The Sewerage & Water Board

OF NEW ORLEANS

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April 12, 2024

Dear Mayor Cantrell, Honorable Members of the New Orleans City Council, and Orleans Parish Delegation:

This report is delivered in accordance which Revised Statute 33:4091, Section F, which states: "*In addition to the other requirements of this Section, the board shall send a report, by electronic mail, to the members of the Orleans Parish legislative delegation and the members of the governing authority of Orleans Parish detailing the pumping and electrical power of its facilities and the available manpower no later than twenty-four hours prior to a hurricane entering the Gulf of Mexico as determined by the National Weather Service and no later than forty eight hours after a flood watch or warning or thunderstorm watch or warning is issued by the National Weather Service for any area of Orleans Parish.*"

Throughout the day on April 10, 2024, a strong thunderstorm system moved through Orleans Parish and Southeastern Louisiana. The initial predictions from the National Weather Service indicated that the storm would bring high intensity rain to the area, with the potential for strong winds, hail, and tornadic activity. The status of SWBNO's pumping and power equipment before and during the events is detailed below.

STORM IMPACTS

This storm resulted in the metro area experiencing a series of high intensity, short duration rain and thunderstorm events that impacted the entire Metro area. Local news outlets reported between 6" and 8" total rainfall accumulation throughout the area.

The majority of the rainfall was accumulated during the hours of 7am and 2pm, with over 3.5 inches recorded at several stations between the hours of 10am and 12pm.

Notable rain accumulations, intensities, and peak hourly accumulation throughout the day are shown in the table below.

Location	Neighborhood	Rain Intensity (in/hr)	Peak Hourly Accumulation (in)	Total Rainfall (in)
Central Control*	Hollygrove	6.24	3.27	8.78
DPS-14	New Orleans East – Lakefront	5.16	3.17	7.49
DPS-06	Lakeview	5.76	1.96	6.99
DPS-10	New Orleans East - Lakefront	4.32	2.05	6.74
DPS-01	Broadmoor	3.60	1.97	6.43
St. Joe	Central Business District	4.44	2.51	6.34
WBPC	Algiers	5.40	2.53	6.31
DPS-02	Mid City	3.72	2.03	6.28
Station-A	Treme	2.88	2.03	6.20
DPS-04	Gentilly	3.48	1.69	6.16
DPS-03	7th Ward	3.48	1.82	5.97
DPS-20	New Orleans East – Intracoastal Waterway	3.24	1.97	5.85
DPS-05	Lower 9th Ward	3.96	2.15	5.77
DPS-12	Lakeview	4.20	1.76	5.18
DPS-11	Lower Coast Algiers	3.48	2.04	4.78
DPS-13	Algiers	3.48	1.85	4.46
DPS-07	City Park	3.12	2.16	3.55
City-wide max**		6.24	3.27	8.78
City-wide average		4.23	2.23	6.23

**The location of the rain gauge at Central Control needs to be relocated around newly installed infrastructure and may no longer be directly correlated to previous measurements at this location.*

***Note that rainfall data was not available for DPS 15, 16, 17, and 19.*

Localized pooling and flooding was reported at 35 unique locations across the City by the Real Time Crime Camera Center (RTCC), starting around 8am, with water reported as receded at the majority of locations by 5pm. Other significant areas of flooding were widely reported in local news outlets.

PUMPING AND POWER

Below is the status of SWBNO's pumping and power equipment at the outset of the event.

Drainage Pumps:

A total of 92 of 99 drainage pumps were reported in service at the outset of the event.

DPS 3:	**25-hz pump out of service due to replacement of bearing housing unit. RTS May 2024.**
DPS 6:	**I Pump is out of service due to bearing maintenance needed. RTS May 2024.**
DPS 10:	**No. 1 pump (60-hz) out of service. Vendor selected to refurbish pump. RTS August 2024.**
DPS 13:	**No. 4 pump (diesel pump) is for emergency use only. Additional drainage funding is needed to move forward with repairs.**
DPS 15:	**No. 1 pump gearbox repairs are in progress. RTS August 2024.**
DPS 17:	**Pumps A & D (25-hz) out of service due to the issues with electric motor. RTS TBD, pending funding availability.**

Beyond the power issues noted below, pump-specific issues were not reported.

Underpass Stations:

All 27 underpass station pumps (UPS) were available and ready for use during the event. There were no reported issues with the underpass pumps themselves. However, impassable conditions were reported at multiple underpass stations including Carrollton Ave at I-10, Canal at I-610, Gentilly and I-610, and Franklin and I-610 when the pumps at those locations could not keep up with rainfall volume. The underpass station at Gentilly at I-610 is a gravity-drain underpass that flows into the nearby canal; when the canal was full it could not receive drainage from the underpass station, resulting in flooding at that location.

Power:

Turbines 5 (25-hz), and 6 (60-hz), along with three frequency changers on the Eastbank, and one on the Westbank, as well as three EMDs were also available at the outset of this event. Due to the limited amount of redundancy in 25-hz power, plans were made in advance of the rain event to utilize frequency changers for the stations which serve primarily 25-hz pumps. Additionally, Turbine 6 was brought online in advance to provide 60-hz power to the Carrollton Frequency Changer in anticipating of high winds.

Several key items resulted in lower than anticipated 25-hz power availability during the rain event:

- The EMDs were intended to be used to power the DPS 6 D and E pumps (25-hz). DPS 6 E pump ran from about 8:45am to 9am when the EMDs tripped. Subsequent evaluation determined that the trip was due to a fault on feeder 216. An investigation into the cause of the fault on the feeder is underway. This issue resulted in 7.5MW of power not being available for use at DPS 6.

- Frequency Changers 1 and 2 were initially set up to use Turbine 6 as a 60-hz power source for the frequency changers. At 9am, Frequency Changer 1 breaker tripped open, impacting Frequency Changer 2 as well. This impacted DPS 3 A and B pumps, as well as C pumps at DPS 1, 2, and 6 (all 25-hz pumps). Multiple unsuccessful attempts were made to restart the frequency changers using T6 as the power source, which lead to the decision to return to using Entergy power for the frequency changers. DPS 3 A pump resumed pumping around 10:15 am, and DPS 3 B pump resumed pumping around 11:25am. DPS 6 C pump returned to service at 11am. Due to other feeder issues, power from the frequency changer could not be used for C pumps at DPS 1 and 2, so it was used to power 25-hz pumps D and E at DPS 6 instead. An investigation into the electrical relays for Frequency Changers 1 and 2 are underway; there is no indication that the issues are related to Turbine 6, which remained online.

- Frequency Changer 3, which was providing 25-hz power to C pumps at DPS 3, 4, and 7, tripped around 1:18pm. These pumps were restarted between 1:35pm and 2:05pm.

Unit*	**Frequency**	**Capacity in MW**	**Available**
T4	25 Hz	20 MW	0 (placed out of service on February 3, 2024)
T5**	25 Hz	20 MW	16 MW (revised capacity while Turbine 4 is out of service)
Carrollton Frequency Changers 1&2	Converts 60 to 25Hz	8.5 MW	8.5
Station D Frequency Changers 3&4	Converts 60 to 25Hz	12 MW	6 MW (FC #4 out of service)
West Bank Power Complex (Algiers Water Treatment Plant)	Converts 60 to 25Hz	2.5 MW	2.5
Five EMDs	25Hz	12.5 MW (total) 2.5 MW (each)	7.5 (repairs for EMD #1 and #2 in progress)
Plant Frequency Changer via T6	Converts 60 to 25Hz	3.75 MW	0 MW (RTS to be determined)
		Total 25 Hz:	**40.5 MW**
T6	60 Hz	22 MW	**22 MW**

*****T3 has been decommissioned as of May 2021, and T1 has been decommissioned as of June 2022. Both units have been removed from this table.

STAFFING

Of New Orleans' 24 drainage pumping stations, some are staffed, some run remotely, and some are staffed as circumstances dictate. For this event, all stations were staffed appropriately.