

NYE County NWRPO -Technical Data Report

RID No.	Transmitter	Org.	Receiver	Org.	Key word1	Title/Description
4683	Cox	Questa	QARC	Nye	19D	Report, "Analysis of Pump-Spinner Test and 48-Hour Pump Test in Well NC-EWDP-19D, Near Yucca Mountain, Nevada", NWRPO-2001-03, November 2001, Prepared by Questa Engineering Corporation
Doc. Date	11/1/2001	General Doc. Type	Report	Keyword2	pump-spinner	
Entry Date	12/14/2001	Detailed Doc. Type	Technical Report	Keyword3	Report	

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Title of Data Analysis of Pump-Spinner Test and 48-Hour Pump Test in Well NC-EWDP-19D, Near Yucca Mountain, Nevada

Description of Data This record contains a hard copy of the subject report. The report describes the test procedure, analysis methodology, results and hydrologic interpretation of a pump-spinner test and associated 48-hr. pump test and 24-hr. recovery period conducted in May 2000 in well NC-EWDP-19D. The purpose of the test was to determine aquifer properties, such as permeability and well efficiency, for subsurface characterization. During the NC-EWDP-19D pump test and recovery, pressure was monitored in the adjacent well NC-EWDP-19P and the Washburn well to evaluate inter-well communication.

Data Collection Method Data collection is described in the Description of Spinner Logging (Section 2.1.1) and Test Procedures and Description (Section 2.2.1) sections of the report. In accordance with TP-9.0, a series of spinner logs were run prior to and during pumping. In accordance with TP-9.0 and TP-9.5, Westbay Mosdax pressure sensors were placed above the submersible pump in well NC-EWDP-19D, and below the water table in the nearest offset wells (NC-EWDP-19P and Washburn well), to measure the pressure response to pumping and recovery. Barometric pressure during the test was also recorded. Pump rates were determined using a 50-gal. (189.3-L) drum and a stopwatch, and also with a turbine flow meter.

Data Location(s) NC-EWDP-19D is located in alluvial deposits on the western portion of Fortymile Wash, approximately 3.5 miles (about 5.5 km) northwest of the Lathrop Wells Junction. Well NC-EWDP-19P is located 82 ft (25 m) north of NC-EWDP-19D and the Washburn well is located about 6,300 ft (1,920 m) east of NC-EWDP-19D.

Data Collection Period(s) Field activities were conducted in May 2000. The final analysis report was completed in November 2001.

Data Source(s) The original test data were submitted by Nye County personnel to the NWRPO. See field scientific notebook #124 (RID 3651) and RID 4045 for spinner log. References to RIDs containing supporting well information, well logs, and other original data collected from NC-EWDP-19D can be found on the nycounty.com web site under "EWDP" and "EWDP-19D".

Data Censoring The turbine meter rates were found to be erroneously high, apparently because the meter had been placed too close to the wellhead and did not have sufficient distance from the change in flow direction for a stable flow profile to be achieved; accordingly, the hand measurements with a stopwatch and drum were used for rate determination. Although well NC-EWDP-19P responded almost instantly to pumping at NC-EWDP-19D, the magnitude of the response did not increase significantly as the test went on, and the NC-EWDP-19P response was therefore not analyzed. There was no apparent change in the pressure at the Washburn well as a result of the NC-EWDP-19D pump test, so no further analysis was performed on the Washburn pressure data. All of the original test data may be viewed in their entirety at the NWRPO QA Records Center in Pahrump, NV.

Data Processing Data processing of the spinner data is described in the Spinner Log Fundamentals section (Section 2.1.2) of the report. Data processing of the pressure data is described in the Drawdown Analysis (Section 2.2.2), Equivalent Single-Layer Analysis (Section 2.2.4) and Multi-Layer and Multi-Pressure Modeling (Section 2.2.5) sections of the report.

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Data Limitations The spinner logging runs were limited in that Screen #1 could not be logged while the pump was in the well because of limited clearance between the pump and the pipe. The turbine meter rates were found to be erroneously high, apparently because the meter had been placed too close to the wellhead and did not have sufficient distance from the change in flow direction for a stable flow profile to be achieved. The drawdown data obtained during pumping were considered to be most suitable for analysis because all five permeable intervals produced during the pumping periods. The recovery data were considered to be less suitable for analysis because the spinner logs during the recovery period indicated that significant crossflow between well screens occurred during that time. Crossflow after cessation of pumping caused the recovery trends to be artificially flattened, and application of standard analysis techniques to the recovery portion of the test would therefore yield incorrect results. The test interpretation is limited by the inherent differences between the actual aquifer system present, and the idealized aquifer model assumed in the analysis procedure. Analysis of the spinner data indicated five screened intervals were actually contributing flow, and that at least three different initial head regimes were present. Because of the complexity of the aquifer system at this location, the computed results are considered approximate. Although the influence of the pump testing was observed in the NC-EWDP-19P wellbore 82 ft (25 m) away, the shape of the response curve did not follow conventional models, so those data were not considered suitable for determining aquifer properties. No response was detected at the Washburn well, 6,300 ft (1,920 m) away.

Governing QA Docs. TP-9.0, TP-9.5, TP-9.7

Frequency of Transmittal One time only

Direct Questions About Data To- Nye County QA Records Center