Technical Data Information Report

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8091.00	Klenke	Nye County NWRPO	QARC	Nye County NWRPO	GWE

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Document Title/Subject GWE Manual Water Level Measurements from June 29, 2010 through June 30, 2014.

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Data Description GWE Manual Water Level Measurements from June 29, 2010 through June 30, 2014. Data package includes Nye County's Regional Groundwater Elevation Database (RGED V. 6.0_052814.accdb containing Ground Water Evaluation Program (GWE) manual water level measurements, from June 29, 2010 through June 30, 2014, field forms, hydrographs (available on request) and exported data from database - posted to website as “rid8901.xlsx”.

Data Collection Method Manual water level measurement data collected using calibrated electric water level sounders in accordance with Work Plan 10 Rev. 0 - Groundwater Level Monitoring and Evaluation, and Technical Procedure 9.9 Rev. 4 - Measurement of Groundwater Levels Using Electric Well Sounders.

Data Collection Location GWE Wells: NC-GWE-2P, NC-GWE-33PA, NC-GWE-8PA, NC-GWE-Felderhoff-25-1PA, NC-GWE-GF-3PA, NC-GWE-GF-3T, NC-GWE-GF-4, NC-GWE-GF-4PA, NC-GWE-GF-4PB, NC-GWE-OV-1, NC-GWE-OV-2, NC-GWE-PV-1, NC-GWE-PV-2, NC-GWE-PV-3, NC-GWE-PV-4, and NC-GWE-PV-5. Specific locations for each well are included in RGED v.5.2 and in RIDs 7838, 7838.01, 7838.02, 7838.03, and 7838.04.

Data Collection Period 6/29/2010 – 6/30/2014

Data Sources 1) NWRPO derived latitude and longitude for well location and elevation data for ground elevation; 2) Depth to groundwater measured with electric water level sounders as recorded on the NWRPO Water Level Measurement Field Form (Form TP-9.9 Rev 4, dated 8/6/09) or field scientific notebook (SNB); 3) Wellhead diagrams as established with engineers steel tape and recorded in scientific notebook showing casing type, diameter, and measuring point stickup above land surface. 4) NWRPO approved Well Completion Diagrams for each GWE well for casing type, diameter, and measuring point stickup (as established with engineers steel tape and recorded in Scientific Notebooks).
Supporting data: GWE Pumping and Sampling SNB #178, GWE Drilling SNBs #179 & #180.

Data Censoring 2P – Measurement of 319.85 ft on 3/19/13 at 13:15 hrs was censored. This measurement was found to be a singularity, and not substantiated by later measurements or backup data.
3PA– Measurements of 76.99 ft on 2/28/11 at 15:03 hrs, and 76.40 ft on 4/6/11 at 12:49 hrs were censored. These measurements represent predevelopment water levels, and were taken prior to the development/step test conducted on 5/20/11 – 5/24/11.

Data Processing Routinely, data processing consists of calculations made in the Microsoft Access database (RGED v6.0.accdb) and exports made from the database to Microsoft Excel. Additionally, data are evaluated through the use of hydrographs to determine whether anomalous data exist. Anomalous data are investigated (through scientific notebooks, earthquake records, etc.) to determine the source of the anomaly. If the anomaly cannot be explained, the data are censored.

Data Limitations

Estimated horizontal GPS coordinate accuracies from Trimble Pathfinder Office V5.0 are 8.8 cm (3.46 in) for NC-GWE-8PA, NC-GWE-Felderhoff-25-1PA; 16.3 cm (6.42 in) for NC-GWE-PV-3; 16.6 cm (6.54 in) for NC-GWE-GF-3T; <5.715.cm (<2.25 in) for NC-GWE-GF-3T; <5.715.cm (<2.25 in) for NC-GWE-PV-1, NC-GWE-PV-2; 18.2 cm (7.17 in) for NC-GWE-OV-2; 18.4 cm (7.24 in) for NC-GWE-GF-3PA, NC-GWE-GF-4, NC-GWE-GF-4PA, NC-GWE-OV-1; 25.4 cm (10.00 in) for NC-GWE-PV-4, NC-GWE-PV-5; and 26.7 cm (10.51 in) for NC-GWE-2P, NC-GWE-33PA. Estimated vertical GPS coordinate accuracies from Trimble Pathfinder Office V5.0 are 16.3 cm (6.42 in) for NC-GWE-PV-3; 16.6 cm (6.54 in) for NC-GWE-PV-1, NC-GWE-PV-2; 18.2 cm (7.17 in) for NC-GWE-OV-2; 18.4 cm (7.24 in) for NC-GWE-GF-3PA, NC-GWE-GF-3T; <5.715.cm (<2.25 in) for NC-GWE-GF-3T; <5.715.cm (<2.25 in) NC-GWE-GF-4, NC-GWE-GF-4PA, NC-GWE-OV-1; 38.25 cm (15.06 in) for NC-GWE-PV-4, NC-GWE-PV-5; and 40.5 cm (15.76 in) for NC-GWE-8PA, NC-GWE-Felderhoff-25-1PA, NC-GWE-2P, NC-GWE-33, for NC-GWE-GF-3T, NC-GWE-GF-3T <5.715.cm (<2.25 in). See RIDs 7796.01, 7798.01, 7801.01, 7803.01, 7805.02, 7807.01, 7902, 7903, 7905.01, 7906, 7907, 7908, 7909, & 7910 for more information.

NC-GWE-2P was step tested/developed for 7.63 hours at varying rates from 1.5 to 12.5 gallons per minute (gpm) (≈ 5070 gallons total) on 5/9/11, and 5/10/11. See SNB #178 pages 34 – 38. A water sample was taken on 5/10/10 as GWS0273.
NC-GWE-33PA was pumped for 1.80 hours at approximately 6 gpm (≈ 648 gallons total) on 7/7/10. See SNB # 178, page 3. A water sample was taken on 7/7/10 as GWS0242. Well had completely recovered by the time a measurement was taken 34 minutes after the pump was shut off. A step test was run for 7.83 hours at varying rates from 2.6 to 16.2 gpm (≈ 6680 gallons total) on 5/13/11, and 5/14/11. See SNB #178, pages 44 - 47.
NC-GWE-8PA was step tested/developed for 9.12 hours at varying rates from 0.5 to 1.3 gpm (≈ 330 gallons total) on 5/16/11, and 5/17/11. See SNB #178, pages 48 - 52. A water sample was taken on 5/17/11 as GWS0277.
NC-GWE-Felderhoff-25-1PA was step tested/developed for 7.90 hours at varying rates from 2.1 to 14.2 gpm (≈ 5660 gallons total) on 5/11/11, and 5/12/11. See SNB #178, pages 39 - 43. A water sample was taken on 5/12/11 as GWS0276.
NC-GWE-GF-3PA was step tested/developed for 26.28 hours at varying rates from 1.3 to 10.6 gpm (≈ 5320 gallons total) from 5/20/11 to 5/24/11. See SNB #178, pages 58 - 64. A water sample was taken on 5/24/11 as GWS0281.
NC-GWE-GF-3T was completed on 6/5/13 (screened intervals 210.4 ft to 310.9 ft, and 361.4 ft to 461.9 ft b.g.l.), and airlifted on 6/6/13. A step pumping test was conducted on 6/26/13. Further development was conducted 7/9/2013 to 7/11/2013. A second step pumping test was conducted on 7/16/13. A 47.5 hour constant discharge test was conducted from 7/17/13 to 7/19/13 at approximately 20 GPM. Water levels collected subsequent to pumping tests indicate the well had substantial drawdown and recovery was very slow. Recovery continued for several months. A transducer was deployed 1/27/14 measuring the composite head, and packer was installed on 2/12/14 to isolate the upper and lower screens during the 4PB pump test. The packer assembly was removed on 5/20/14. Data from the transducers are included in RID 8126.
NC-GWE-GF-4 was step tested/developed for 9.62 hours at varying rates from 4.7 to 33.3 gpm (estimated 15990 gallons total) on 5/27/11, and 5/31/11. A Transducer installed in well NC-GWE-GF-4PA (screened interval 104 – 124 ft b.g.l.) located approximately 60 feet to the west, did not show any apparent response to the pumping in well NC-GWE-GF-4 (screened interval 208 – 283 ft b.g.l.). A water sample was taken on 5/31/11 as GWS0285.
NC-GWE-GF-4PA was step tested/developed for 9.15 hours at varying rates from 0.5 to 1.3 gpm (≈ 550 gallons total) on 5/25/11, and 5/26/11. A Transducer installed in well NC-GWE-GF-4 (screened interval 208 – 283 ft b.g.l.) located approximately 60 feet to the east, did not show any apparent response to the pumping in well NC-GWE-GF-4PA (screened interval 104 – 124 ft b.g.l.). A water sample was taken on 5/26/11 as GWS0284.
NC-GWE-GF-4PB was completed and air lifted on 5/20/13 (screened intervals 277.0 ft to 278.3 ft b.g.l.). The well was step tested on 6/19/13, from 6 to 30 gpm. A 10 hour constant discharge test performed on 6/20/13 with an approximate pump rate of 13 gpm. The well was re-completed with additional perforations to increase the effective screen length (269.0 ft to 278.3 ft b.g.s) on 4/2/14, and airlifted at approximately 250 gpm for 2.5 hours. A 24 hour pumping test was conducted on 4/8/14 to 4/9/14 at a pump rate of approximately 65 gpm.
NC-GWE-OV-1 is a flowing artesian well, and therefore no pumping was necessary to obtain water samples. A sample was taken on 3/21/11 as GWS0263. See SNB #178, page 7. A step test was conducted for 9.43 hours at varying rates from 4.6 to 44.2 gpm (estimated 20950 gallons total) on 6/6/11, and 6/7/11. See SNB #178, pages 75 - 78.
NC-GWE-OV-2 was step tested/developed for 7.83 hours at varying rates from 6.0 to 14.0 gpm (≈ 6090 gallons total) on 5/18/11, and 5/19/11. See SNB #178, pages 53 - 57. A water sample was taken on 5/19/11 as GWS0280.
NC-GWE-PV-1 was step tested/developed for 9.78 hours at varying rates from 0.5 to 5.2 gpm (≈ 1890 gallons total) on 5/2/11, and 5/4/11. See SNB # 178, pages 30 - 33. A water sample was taken on 5/30/11 as GWS0272.
NC-GWE-PV-2 was step tested/developed for 9.08 hours at varying rates from 0.5 to 3.5 gpm (≈ 1660 gallons total) on 4/28/11, and 4/29/11. See SNB #178, pages 26 - 29. A water sample was taken on 4/29/11 as GWS0271.
NC-GWE-PV-3 was step tested/developed for 2.82 hours at varying rates from 1.3 to 6.8 gpm (≈ 675 gallons total) on 4/19/11. See SNB #178, pages 20 - 25. A water sample was taken on 4/27/11 as GWS0268.
NC-GWE-PV-4 was step tested/developed for 9.32 hours at varying rates from 6.0 to 31.0 gpm (≈ 14280 gallons total) on 4/11/11, and 4/12/11. See SNB #178, pages 10 - 14. Well had recovered to within 0.1 ft of the pre-pumping level by the time a measurement was taken 24 minutes after the pump was shut off. A water sample was taken on 7/6/10 as GWS0240.
NC-GWE-PV-5 was step tested/developed for 10.08 hours at varying rates from 3.0 to 11.5 gpm (≈ 4660 gallons total) on 4/13/11, and 4/14/11. See SNB #178, pages 15 - 19. A water sample was taken on 7/6/10 as GWS0241.

Governing QA Docs:	TP-9.9, Rev 4
Frequency of Transmittal	Annually or more frequently as determined by the Principal Investigator and approved by the Geoscience Manager.
Direct Questions About Data To:	QA Records Center