NYE County NWRPO -Technical Data Report

RID No.	Transmitter	Org.	Receiver	Org.	Key word1	Title/Description
6453	Hammermeister	Nye County NWRPO	QARC	Nye	22	Analysis of Aquifer Pump Tests in Individual Well Zones at Site 22, Near Yucca Mountain, Nevada, NWRPO-2004-02, Questa Engineering Corporation, October 2004

1

Doc. Date 12/4/2004 **General Doc. Type** Report **Keyword2** Pump Test

Entry Date 12/28/2004 **Detailed Doc. Type** Technical Report **Keyword3** Analysis

Data Originator Preparer Dave Cox

Title of Data Analysis of Aquifer Pump Tests in Individual Well Zones at Site 22, Near Yucca Mountain, Nevada, NWRPO-2004-02, Questa Engineering Corporation, October 2004

Description of Data The report describes the test procedure, analysis methodology, and results of individual zone pump tests and associated recovery tests conducted in August-September 2003 in NC-EWDP-22S. The purpose of the tests was to determine aquifer properties, such as permeability and well efficiency, for subsurface characterization, and to use in planning and design for a proposed Nye County Alluvial Tracer Test. During the NC-EWDP-22S testing, pressure was monitored in the adjacent observation wells NC-EWDP-22PA and -22PB to evaluate inter-well communication.

Hardcopy and electronic files: “NWRPO-2004-02 Text” , “NWRPO-2004-02 Figures”, “NWRPO-2004-02 Tables”, “NWRPO-2004-02 Appendix A”, and “NWRPO-2004-02 Covers.” These files were combined and converted to PDF for posting to the nyecounty.com website.

Data Collection Method Data collection is described in the Overview of Aquifer Pump test Methods (Section 2.1) and Data Processing, Correction and Assumption (Section 2.2) sections of the report. In accordance with Technical procedure TP-10.0 and Test plan TPN-9.1, Westbay Mosdax pressure sensors were placed above the submersible pump in the pumping well, and below the water table in the offset wells, 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 multi-jet meter.

Data Location(s) NC-EWDP-22S, -22PA and -22PB

Data Collection Period(s) August 2003

Data Source(s) The original test data were submitted by Nye County personnel to the NWRPO QA Records Center (QARC). Westbay downloaded data (RIDs 5798, 5799, 5863, 5875), and scientific notebook #147 for field notes.

Data Censoring All data collected during the test were considered in the analysis.

Data Processing Data processing of the pressure data is described in the Data Processing, Correction and Assumption (Section 2.2) section of the report. MOSDAX pressure probe (i.e., transducer) readings were converted to equivalent piezometric surface elevations. The data reported from the transducers for tests in all zones showed pressure head output steps of approximately ±0.01 ft. This instrument resolution was not a problem in the pumping well, where head changes of approximately 9 ft were observed, but led to significant uncertainty in the observation wells, where the maximum head change in the same zone as the pumping well was typically 0.4 ft. Accordingly, all head data were averaged to obtain smoothed response curves.

Data Limitations Different dataloggers were used to record data from the pumping and observation wells. The datalogger clocks were synchronized prior to Zone 1 tests, but were not synchronized for tests in the remaining zones. Accordingly, a time shift was needed to correct times for the tests in Zones 2, 3, and 4. The correction procedures are described in Leaky Aquifer Match to Observation Well Response (Sections 2.5.1, 2.6.1, and 2.7.1 of the report).

It was not necessary to filter Zone 1 or 2 test data for changes in barometric pressure because the effect of these changes was very small on those tests.

Barometric pressure changes were significantly greater for Zone 3 and 4 tests and were corrected as described the Test Analysis and Results Sections (2.6 and 2.7) of the report.

The test interpretation is limited by the inherent differences between the actual aquifer system present, and the idealized leaky aquifer models assumed in the analysis procedure. Although there was an observation well reading corresponding to each screened interval in the pumping well, the aquifer system at this location is very complex, which limits the accuracy of the computed results.

The short duration of these tests also limits their applicability. During short tests, storativity is a transient value that reflects rock and fluid compressibility effects. If the tests had been run for longer periods (i.e., several months), gravity drainage effects would have made an impact on the results and the storativity would be expected to approach the specific yield.

Governing QA Docs.	QAP-3.2 Rev. 1, TPN-9.1 Rev. 0
Frequency of Transmittal	As required by PI
Direct Questions About Data To-	Nye County QA Records Center