NYE County NWRPO -Technical Data Report

RID No.	Transmitter	Org.	Receiver	Org.	Key word1	Title/Description
5757	Gilmore	Nye County	QARC	Nye	7SC	EWDP-7SC Westbay Data, 11/7/02 - 5/8/03

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Doc. Date 5/8/2003 **General Doc. Type** QA Program Doc **Keyword2** WB

Entry Date 7/28/2003 **Detailed Doc. Type** Data **Keyword3** data

Data Originator Preparer Kathy Gilmore

Title of Data EWDP-7SC Westbay Data, 11/7/02 - 5/8/03

Description of Data One CD containing an Excel file "050803_7SC QA.xls". This file contains probe pressure data from atmospheric pressure for probe 0; calculated water elevations for probes 1, 2, 3, and 4; and temperature data for probes 1, 2, 3, and 4 for the period from 11/7/02 to 5/8/03 collected at Phase II EWDP-7SC Westbay instrumented well.

Data Collection Method Westbay Mosdax Datalogger and pressure and temperature probes

Data Location(s) EWDP-7SC

Data Collection Period(s) 11/7/02 to 5/8/03

Data Source(s) Westbay datalogger SN 2295 (Probe 0 - atmospheric); (1) 100 psi probe - Probe 1 SN 1817; and (3) 250 psi probes - Probe 2 SN 3064, Probe 3 SN 2201, and Probe 4 SN 3063.
Probe 1 depth = 84.29 ft
Probe 2 depth = 188.58 ft
Probe 3 depth = 312.58 ft
Probe 4 depth = 436.57 ft
Depths reflect measured values from the well ground surface to the subject measurement port.
Supporting Data: original Westbay pressure and temperature data can be found in RIDs 5450, 5453, 5540, 5568, 5614 and 5662; Well Completion Diagram in RID 4926; Wellhead Protection Detail in RID 5567; Summary Casing Log in RID 5539; and field notes in Scientific Notebooks #143 (RID 5522) and #155 (RID 6350).

Data Censoring No data were censored; however, there are limitations on the use of data from probe 4 that should be taken into consideration when using pressure, water level, and temperature data for that zone.

Data Processing The water elevation (ft, amsl [above mean sea level]) in a Westbay isolated zone is calculated from the pressure probe measurement (lb/ft^2) below the water table by subtracting the atmospheric pressure measurement (lb/ft^2) at the ground surface from the pressure measurement, dividing the result by the specific weight (lb/ft^3) of water at 15 degrees Celsius, and adding to this result the elevation (ft, amsl) of the probe. This calculation is made prior to submitting a QA processed data file to the Quality Assurance Records Center (QARC).

Data Limitations EWDP-7SC Westbay data limitations (data collection period 11/7/02 to 5/8/03). The following text contains additional information necessary for interpretation of the attached water elevation and temperature data. Time frames are listed for each activity. Certain activities, such as equipment testing or water sampling, may have impacted the data and the data analyzer should be aware of this.

9/12/02 - 11/7/02 data gap due to water sampling.
3/19/03 - 3/28/03 data gap - probes pulled out of well to take manual water level measurements.
5/7/03 (0926-1100) data gap due to downhole calibration.

Zone 4 may be damaged due to drilling and/or completion efforts. The zone exhibits very low permeability. Spinner testing in this well (reported in NWRPO-2002-03) concluded that there was no flow being contributed to the well from Screen #4, opposite which probe 4 is set. However, during the aquifer testing, the pump was set above the head in Screen #4 and a strong downward hydraulic gradient may be present in this well. The test results also indicated that part of the aquifer may be affected by the drilling fluids used during the drilling and completion of this well. Over the course of monitoring, pressure changes were observed in Zone 4, however, the trends in these changes are distinctly different than those observed for Zones 1, 2, and 3. In the upper three zones, slight rises in the water table elevation were observed and the maximum and minimum calculated water levels varied by only 0.224 to 0.348 ft over the period of record. Conversely, the calculated water level elevation for probe 4 declined by more than 12 ft over the same period of record and the difference between the maximum and minimum calculated values was 12.72 ft, almost two orders of magnitude greater than for the other probes. Other USGS monitoring wells in Crater Flat (GEXA wells 3 and 4) show similar trends but of lesser magnitude. The summary lithologic log for 7SC (RID 4491) shows the presence of a silty, sandy, clay with minor gravel from 250-355 ft below land surface. This unit may be acting as a confining layer that hydraulically separates the upper three zones from the lower zone. The relatively large difference in heads above and below this clay unit (2,724 in probes 1 and 2; 2,697 in probe 3; and 2,624 to 2,611 in probe 4) suggest a strong downward vertical gradient. Care should be exercised in the evaluation of water levels in the deeper zone at 7SC and any gradient calculations based upon data from this zone should be properly qualified.

Port depths used for water elevation calculations in previous 7SC datasets (RIDs 5446-5449) were port coupling depths reported in the Westbay Summary Casing Log (RID 5539). The port depths were remeasured and the elevations in this data package reflect the new measured depths. Port depths used for water elevation calculations are directly measured values reflecting the distance between ground level and the measurement port and are reported in RID 5616 (accuracy = +/- 0.015% of the depth measured).

Accuracy of the downhole probe pressure is based on the probe pressure range: 100 psi probe = +/- 0.10 psi (approx. +/-0.23 ft), 250 psi probe = +/- 0.25 psi (approx. +/-0.58 ft).

Specific weight values used in calculations assume a uniform water temp of 15 ° C. Probe temperature accuracy =+/- 1° C. The elevations were not corrected for temperature or borehole deviation; temperature and deviation information are available in the geophysical logging suite for this well (RIDs: 3456, 3910, 4018, and 4040).

The water-level elevations presented must be considered approximate because of the potential error in the GPS-based elevation of the land surface at the well site which is believed to the on the order of +/- 1.75 ft. according to work performed by the Center for Nuclear Waste Regulatory Analyses. The potential error in the GPS-based elevations does not affect the depth to water nor the absolute change in water levels over time that may be calculated using the elevation datum for land surface. The potential error may, however, result in limitations in the use of these data for the calculation of hydraulic gradients between wells with the error induced in such calculations being inversely proportional to the distance between the two wells being used to perform the calculation, and directly proportional the differences in surveying and processing techniques if different surveys were conducted for the two wells.

Governing QA Docs. TP-9.2 Rev. 1

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Direct Questions About Data To- Nye County QA Records Center