

NYE County NWRPO -Technical Data Report

RID No.	Transmitter	Org.	Receiver	Org.	Key word1	Title/Description
3575	Cox	Questa	QARC	Nye	1S, 3D,	SPE 63279, Well Testing in Ultra-High Permeability Formations (paper for presentation at 2000 Society for Petroleum Engineers Annual Technical Conference & Exhibition, Dallas, TX, October 1-4, 2000)
Doc. Date	10/1/2000	General Doc. Type	Publication	Keyword2	Pump Test	
Entry Date	10/5/2000	Detailed Doc. Type	Professional Paper	Keyword3	Permeability	
Data Originator Preparer	D.O. Cox, S.H. Stinson, and J.N. Stellavato					
Title of Data	SPE 63279, Well Testing in Ultra-High Permeability Formations					
Description of Data	This record contains a hard copy and electronic file of the subject professional paper, which was presented at the Society of Petroleum Engineers Annual Technical Conference and Exhibition held in Dallas, Texas, October 1-4, 2000. The report describes the test procedures, analysis methodology, results and hydrologic interpretation of pump tests and associated recoveries conducted in 1999 in NC-EWDP-1S, -3D and -9SX. The purpose of the tests was to determine aquifer properties, such as permeability and well efficiency, for subsurface characterization.					
Data Collection Method	Data collection is described in the Test Description section of the paper. A 48-hour pump test with a 1.2-hour recovery was conducted in NC-EWDP-1S. A pump-spinner test, 50-hour pump test and 3-hour recovery were conducted in NC-EWDP-3D. A pump-spinner test, 48-hour pump test and 0.25-hour recovery were conducted in NC-EWDP-9SX. In accordance with TP-9.0 and TP-9.5, Westbay Mosdax pressure sensors were placed above the submersible pump in the pumping well, to measure the pressure response to pumping and recovery, except at NC-EWDP-9SX where a well sounding tape was used to determine water levels in the well during the test. Barometric pressure was recorded during the NC-EWDP-1S test. 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)	The three tested wells are located just north of Highway 95, in the northern portion of the Amargosa Desert. NC-EWDP-1S, -3D and -9SX are located approximately 11 miles (about 18 km), 8 miles (about 13 km), and 9.5 miles (about 15 km), respectively, along the highway north-northwest of the Lathrop Wells Junction.					
Data Collection Period(s)	Field activities were conducted in early 1999. Test analysis reports concerning the three tests were completed between April and June 1999. The professional paper was completed in October 2000.					
Data Source(s)	The original test data were submitted by Nye County personnel to the NWRPO (see RIDs 1359, 1223, 1426, 4042, 4050, 4051, 4052). References to RIDs containing supporting well information, well logs, and other original data collected from these wells can be found on the nyecounty.com web site under "EWDP" and "EWDP-1S", "EWDP-3D", or "EWDP-9SX". In addition, test analysis reports were prepared for each subject well and are available from the NWRPO (see RIDs 918, 999, 1661).					
Data Censoring	Because the drawdown observed in the NC-EWDP-1S test was small, indicated barometric efficiency was high, and a weather front came in during the test, it was necessary to correct the pressure data for that test for barometric changes during the test. With larger drawdowns being experienced in the NC-EWDP-3D and -9SX tests, it was not necessary to correct for barometric changes for those tests. An anomalous jump in the water level data recorded in the NC-EWDP-9SX test was removed from the data prior to the analysis being performed. 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 is described in the Results section of the paper.					
Data Limitations	Different factors limit the applicability of the data used for each test. The transmissivity of NC-EWDP-1S was so large that the head drop during pumping was only about twice the head variation caused by barometric pressure changes. To correct for barometric changes, a barometric efficiency of 100% was assumed. No spinner log was available on this well to apportion the flow between zones. No particular limitations were identified in the pressure or					

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spinner data for NC-EWDP-3D. The spinner log on this well indicated all of the production from this well was coming from 29 ft (8.8 m) of tuff below the bottom of the surface casing. The fluid level readings at NC-EWDP-9SX had an odd 1 ft (0.3 m) drop after 25 hours of pumping. At the time, this was attributed to reading error. Since that time, other wells have exhibited similar jumps as recorded on Westbay Mosdax sensors, so it appears that the drop is a real phenomenon, probably related to clean-up of drilling mud or lost-circulation material in the gravel pack or the near-wellbore region. Recognition of this effect does not materially affect the analysis. The test interpretations are limited by the inherent differences between the actual aquifer system present, and the idealized aquifer models assumed in the analysis procedures.

..... 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