# FINAL TECHNICAL REPORT

# INSTALLATION OF OBSERVATION WELL TELEMETRY EQUIPMENT

Grant/Cooperative Agreement Number G24AC00298-00

Ohio Department of Natural Resources

Division of Geological Survey

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The Groundwater Program of the Ohio Department of Natural Resources, Division of Geological Survey (ODNR-DGS) is responsible for collecting, researching, interpreting, and disseminating hydrologic and groundwater resource information for the State of Ohio. An important component of this program is to characterize Ohio's groundwater resources through the monitoring and evaluating of long-term trends in groundwater level fluctuations throughout the state's aquifers. To do this, ODNR-DGS operates a network of State observation wells, which record water-level measurements and, for some wells, transmit this data in real-time via satellite.

Wells equipped with satellite telemetry allow ODNR-DGS to provide real-time groundwater-level data to its end users, who are often concerned with localized and/or recent issues that require immediate information. With ODNR-DGS's 2023 migration to the AQUARIUS system for the processing and publication of its groundwater-level data, telemetered wells will now be automatically servicing the public-facing AQUARIUS WebPortal in real time. ODNR-DGS will continue to download data in the field on a quarterly basis and use the downloaded data to apply corrections and correct instrument drift, etc., but real-time data will now be available for sites equipped with telemetry equipment.

This grant project upgraded the satellite transmission equipment of five wells over the one-year grant period.

**Project Description**

**Purchase of Equipment to Support Continuous Water-level Data Collection**

Under Objective 6 – Purchase of equipment to support continuous water-level data collection, this project upgraded five State observation wells to GOES Satlink 3 units. None of the five selected sites were previously equipped for continuous water-level data collection, and sites were selected based on the estimated impact of the upgrades. ODNR-DGS staff worked with United States Geological Survey (USGS) staff to perform the installations and configure the telemetry equipment.

The purchasing of equipment began in February 2025, and the installations took place between May and June of 2025. A list of the upgraded wells is shown in Table 1.

| Well Upgraded | County |
|---|---|
| BU-17 | Butler |
| D-2 | Darke |
| H-3 | Hamilton |
| LI-6 | Licking |
| PK-6A | Pickaway |

*Table 1. List of wells upgraded with new telemetry equipment*

The locations and principal aquifers of the wells upgraded by this project are shown in Figure 1.

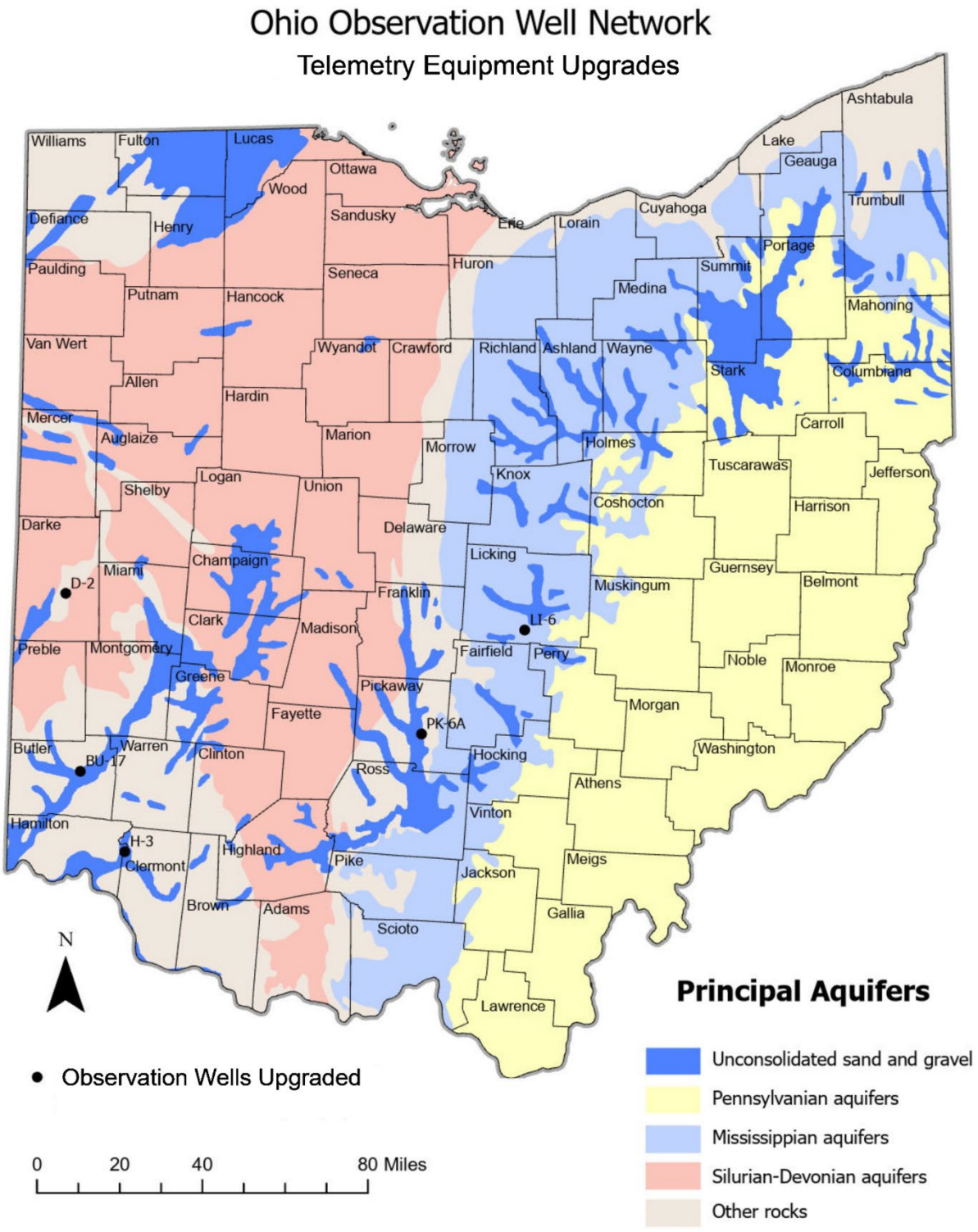


*Figure 1. Locations of upgraded wells and their principal aquifers*

Since the installation and configuration of the new equipment, telemetry data have been continuously transmitted for all five sites. These data have been ingested by USGS and are configured to automatically update on ODNR-DGS's AQUARIUS WebPortal via AQUARIUS

Connect. ODNR-DGS's AQUARIUS WebPortal can be accessed at https://odnr.aquaticinformatics.net/.

Samples of telemetry data from the five upgraded sites as of the writing of this report are shown in figures 2–6. It is ODNR-DGS's intent to propose the continuation of telemetry upgrades for other sites in subsequent NGWMN grant cycles.


*Figure 2. BU-17 telemetry data as of 8/18/25*

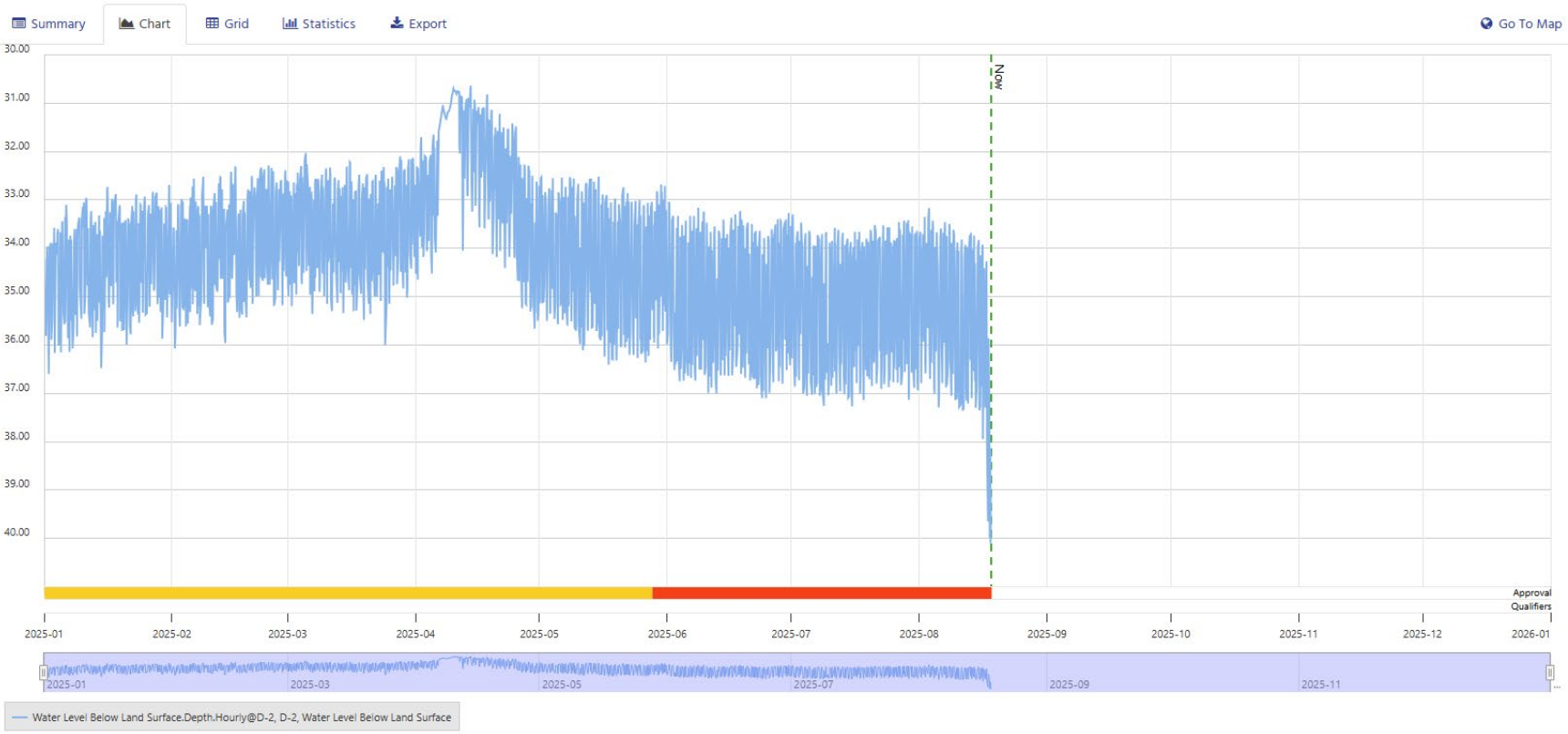


*Figure 3. D-2 telemetry data as of 8/18/25*

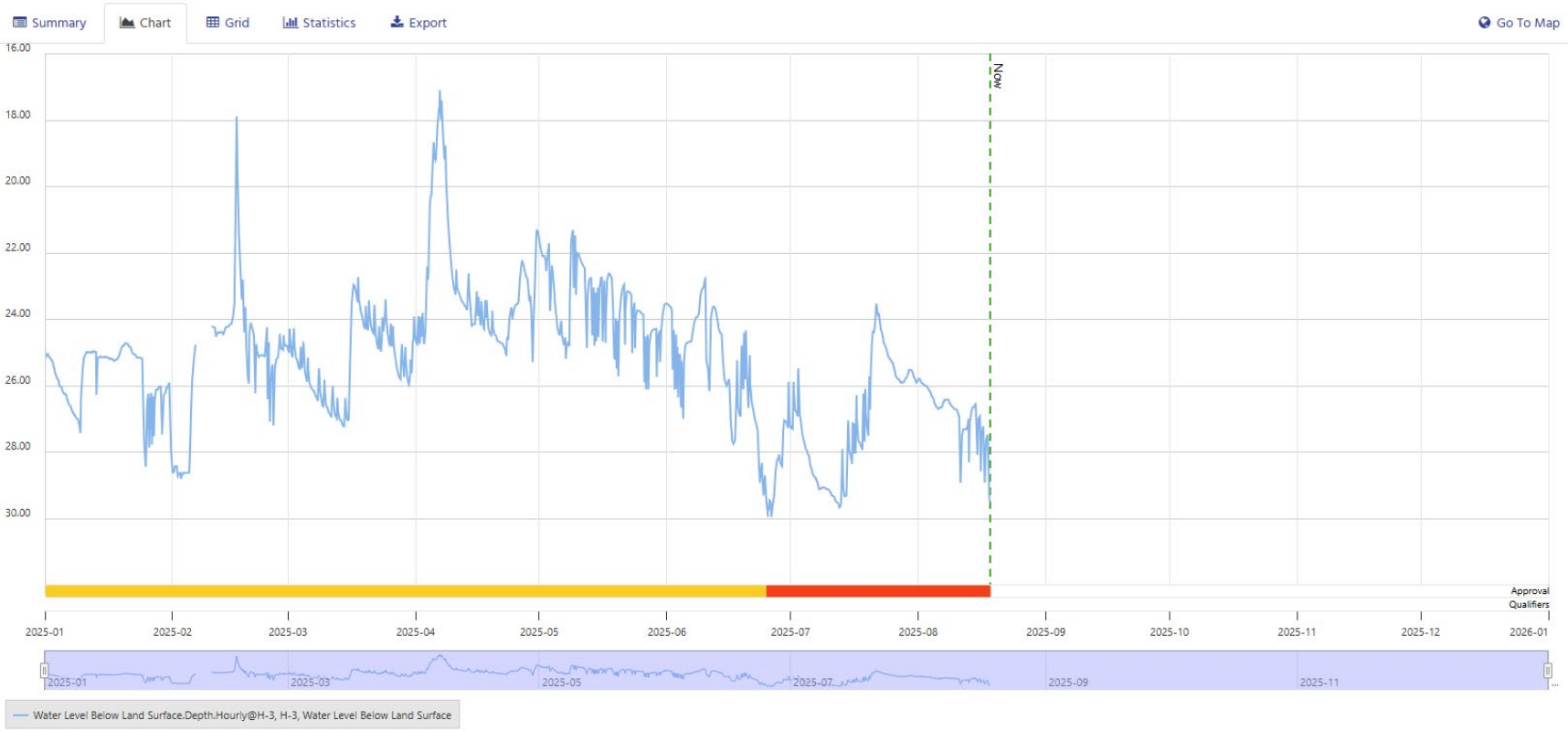


*Figure 4. H-3 telemetry data as of 8/18/25*


*Figure 5. LI-6 telemetry data as of 8/18/25*

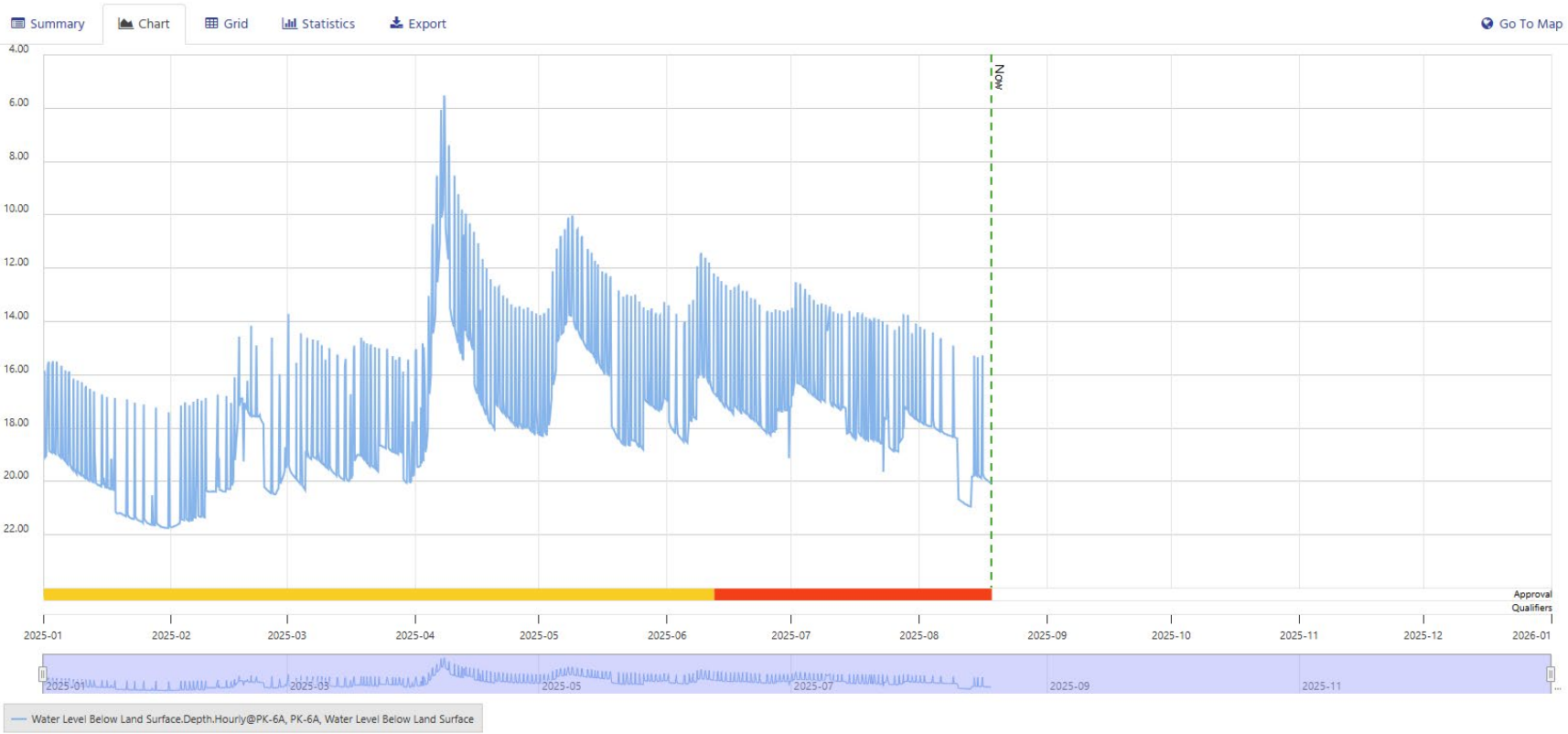


*Figure 6. PK-6A telemetry data as of 8/18/25*