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NUCLEAR WASTE MANAGEMENT PROGRAM PROCEDURE

SP 9-3 DRZ ACOUSTIC PROPAGATION TEST SYSTEM OPERATIONS Revision 0

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	(printed name)	(signature)	date

1.0 Purpose and Scope

This procedure provides the steps necessary for the proper documentation of the data collected using the Disturbed Rock Zone (DRZ) Acoustic Propagation Test and provides an overview of the installation and operation of the system. The scope of this document is not intended to cover the basic operation of the DRZ Acoustic Propagation Test. All operational instructions should be considered as guidelines only (except as noted). Any deviations from the prescribed steps shall be noted in the project's scientific notebook according to NP 20-2, "Scientific Notebooks". Only personnel that have been designated by the Sandia Principal Investigator (PI) shall operate the DRZ Acoustic Propagation Test.

All work will be performed in accordance with WIPP procedures WP 10-2, "Maintenance Operations Instruction Manual" (MOIM), and WP 12 IS.01, "Industrial Safety Program". This SP is in support of activities described in NWMP Test Plan TP 99-04, "Disturbed Rock Zone Characterization Test Plan", Section 5.6, "Cross-Hole Acoustic Wave Tests". Both SNL and the Managing and Operating Contractor (currently Westinghouse Waste Isolation Division) will use this SP.

Acronyms and definitions for terms used in this procedure may be found in the NWMP Glossary located at the Sandia National Laboratories (SNL) NWMP On-line Documents web site.

2.0 Implementation Actions

2.1 General Overview

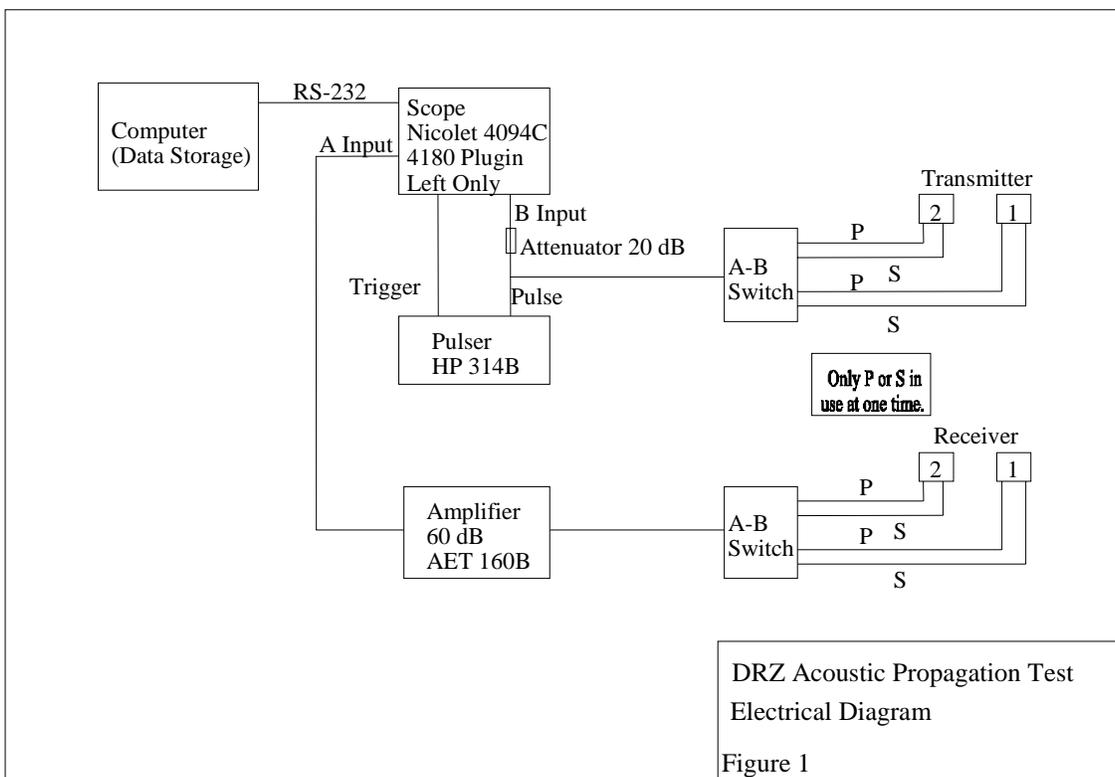
2.1.1 The DRZ Acoustic Propagation Test system down hole equipment consists of two transducer assemblies with each transducer assembly containing two heads. Each of these heads contain two transducers (one P wave, one S wave). Also contained in each head is a pneumatic setting cylinder and retraction spring.

2.1.2 During a test run one transducer assembly is placed in a borehole and the other is placed in an adjacent borehole. After setting, a transducer in one hole is activated while the transducer in the other hole is set to “listen”. The data is recorded by the system computer using the DRZ Acoustic Propagation Test computer program which automatically or through operator interface records all necessary data (signals, scope settings, hole numbers, positions, and other relevant information). The transducer assembly is then moved to the next location in the borehole and the operation is repeated.

2.2 Setup

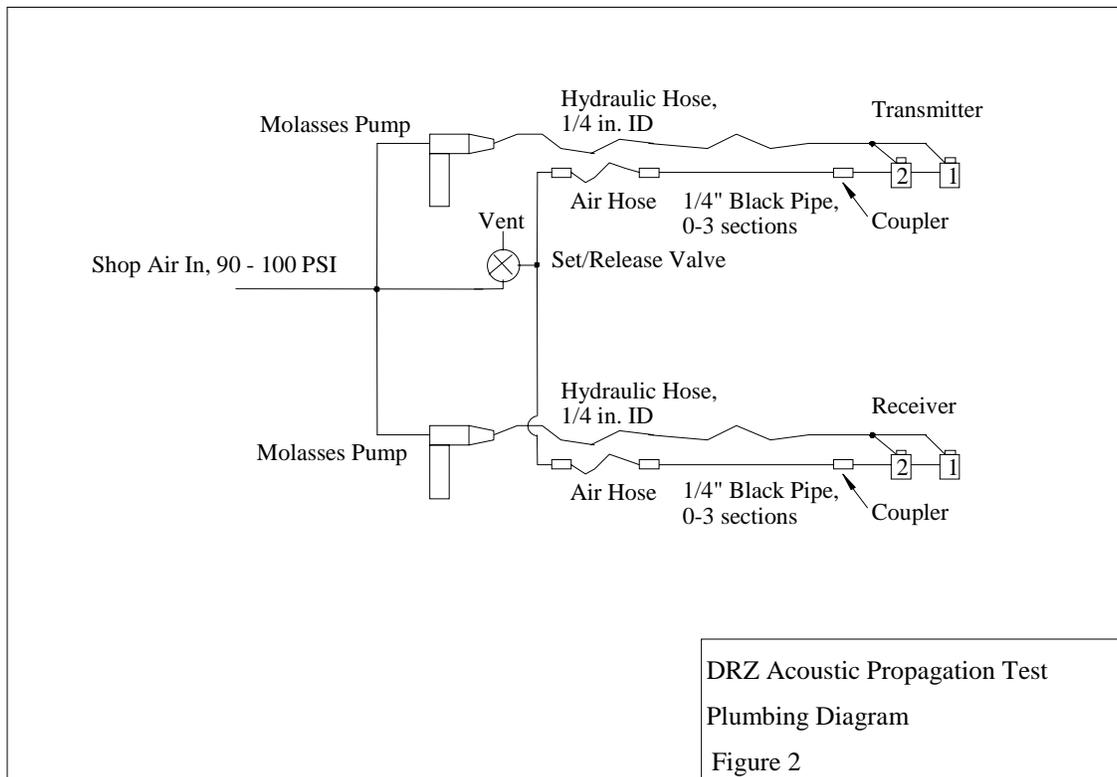
2.2.1 DRZ Acoustic Propagation Test cabling will be connected as illustrated in figure 1.

NOTE: Contact Underground Services if cabling must be routed through the facility.



Caution: Ensure that whip-checks are installed at compressed air hose connection points.

2.2.2 Connect the DRZ Acoustic Propagation Test air and acoustic coupling compound lines as illustrated in figure 2.



2.2.3 Start the DRZ Acoustic Propagation Test computer program.

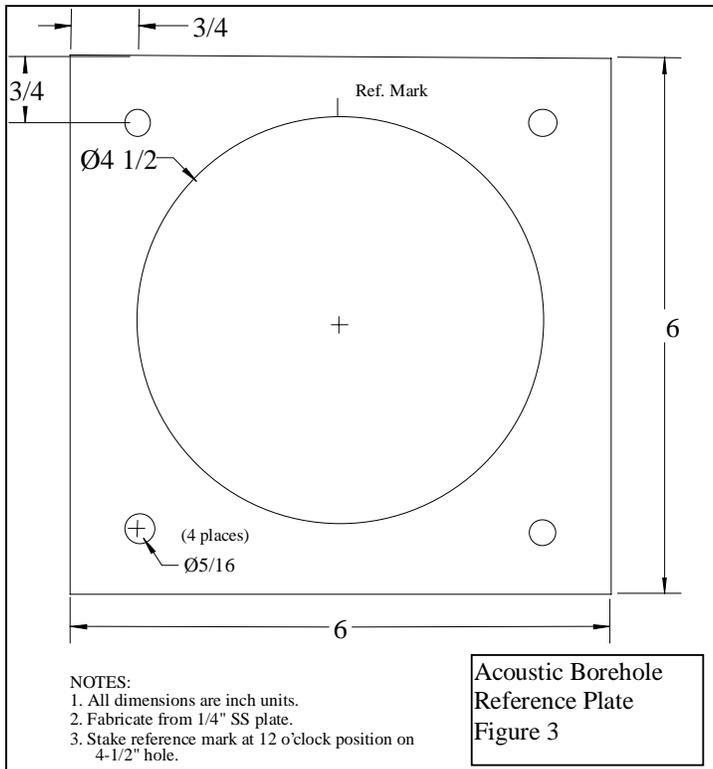
2.2.4 The DRZ Acoustic Propagation Test computer program will provide the necessary information needed to set the various pieces of test equipment with the exception of the Nicolet Scope. The Nicolet's settings are manually changed by the operator to suit existing conditions. The DRZ Acoustic Propagation Test computer program records all pertinent settings in the data file. In addition to the equipment settings, the information specifying the hole number, depth to set the assembly, and orientation is also provided by the DRZ Acoustic Propagation Test computer program. Any deviations from the settings stated by the DRZ Acoustic Propagation Test computer program shall be noted in the project's scientific notebook according to NP 20-2, "Scientific Notebooks" and/or entered into the computer.

2.3 Installation of Transducer Assembly

Caution: Ensure that whip-checks are installed at compressed air hose connection points.

2.3.1 The transducer assemblies will be inserted in the desired locations as specified by the DRZ Acoustic Propagation Test computer program (hole number, depth, and orientation).

2.3.2 Measure the depth in the hole from the surveyed Reference Mark (illustrated in figure 3) on the Acoustic Borehole Reference Plate.



2.3.3 After reaching the recommended depth, inject acoustic coupling compound (molasses, in food product form) into the transducers using the manifold and molasses pump assembly.

2.3.4 Precisely set the depth (any deviations from the DRZ Acoustic Propagation Test computer program shall be entered in the project's scientific notebook according to NP 20-2, "Scientific Notebooks" and/or entered into the computer) and supply air to the setting cylinders. Mine air will be used via compressed airline valve V-208 (or other desired location).

2.3.5 Once both transducer assemblies are set, the DRZ Acoustic Propagation Test computer program is activated and the test sequence for that position is automatically performed and recorded by the DRZ Acoustic Propagation Test computer program.

2.3.6 Repeat section 2.3 until the requested number of measurements is completed.

2.4 Post Run Data Handling

2.4.1 When starting a new data disk, the disk shall be labeled in accordance with NWMP procedure NP 17-1. The following is an example of the data disk label:

Records Center Identifier No.:
 Nuclear Waste Project: WIPP
 Test/Activity: DRZ Acoustic Propagation Test
 Author/Organization: *your name org*
 Date(s): First run ____ Last run ____
 WBS# 517.1.2.01.09.03.02
 The data contained on this disk is in format readable as ASCII.
 The data can be read using a 100mb ZIP disk.

2.4.2 Copy the data from the DRZ Acoustic Propagation Test computer to a Data Disk using the computers operating system copy command. Ensure that the path statement is kept the same as the DAS path statement, excluding the drive designation. Operating system software need not be verified as stated in NWMP procedure NP 19-1, "Software Requirements", section 1.

2.4.3 The data disk is to be stored in a separate location from the DAS computer until the next data run, or when the disk is ready to be submitted to the SNL NWMP Records Center.

2.5 Submittal of Data to Records

2.5.1 A second copy of the data disk shall be copied using the operating system copy command. Ensure that the path statement is kept the same as the DAS path statement, excluding the drive designation. Operating system software need not be verified as stated in NP 19-1, section 1.

2.5.2 Complete NWMP procedure NP 17-1 Forms NP 17-1-1 and NP 17-1-2 and submit two copies of the data disks to the SNL NWMP Records Center.

2.6 Safety

2.6.1 If cable runs must be run in the drift, (such as to the shed) cabling placement must be cleared through WIPP Underground Services.

2.6.2 All activities shall conform to the WIPP Industrial Safety Program (Procedure WP 12-IS.01). These activities shall also conform to ES&H requirements governed by the WIPP Chemical Hygiene Plan (Procedure 12-IH.01) and the WIPP Industrial Hygiene Program (Procedure WP 12-IH.02).

3.0 Records

The following QA records, generated through implementation of this procedure, shall be prepared and submitted to the Sandia NWMP Records Center in accordance with NP 17-1 (Records):

<u>QA Record</u>	<u>Preparer</u>	<u>Records Submitter</u>
• Project Scientific Notebook	PI	PI
• Form NP 17-1-1	System operator	PI
• Form NP 17-1-2	System operator	PI
• Data Disk	System operator	PI

4.0 Appendices

No appendices are required for this SP.