

Washburn Tunnel Wastewater Treatment Facility & Vince Bayou Receiving Station

Location:	Pasadena, TX, on the Houston Ship Channel
Process:	Activated sludge with atmospheric and pure oxygen infusion (Washburn Tunnel)
Capacity:	48 million gallons/day (Washburn Tunnel) 3.6 million gallons/month (Vince Bayou)

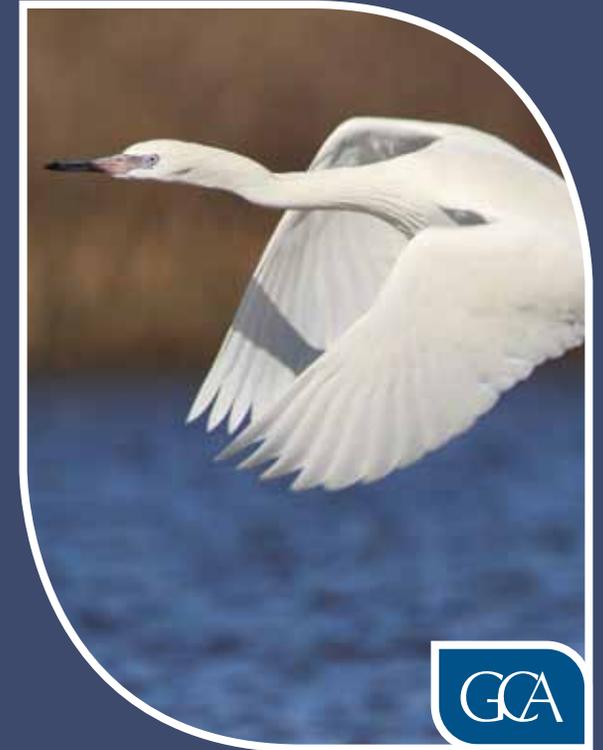
Acquired in 1973 from Champion Paper Co. and immediately modified and improved, Washburn Tunnel was the first facility to be operated by GCA, providing an early demonstration of the effectiveness and viability of wastewater treatment on a regional scale.

Washburn Tunnel serves refineries, petrochemical plants, bulk storage facilities and other local industries located along the Houston Ship Channel. The facility also treats municipal wastewater from the City of Pasadena as well as volumes from GCA's nearby Vince Bayou Receiving Station.

The facility receives most of its wastewater via pipeline; one customer, a small specialty fuels refinery, delivers its waste by barge. Wastewater containing high concentrations of organic material goes through a two-step activated sludge treatment process involving oxygenation and aeration. The facility's incoming low-strength streams are mixed with higher-content organic waste streams before the second step of aeration. Conventional secondary clarifiers remove much of the remaining solids. The treated wastewater is disinfected using peracetic acid before the effluent is discharged into the Houston Ship Channel.

The diverse, complex nature of wastewater treated at Washburn Tunnel has helped produce a robust mixture of contaminant-consuming microorganisms. Each year, Washburn Tunnel is called upon by other treatment facilities in the Greater Houston Area to provide sludge for re-seeding plants whose microorganisms have been killed or weakened as a result of a shutdown or unexpected incident.

WASHBURN TUNNEL WASTEWATER TREATMENT FACILITY & VINCE BAYOU RECEIVING STATION



Gulf Coast Authority

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Gulf Coast Authority

Protecting the waters of the State of Texas through environmentally sound and economically feasible regional waste management practices

Gulf Coast Authority

The Gulf Coast Authority (GCA) has successfully fulfilled its mission of protecting the waters of the state of Texas since its creation by the Texas Legislature in 1969. In June 2017 Texas Gov. Greg Abbott signed Senate Bill 1489, officially changing GCA's name from the original Gulf Coast Waste Disposal Authority to Gulf Coast Authority. The change was made to better reflect the regional services GCA provides, including industrial and municipal wastewater treatment, solid waste and water systems, all of which promote economic development statewide.

GCA's operations include: several regional industrial wastewater treatment facilities serving over 80 industrial customers in the Houston - Gulf Coast area and in the City of Odessa; a regional municipal wastewater treatment facility serving the City of Friendswood, a small part of Houston, and two Municipal Utility Districts; a municipal wastewater treatment plant serving the Cedar Bayou Park Utility District; a receiving station for trucked-in non-hazardous wastewater; a landfill for non-hazardous industrial solid waste; and a Central Laboratory accredited by the National Environmental Laboratory Accreditation Program (NELAP) that tests incoming wastewater,



treated water before discharge and samples from outside customers.

In 2013, the Texas Legislature expanded GCA's purview to permit the treatment of water that falls outside of industrial wastewater settings. The bill granted the Authority the same powers with regard to the acquisition, construction, and operation of such water systems that it has with regard to disposal systems. Water systems covered by the legislation include pipelines, conduits, canals, pumping stations, force mains, plants storage and other facilities used for the treatment, collection or distribution of water treatment, collection, disposal or distribution.

GCA created the Vince Bayou Receiving Station at the request of the City of Houston and the State of Texas to offload non-hazardous wastewater transported by truck for treatment at Washburn Tunnel.

Vince Bayou receives waste material from portable chemical toilets, septic tanks, equipment/parking lot wash-down streams and some industrial non-hazardous wastewater.

Washburn Tunnel personnel actively participate in local community advisory panels to promote community communication.

Washburn Tunnel Customer Benefits

- Permitted to treat industrial and municipal wastewater streams;
- Synergistic effects of multiple-stream wastewater treatment adds to efficiency as ammonia and nitrogen from one stream provides can provide nutrients for microorganisms treating other streams.”
- Economies of scale since multiple customers share treatment and permitting costs rather than bearing them individually;
- Strategic location in Houston Ship Channel.
- Has barge access for off-loading wastewater.
- Accepts trucked-in portalet and other non-hazardous wastewaters.

Why communities and industries contract with GCA

GCA offers significant advantages for municipal and industrial customers:

Industrial

- Favorable economies of scale save money and improve efficiency;
- Industries avoid the cost of installing and operating extensive treatment systems;
- GCA can provide tax-exempt financing for pipelines and solid waste facilities;
- GCA fees are an operating expense, rather than a capital expense;
- GCA responsible for permits and dealing with

regulators;

- GCA staff are experts in wastewater treatment and industrial solid waste management.

Municipal

- Favorable economies of scale save money and improve efficiency;
- Infrastructure financed by GCA preserves municipalities' capacity to issue bonds for other purposes;
- GCA fees are an operating expense, rather than a capital expense;
- GCA responsible for permits and dealing with regulators.



Many of the same advantages of working with GCA to provide regional municipal and industrial wastewater treatment solutions also apply to water treated under the Authority's expanded scope granted by the Texas Legislature in 2013.

Core values

GCA's core values guide every aspect of operations:

- **Stewardship** of the environment and of the health and safety of employees, customers and neighbors;
- **Communication**—open, honest, frequent—with all stakeholders;
- **Reliability**—ensuring that our operations are safe, compliant and cost effective;
- **Integrity** of our staff who operate in a simple, clear, transparent and honest manner;
- **Planning** to ensure continuity of service, innovation, sustainability and financial responsibility; and
- **Teamwork** to foster trust, commitment, enthusiasm and innovation.

What makes GCA function so well are the dedicated employees, managers and board members who do their very best, every day, to protect the waters of the State of Texas and work with our customers and government officials to help foster economic development that is the envy of the nation.