



4/27/2023

To: Mayor and City Council

Update on the JHEC project. Continuation of operations is still complicated and difficult but getting close to having new portions of the plant online in May, which will significantly improve operations.

-Trent

# JHEC Water Reclamation Facility Expansion (JHWRF)

Is it in Budget?		Is it on Schedule for the Current Phase per the Contract?		Community Benefit	
<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		<i>This project will provide Citizens of Pearland with an expanded facility (from a 4MGD to a 6MGD) to accommodate continued population and economic growth</i>
<b>Project Phase?</b>					
Construction					

## Project Update:

The project has been approximately sixty days ahead of the substantial completion schedule. Still, recent failures of the existing equipment and other operational issues may extend the projected September 2023 substantial completion date. The project team is working to re-sequence some of the work items to mitigate the impact of these unforeseen operational issues. When a revised plan has been finalized, the project schedule will be updated as necessary. Currently, the hydraulic profile, which calculates the hydraulic grades throughout the plant, cannot regulate the raw sewage into Sequence Batch Reactors (SBR) 5 and 6 because the existing headworks elevation is higher than the splitter box gate elevation. This is causing raw sewage to continuously flow into the splitter box when the plant is operating. The overflow into the splitter box is disrupting the sludge-to-raw sewage ratio. The previously proposed SBR 5 and 6 seeding will not be feasible until the new Headworks and Lift Station 2 are in service. Lift Station 1 has been operating on bypass pumps for the last several months.

## Construction Highlights:

### Headworks and yard piping:

- The concrete placement at the Headworks is complete.
- Began installation of the process mechanical piping.
- Electrical conduits and panels installed.
- Lift Station #2 demolition is complete.
- Work continues for the concrete platform for the stairs to provide safe access to the building for the remainder of the construction.
- The new Headworks and Lift Station were originally scheduled for completion by the end of March 2023, that date has now been pushed to May 2023.

### Sludge Building:

- Process mechanical piping is approximately 90% complete.
- The Non-potable Water system is complete.
- The electrical and lighting is approximately 75% complete.



- The installation of the sludge pumps is scheduled to be complete by the end of April 2023.
- Work has begun on the installation of the grinder pumps.

### **Tertiary Filters (T-Filters)**

- The installation of new filter equipment at the existing basins is complete and the existing basins have been turned over to the city.
- Filters on the new filter basins installation begin in March.
- Concrete structure is complete.
  - Leak testing began.
  - Roof extension will be constructed after the existing power poles have been removed.
  - Waiting for permanent power.

### **Sequence Batch Reactors (SBR)**

- SBR 5 and 6 work is on hold and is being re-sequenced due to the operational needs of the plant.
- The revised target date for final completion and commissioning is June 2023 after the new Headworks and Lift Station are online.
- Seeding has not been performed because the existing plant conditions will not allow it to be performed without interrupting the normal operations.

### **Operations Building**

- IT is re-assessing the needs for the building.
  - During the original programming, the facility was not planned to be a shelter-in-place during emergency operations.
  - The building will now have monitors in the control room to monitor all of the Wastewater Treatment Plants.
  - Monitors will be added to the multipurpose rooms, and the waiting room.
  - White boards and a podium will be added to the multipurpose rooms.
  - It is anticipated that the cost of the additional equipment will be covered by the FFE budget and the contingency.
- Staff met with the FFE vendor to layout workspace for staff in the control room.
- Interior construction is approximately 50% complete.

### **Blower Building**

- The renovation of the building is complete.
  - Louvers installed.
  - Concrete pads installed.
  - Electrical conduits and panels installed.

### **Ongoing work includes:**

- Bypass pumping operations.
- Concrete paving.
- Coordination between the electrical, data, fire alarm, and framing subcontractors is being performed on a continual basis at the Operations Building.



- The continued work on the Blower building, headworks, and lift station ahead of the start-up of SBR 5 and 6.
- Continued work on the Non-Potable Water (NPW) pump station.
- Pipe coatings on the Aeriated Holding Tank basin.
- Rehabilitation of Lift Station #2

The project is experiencing delays because of existing equipment and operational issues. The project team is resequencing the work to mitigate the impact on the critical path.

**Budget Info:**

Funding Sources	Series	To Date	Future	Total Budget
General Revenue - Cash				-
W/S Revenue Bonds				-
W/S Revenue Bonds				-
W/S Revenue Bonds	2021A	37,500,000		37,500,000
W/S Certificates of Obligation	2022C	2,565,500		2,565,500
System Revenue - Cash				-
Impact Fee - Debt	2021A	37,500,000		37,500,000
Impact Fee - Debt	2022C	2,565,500		2,565,500
Impact Fee - Cash				-
Other Funding Sources		462,236		462,236
<b>Total Funding Sources</b>		<b>80,593,236</b>	-	<b>80,593,236</b>

Expenditures	To Date	Future	Total
PER	462,235		462,235
Land			-
Design	5,717,000		5,717,000
Construction	70,627,372		70,627,372
Construction Management/Inspection	1,670,000		1,670,000
Construction Materials Testing	446,969		446,969
FF&E		500,000	500,000
<b>Total Expenditures</b>	<b>78,923,576</b>	<b>500,000</b>	<b>79,423,576</b>

<b>Project Contingency</b>	<b>1%</b>	<b>1,169,660</b>
<b>Project Balance</b>		<b>(0)</b>

**Schedule Info:**

	Base Line	Current
<b>Design Start</b>	March-19	April-19
<b>Bid Start</b>	November-20	September-19
<b>Construction Start</b>	January-21	July-21
<b>Construction Completion</b>	December-23	



### Upcoming Work Items:

- Pipe installation for the Aerated Holding Sludge Tanks (AHST).
- Start-up on SBR 5 and 6 is expected in June 2023.
- Renovation work on Lift Station 2 which started in September was put on hold because of the operational issues the plant is experiencing during the construction project.
  - By-pass pumping is continuing.
  - The work will resume after SBR 5 and 6 are operating.
- Renovation work has begun on SBR 3 and 4.
- Continued coordination between staff and the contractor in the performance of the operational program.
  - Operational challenges have occurred on equipment that was not scheduled to be replaced or rehabilitated in the project. Staff and the contractor have been working collaboratively to resolve the problems.
  - Staff will meet with the contractor and the electrical sub-contractor to ensure the continuation of operations during the rehabilitation of the existing basins.
  - Staff is providing data and reports to the contractor pertaining to integration concerns during the rehabilitation.
- Continue installation of the electrical duct banks.
- SCADA integrations with the UV system and Tertiary Filters has begun.

**Project Manager:** Jennifer Lee

**Construction Manager:** Ardurra Group

**Contractor:** PLW Waterworks

**Scope:** This project consists of a 2 MGD expansion to the existing 4 MGD Sequential Batch Reactor (SBR) water reclamation facility that will increase the treatment capacity to 6 MGD (plus peak) at the John Hargrove Water Reclamation Facility (JHEC WRF) and includes critical infrastructure to be sized for the ultimate capacity of 8 MGD. The expansion project uses the CMAR project delivery method. The project will include new headworks, refurbished and new pumps for the influent lift station, 2-1 MGD basins, blowers, and tertiary treatment along with SCADA upgrades.

**Justification:** This 2 MGD expansion is based on growth projections for the JHEC WRF service area and additional flows to be diverted to the JHEC WRF from the Longwood Service Area and the future development in the south. In 2016, flows exceeded the TCEQ requirement of 75% which required the start of design and staff requesting TWDB funding. In 2019, several months exceeded the 90% threshold which predicted the need to finalize the design and begin construction.

**Previous Memos:** 02.21.19, 05.02.19, 10.17.19, 11.14.19, 01.16.20, 07.16.20, 10.01.20, 01.14.21, 02.11.21, 05.13.21, 06.10.21, 10.28.21, 03.24.22, 06.04.22, 09.01.22

**Project Location Map:**



# JOHN HARGROVE WATER RECLAMATION FACILITY



**Legend/Notes**

**WTP** Wastewater Treatment Plant

1:7,715

1 inch = 640 feet



**NORTH**  
This product is for informational purposes only and may not be prepared or be suitable for legal, engineering, or surveying purposes.

WRF PREPARED: JANUARY 24, 2018



**Project Photos:**



**Drone Imagery**



**Sludge Building**



SBR 5



The Operations Building



Demolition of Lift Station #2