

HydroEnvironmental
SOLUTIONS, INC.

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By Sabrina D. Charney Hull at 2:53 pm, Feb 01, 2019

January 31, 2019

Ms. Sabrina D. Charney-Hull, AICP
Director of Planning
Town of New Castle
200 South Greeley Avenue
Chappaqua, New York 10514

RE: Quarterly Off-Site Monitoring Program Summary Letter
4th Quarter 2018
Sunshine Children's Home

15 Spring Valley Road
New Castle, New York

Dear Ms. Charney-Hull:

HydroEnvironmental Solutions, Inc. (HES), has prepared the following quarterly summary letter for off-site well monitoring work completed at the above-referenced site during the fourth quarter of 2018. HES observed the Applicant's hydrogeological and engineering consultant, LBG Hydrogeologic and Engineering Services, P.C. (LBGHES), member of WSP, during off-site monitoring data collection on November 19, 2018. Depth to water readings were collected from pressure transducer data loggers installed in residential wells at the eight (8) off-site monitoring locations designated Well A – Well H. Hydrograph plots constructed by HES using water level monitoring data collected during the fourth quarter of 2018 are included at the end of this letter as **Appendix 1**.

Data Retrieval/Hydrographs

On November 19, 2018 HES accompanied LBGHES in the field to download data from each of the eight off-site data loggers. Both HES and LBGHES connected to the data loggers using separate laptop computers to retrieve water level monitoring data.

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Water levels recorded by the pressure transducer data loggers were confirmed manually using a clean M-scope water level meter. Pressure transducer water level readings were within 0.30 feet of M-scope readings; therefore, it was not necessary to recalibrate any of the pressure transducer data loggers. During the November 19, 2018 site visit, it was confirmed that the data loggers at all the wells were working properly.

Hydrographs plotted independently by HES from data downloaded on-site are included at the end of this letter. The HES hydrographs, also labeled Well A – Well H, were used to confirm the validity of hydrographs plotted by LBGHES. The HES hydrographs are attached as **Appendix 1** and the LBGHES hydrographs are included as **Appendix 2**.

Fourth Quarter Off-Site Monitoring Update

- As requested by HES, the monthly Water System Operational Reports now include the individual amount pumped from Wells 1, 2 and 3 as the wells are metered separately. This information will be reported moving forward. The Applicant has provided this information to the Town (and the Town to HES) for the past five months and will continue to do so. The year end review of the Operations Reports indicate that no appreciable increase in historic pumping was observed and the overall facility use continues to be 3,000 to 6,000 gallons per day (gpd).
- As requested by HES in our December 13, 2018 letter, the following information should be provided to the Town if it has not been to date:
 - Depth of each off-site well (if available)
 - Distance of off-site wells to on-site Wells 1, 2 and 3
 - Distance of off-site wells relative to each other.
- As requested in December 2018, the pressure transducer in Well B was set deeper so that the water level in the well during pumping cycles does not drop below the level of the transducer.

Conclusions and Recommendations

- Based on the hydrographs, HES has not observed drawdown impacts in any of the eight off-site monitoring wells that are related to ongoing pumping and well use at the Sunshine Children's Home wells.
- The hydrographs prepared from data collected from Well B indicates that water level in the well was drawn down below the depth of the data logger several times during the monitoring period, including an approximately 8 day period from September 13 to September 21, 2018. The hydrograph for this well indicates that these drawdown events occur rapidly (i.e. the well draws down approximately 300 feet within a half-hour). Additionally the static water level trend in the well tends to remain around 50 feet from the top of casing. This suggests that the drawdown is a result of heavy pumping of Well B itself and not from off-site influence due to pumping. As noted above, LBGHES has since set the data logger deeper in the well to prevent loss of water level data.
- As previously recommended by HES, LBGHES is now providing the Town with quarterly pumping data from the three on-site wells including meter readings and pressure transducer data. This information is being provided to the Town and ultimately HES by the independent Class C Operator that operates the on-site water supply system. The water use information will be compared to historic water use and pumping cycles will be compared to the hydrographs for the off-site supply wells.

Ms. Sabrina D. Charney-Hull
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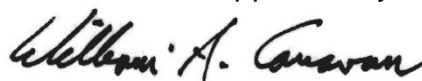
HES would be pleased to meet with the Town and/or the Applicant and their consultant to discuss the off-site well monitoring program in further detail should the need arise. Please contact us at (914) 276-2560 if you have any questions regarding this matter.

Very truly yours,
HydroEnvironmental Solutions, Inc.



Patrick W. Montuori
Geologist/Hydrogeologist

Reviewed and Approved by:



William A. Canavan, LSRP, PG
President

Enclosures

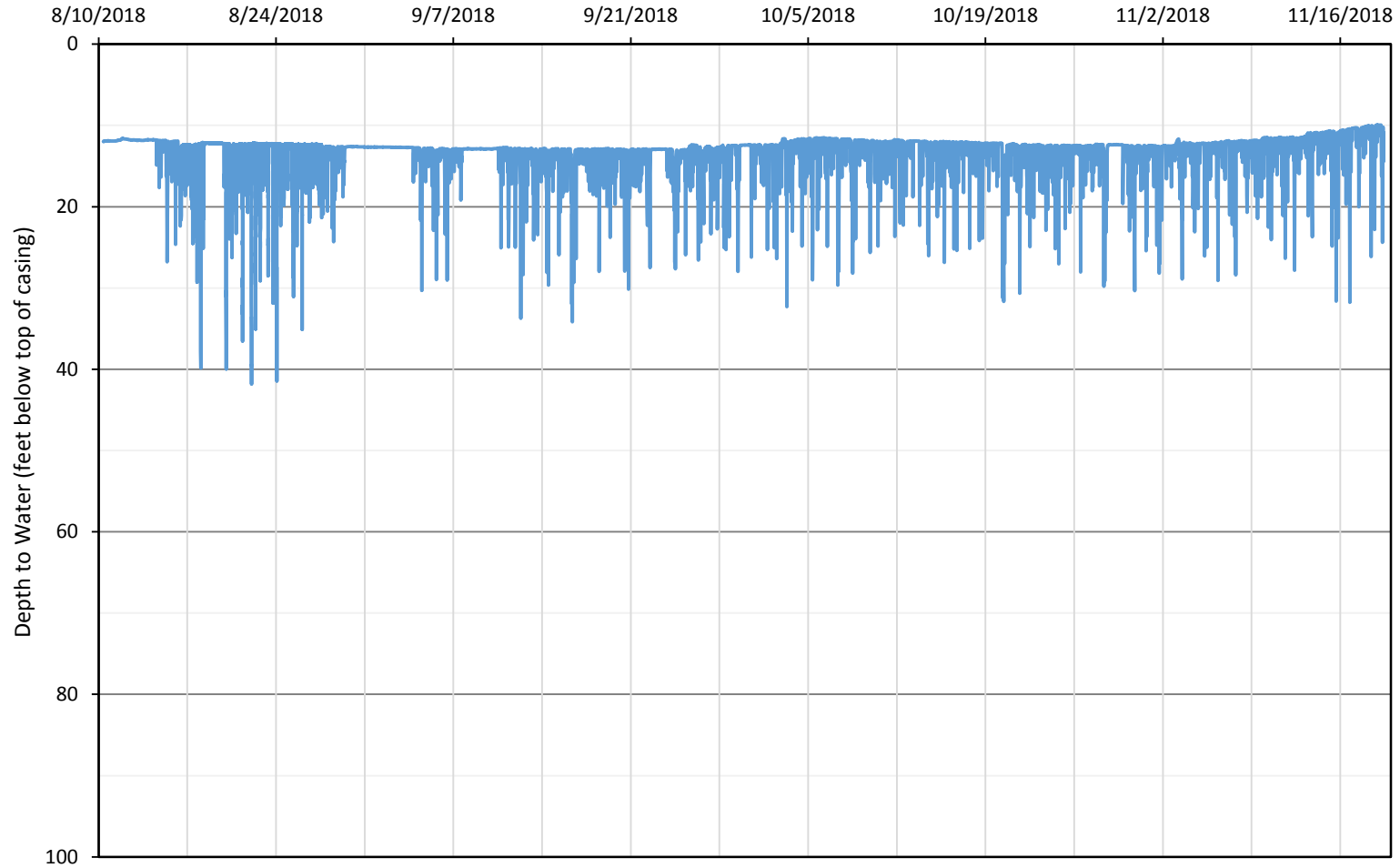
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APPENDICES

APPENDIX 1:

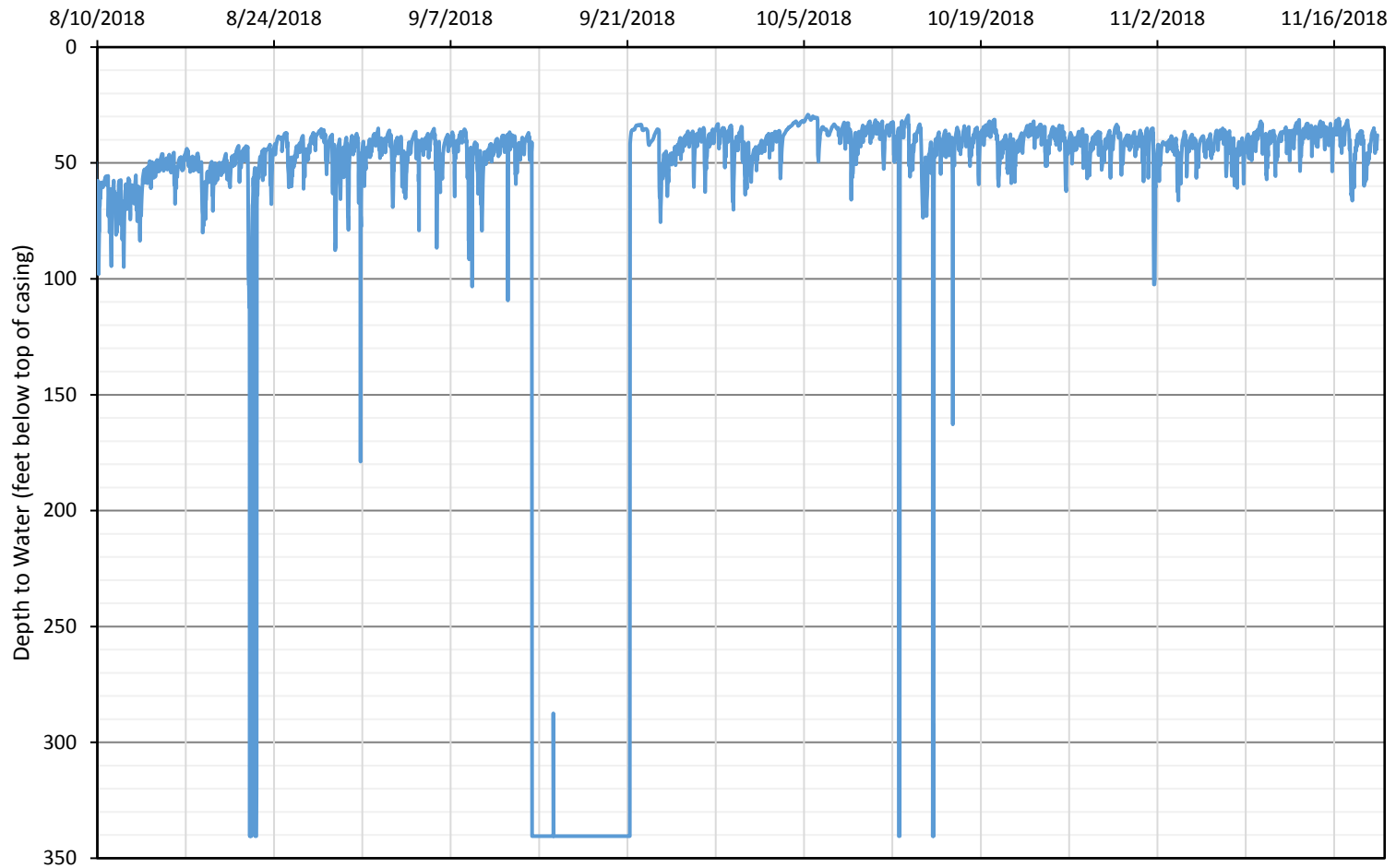
HES Hydrographs – 4th Quarter 2018

Sunshine Childrens Home
Off-Site Well Monitoring
Well A
August 10, 2018 - November 19, 2018



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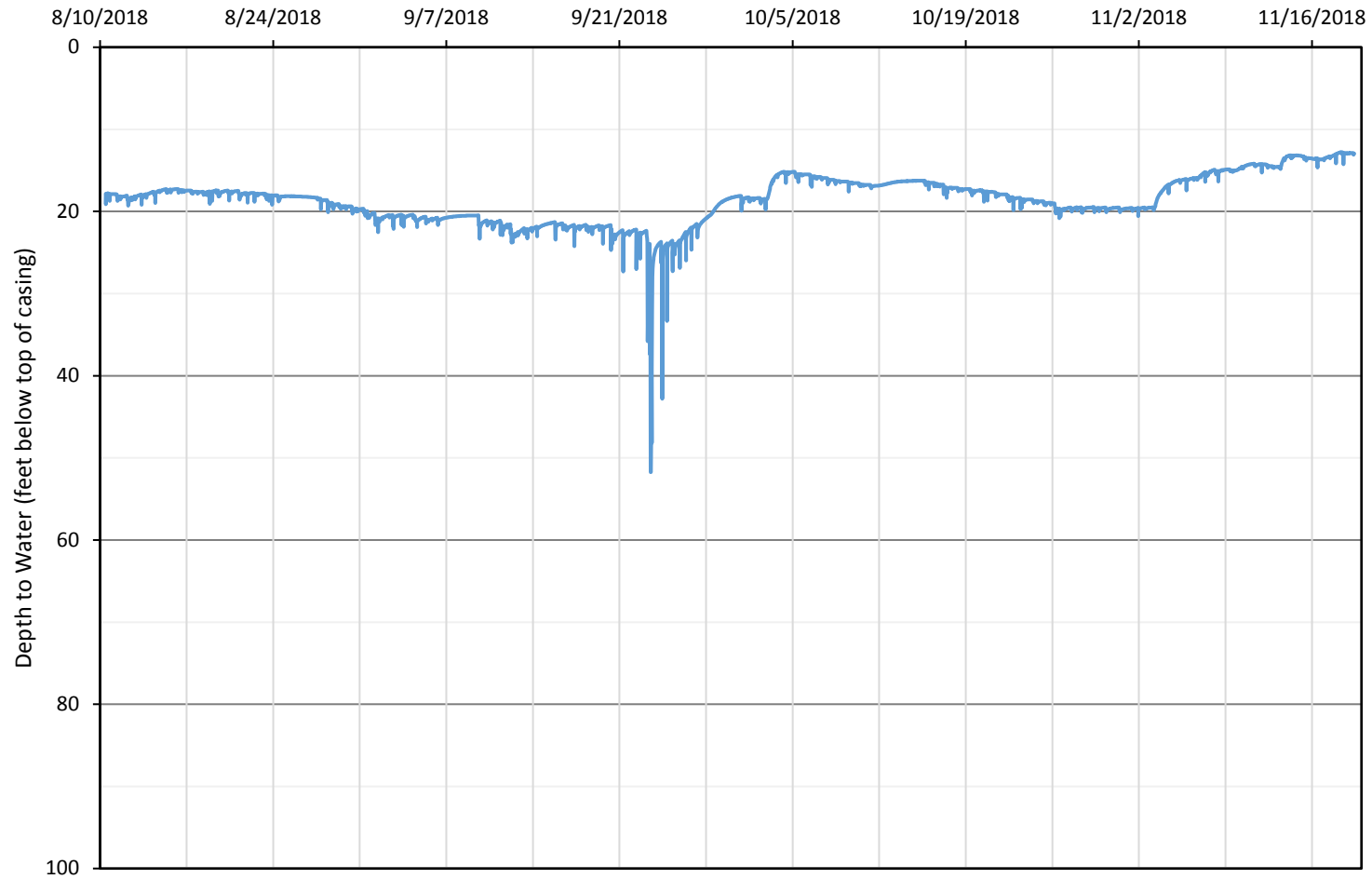
Sunshine Childrens Home
Off-Site Well Monitoring
Well B
August 10, 2018 - November 19, 2018



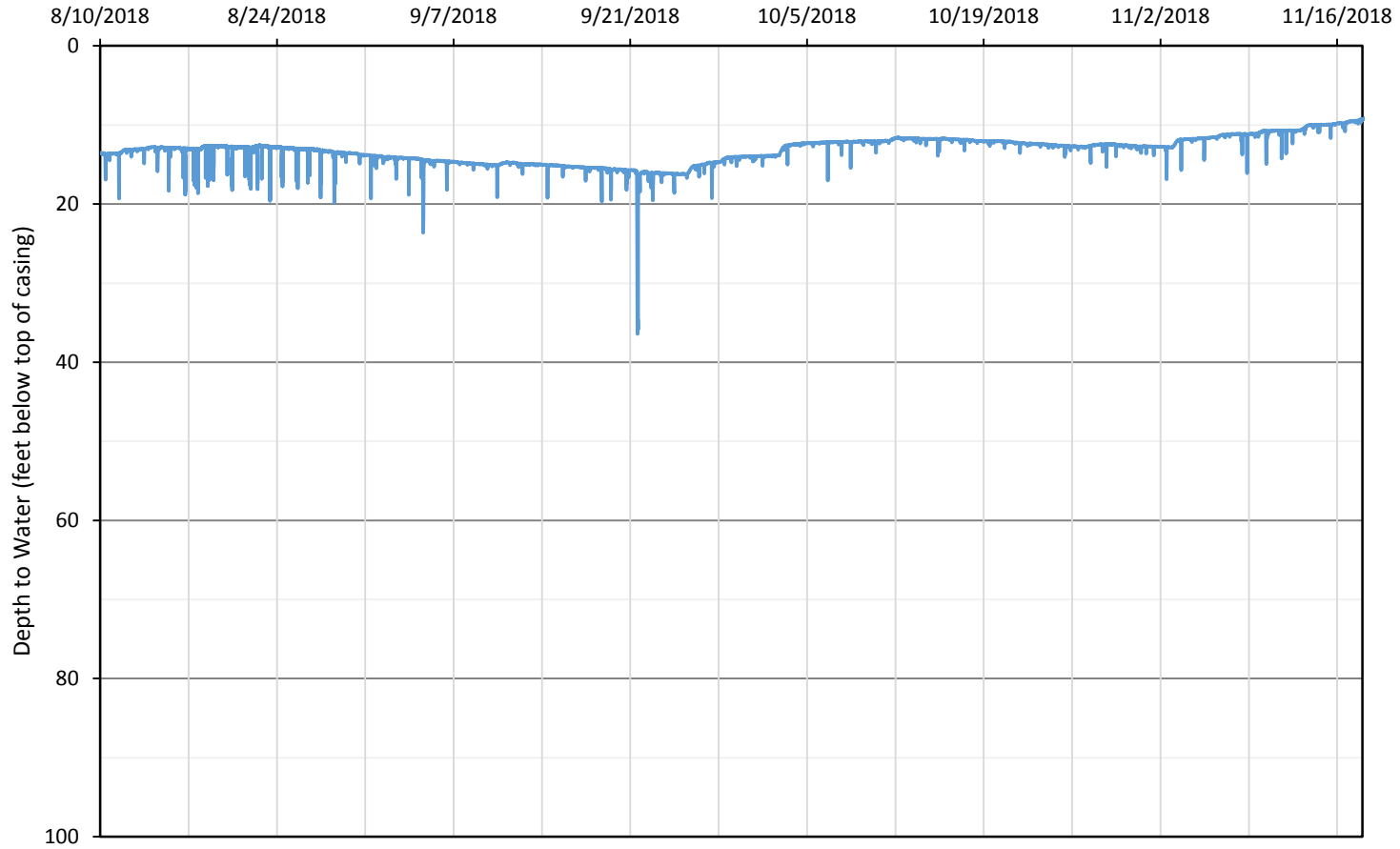
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Sunshine Childrens Home
Off-Site Well Monitoring
Well C

August 10, 2018 - November 19, 2018

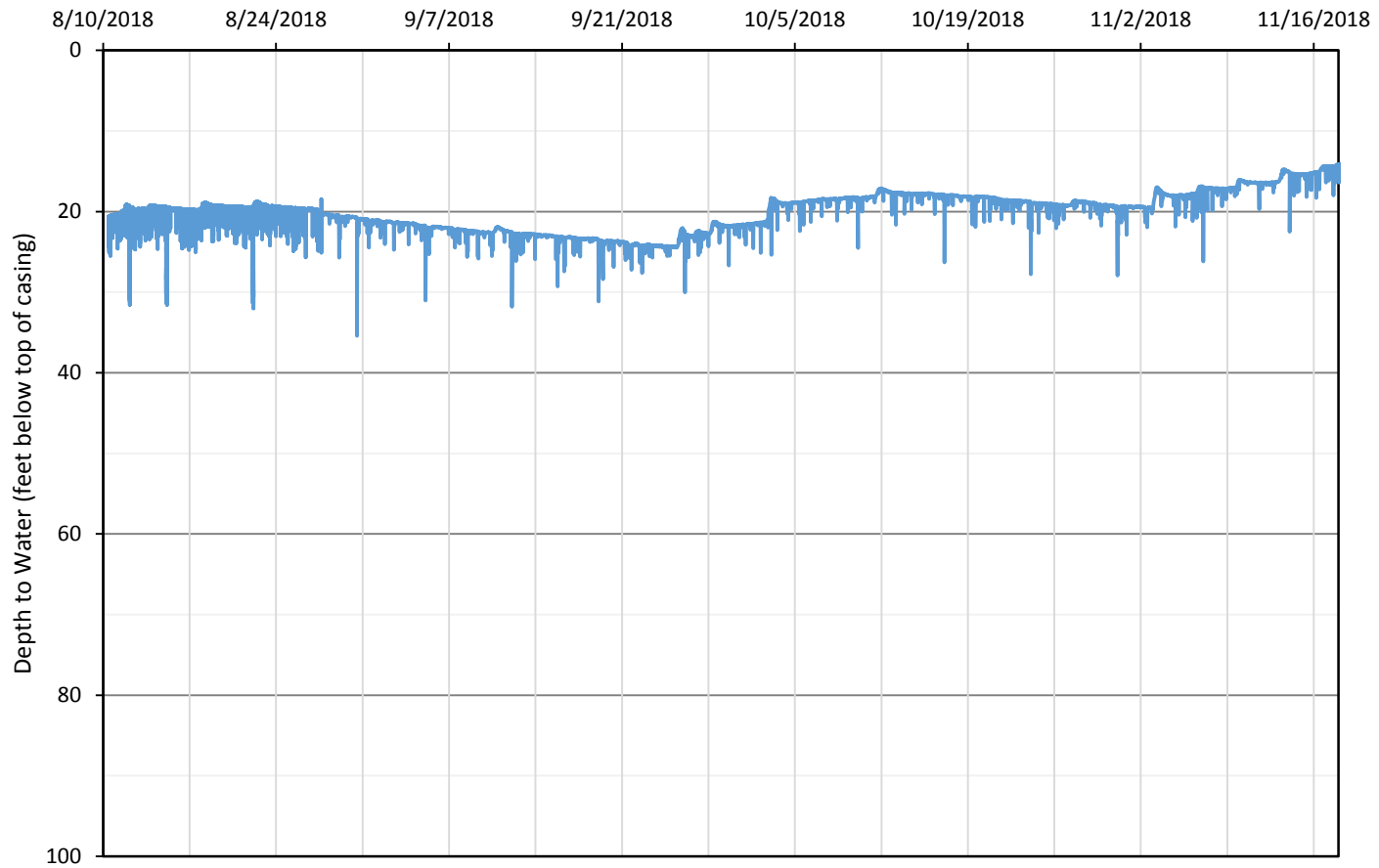


Sunshine Childrens Home
Off-Site Well Monitoring
Well D
August 10, 2018 - November 19, 2018



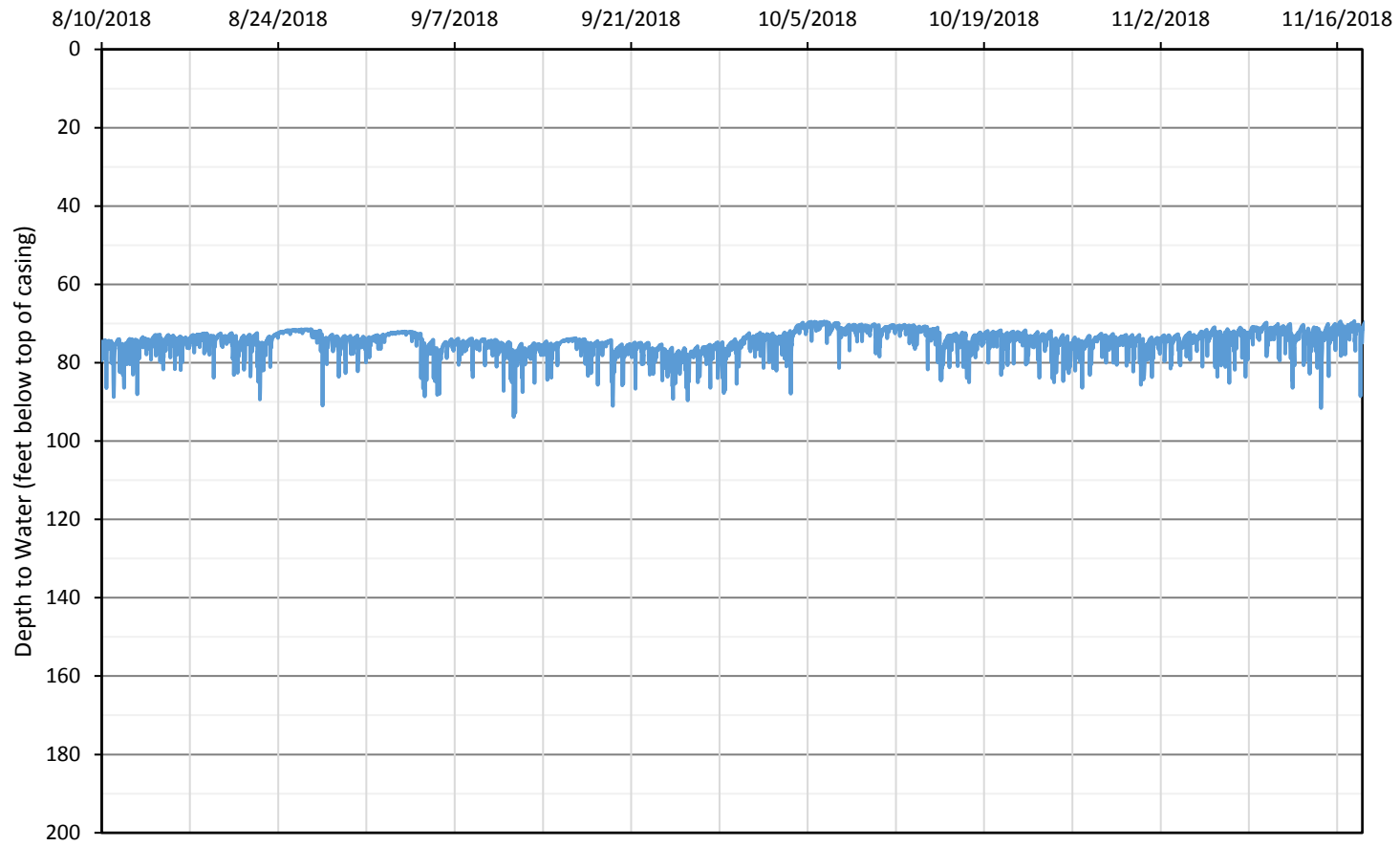
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Sunshine Childrens Home
Off-Site Well Monitoring
Well E
August 10, 2018 - November 19, 2018



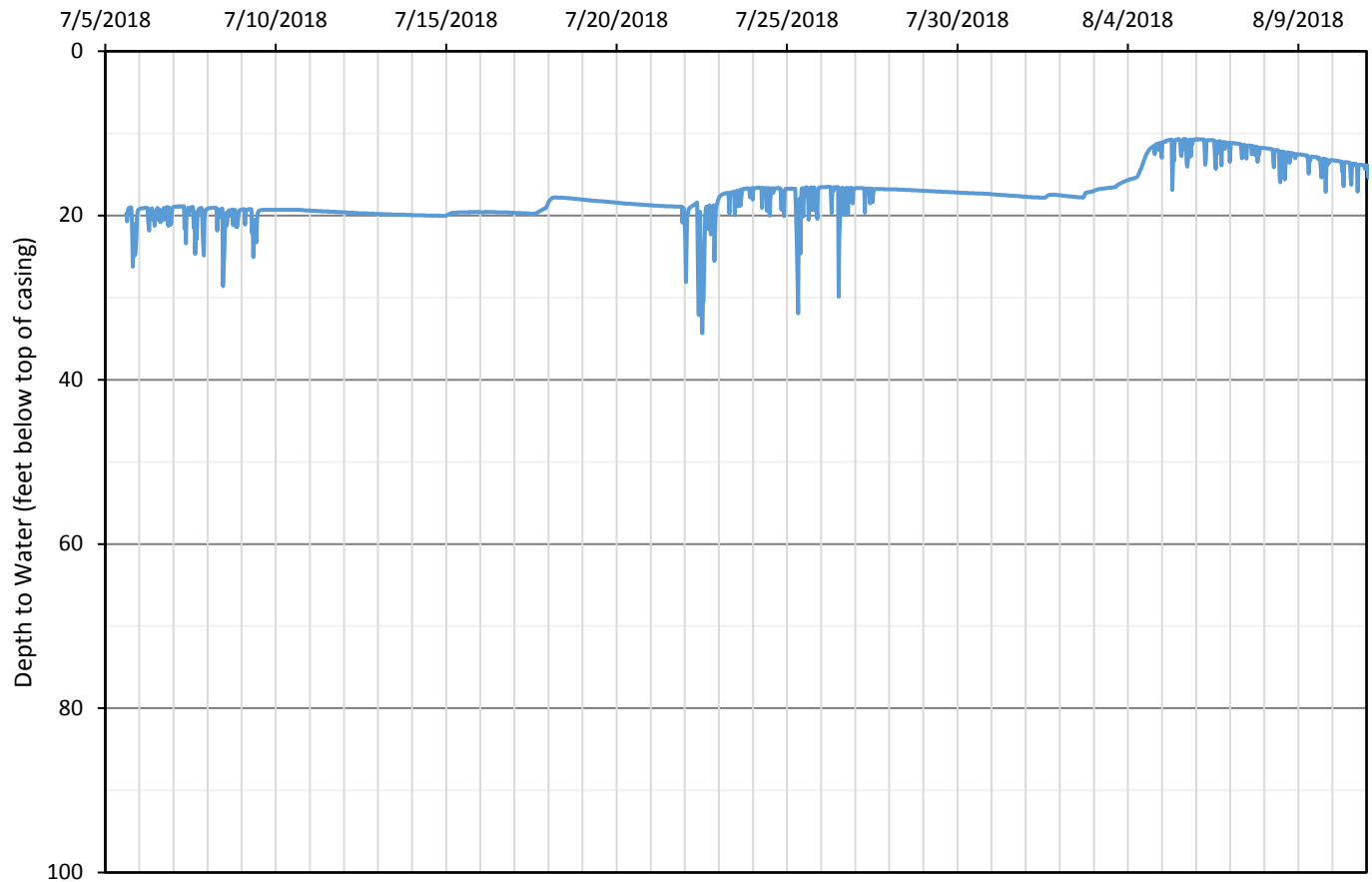
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Off-Site Well Monitoring
Well F
August 10, 2018 - November 19, 2018



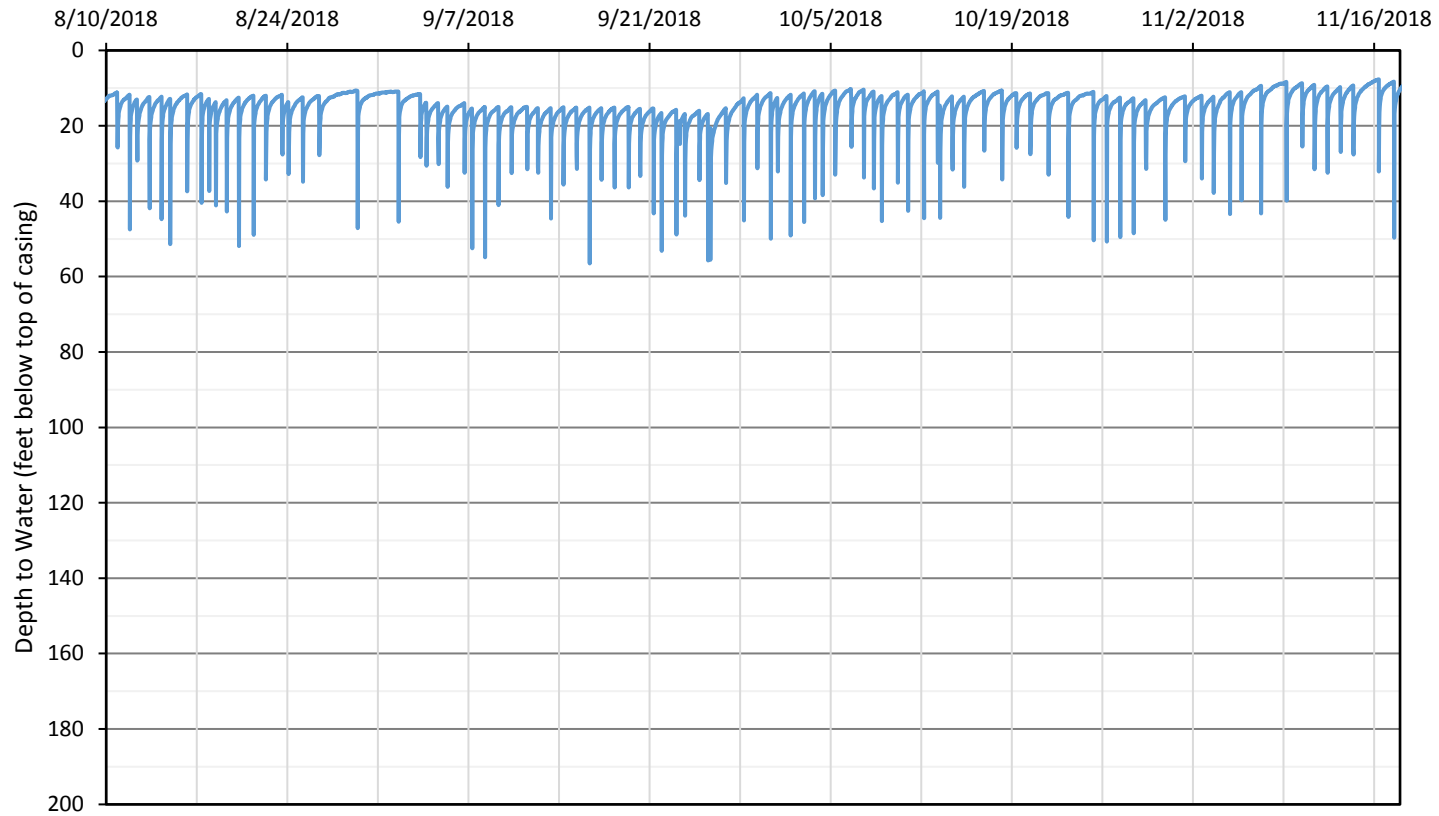
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Sunshine Childrens Home
Off-Site Well Monitoring
Well G
August 10, 2018 - November 19, 2018



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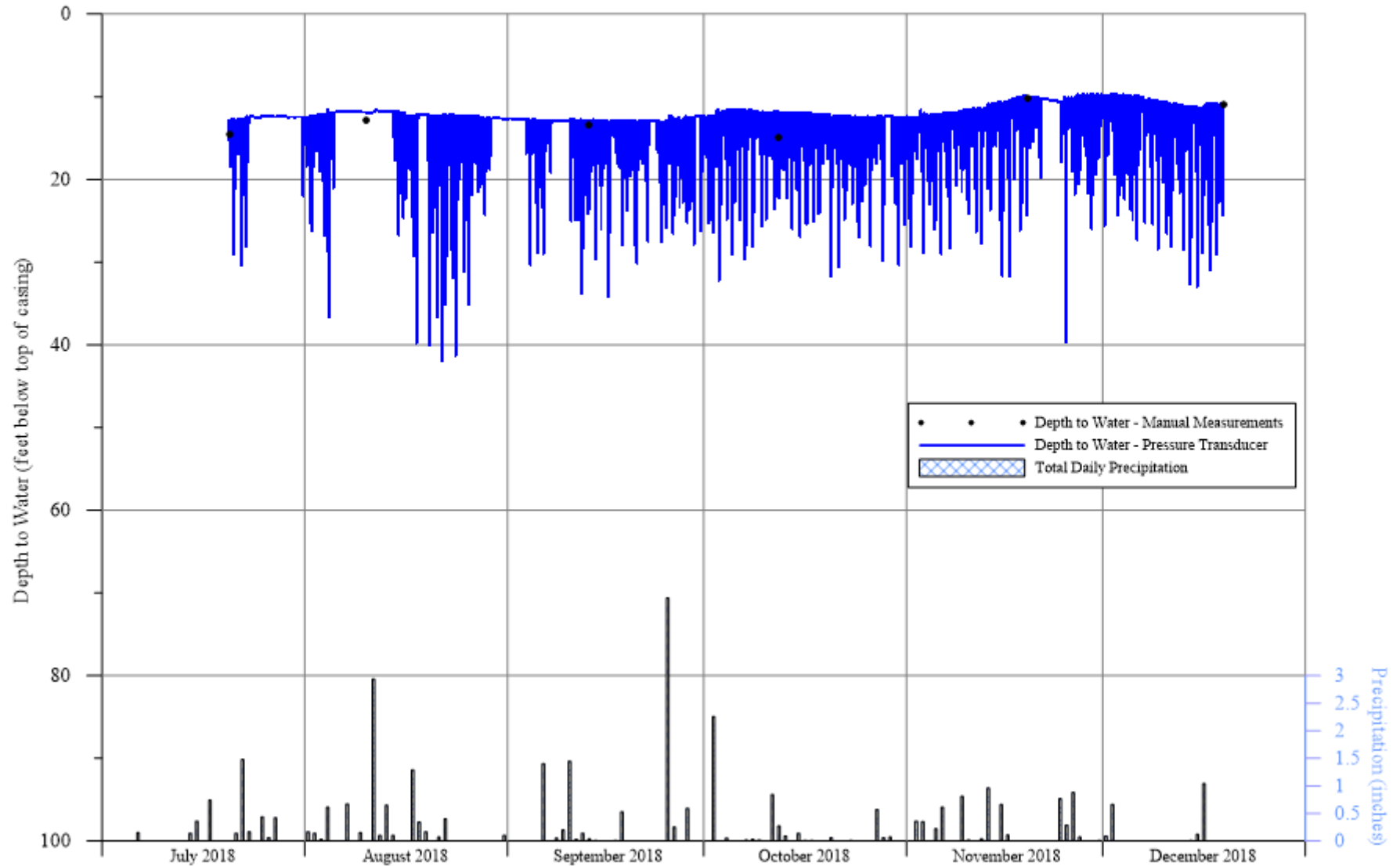
Sunshine Childrens Home
Off-Site Well Monitoring
Well H
August 10, 2018 - November 19, 2018



APPENDIX 2:
LBGHES Hydrographs

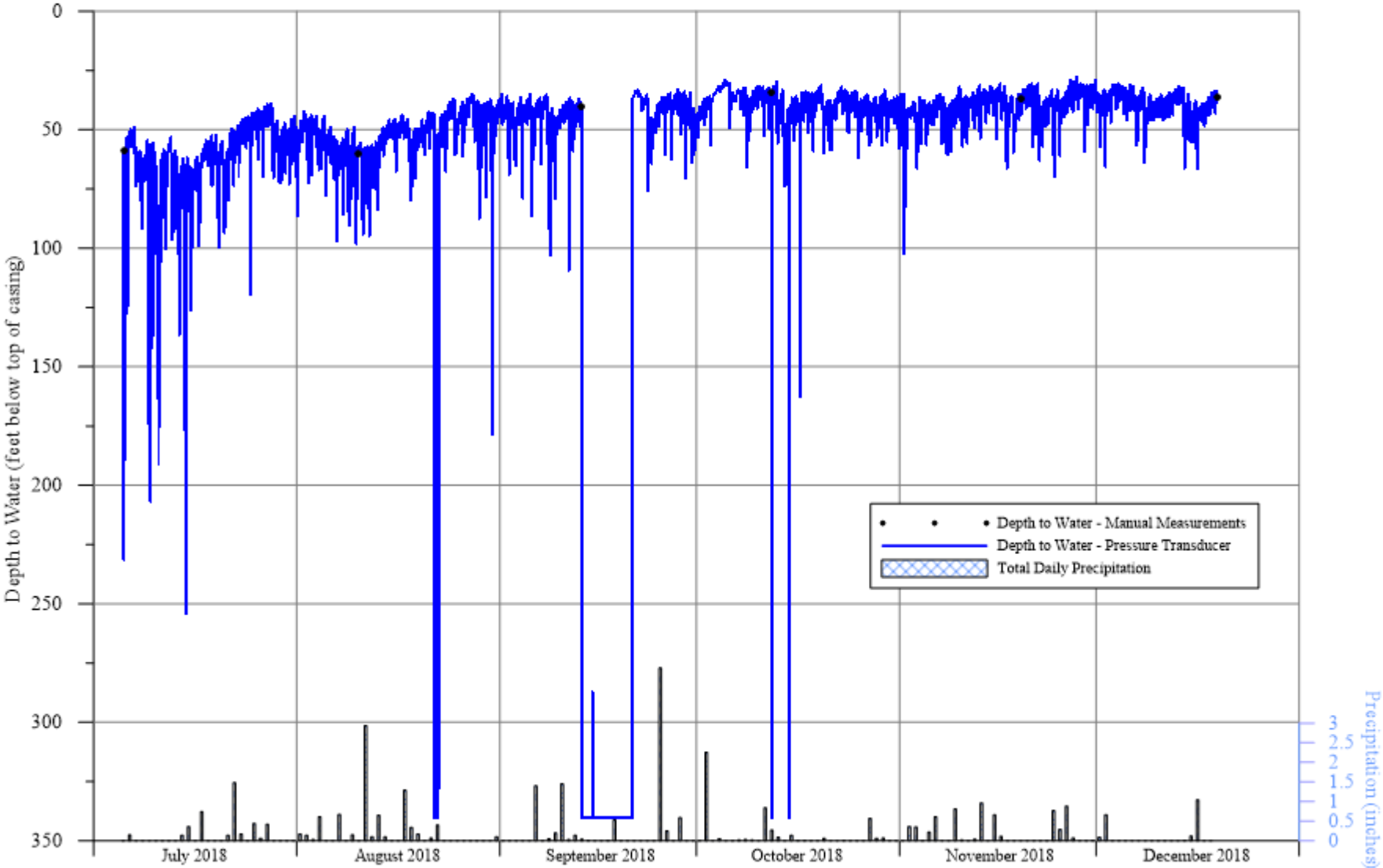
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NEW CASTLE, NEW YORK

Well Monitoring Program
Hydrograph of Water-Level Measurements Collected from Well A



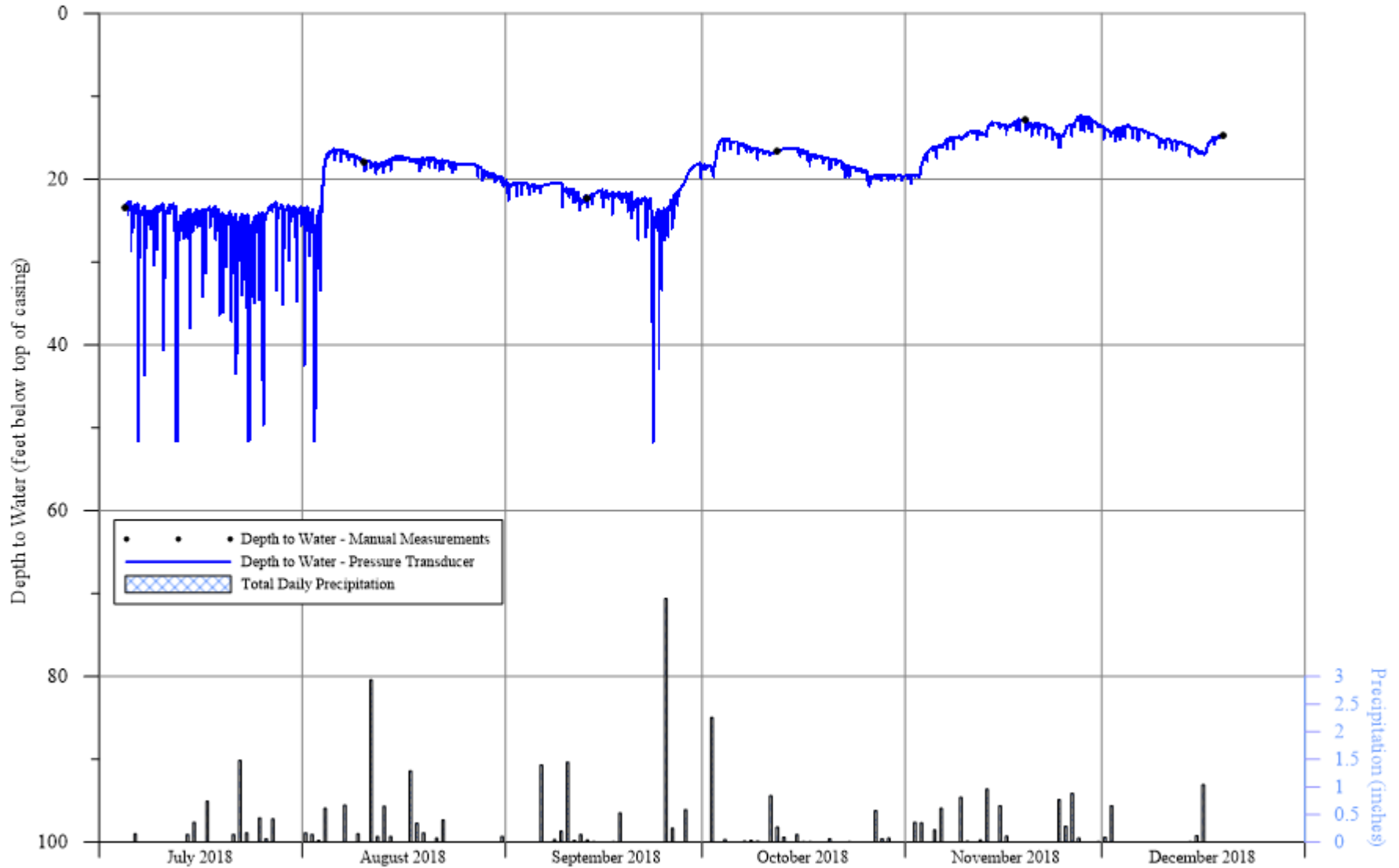
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Well Monitoring Program
Hydrograph of Water-Level Measurements Collected from Well B



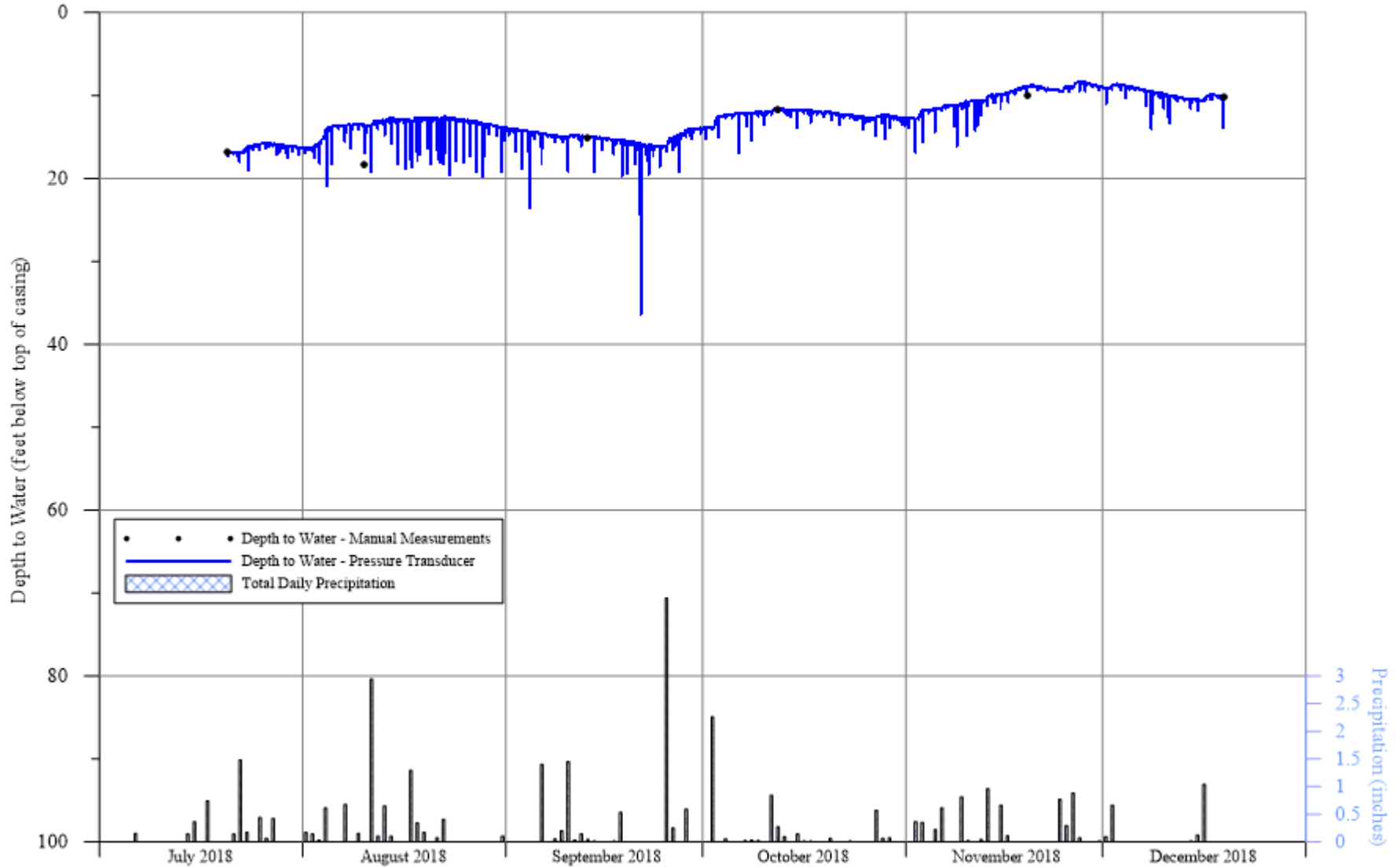
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Well Monitoring Program
Hydrograph of Water-Level Measurements Collected from Well C



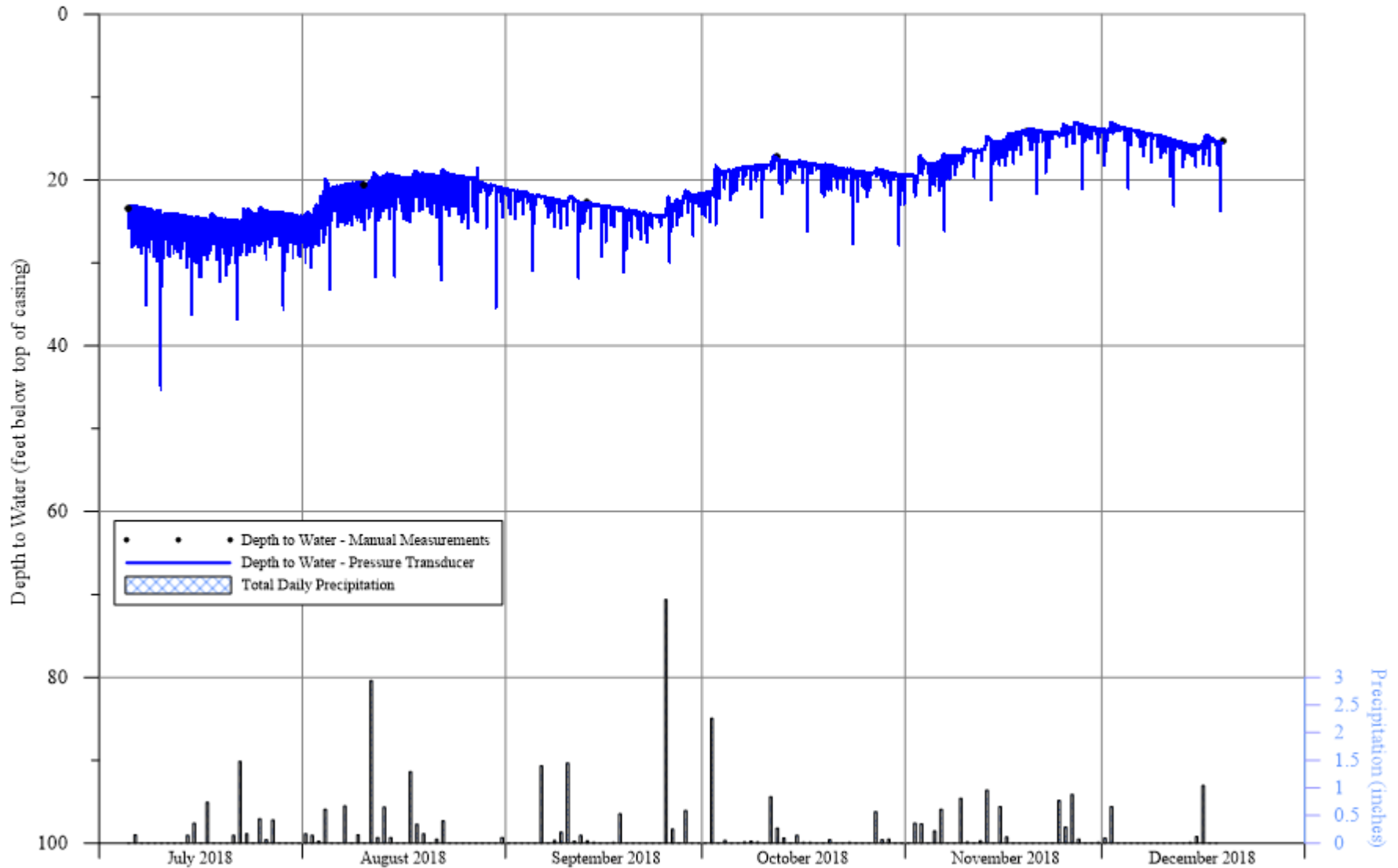
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Well Monitoring Program
Hydrograph of Water-Level Measurements Collected from Well D



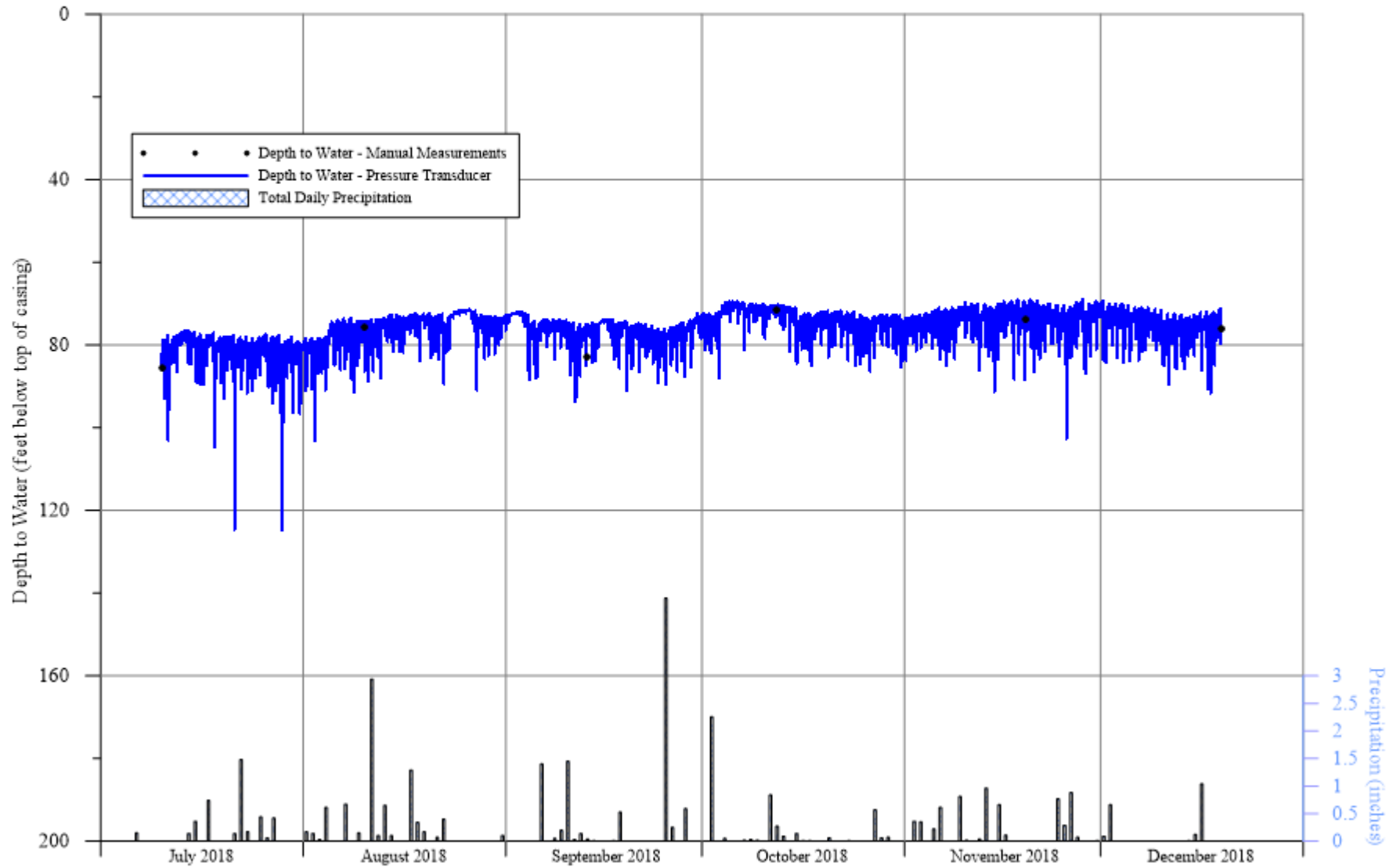
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**Well Monitoring Program
Hydrograph of Water-Level Measurements Collected from Well E**



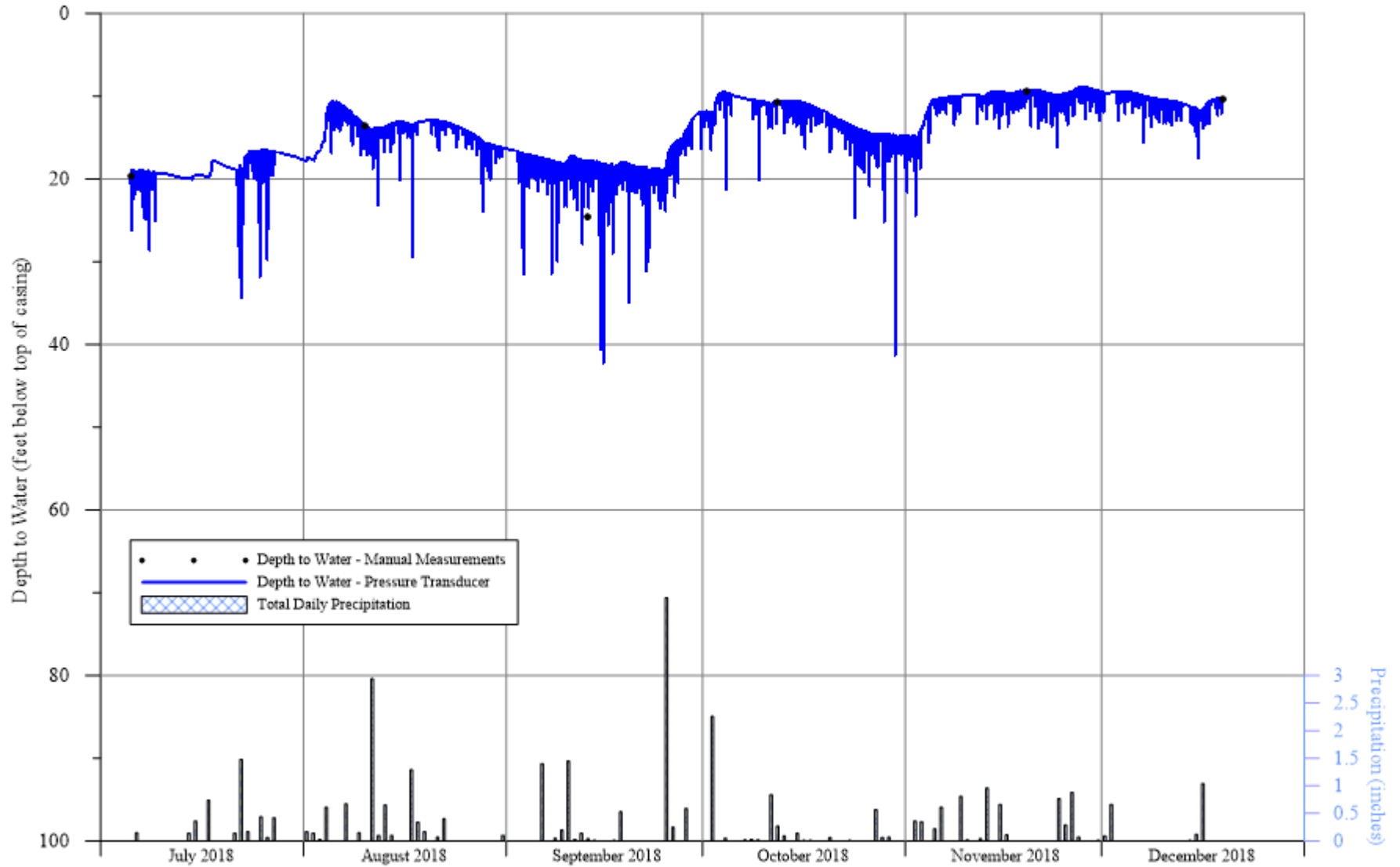
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Well Monitoring Program
Hydrograph of Water-Level Measurements Collected from Well F



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Well Monitoring Program
Hydrograph of Water-Level Measurements Collected from Well G



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**Well Monitoring Program
Hydrograph of Water-Level Measurements Collected from Well H**

