

Finding the right rocks for storing carbon dioxide deep underground.

**Activity: Using wireline logs to work out exactly where to store the carbon dioxide.**

### **Introduction:**

Scientists work out what is below the surface in a number of ways. One of these, wireline logging, uses new or existing wells. When the well is drilled, bits of rock come out, and while scientists will know that there are layers of sandstone or shale below the surface, it is important to work out exactly where these layers start and finish and how uniform the layers are. Scientists lower instruments into the well, and the instruments make recordings of the properties of the rocks and fluids around the well. The instruments can measure electrical properties, sound properties, levels of radioactivity and other properties. The measurements provide information about the density of the rock, the composition of the formation fluids and the porosity of the rock.



**Activity: Below you will see parts of a wireline log from the CO2CRC Otway Project site. The graph indicates the depth of the rock.**

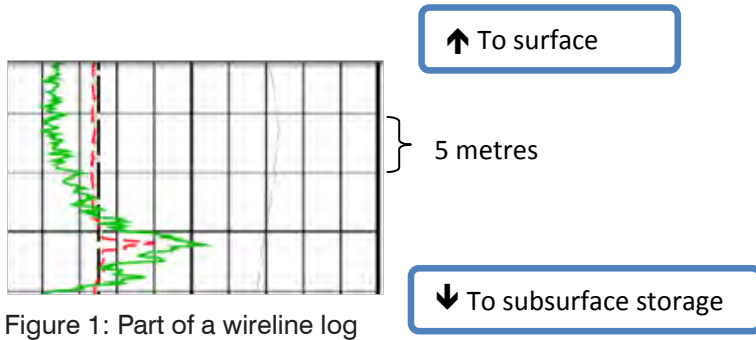


Figure 1: Part of a wireline log

The green trace is the one we will be using for the activity.

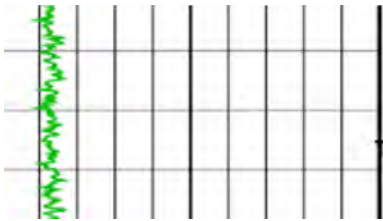


Figure 2: Possible reservoir rock

When the green trace is close to the left side of the log, it may indicate that reservoir rock, sandstone, is present.

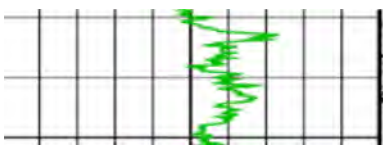
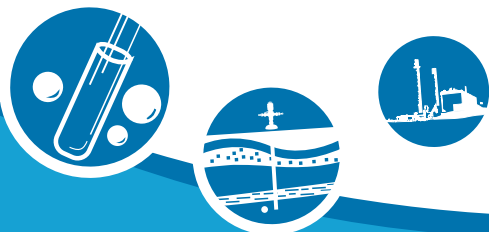


Figure 3: Possible sealing rock

When the green trace is more to the right side of the log, it may indicate that sealing rock, such as shale or mudstone, is present.



## Part A

1. Looking at the three sections of the trace below, label the sections you think may be reservoir rock and which may be sealing rock.

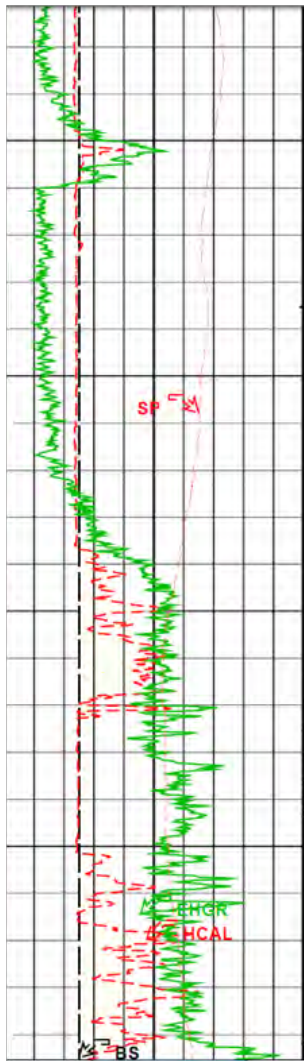


Figure 4: Trace A

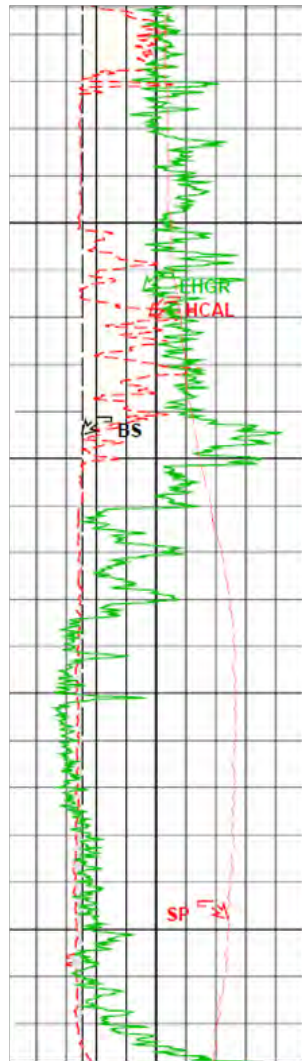


Figure 5: Trace B

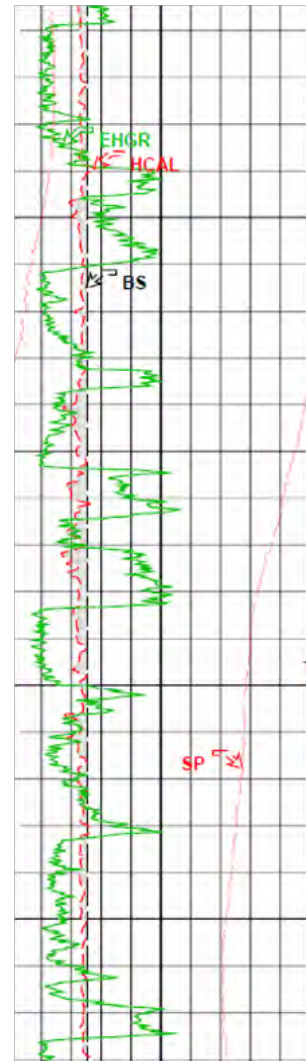


Figure 6: Trace C

2. Which of the traces, A, B and C do you think might indicate good places for storing carbon dioxide?
3. Please give a reason for your answer to 2. above.

## Part B

You have been given four illustrations of possible wireline logs for the CO<sub>2</sub>CRC Otway Project. One has been obtained from the second well (CRC-2).

1. Which do you think is the correct one?
2. Please give reasons why you think each of the other logs may not be correct.

