Testing and Logging Program

1. Deviation checks will be taken every 500 ft with a target type drift indicator. This was the frequency used when drilling RB 4 with deviations of 0-1/2 degree on the first 2000 ft growing to a high of 2.75 degrees at 3600 ft.

2. Cuttings will be collected over 30 ft intervals and examined and recorded to at least 1600 ft., the depth of the production casing.

3. Gamma, Neutron, Density and Caliper will be run on the open hole from surface to 1600 ft before setting the 13 3/8" casing

4. A Cement Bond Log will be run from surface to 1600 ft before the 10 ¾ tubing is installed to examine the cement behind the 13 3/8" casing. The procedure for this is attached.

5. A Gamma Log will be run from surface to 3500 ft after the 10 ¾ and 7 inch tubing is installed, but before any injection to serve as a base log for future gamma logs

6. A pressure test will be done on the 13 3/8" casing to 400 psi before the cement plug left from the cementing operation is drilled out This will establish Internal Mechanical Integrity on the well. The procedure is attached. The Cement Bond Log and other cementing records will also be used to establish external mechanical integrity.

7. Future MITs, once a cavern is established will be done by the water interface method

Procedure for Running Initial MIT on Glendale RB 5

The following plan will be used establish Internal Mechanical Integrity on the well after the 13 3/8" casing has been set and cemented into the well. This is the initial MIT Pressure Test and this is the only time this procedure will be used. The Cement Bond Log along with cementing records will be used to establish External Mechanical Integrity

1. Provide notice to EPA Region 9 and ADEQ so that they may witness the testing if desired. This will be done just before drilling out the cement plug in 13 3/8" casing.

2. Pressure up the 13 3/3" casing to 400 psi and lock the well in. After a few moments, begin recording the pressure

3. To pass the test the well must not lose more than 5% of its pressure over a 30 minute time span. According to the following equation, this is equivalent to a less than 1.5 gallons per hour loss.

$L = Kc \times (P1 - P2) \times Cv \times D/T$

Where L = Leak Rate

Kc = coefficient of compressibility (.0000177 for brine)

P1 = initial pressure

P2 = final pressure

Cv = casing capacity (6.39 gallons/ft for 13 3/8)

D = depth wellhead to plug

T = time (in hours)

$L = .00000177 \times (400 - 380) \times 6.39 \times 1600 / 0.25 = 1.45$ gallons/hour

5. Submit a report to the EPA and ADEQ detailing the results.

Cement Bond Log Procedure for Glendale RB 5

1. Wait to make sure the cement has cured to sufficient compressive strength. 60 hours minimum from when the cement job was completed

2. Fill the 13 3/8 " casing to surface with water or brine. It's important to have a fluid of constant specific gravity in the well as transit times are different in different fluids.

3. Make sure the tool is well centralized in the 13 3/8" casing using rigid or bow type centralizers.

4. Complete the log header with casing and cementing data, tool data gate settings and a tool sketch showing centralizers. The log should include the following readouts:
   Amplitude (relative)
   Travel Time (us- time from source to receiver),
   Variable Density (VDL)
   Gamma Ray (API).

5. Calibrate log to poor section. There will be no known sections of free pipe. Show this section on the log

6. Log the well coming up the well at approximately 30 ft per minute. Repeat sections as required.