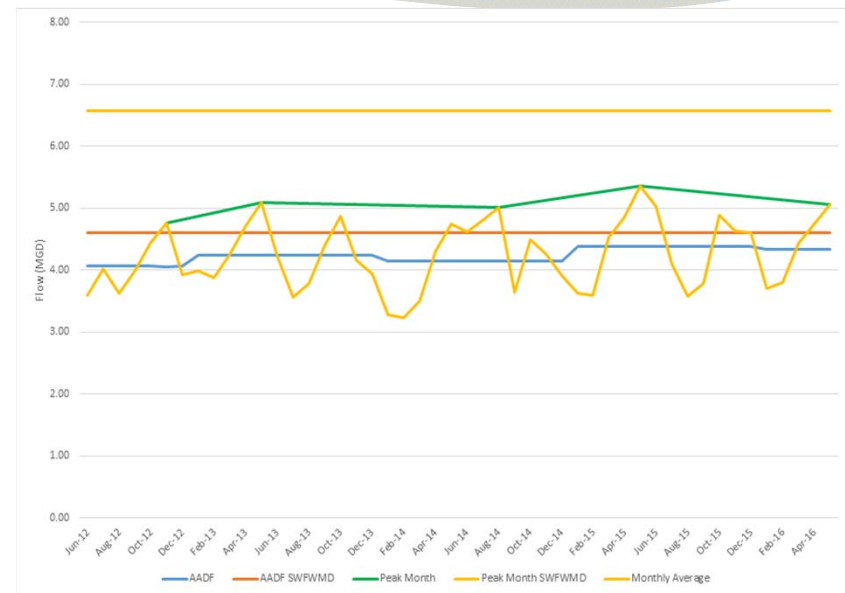
CAB-2 Facilities

- 2 wells – Nos. 1 and 2
- Disinfection System – Liquid NaOCl_2
- 1 MG Pre-stressed Concrete Tank
- 3 High Service Pumps
- Emergency Power System
- Electrical, Instrumentation, and Control System
- Operations Building



Water Demands / Permit Compliance

- SWFMD Water Use Permit Quantities Authorized:
 - Annual Average 4,597,000 gpd
 - Peak month 6,574,000 gpd
- FDEP
 - CAB-1 Plant Capacity=10.800 MGD
 - CAB-2 Plant Capacity= 3.744 MGD
 - Total Plant Capacity = 14.544 MGD



Renewal & Replacement Fund

- Past 10 years (2006-2015)
 - Annual Contributions
 - Range \$123,547 to \$183,526
 - Average \$151,342
 - Annual Expenditures
 - Range \$4,666 to \$99,539
 - Average \$36,122
- R&R Fund Balance
 - 2006= \$1,041,519
 - 2015= \$2,104,403
 - Average Increase = \$106,288 per year



WITHLACOOCHEE
REGIONAL
WATER
SUPPLY
AUTHORITY

JONES
EDMUNDS®

R&R Fund Projections

- Projected Expenditures
 - Individual Equipment Items
 - Year Installed
 - Estimated Lifetime
 - Replacement Year & Cost
 - Renewal at 1/2 lifetime & 30% of replacement cost
 - Annual R&R Fund Balances
 - Projected for annual contributions from \$90,000 to \$150,000



Recommendations

- Maintain maintenance records for each piece of equipment to track failures and establish trends based on the maintenance history.
- Provide an annual contribution of \$100,000 to the fund based on the analysis.
- Maintain a maximum and minimum R&R fund balance of \$4,000,000 and \$1,000,000, respectively, where no contributions are made after the fund reaches \$4,000,000 until the balance reaches \$1,000,000.



Recommendations

- Maintain a minimum expenditure of \$2,500 to qualify for use from the R&R fund.
- Closely monitor costs to allow the R&R budget to be adjusted if necessary as the planning period progresses. Based on age, equipment replacement are expected early in the planning period. Budgeting should, therefore, reflect replacement costs early in the planning period, with renewal costs occurring later.



Recommendations

- Prepare a Capacity Analysis Report for CAB-1 and CAB-2 WTFs to provide a better understanding of the capacity limits of the WTFs and if upgrades to the HSPs are required when they are replaced
- Conduct an engineer evaluation of the facilities similar to this report every 5 years, funded by the R&R fund.

